Groundwater Monitoring Report, 2016 Annual Event

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Sign-off Sheet

This document entitled, *Groundwater Monitoring Report, 2016 Annual Event*, was prepared by Stantec Consulting Services Inc. (Stantec) on behalf of TOC Holdings Co. (TOC) for specific application to TOC Facility No. 01-176 in Mountlake Terrace, Washington. Services conducted by Stantec for this project were conducted in accordance with the Environmental Services Contract between HydroCon Environmental, LLC (HydroCon) and Stantec. Any reliance on this document by a third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and HydroCon. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

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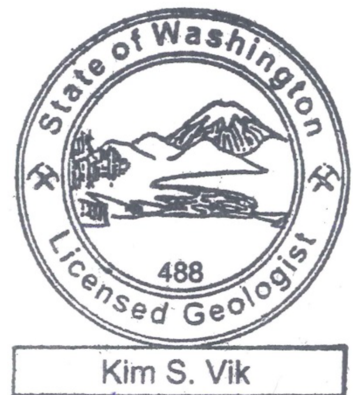

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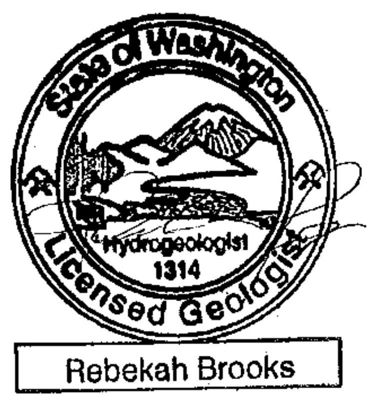

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Acronyms & Abbreviations

µg/L	micrograms per Liter
1Q2016	First Quarter 2016
2Q2015	Second Quarter 2015
3Q2015	Third Quarter 2015
4Q2015	Fourth Quarter 2015
AO	Agreed Order
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CSM	conceptual site model
DPE	dual-phase extraction
DRPH	diesel-range petroleum hydrocarbons
DTP	depth-to-product
DTW	depth-to-water
Ecology	Washington State Department of Ecology
EDB	Ethylene Dibromide 1,2-Dibromoethane
EDC	Ethylene Dichloride 1,2-Dichloroethane
EPA	U.S. Environmental Protection Agency
GRPH	gasoline-range petroleum hydrocarbons
HydroCon	HydroCon Environmental, LLC
ID	identifier
IRAWP	Interim Remedial Action Work Plan
LNAPL	light non-aqueous phase liquid
MDL	method detection limit
MPE	multi-phase extraction
MRL	method reporting limit
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
MW	monitoring well
NWTPH-Gx	Northwest Total Petroleum Hydrocarbon - Gasoline Range Organics
ORPH	oil-range petroleum hydrocarbons
PAH	petroleum aromatic hydrocarbons
QA/QC	quality assurance/quality control
RI	remedial Investigation
ROW	right-of-way
RW	remediation well
SES	SoundEarth Strategies, Inc.
Stantec	Stantec Consulting Services Inc.
TOC	TOC Holdings Co.
UST	underground storage tank

List of Properties – TOC Site

TOC Property	24205 56th Avenue West, Mountlake Terrace, WA
TOC/Farmasonis Property	24225 56th Avenue West, Mountlake Terrace, WA
Drake Property	24309 56th Avenue West, Mountlake Terrace, WA
56th Avenue West ROW	Right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

List of Properties – Adjacent to TOC Site

242nd Street Southwest ROW	Right-of-way adjacent to TOC Property
Herman Property	24311 56th Avenue West, Mountlake Terrace, WA
Shin/Choi Property	24325 56th Avenue West, Mountlake Terrace, WA

Executive Summary

This report documents the field activities and groundwater quality results for the 2016 annual groundwater monitoring event (conducted during the first quarter 2016 [1Q2016]) associated with interim remedial actions at the TOC Holdings Co. (TOC) Facility No. 01-176 located in Mountlake Terrace, Snohomish County, Washington. Field activities were performed by HydroCon Environmental, LLC (HydroCon), and data evaluation was conducted by Stantec Consulting Services Inc. (Stantec), as a subconsultant to HydroCon on behalf of TOC.

Ongoing groundwater monitoring is conducted under Agreed Order (AO) No. DE 8661, entered in October 2011 between TOC and the Washington State Department of Ecology (Ecology 2011). As specified in the AO, the Site encompasses the following four properties (collectively referred to as the "TOC Site") located in Mountlake Terrace, Washington:

- **TOC Property:** 24205 56th Avenue West;
- **TOC/Farmasonis Property**: 24225 56th Avenue West;
- **Drake Property:** 24309 56th Avenue West; and
- **56th Avenue West Right-of-Way (ROW):** adjacent to the three properties identified above.

The groundwater monitoring scope of work defined in the Interim Remedial Action Work Plan (IRAWP) encompasses the four properties identified above as the "TOC Site" as well as the following two adjacent properties:

- **Shin/Choi Property:** 24325 56th Avenue West (two properties south of the TOC Site); and
- **242nd Street Southwest ROW:** adjacent to the TOC Property (directly north of the TOC Site).

Following completion of the IRAWP, several monitoring wells were installed on the following property also adjacent to the TOC Site and have been incorporated into the groundwater monitoring scope of work:

- **Herman Property:** 24311 56th Avenue West (directly south of the TOC Site).

Groundwater monitoring for the 2016 annual event was conducted from February 1 through 19, 2016 which included measuring depth-to-groundwater/depth-to-product (DTW/DTP) levels and collecting groundwater samples from all active wells that do not contain product.

Of the 103 active wells scheduled for groundwater monitoring during the 1Q2016, 17 wells could not be sampled due to insufficient groundwater sample volume (the wells were dry); three wells (Monitoring Wells (MW) 71 and MW72 located on the Shin/Choi Property and MW102 located on the Herman Property) were not sampled due to the presence of light non-aqueous liquid (LNAPL) in the well; and one well (MW15 located on the TOC Property) was not sampled due to the presence of bacteriological growths in the well.

DTW/DTP levels are not measured in 2-inch remediation wells (MW27, MW29, MW31, MW41, MW69, and MW70) because the diameter of the water probe is too large to fit past the pump tubing. In addition, DTW/DTP levels could not be measured in 10 wells while the remediation system was off and 11 wells while the remediation system was on for one of the following reasons:

- Monitoring Wells: insufficient groundwater or the well was inaccessible (vehicle parked on well and/or obstruction due to equipment from construction activities).
- Remediation Wells: the top of the remediation pump was encountered prior to groundwater and access past the pump was not possible.

Laboratory analyses for selected petroleum-related constituents included:

- gasoline-, diesel-range, and motor oil petroleum hydrocarbons (GRPH, DRPH, and ORPH); and

- benzene, toluene, ethylbenzene, and xylenes (BTEX)

Laboratory analyses for selected fuel additives and blending compounds included:

- methyl tert-butyl ether (MTBE);
- ethylene dibromide (EDB; 1,2-dibromoethane);
- ethylene dichloride (EDC; 1,2-dichloroethane);
- total and dissolved lead; and
- polycyclic aromatic hydrocarbons (PAHs).

Data collected during the 2016 annual event confirmed the presence of three interconnected groundwater zones in the heterogeneous, glacial deposits found at the TOC Site. The three groundwater zones include:

- **Shallow Zone:** shallow, perched water-bearing zone encountered at approximately 5 to 20 feet below ground surface (bgs);
- **Intermediate Zone:** an unconfined, intermediate water-bearing zone ranging in depth between approximately 20 and 60 feet bgs; and
- **Deep Zone:** a deep zone that appears to be interconnected with the intermediate zone at depths (based on well screens) greater than 60 feet bgs.

Additionally, 16 wells (one of which was decommissioned) appear to have screen intervals that intersect multiple groundwater zones (either Shallow and Intermediate Zones, or Intermediate and Deep Zones) and may not represent the individual hydrogeological conditions of either zone. For discussion purposes, these monitoring and remediation wells are placed into five categories based on well screen intervals and intersected groundwater zones and include: 1) Shallow Zone; 2) Intermediate Zone; 3) Deep Zone; 4) Shallow-Intermediate Intersect Zones; and 5) Intermediate-Deep Intersect Zone.

During the 2016 Annual event, groundwater concentrations exceeded Model Toxics Control Act (MTCA) Method A cleanup levels, as shown on the table below.

Analyte	Cleanup Level (µg/L)	Sample Location		Groundwater Zone	Analytical Results (µg/L)
		Well ID (1)	Property		Annual 2016
GRPH	**800**	MW71	Shin/Choi	Shallow	LNAPL*
		MW72	Shin/Choi	Shallow	LNAPL*
		MW102	Herman	Shallow	LNAPL*
		MW104	Herman	Shallow	15,000
		MW25	TOC	Intermediate	5,200
		MW32 (4" RW)	TOC	Intermediate	1,200
		MW48	56th Ave ROW	Intermediate	1,800
		MW69 (2" RW)	Drake	Intermediate	3,700
		MW73	Shin/Choi	Intermediate	60,000
		MW74	Shin/Choi	IntermediateShallow-	3,800
		MW28	TOC	Intermediate	1,400
		MW29 (2" RW)	TOC	Shallow-Intermediate	1,900
DRPH	**500**	MW104	Herman	Shallow	4,600J
		MW69 (2" RW)	Drake	Intermediate	1,600JL
		MW73	Shin/Choi	Intermediate	3,600JL
Benzene	**5**	MW71	Shin/Choi	Shallow	LNAPL*
		MW72	Shin/Choi	Shallow	LNAPL*
		MW102	Herman	Shallow	LNAPL*

Executive Summary

Analyte	Cleanup Level (µg/L)	Sample Location		Groundwater Zone	Analytical Results (µg/L)
		Well ID [1]	Property		Annual 2016
		MW73 MW74	Shin/Choi Shin/Choi	Intermediate Intermediate	12,000 1,500
Toluene	**1,000**	MW73	Shin/Choi	Intermediate	1,500
Ethylbenzene	**700**	MW73	Shin/Choi	Intermediate	1,600
MTBE	**20**	MW73 MW74	Shin/Choi Shin/Choi	Intermediate Intermediate	31 540
EDB	**0.01**	MW73	Shin/Choi	Intermediate	0.09
Acenaphthene	**0.1**	MW73	Shin/Choi	Intermediate	0.12
Naphthalene	**160**	MW73	Shin/Choi	Intermediate	320
Total Lead	**15**	MW 29 (2" RW)	TOC	Shallow-Intermediate	37.3

**µg/L = micrograms per Liter*

Groundwater contamination on the TOC, TOC/Farmasonis and Drake properties appears to have originated from historical gasoline releases on the TOC Property. As evidenced by downward vertical gradients and the resulting contaminant distribution, gasoline-related petroleum constituents appear to have migrated vertically downward from the Shallow Zone to the Intermediate Zone below the TOC Property over time, and then migrated laterally downgradient onto the TOC/Farmasonis and Drake Properties to the south with groundwater flow. Minimal residual groundwater contamination remains in the Shallow Zone likely due to remediation activities between 1996 and 2005. Based on an evaluation of trends in the predominant contaminant concentrations (e.g., GRPH, benzene, and to a lesser extent, lead), concentrations of petroleum constituents in the Intermediate Zone appear to have decreased over time and only remain at a few locations on the TOC Property, on the southwestern side of the TOC/Farmasonis Property, and one location on the Drake Property. The reduction in groundwater concentrations can likely be attributed to operation of three remediation systems: Unit 1 is located on the TOC Property and served by remediation wells installed on the TOC Property; both Units 2 and 3 are located within a single compound on the TOC/Farmasonis Property and are served by remediation wells on the TOC/Farmasonis Property (Unit 2) and Drake Property (Unit 3). Comparison of contaminant concentrations with groundwater levels over time indicates that an inverse relationship appears to occur, such that dissolved groundwater concentrations increase with decreasing groundwater levels. These trends imply that residual contamination in the soil is liberated when groundwater levels decrease during seasonal low periods. Vertical upward gradients between the Deep Zone and Intermediate Zone downgradient of the TOC Property appear to be effective in inhibiting further downward migration of contamination and effectively bounding the extent of vertical contamination.

Based on data collected at the downgradient boundary of the TOC Site, historical data from the adjacent properties to the south, and the presence of historical and potentially current underground storage tanks (USTs), groundwater contamination on the Herman and Shin/Choi Properties to the south of the TOC Site is interpreted to have originated from historical petroleum-related activities at those properties.

1.0 INTRODUCTION

This report presents the results of the 2016 annual groundwater monitoring event conducted during the first quarter 2016 for the interim remedial action at the TOC Holdings Co. Facility No. 01-176 located in Mountlake Terrace, Snohomish County, Washington (***Figure 1***). In addition, this report includes discussion of contaminant trends over the past year, including results for the three previous quarterly events (second, third and fourth quarter 2015 quarterly events). Ongoing groundwater monitoring is conducted under Agreed Order No. DE 8661, entered in October 2011 between TOC and the Washington State Department of Ecology (Ecology 2011). The groundwater monitoring scope of work is defined in the *Interim Remedial Action Work Plan* (IRAWP; SES 2011) included as Exhibit C of the AO. Per the requirements of the IRAWP, the groundwater monitoring scope of work includes one annual field event and three quarterly field events per year (described in ***Section 6.0***). Groundwater monitoring is conducted to monitor and evaluate the performance and efficacy of three multi-phase extraction (MPE) remediation systems (described in ***Section 5.0***) and their effect on groundwater quality.

Field activities for the 1Q2016 event were performed by HydroCon and field activities for the second, third and fourth quarter 2015 quarterly events (2Q2015, 3Q2015 and 4Q2015) were performed by Stantec Consulting Services Inc. (Stantec) as a subconsultant to HydroCon with assistance by HydroCon field staff (see below). Data evaluation and reporting for all events were performed by Stantec. The dates of the 2016 annual event and 2015 quarterly groundwater monitoring events are provided in the table below.

Groundwater Monitoring Events Dates

Quarter	Field Event Dates	Field Activities Performed By
2Q2015	June 9 to 18, 2015	Stantec
3Q2015	September 22 to 28, 2015	Stantec
4Q2015	December 9 to15, 2015	Stantec & HydroCon
1Q2016	February 1 through 19, 2016	HydroCon

This report presents a description of groundwater monitoring activities and an evaluation of the field data and analytical results for the 1Q2016 event. Descriptions of the 2015 quarterly events were provided in the *Groundwater Monitoring Report, Second, Third & Fourth Quarters 2015* (Stantec 2016). The remainder of this report includes a description of the TOC Site, adjacent properties and Site background in ***Section 2.0.*** The geologic and hydrogeologic frameworks are described in ***Sections 3.0*** and ***4.0***, respectively. A summary of the remediation systems is provided in ***Section 5.0***. The scope of work for the groundwater monitoring events is described in ***Section 6.0***. Field methodologies for collecting DTW/DTP level measurements and groundwater samples in accordance with the IRAWP (SES 2011) or using approved modifications are described in ***Section 7.0***. Groundwater monitoring results are described in ***Section 8.0***, and a summary of groundwater trends is provided in **Section 9.0**. Future groundwater monitoring tasks are described in ***Section 10.0***.

2.0 SITE DESCRIPTION & BACKGROUND

2.1 Description of TOC Site

As specified in the AO, the boundary of the "TOC Site" encompasses the following properties (***Figure 2***):

- **TOC Property:** 24205 56th Avenue West. The vacant TOC Property consists of vegetated land with the exception of an asphalt area, and graveled and fenced area housing a MPE remediation system (described in ***Section 5.0***).
- **TOC/Farmasonis Property:** 24225 56th Avenue West. The TOC/Farmasonis Property consists of one vacant commercial building (formerly occupied by Romio's restaurant through June 2014), an asphalt parking area, vegetated land, and a graveled and fenced area housing two MPE remediation systems (described in ***Section 5.0***).
- **Drake Property:** 24309 56th Avenue West. The Drake Property consists of one commercial building (currently occupied by Getaway Tavern), and asphalt and gravel parking areas.
- **56th Avenue West Right-of-Way (ROW):** The portion of the 56th Avenue ROW included in the TOC Site is adjacent to the TOC, TOC/Farmasonis and Drake properties.

The TOC Site is bordered by 242nd Street Southwest and commercial properties to the north; by residential properties to the east and west; and by the Herman Property and Mountlake Senior Property to the south where construction began for an assisted living facility in February 2015. The Snohomish County boundary is defined by 244th Street, and the King County boundary is defined by 205th Street. Descriptions of each property included within the TOC Site boundary are provided below.

2.2 Description of Adjacent Properties

In addition to the TOC Site, the scope of work for the quarterly events (described in ***Section 6.0***) also includes the following adjacent properties:

- **242nd Street Southwest ROW:** The portion of the ROW included in the scope of the work is adjacent to the northern boundary of the TOC Site.
- **Herman Property:** 24311 56th Avenue West. The Herman Property consists of one commercial building (occupied by Dave's Auto Service), an asphalt parking area and vegetated land.
- **Shin/Choi Property:** The Shin/Choi Property consists of one building (occupied by the EZ Corner Mart) and an asphalt parking area.

2.3 Site Background

TOC operated a retail gasoline station on the TOC Property between 1968 and 1990. The facility included three USTs, six fuel dispensers, and associated product delivery lines. One 8,000-gallon and two 6,000-gallon USTs and ancillary equipment were removed from the TOC Property in 1991 and petroleum constituents in the form of GRPH, benzene, and total xylenes were observed in soil and groundwater in excess of the applicable MTCA Method A cleanup levels (Ecology 2007). Between 1992 and 2015, Site investigations were conducted to determine the extent of petroleum contamination and 109 monitoring and remediation wells (six of which have been decommissioned) were installed in three groundwater zones (defined as Shallow, Intermediate, and Deep and further described in ***Section 4.0***).

In 1996, a dual-phase extraction (DPE) remediation system was installed at the TOC Property at six remediation wells (MW01, MW02, MW03, MW09, MW10, and MW11) to remediate groundwater impacted by petroleum hydrocarbons and remove LNAPL in the Shallow Zone. The DPE system operated from February 1997 to June 2005, and was later removed following confirmation that the system effectively remediated Shallow Zone groundwater (SES 2013). In 2006, groundwater monitoring results collected by SoundEarth Strategies (SES) confirmed gasoline-related contamination in the Intermediate Zone extended directly downgradient of the TOC Property to the south (TOC/Farmasonis and Drake properties) and west (56th Avenue ROW).

In accordance with the AO (Ecology 2011), a remedial investigation (RI) was initiated at the TOC Site and three MPE remediation systems were installed between November 2011 and August 2012 to remediate residual petroleum-contaminated groundwater, soil vapor and LNAPL (if present) in the Intermediate Zone beneath the TOC Site. As shown on ***Figure 3***, the MPE remediation systems are located within fenced enclosures on the TOC Property and TOC/Farmasonis Property and are served by remediation wells installed on the TOC, TOC/Farmasonis and Drake properties.

Available information regarding historical operations on the TOC/Farmasonis and Drake properties do not indicate the presence of USTs. Historical operations on the downgradient Herman and Shin/Choi properties indicate three USTs were removed from the Shin/Choi Property in 1991, and two USTs were removed from the Herman Property in 2001; however five additional USTs may still exist on the Herman Property. Available information on historical or current USTs and associated equipment located on downgradient properties is shown on ***Figure 3.***

At the time of the 2016 annual field event, 103 active monitoring and remediation wells exist on seven properties: four properties included within the TOC Site boundary, the adjacent 242nd Street ROW, and the Herman and Shin/Choi Properties.

3.0 GEOLOGIC FRAMEWORK

The TOC Site is situated on the glacial upland plateau between Seattle and Everett, Washington, known as the Intercity Plateau. As documented in the *Draft RI Report* (SES 2013), the regional geology consists of Pleistocene-age glacial till locally overlain by pockets of glacial recessional outwash sand (Galster and Laprade 1991).

The recessional outwash sand, which ranges in thickness from approximately 25 to 300 feet, is generally loose to medium dense sand and gravel with little or no fines, and may include ice contact deposits and ablation till. The glacial till, which represents the ground moraine of the Vashon glaciations, ranges from a few feet to over 50 feet thick and consists of dense to very dense gravelly, sandy silt to silty sand with variable amounts of clay, cobbles, and boulders. Groundwater is perched above and within either the outwash or the glacial till layer. Bedrock underlying the area consists of Tertiary sediment rocks (sandstone, shale, or conglomerate) over 900 feet deep beneath the TOC Site; therefore, bedrock is not relevant for the TOC Site characterization.

Based on the results of previous investigations conducted between 1991 and 2015, subsurface soil beneath the TOC Site consists primarily of local anthropogenic fill overlying Vashon-age glacial deposits. Based on regional geologic unit interpretations for the area, the *Draft RI Report* states subsurface soil is interpreted to consist of the following geologic units, from youngest to oldest: artificial (anthropogenic) fill, Vashon glacial outwash deposits, Vashon glacial till and Vashon glacial outwash deposits (SES 2013).

4.0 HYDROGEOLOGIC FRAMEWORK

Three separate groundwater zones were identified at the TOC Site in the *Draft RI Report* (SES 2013). The zones were defined by SES based on lithology, well screen intervals and groundwater level measurements. Stantec evaluated the data as part of updates and revisions to the Conceptual Site Model (CSM), based on comments provided by Ecology to SES on the *Draft RI Report* (Ecology 2014). Stantec will incorporate the results of the revised CSM into the final RI report for submittal to Ecology.

Stantec agrees that three groundwater zones can be identified at the TOC Site; however, these zones do not appear to be separate, but are interconnected, as evidenced by the geology, groundwater elevations and contaminant distribution data. Also, the groundwater zones do not appear to be separated by distinct confining units defined by lower permeability lithology. Stantec's conceptualization of the hydrogeology is currently based on geologic field interpretations (e.g., boring logs) provided by SES and other consultants, but will be supplemented by the revised CSM. Based on evaluation of the available data by Stantec, the following sections describe the three groundwater zones, as well as locations where well screen intervals intersect multiple groundwater zones. For discussion of the groundwater quality results and groundwater trends presented in ***Sections 8.0*** and ***9.0*** (respectively), monitoring and remediation wells are placed into five categories based on groundwater zones and well screen intervals intersecting these zones. The five categories are defined as: 1) Shallow Zone Wells; 2) Intermediate Zone Wells; 3) Deep Zone Wells; 4) Shallow-Intermediate Intersect Zone Wells; and 5) Intermediate-Deep Intersect Zone Well.

4.1 Shallow Water-Bearing Zone (Shallow Zone)

The Shallow Zone is a perched zone in the artificial fill or upper portion of the glacial outwash/till, at depths between approximately 5 to 20 bgs throughout the TOC Site, depending on seasonal fluctuations of the water table. The saturation in these horizons can be seasonally discontinuous, as evidenced by some monitoring wells that are seasonally dry (e.g., MW04 is typically dry during the fourth quarter event), while other Shallow Zone wells monitored during the same season contain water. The primary source of recharge to the Shallow Zone is infiltration of natural precipitation through emplaced fill and native soil in unpaved or landscaped areas. Other potential sources of recharge to the Shallow Zone reportedly included a former topographically closed depression, where surface runoff previously ponded, and a former stormwater infiltration pit (identified on ***Figure 3***), both of which were located in the southeast portion of the TOC Property. According to a 1975 TOC blueprint (Time Oil Co. 1975), the stormwater infiltration pit is located in proximity to MW18 and MW33; measures 10 feet square by 4 feet deep; and was backfilled with coarse gravel. Surface runoff intercepted by a catch basin located near the southeast corner of the paved asphalt area on the TOC Property formerly discharged into the stormwater infiltration pit via a 6-inch-diameter drain pipe, which has been capped.

4.2 Intermediate Water-Bearing Zone (Intermediate Zone)

The Intermediate Zone is an unconfined groundwater zone that is observed at depths between approximately 20 and 60 feet bgs. As described in the *Draft RI Report* (SES 2013), the Intermediate Zone consists predominantly of glacial outwash/till deposits between approximately 20 and 40 feet bgs and discontinuous sand and/or gravel-rich glacial deposits within the lower portion of the glacial till between approximately 40 and 60 feet bgs. As discussed further in ***Section 8.2.2***, groundwater elevations in the Intermediate Zone of the TOC Property appear to be mounded such that the upper boundary of the Intermediate Zone appears closer to the base of the Shallow Zone in the vicinity of the UST excavation fill area and former stormwater infiltration pit (identified on ***Figure 3***). Explanations for the observed groundwater mounding are likely related to recharge within the backfill of the former UST cavity, depression, and the infiltration pit; the presence of low permeability deposits near the downgradient edge of the property; and/or from localized influence of the vacuum for the remediation system located on the TOC Property (identified on ***Figure 3*** and described in ***Section 5.0***). The low permeability deposits in the upper portion of the Intermediate Zone impede the vertical percolation of water into the Deep Zone (see ***Section 4.3***) and decrease the horizontal flux of the groundwater in the immediate vicinity. The prevalence of low permeability deposits correlates with the location of steeper horizontal hydraulic gradients in this area (see ***Section 8.2***). In downgradient areas where the Intermediate Zone consists primarily of higher permeability units (i.e., sands and gravels), the thickness of unsaturated materials and the distance between the Shallow and Intermediate Zones increase. The higher permeability deposits contribute to a flattening of the horizontal hydraulic gradient. The Intermediate Zone appears to receive recharge from natural precipitation via the Shallow Zone. A comparison of groundwater elevations and analytical data confirm that the Intermediate Zone is considered to be the primary contaminant transport pathway at the TOC Site; however, the remediation systems appear to be containing contaminant transport, preventing further downgradient migration of contaminants.

4.3 Deep Water-Bearing Zone (Deep Zone)

The Deep Zone consists of glacial sand and gravel located at depths greater than 60 feet bgs, based on deep well screen intervals. Within the vicinity of the backfilled recharge area on the TOC Property, the groundwater elevation data indicate that downward vertical gradients appear to exist between all three zones. In downgradient areas, the groundwater elevation data suggest that vertical gradients shift from downward (between the Shallow and Intermediate Zones) to neutral or slightly upward (between the Intermediate and Deep Zones). Based on these observations and the presence of fully saturated well screens, these groundwater level conditions could be a reflection of a higher permeability zone at the base of a single groundwater unit that includes both the Intermediate and Deep Zones or could represent semi-confined conditions in a separate, but interconnected groundwater zone; however, the presence of a low permeability confining unit between the two zones is not obvious in the available data. Downgradient of the TOC Property, the presence of upward vertical gradients between the Deep and Intermediate Zones appear to be effective in inhibiting downward migration of contamination and effectively bounding the extent of vertical contamination.

4.4 Well Screen Intervals Intersecting Multiple Water-Bearing Zones

Based on evaluation of available data by Stantec, 16 wells (15 of which are active and one of which was decommissioned) appear to have screen intervals that intersect multiple groundwater zones (either Shallow and Intermediate Zones or Intermediate and Deep Zones), and may not represent the individual hydrogeological conditions of either zone. Because Shallow Zone contamination in the area where these wells are located has been remediated, the potential for cross-contamination between groundwater zones does not currently exist.

5.0 REMEDIATION SYSTEM STATUS

In accordance with the AO (Ecology 2011), three MPE remediation systems (referred to as Units 1, 2, and 3) were installed between November 2011 and August 2012 to remediate residual petroleum-contaminated groundwater, soil vapor and LNAPL (if present) in the Intermediate Zone beneath TOC Site. As shown on ***Figure 3***, the MPE remediation systems are located within fenced enclosures on the TOC Property and TOC/Farmasonis Property and are served by remediation wells installed on the TOC, TOC/Farmasonis and Drake properties.

At the time of the 2016 annual groundwater monitoring event, 21 of the 22 remediation wells connected to the MPE remediation systems were actively operating. The pump in remediation well MW95 (located on the Drake Property) was turned off in April 2015 because of pump malfunction and influence on leakage at the oil-water separator associated with the remediation system on the Drake Property (Unit 3). Groundwater concentrations in this well have been non-detect or less than MTCA cleanup levels since installation in 2012. Although the pump remains off, it was turned on for one day at the time of sampling during the annual field event. The table below identifies the remediation wells connected to each system and their location. As noted next to the well identifier (ID), remediation wells are either 2 or 4 inches in diameter. Operation of all three MPE remediation systems is ongoing.

MPE Remediation System Wells

System Name	System Location	Remediation Well ID		Location of Remediation Wells
Unit 1	TOC Property	• MW11 (4" RW) • MW18 (4" RW) • MW24 (4" RW) • MW27 (2" RW)	• MW29 (2" RW) • MW32 (4" RW) • MW90 (4" RW) • MW91 (4" RW)	TOC Property
Unit 2	TOC/Farmasonis Property	• MW31 (2" RW) • MW41 (2" RW) • MW57 (4" RW)	• MW92 (4" RW) • MW93 (4" RW) • MW94 (4" RW)	TOC/Farmasonis Property
Unit 3	TOC/Farmasonis Property	• MW69 (2" RW) • MW70 (2" RW) • MW95 (4" RW)* • MW96 (4" RW)	• MW97 (4" RW) • MW98 (4" RW) • MW99 (4" RW) • MW101 (4" RW)	Drake Property

**Pump was turned off on April 30, 2015.*

Additional information describing the performance of the MPE remediation systems was provided in the *First Quarter 2016 Remedial Systems Operation and Maintenance Report* submitted to Ecology (HydroCon 2016).

6.0 GROUNDWATER MONITORING SCOPE OF WORK

The original scope of work defined in the IRAWP (SES 2011) included the four properties located within the boundary of the TOC Site (described in ***Section 2.1***), as well as a portion of the 242nd Street Southwest ROW (directly north of the TOC Site; described in ***Section 2.2***). At the time the IRAWP was prepared, 4 monitoring wells had been decommissioned and 85 active monitoring and remediation wells were located on the TOC Site and adjacent properties. After the IRAWP was prepared, 2 additional monitoring wells were decommissioned (for a total of six decommissioned wells) and 20 additional wells were installed at the locations identified in the table below (for a total of 103 active monitoring and remediation wells). The 20 additional wells are referred to as the "post-IRAWP wells" and were incorporated into future groundwater monitoring events.

Post-IRAWP Monitoring & Remediation Wells

Property Name	Well ID			
	Installed Wells			Decommissioned Wells
TOC	• MW90 (4" RW)	• MW91 (4" RW)		• MW21
TOC/Farmasonis	• MW92 (4" RW) • MW93 (4" RW)	• MW94 (4" RW) • MW100		• MW83
Drake	• MW95 (4" RW) • MW96 (4" RW)	• MW97 (4" RW) • MW98 (4" RW)	• MW99 (4" RW) • MW101 (4" RW)	*None*
Herman	• MW102 • MW103 • MW104	• MW105 • MW106 • MW107	• MW108 • MW109	*None*

(1) Remediation wells (identified as "RW") are either 2 or 4 inches in diameter.

The IRAWP does not require annual or quarterly groundwater monitoring for the four active monitoring wells installed on the Shin/Choi Property (directly south of the Herman Property and two properties south of the TOC Site). However, for the purpose of obtaining additional information regarding contaminant distribution at the request of TOC, Stantec added these wells to the scope of work for all groundwater monitoring events. Also, due to construction activities that commenced in 2015 on the Mountlake Senior Property (adjacent to the Herman and Shin/Choi Properties), the monitoring wells located on the east side of the Herman Property (MW106 and MW107) typically have construction cranes stationed over the wellheads during the DTW/DTP level measurement event, but were made accessible at the time of sampling.

Additional details describing the annual and quarterly events are provided in the following sections.

6.1 Annual Event Scope of Work

The original scope of work defined in the IRAWP (SES 2011) for the annual event included:

- Measuring DTW/DTP levels for all active wells; and
- Collecting groundwater samples from 81 active monitoring and remediation wells located on five properties (TOC, TOC/Farmasonis, Drake, 56th Avenue ROW, and 242nd Street ROW).

The original scope of work did not include monitoring of the four wells located on the Shin/Choi Property. In addition to collecting DTW/DTP level measurements and groundwater samples from the wells identified in the IRAWP, the groundwater monitoring scope of work for the annual event was revised by Stantec at the request of TOC to also include the 20 post-IRAWP wells, as well as the 4 wells located on the Shin/Choi Property. Six of the 109 wells installed on the TOC Site and adjacent properties have been decommissioned to date. Therefore, 103 active wells are included in the groundwater monitoring scope of work for the annual event. Groundwater samples are only collected from wells that do not contain product. Since measurable LNAPL is typically observed at MW71 and MW72 (located on the Shin/Choi Property), and MW102 (located on the Herman Property), samples usually are not collected from these locations. The annual event takes place during the first quarter of each year. The results of the 2016 annual event are provided herein.

6.2 Quarterly Event Scope of Work

The original scope of work defined in the IRAWP (SES 2011) for the quarterly events included:

- Collecting DTW/DTP level measurements for all active wells (excluding wells located on the Shin/Choi Property and MW75 located in the 56th Avenue ROW); and
- Collecting groundwater samples from 30 active monitoring and remediation wells installed on the TOC Site.

In addition to collecting DTW/DTP level measurements and groundwater samples from the active wells identified in the IRAWP, the groundwater monitoring scope of work for the quarterly events was revised by Stantec at the request of TOC to also include:

- Measuring DTW/DTP levels from the 20 post-IRAWP wells (described in ***Section 6.0***), as well as the 4 wells located on the Shin/Choi Property; and
- Sampling select post-IRAWP wells and the wells located on the Shin/Choi Property.

Similar to the annual event, groundwater samples are only collected from wells that do not contain product; therefore, wells MW71 and MW72 (located on the Shin/Choi Property), and MW102 (located on the Herman Property) are not sampled when measurable LNAPL is observed. Quarterly events take place during the second, third and fourth quarters of each year. The results of the 2015 quarterly events were presented in the *Groundwater Monitoring Report, Second, Third & Fourth Quarters 2015* (Stantec 2016).

7.0 GROUNDWATER MONITORING FIELD METHODOLOGY

Field procedures used to conduct the groundwater monitoring event are summarized in the following sections. Additional information regarding field and laboratory methodology is included in the *Groundwater Monitoring Plan* provided as ***Appendix A***.

7.1 DTW/DTP Level Measurements

DTW/DTP levels were measured during the groundwater monitoring event while the remediation systems were turned off to obtain information on baseline (i.e., non-pumping) groundwater flow patterns and while the remediation systems were operating to evaluate the influence of active remediation conditions on groundwater flow. System-on measurements were collected at the beginning of the field event and system-off measurements were collected at the end of the field event. System-on measurements are only collected from all active wells during the annual (first quarter) event. Beginning 2Q2015, if system-on measurements are collected during a quarterly field event, only select well locations will be measured in areas where groundwater contamination is still present in the Intermediate Zone (e.g., in the vicinity of MW48).

Prior to collecting system-off measurements, the remediation systems were turned off and groundwater levels were allowed to recharge for at least two days. The DTW/DTP levels were measured after removing the monitoring well caps and allowing groundwater levels to equilibrate with atmospheric pressure. The DTW/DTP levels were measured relative to the top of the well casings to an accuracy of 0.01 feet using an electronic water level meter. Where LNAPL was previously observed or expected to occur, an oil/water interface probe was used to check for the presence of LNAPL and to measure the DTW/DTP level. When more than one water level meter was selected for a field event, a baseline measurement was collected using each instrument at one well location to check for consistency between the instruments. Any differences between measurements were then used to calibrate the instruments and correct the groundwater elevations, if necessary.

DTW/DTP level measurements were collected from active monitoring and remediation wells located on the TOC Site, and adjacent properties (242nd Avenue ROW and the Herman and Shin/Choi properties). Measurements are not collected from 2-inch wells (MW27, MW29, MW31, MW41, MW69 and MW70) because the diameter of water probe is too large to fit past the pump tubing. Since MW75 (located in the 56th Avenue ROW) is subject to the Traffic Control Plan (WSDOT 2014), the DTW level is only measured during the annual event (per the IRAWP [SES 2011]).

DTW/DTP level measurements and resulting groundwater elevations are discussed in ***Sections 8.1*** through ***8.3*** and presented on ***Table 1-1*** for system-off conditions and ***Table 1-2*** for system-on conditions.

7.2 Groundwater Sample Collection

During the annual groundwater monitoring event, 81 active monitoring and remediation wells are scheduled for groundwater sampling (per the IRAWP [SES 2011]). As described in **Section 6.0**, the Shin/Choi and post-IRAWP wells were added to the scope of work for the purpose of obtaining additional information regarding contaminant distribution in the Shallow and Intermediate Zones.

Field sampling methods and procedures used to collect groundwater samples are described in the following sections. Groundwater quality results are discussed in **Section 8.4** and presented on **Tables 2-1 through 5-2**.

7.2.1 Groundwater Sampling Methods & Procedures

Groundwater sampling methods are summarized below. Methods used to collect individual samples are identified on the attached groundwater quality results tables.

- **Pneumatic Pump:** For remediation wells connected to a MPE remediation system, groundwater samples were collected using a dedicated downhole pneumatic pump. The pneumatic pump delivers a pulse of groundwater to the wellhead whenever the groundwater table rises above the pump intake. Groundwater samples were collected from the pneumatic pump directly into laboratory-prepared sample containers using disposable polyethylene tubing.
- **Peristaltic Pump:** This sampling method was selected for monitoring wells installed in the Shallow and/or Shallow-Intermediate Intersect Zone with DTW levels less than 31 feet bgs (due to the inability of the pump to lift the water for sampling from greater depths). Purging and sampling with a peristaltic pump was performed using disposable polyethylene tubing at approximate flow rates of 0.1 liters per minute or less.
- **Submersible Pump:** This sampling method was selected for monitoring wells installed in the Intermediate, Deep, and/or Intermediate-Deep Intersect Zones with DTW levels greater than 31 feet bgs (in which case a peristaltic pump could not be used for sampling). Submersible pumps were used in wells that had insufficient groundwater recharge rates and/or insufficient water column heights. Purging and sampling with a submersible pump was performed using disposable polyethylene tubing at flow rates ranging from 0.1 to 0.5 liters per minute. If the water table was above the top of the screen and, hence, the well screen was saturated, the intake tubing or the submersible pump was placed approximately in the middle of the screen. If, however the groundwater table was below the top of the screen and, hence, the well screen was not fully-saturated, the intake tubing or submersible pump was placed near the middle of the water column.
- **Bailer:** The disposable polyethylene bailer sampling method was the last selected method. Well purging and groundwater sampling with disposable bailers required the removal of at least three well volumes from each monitoring well prior to sampling. Following well purging, samples were collected from the bailer directly into laboratory-prepared sample containers. If fewer than three well volumes were purged when attempting to collect groundwater samples, the wells were allowed to recharge for several hours (or overnight) before samples were collected. The bailer sampling method was only used under the following circumstances:
    - Historical analytical results indicated that elevated turbidity associated with bailing would not be likely to result in detectable concentrations of petroleum hydrocarbons in groundwater samples.
    - Historical water columns are less than five feet and recharge makes sampling with a submersible pump problematic.

Samples collected with a peristaltic pump, submersible pump, or bailers were collected in accordance with low-flow protocols (U.S. Environmental Protection Agency (EPA) 2010). When purging and sampling in accordance with low-flow protocols, field parameters were monitored using a Quanta™ or YSI™ water quality field meter equipped with a flow-through cell (except when sampling groundwater using a bailer). One set of field parameters were collected from the remediation wells sampled with a pneumatic pump. Field parameters monitored and recorded include: temperature, specific conductance, dissolved oxygen, pH, oxidation-reduction potential and turbidity.

Following purging and stabilization of the field parameters, groundwater samples were collected from the pump outlet tubing located upstream of the flow-through cell and placed directly into laboratory-prepared sample containers. Purge water generated during this sampling event was placed in appropriately labeled 55-gallon steel drums and temporarily stored on the TOC Property for transfer to the remediation systems for treatment and permitted discharge to the sanitary sewer.

Each set of sample containers was labeled with a unique sample identification number, placed on ice and stored inside of a cooler, and transported to the analytical laboratory under standard chain-of-custody protocols for laboratory analysis.

7.3 Laboratory Analyses

Groundwater samples were analyzed by Friedman & Bruya, Inc. (located in Seattle, Washington). The types of analyses performed are identified in the table below.

Laboratory Analyses for Groundwater Samples

Analysis Type	Analysis Method	Sample Location / Well ID
GRPH	NWTPH-Gx	*Analyses performed for all groundwater samples collected (as shown on Tables 2-1, 3-1, 4-1 and 5-1).*
ORPH	NWTPH-Dx	*Analyses performed for groundwater samples collected from select locations (as shown on Tables 2-1, 3-1, 4-1 and 5-1).*
DRPH	NWTPH-Dx	
BTEX	EPA Method 8021B or EPA Method 8260C	*Analyses performed for all groundwater samples collected (as shown on Tables 2-1, 3-1, 4-1 and 5-1).*
MTEX	EPA Method 8260C	*Analyses performed for groundwater samples collected from select locations (as shown on Tables 2-2, 3-2, 4-2, and 5-2).*
EDC	EPA Method 8260C	
EDB	EPA Method 8011M	
Lead (Total & Dissolved)	EPA Method 200.8	
Polycyclic Aromatic Hydrocarbons	EPA Method 8270SIM	

**NWTPH-Gx = Northwest Total Petroleum Hydrocarbon – Gasoline Range Organics*

7.4 Quality Assurance/ Quality Control (QA/QC) Sampling Methods

The groundwater monitoring scope of work includes collection and laboratory analyses of groundwater samples for QA/QC purposes. QA/QC samples are collected to review the accuracy and precision of field sampling procedures and data supplied by the laboratory in a data quality review. A summary of the QA/QC samples collected during the field event is provided in the following sections and analytical results are included in the laboratory reports provided as ***Appendix B***. Qualifiers assigned as part of the data quality review are provided on ***Tables 2-1, 2-2*** and ***3-1***.

7.4.1 Field Blanks

In accordance with the *Groundwater Monitoring Plan* (provided as ***Appendix A***), field blanks collected during each groundwater monitoring event include equipment/rinsate blanks and water blanks. Equipment/rinsate blanks were typically collected on each sampling day that a submersible pump was used and consist of clean water (i.e., deionized water) that is poured through non-dedicated sampling equipment (submersible pumps). These samples are used to assess the thoroughness of the equipment decontamination process. Equipment/rinsate blanks were not collected on February 18, 19 and 23, 2016. Water blanks consist of the clean water used to decontaminate the non-dedicated sampling equipment poured directly into sample containers. One water blank was collected per 20 original groundwater samples. The sample IDs for the field blanks collected during each quarterly event are listed in the table below.

Field Blanks Collected During 1Q2016

Sample Type	Sample ID	
Water Blank	▪ Water Blank 01 ▪ WB02 ▪ WB03	▪ WB04 ▪ WB05 ▪ WB06
Equipment/Rinsate Blank	▪ Equip Rinsate 01 ▪ Equip Rinsate 02 ▪ Equip Rinsate 03	▪ Equip Rinsate 04 ▪ Equip Rinsate 05

7.4.2 Blind Field Duplicate Samples

Blind field duplicate samples were collected from the locations identified in the table below. Duplicate samples are typically collected from two or more wells located on the TOC Site and from one well located on the Herman Property. Duplicate sample locations are selected based on locations where concentrations of the constituents analyzed are expected to be elevated. Duplicate samples are collected to evaluate accuracy and precision and determine if sample collection methods are reproducible. These samples were collected by the same method used to collect the primary sample. A summary of blind field duplicate samples collected is provided in the table below and analytical results are presented on ***Tables 2-1*** through ***5-2*** and in the analytical laboratory reports.

Blind Field Duplicates Collected During 2016 Annual Event

Sample Location/Well ID	Property	Sampling Method	Sample ID	Duplicate Sample ID
MW02	TOC	Peristaltic Pump	MW02	MLT-01
MW09	TOC	Peristaltic Pump	MW09	MLT-02
MW20	TOC	Bailer	MW20	MLT-03
MW28	TOC	Peristaltic Pump	MW28	MLT-04
MW65	Drake	Submersible Pump	MW65	MLT-05
MW86	Drake	Submersible Pump	MW86	MLT-06
MW104	Herman	Peristaltic Pump	MW104	MLT-07

8.0 GROUNDWATER MONITORING RESULTS

Groundwater monitoring results for the 2016 annual event are organized by monitoring well networks based on groundwater zone and well screen intervals intersecting groundwater zones (see discussion in ***Section 4.0***). As previously mentioned, the five monitoring well networks include: 1) Shallow Zone Wells, 2) Intermediate Zone Wells, 3) Deep Zone Wells, 4) Shallow-Intermediate Intersect Zone Wells, and 5) Intermediate-Deep Intersect Zone Wells.

8.1 DTW/DTP Level Measurements

DTW/DTP levels were measured during two measurement events as part of the 2016 annual event: 1) when the remediation systems were operating, and 2) when the remediation systems were turned off. These data provide information on baseline groundwater conditions compared with those influenced by groundwater pumping and vacuum from the SVE systems. A summary of information collected during the DTW/DTP level measurement event is provided in the table below. DTW/DTP level measurements collected and resulting groundwater elevations at individual well locations are presented on ***Table 1-1***. Groundwater elevation results are discussed in ***Section 8.2*** and shown on groundwater elevation contour maps ***Figures 4 through 8***.

A summary of DTW level measurement data and a list of wells where measurable LNAPL was observed are provided in the table below. LNAPL thickness results are presented in ***Section 8.3***.

2016 Annual DTW/DTP Level Measurement Events

	System-On Event	System-Off Event
Measurement Date	February 1, 2016	February 19, 2016
Total Dry Wells (1)	8	5
Total Inaccessible Wells (2)	3	1
Shallowest DTW Level Measurement	6.31 feet bgs (MW61, 56th Avenue ROW, Shallow Zone Well)	6.14 feet bgs (MW61, 56th Avenue ROW, Shallow Zone Well)
Deepest DTW Level Measurement	46.95 feet bgs (MW26, TOC Property, Deep Zone Well)	45.53 feet bgs (MW16, 242nd Street ROW, Intermediate-Deep Intersect Zone Well)
Shallow Zone Wells with Measurable LNAPL	▪ MW71 (Shin/Choi) ▪ MW72 (Shin/Choi) ▪ MW102 (Herman)	▪ MW71 (Shin/Choi)* ▪ MW72 (Shin/Choi)* ▪ MW102 (Herman)*

** LNAPL measurements were only conducted during the system-on event, but are also included under the system-off event information because the presence of LNAPL did not likely change.*

(1) Wells did not have sufficient groundwater volume to measure DTW/DTP levels either because the well was dry (monitoring well) or the top of the pump was encountered before groundwater (remediation wells).

(2) Includes wells that were inaccessible due to a vehicle or construction equipment blocking the wellhead during both the system-off DTW/DTP measurement event and the groundwater sampling event.

As described in ***Section 7.1***, DTW/DTP levels are not measured in 2-inch remediation wells (MW27, MW29, MW31, MW41, MW69, and MW70) because the diameter of the water probe is too large to fit past the pump tubing. (Results at these locations are indicated as "NM" on the groundwater elevation contour maps provided as ***Figures 4 through 8***. In addition, DTW/DTP levels could not be measured in several other wells for one of the following reasons:

1) Monitoring Wells: insufficient groundwater (indicated as "dry" on the groundwater elevation contour maps, or wellhead was inaccessible during the field event because construction equipment or cars were parked over the well (indicated as "NM" on the groundwater elevation contour maps).

2) Remediation Wells: the top of the remediation pump was encountered prior to groundwater and access past the pump was not possible (indicated as "dry" on the groundwater elevation contour maps).

8.2 Groundwater Elevations

The DTW/DTP level measurements were used to calculate groundwater elevations based on a monitoring well survey performed by PACE Engineers, Inc. in April and May 2014. The groundwater elevations were then contoured to identify groundwater flow direction and hydraulic gradients. As previously mentioned in ***Sections 7.1*** and ***8.1*** system-on measurements were collected to evaluate the groundwater flow patterns during active remediation (i.e., while the systems were pumping), and system-off measurements were collected to evaluate the groundwater flow patterns during baseline (i.e., non-pumping) conditions. A discussion of observations for the 2016 annual event is provided below for each well network. Results for the 2Q2015, 3Q2015, and 4Q2015 measurement events are provided in the *Groundwater Monitoring Report for Second, Third and Fourth Quarters 2015* (Stantec 2016).

8.2.1 Shallow Zone

Consistent with groundwater elevation data collected during previous events, groundwater flow in the Shallow Zone appears to be predominantly to the south-southeast, as shown on ***Figure 4***. A relatively consistent horizontal hydraulic gradient ranging from approximately 0.03 to 0.06 feet/feet is present across the TOC Site and adjacent properties to the south. Steeper gradients have been observed in the southern portion of the TOC Property during previous events, but gradients were more consistent across the TOC Site during this event. As discussed in ***Section 4.1***, this steepening could be related to increased infiltration in this area through emplaced fill from the UST excavation or from the former topographically closed depression, where surface runoff previously ponded, and the former stormwater infiltration pit.

8.2.2 Intermediate Zone

Groundwater flow in the Intermediate Zone during baseline (system-off/non-pumping) conditions appears to radiate from the TOC Property both to the south-southwest and south-southeast as shown on ***Figure 5***. The flow direction shifts to the south-southeast as the groundwater flows across the TOC/Farmasonis and Drake Properties. Horizontal hydraulic gradients ranging from approximately 0.04 to 0.40 feet/feet occurs across the TOC Site. As discussed in ***Section 4.2,*** steepening in the slope of the horizontal gradient is apparent in the vicinity of the TOC Property, and is thought to be related to mounding of groundwater in this area. This mounding could reflect the combined influences of the following: recharge associated with emplaced fill in the former UST area and the stormwater infiltration pit, and depression and/or the apparent presence of low permeability material restricting groundwater flow in that area. As groundwater moves downgradient and encounters higher permeability layers (e.g., gravels and sands), the horizontal hydraulic gradient flattens significantly. These groundwater flow patterns in the Intermediate Zone are consistent with previous measurement events. Groundwater elevations measured when the remediation systems were turned on are shown on ***Figure 6***. A comparison of system-on and system-off groundwater elevations for both the Shallow and Intermediate Zone wells is provided on ***Figure 7***. As shown, little to no variability in the shallow zone elevations occurs between the two measurement events. However, Intermediate Zone measurements indicate that groundwater levels are approximately 5 to 10 feet lower during systems operation than when the system is shut down, with the most influence seen on the TOC Property.

8.2.3 Deep Zone

Groundwater flow in the Deep Zone appears to be generally to the southeast. The horizontal hydraulic gradient has a relatively flat range from approximately 0.001 to 0.01 feet/feet (likely because the wells are screened in high permeability material). Groundwater elevations for the monitoring wells located in the Deep Zone are shown on ***Figure 8***.

8.2.4 Well Screens Intersecting Multiple Zones

As previously mentioned, the well screens in 16 monitoring and remediation wells appear to intersect conditions of multiple groundwater zones. Since the groundwater level elevations for these wells do not correlate with a single groundwater zone, they appear anomalous when included with groundwater elevations representing a single groundwater zone, and therefore, were not used for groundwater elevation contouring. Data for these wells are shown on the Intermediate Zone contour maps identified in ***Section 8.2.2***. The groundwater elevation data collected from the wells intersecting two groundwater zones are described below.

8.2.4.1 Shallow-Intermediate Intersect Zone Wells

Fifteen monitoring and remediation wells appear to have screened intervals that intersect both Shallow and Intermediate Zone conditions (MW08, MW09, MW18, MW22, MW24, MW27, MW28, MW29, MW37, MW38, MW43, MW82, MW83, MW88 and MW100). Groundwater elevations for these wells are typically lower than Shallow Zone wells, but higher than Intermediate Zone wells due to influence of groundwater conditions from both the Shallow and Intermediate Zones.

8.2.4.2 Intermediate-Deep Intersect Zone Wells

One monitoring well (MW16) appears to have a screened interval that intersects both Intermediate and Deep Zone conditions. The well has been dry during many sampling events, but when measured, the groundwater elevations are typically lower than other Intermediate Zone wells due to influence from the Deep Zone.

8.3 LNAPL Measurements

LNAPL in typically observed in three Shallow Zone monitoring wells (MW71, MW72 and MW102) located on adjacent properties to the south of the TOC Site. For comparison, measurements collected during the three 2015 quarterly field events and the 2016 annual event are provided in the table below. Additional information is provided on ***Tables 1-1*** and ***1-2***. The data indicate that LNAPL thicknesses likely vary seasonally with the greatest thicknesses observed during seasonal wet periods (i.e., February 2016).

Measurable LNAPL in Shallow Zone Wells

Location/Well ID	Property	LNAPL Thickness (feet)			
		2Q2015	3Q2015	4Q2015	1Q2016
MW71	Shin/Choi	1.10	0.92	1.57	2.74
MW72	Shin/Choi	0.24	0.31	1.34	1.54
MW102	Herman	1.16	DRY	DRY	2.28

8.4 Groundwater Quality Results

Analytical results for the 2Q2015 through 1Q2016 events are provided on ***Tables 2-1 through 5-2***. The types of laboratory analyses performed by Friedman & Bruya for the groundwater samples collected are described in ***Section 7.3,*** and analytical reports for each of the quarterly events are provided as ***Appendix B***. As shown on the attached tables, the analytical results indicate several constituents were consistently detected in groundwater samples at concentrations above the MRLs (i.e., detected concentrations) and above MTCA Method A cleanup levels.

A summary of the analytical results exceeding MTCA Method A cleanup levels for each well network are presented in the following sections. A summary of the groundwater trends is provided in ***Section 9.0***.

8.4.1 Shallow Zone

The Shallow Zone well network includes 20 active monitoring wells and one decommissioned well. The scope of work defined in the IRAWP for the annual field event requires groundwater sampling of all Shallow Zone wells excluding MW71 and MW72 located on the Shin/Choi Property. As discussed in ***Section 6.0***, the scope of work was revised to include sampling the Shin/Choi and post-IRAWP wells for the purpose of obtaining additional information regarding contaminant distribution. However, samples are not collected from wells containing product.

The table below identifies sample concentrations in Shallow Zone wells that met or exceeded MTCA Method A cleanup levels for sampling events between 2Q2015 through 1Q2016. ***Tables 2-1*** and ***2-2*** summarize the analytical results for the groundwater samples collected from Shallow Zone wells during the last four sampling events. Concentration distribution maps for GRPH and benzene in the Shallow Zone are provided as ***Figures 9*** and ***10***, respectively. As shown, the only locations where GRPH groundwater concentrations exceed MTCA Method A cleanup levels are on the Herman and Shin/Choi Properties, located south and downgradient of the TOC Site. Because LNAPL thicknesses and groundwater concentrations are significantly greater than what has been observed historically downgradient of the source area on the TOC Site, the source of this contamination is likely associated with the historical and possibly current presence of USTs on these Properties.

2Q2015-1Q2016 Analytical Results for Groundwater Samples Exceeding Cleanup Levels (Shallow Zone Wells)

Analyte	Cleanup Level (µg/L)	Sample Location		Analytical Results (µg/L)			
		Well ID [1]	Property	2Q2015	3Q2015	4Q2015	1Q2016
GRPH	**800**	MW71	Shin/Choi	LNAPL*	LNAPL*	LNAPL*	LNAPL*
		MW72	Shin/Choi	LNAPL*	LNAPL*	LNAPL*	LNAPL*
		MW102	Herman	LNAPL*	Dry/LNAPL**	Dry/LNAPL**	LNAPL*
		MW104	Herman	41,000	Dry	60,000	15,000
ORPH	**500**	MW104	Herman	580	Dry	--	--
		MW106	Herman	--	500	--	--
DRPH	**500**	MW104	Herman	8,000	--	8,400J	4,600J
Benzene	**5**	MW71	Shin/Choi	LNAPL*	LNAPL*	LNAPL*	LNAPL*
		MW72	Shin/Choi	LNAPL*	LNAPL*	LNAPL*	LNAPL*
		MW102	Herman	LNAPL*	Dry/LNAPL	Dry/LNAPL	LNAPL*
		MW104	Herman	11	Dry	81	--
Toluene	**1,000**	MW104	Herman	--	Dry	6,900	--
Ethylbenzene	**700**	MW104	Herman	2,100	Dry	2,100	--
Total Xylenes	**1,000**	MW104	Herman	11,000	Dry	11,000	--
EDB	**0.01**	MW104	Herman	0.1	Dry	0.052	--
Acenaphthene	**0.1**	MW104	Herman	0.16	Dry	--	--
Fluorene	**0.1**	MW104	Herman	0.19	Dry	--	--
		MW106	Herman	0.18	0.13	--	--
Naphthalene	**160**	MW104	Herman	360J	Dry	520	--

Notes:

For locations where a duplicate sample was collected, analytical results represent maximum concentration of the two samples collected.

**Samples were not collected from well location due to presence of measurable LNAPL. Exceedance of MTCA cleanup levels is expected due to the presence of LNAPL.*

***Although the well was dry, the well is included on the table because measurable LNAPL is typically observed at this location.*

-- = Analyte concentration was non-detect, the constituent was not analyzed, or the well was not sampled during the field event (refer to the attached tables for more information).

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned based on data validation protocol.

8.4.2 Intermediate Zone

The Intermediate Zone well network includes 62 active wells (18 of which serve as remediation wells) and four decommissioned wells. As indicated in ***Section 5.0***, the pump in remediation well MW95 has remained off since April 30, 2015, reducing the number of active remediation wells to 17. The scope of work defined in the IRAWP for the annual field event requires groundwater sampling of all Intermediate Zone wells installed at the time the IRAWP was completed with the exception of MW73 and MW74 installed on the Shin/Choi Property. As discussed in ***Section 6.0***, the scope of work was revised to include sampling the Shin/Choi wells and post-IRAWP wells for the purpose of obtaining additional information regarding contaminant distribution.

The table below identifies sample concentrations in Intermediate Zone wells 2016 that met or exceeded MTCA Method A cleanup levels for sampling events between 2Q2015 through 1Q2016. ***Tables 3-1*** and ***3-2*** summarize the analytical results for the groundwater samples collected from Intermediate Zone wells. Concentration distribution maps for benzene and GRPH in groundwater within the Intermediate Zone are provided as ***Figures 11*** and ***12***, respectively. As shown, the only locations where GRPH groundwater concentrations consistently exceed the MTCA Method A cleanup levels on the TOC Site are at MW48, located at near the southwest boundary between the TOC/Farmasonis and Drake Properties and at MW69 located in the south-central portion of the Drake Property. Additional locations where MTCA exceedances were observed during the annual 2016 event were on the TOC Property at MW25 and MW32. These locations were added to the scope for the upcoming quarterly sampling events. Additional impacts from petroleum hydrocarbons in the Intermediate Zone are observed on the Shin/Choi Property in the area adjacent to the Herman Property line and in the area of the historic UST excavation. Based on the current and historical concentration distribution patterns and comparison of contaminant concentrations on the TOC Site with those in the southernmost plume area (located on the Shin/Choi Property), the Intermediate Zone impacts on the TOC Site are interpreted to be separate from those on the Shin/Choi Property.

2Q2015-1Q2016 Analytical Results for Groundwater Samples Exceeding Cleanup Levels (Intermediate Zone Wells)

Analyte	Cleanup Level (µg/L)	Sample Location		Analytical Results (µg/L)			
		Well ID (1)	Property	2Q2015	3Q2015	4Q2015	1Q2016
GRPH	**800**	MW25	TOC	--	--	--	5,200
		MW32 (4" RW)	TOC	--	--	Dry	1,200
		MW48	56th Ave ROW	2,200	5,400	11,000	1,800
		MW69 (2" RW)	Drake	3,100	4,100	2,700	3,700
		MW73	Shin/Choi	83,000	68,000	55,000	60,000
		MW74	Shin/Choi	60,000	Dry	Dry	3,800
DRPH	**500**	MW69 (2" RW)	Drake	--	510	530	1,600JL
		MW73	Shin/Choi	2,800	3,500	2,300	3,600JL
		MW74	Shin/Choi	4,500	Dry	Dry	--
		MW101 (4" RW)	Drake	--	--	610	--
		MW108	Herman	--	740	--	--
Benzene	**5**	MW48	56th Ave ROW	--	5.9	32	--
		MW55	56th Ave ROW	7.6	--	--	--
		MW73	Shin/Choi	17,000	12,000	11,000	12,000
		MW74	Shin/Choi	13,000	Dry	Dry	1,500
Toluene	**1,000**	MW73	Shin/Choi	4,400	1,500	--	1,500
		MW74	Shin/Choi	8,300	Dry	Dry	--

Analyte	Cleanup Level (µg/L)	Sample Location		Analytical Results (µg/L)			
		Well ID [(1)]	Property	2Q2015	3Q2015	4Q2015	1Q2016
Ethylbenzene	**700**	MW73	Shin/Choi	2,400	1,700	1,500	1,600
		MW74	Shin/Choi	850	Dry	Dry	--
Total Xylenes	**1,000**	MW73	Shin/Choi	12,000	8,300	6,100	--
		MW74	Shin/Choi	4,000	Dry	Dry	--
MTBE	**20**	MW73	Shin/Choi	--	21	150	31
		MW74	Shin/Choi	1,300	Dry	Dry	540
		MW103	Herman	380	--	--	--
EDB	**0.01**	MW73	Shin/Choi	1.3	0.1	0.11	0.09
		MW74	Shin/Choi	0.3	--	--	--
Total Lead	**15**	MW32 (4"RW)	TOC	32.8	120	Dry	--
		MW48	56th Ave ROW	--	16.8	25.6	--
		MW103	Herman	17.9	--	--	--
Acenaphthene	**0.1**	MW73	Shin/Choi	0.12	0.16	0.12	0.12
Naphthalene	**160**	MW73	Shin/Choi	280	320	320	320

***Notes**:*

For locations where a duplicate sample was collected, analytical results represent maximum concentration of the two samples collected.

[(1)] Remediation wells are identified as "RW" and are either 2 or 4 inches in diameter.

-- = Analyte concentration was non-detect, the constituent was not analyzed, or the well was not sampled during the field event (refer to the attached tables for more information).

JL = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned by the laboratory based on their quality control protocol.

8.4.3 Deep Zone

The Deep Zone monitoring well network includes six active monitoring wells. The scope of work defined in the IRAWP includes collecting groundwater samples from all active wells in this zone during the annual (first quarter) event only. As shown on ***Tables 4-1*** and ***4-2***, the analytical results of the samples collected from the Deep Zone did not exceed MTCA Method A cleanup levels during the 2016 event (as was the case during all sampling events since 2007) indicating that groundwater contamination associated with the TOC Site has not migrated into the Deep Zone.

8.4.4 Well Screens Intersecting Multiple Zones

As described in ***Section 4.4***, 15 active wells (four of which serve as remediation wells) and one decommissioned well appear to have wells screens that intersect conditions of multiple groundwater zones. The groundwater quality results for monitoring wells in these zones are discussed in the following sections.

8.4.4.1 Shallow-Intermediate Intersect Zone Wells

The Shallow-Intermediate Intersect Zone well network includes 14 active wells (four of which serve as remediation wells) and one decommissioned well. The scope of work defined in the IRAWP requires groundwater sampling of all active wells in this zone during the annual field event.

The table below identifies sample concentrations that meet or exceed MTCA Method A cleanup levels. ***Tables 5-1*** and ***5-2*** summarize the analytical results for the groundwater samples collected from Shallow-Intermediate Intersect Zone wells. GRPH and benzene concentrations for wells screened across multiple zones are included on the Intermediate Water-Bearing Zone ***Figures 11*** and ***12***.

2Q2015-1Q2016 Analytical Results for Groundwater Samples Exceeding Cleanup Levels (Shallow-Intermediate Intersect Zone Wells)

Analyte	Cleanup Level (µg/L)	Sample Location		Analytical Results (µg/L)			
		Well ID [(1)]	Property	2Q2015	3Q2015	4Q2015	1Q2016
GRPH	**800**	MW27 (2" RW)	TOC	--	910	Dry	--
		MW28	TOC	--	--	--	1,400
		MW29 (2" RW)	TOC	--	--	--	1,900
Total Lead	**15**	MW 29 (2" RW)	TOC	--	--	--	37.3

***Notes**:*

For locations where a duplicate sample was collected, analytical results represent maximum concentration of the two samples collected.

[(1)] Remediation wells are identified as "RW" and are either 2 or 4 inches in diameter.

**Samples were not collected from well location due to presence of product (LNAPL). Exceedance of MTCA cleanup levels is expected due to the presence of LNAPL.*

-- = Analyte concentration was non-detect, the constituent was not analyzed, or the well was not sampled during the field event (refer to the attached tables for more information).

8.4.4.2 Intermediate-Deep Intersect Zone Wells

The Intermediate-Deep Intersect Zone intersect includes one active monitoring well (MW16 located within the 242nd Street ROW). The scope of work defined in the IRAWP requires groundwater sampling of MW16 during the annual (first quarter) field event only. As shown on ***Tables 5-1*** and ***5-2***, MW16 was dry during 1Q2016 and, therefore, could not be sampled.

8.5 QA/QC & Data Quality Results

As described in ***Section 6.0***, the groundwater monitoring scope of work includes collection and laboratory analyses of groundwater samples for QA/QC purposes. Stantec performed a QA/QC (data validation) review of the analytical results, which included a review of accuracy and precision of data results for the field QA/QC samples for the QA/QC data supplied by the laboratory per EPA guidelines. The data validation resulted in assignment of qualifiers to several sample results, as shown on ***Tables 2-1, 2-2*** and ***3-1***. Analytical results are reported between the method detection limits (MDLs) and the method reporting limits (MRLs) for all data packages. Results are typically reported as "not detected" when below the MRLs. In cases where the MRLs were not below MTCA Method A cleanup levels for groundwater, the results are reported between the MDL and MRL and are considered estimates that are used for informational purposes only. Analytical results for field duplicates and data validation qualifiers are provided on the attached groundwater quality results tables. Analytical results for all other QA/QC samples, including water blanks and equipment/rinsate blanks are provided in the laboratory reports provided as ***Appendix B***.

9.0 GROUNDWATER TRENDS

The following sections present a summary of historical and current groundwater elevation and contaminant distribution trends at selected monitoring and remediation wells installed in the Shallow and Intermediate Zones. MTCA Method A cleanup levels have not been exceeded in Deep Zone wells since 2007, so a discussion of those results are not included within this section. Data collected over the last year (2Q2015 through 1Q2016) are provided in ***Tables 1-1 through 5-2***. Data collected prior to this period are included in previous annual groundwater monitoring reports submitted to Ecology.

Based on contaminant presence and distribution and exceedance of MTCA Method A Cleanup Levels, the primary contaminants of concern include GRPH and benzene for purposes of this discussion. Concentrations of total and dissolved lead were also evaluated for select wells where data were available.

The sections below describe groundwater elevation trends and GRPH, benzene, and lead concentration trends over time in the Shallow and Intermediate groundwater zones. Wells that intersect multiple groundwater zones are included in the discussion of Intermediate Zone trends. Groundwater level and contaminant distribution trends will continue to be evaluated and discussed as part of future annual monitoring events.

9.1 Groundwater Elevation Trends

Groundwater elevation trends were evaluated by generating time versus groundwater elevation plots using available data from historical and recent monitoring events (June 1992 through February 2016). More frequent data are available between 2012 and 2016 after the Intermediate Zone remediation systems were installed at the TOC Site. As shown on ***Figures 13*** and ***14***, groundwater elevations vary seasonally with high seasonal levels typically observed in winter (February-March) and low seasonal levels observed in late fall (November-December). An exception during this period was in 2014 when the high seasonal levels were observed in June 2014. Seasonal trends are similar between the three zones indicating interconnection between the zones across the TOC Site.

Figure 13 also illustrates groundwater elevation differences in the three groundwater zones on the TOC & TOC/Farmasonis Properties. In this area where horizontal hydraulic gradients in each of the zones are greater, groundwater elevations can vary seasonally to more than 10 feet in the Shallow Zone, 15 feet in the Intermediate Zone, but typically only show 5 feet or less in the Deep Zone. As shown on ***Figure 14***, downgradient groundwater elevations on the Drake Property are in an area where horizontal hydraulic gradients are much flatter. Compared to the TOC Properties to the north, in this area, seasonal groundwater elevation variability is slightly less in the Shallow Zone (less than 10 feet), is about the same in the Deep Zone, but is much less in the Intermediate Zone (less than 5 feet). The reduction in variability in the Intermediate Zone wells may reflect the greater depth between the Shallow and Intermediate Zone wells in this area and the less influence by surficial recharge.

The interconnection between the three groundwater zones is illustrated by the groundwater elevations and downward vertical gradients between the Shallow and Intermediate Zones and between the Intermediate and Deep Zones in upgradient areas at the TOC Property, as shown on ***Figure 13***. In this area, horizontal hydraulic gradients are steeper and are thought to be influenced by artificial recharge, as described further in ***Section 8.2***. As shown on ***Figure 14***, in downgradient areas on the Drake Property where horizontal hydraulic gradients flatten, vertical gradients between the Shallow and the Intermediate and Deep Zones are still downward; however, the vertical gradients between the Intermediate and Deep Zones are slightly upward. The slightly upward gradient between the Intermediate and Deep Zones appears to be effective in inhibiting downward vertical flow of groundwater and migration of contamination in downgradient areas and effectively bounding the extent of vertical contamination.

9.2 Shallow Zone Contaminant Distribution

Contaminant trends in the Shallow Zone were evaluated by generating time versus groundwater elevation, and time versus concentration plots for GRPH and benzene for the period covered by the previous quarterly or other sampling events (February 1992 through February 2016 data, as available). Also, any changes in contamination distribution over the past year were evaluated by comparing the GRPH plume in the Shallow Zone for the 1Q2015 event (Stantec 2015) with the plume for the 1Q2016 event. For the concentration trend plots, MW02, MW04 and MW12 (located on the TOC Property, 56th Avenue West ROW and TOC/Farmasonis Property, respectively) were selected for evaluation because they represent Shallow Zone monitoring locations within or downgradient of the source area for the TOC Site or where the majority of Shallow Zone contamination has been observed historically (at MW02). Note that groundwater concentrations in most of the Shallow Zone wells have been non-detect since late 2005 (or earlier). This is likely resulting from the operation of the former DPE system (described in ***Section 2.3***) that operated between 1996 and 2005. Below is a list of figures generated for the contamination trend evaluation in the Shallow Zone.

- **Figure 15:** Benzene concentrations versus time for MW02, MW04 and MW12.
- **Figure 16:** GRPH concentrations versus time for MW02, MW04 and MW12.
- **Figure 17:** Groundwater elevations and GRPH concentrations versus time for MW02.

9.2.1 Benzene

As shown on ***Figure 15***, benzene concentrations in the selected shallow zone wells (MW02, MW04 and MW12) show variable concentration trends over time, but concentrations have been primarily non-detect for more than a decade. A summary of benzene concentration trends at MW02, MW04 and MW12 is provided below.

- **MW02 (TOC Property):** MW02 is located approximately 50 feet downgradient (to the south) of the former UST complex/excavation area on the TOC Property. The concentration of benzene in MW02 peaked at 4,600 µg/L in January 1994, but decreased over time to non-detect by September 2002, and has remained non-detect since then.
- **MW04 (56th Avenue West ROW):** MW04 is located in the 56th Avenue West ROW, just to the west of the former UST complex/excavation area on the TOC Property. The benzene concentration in MW04 was at a maximum of 470 µg/L in July 1992, but dropped significantly between July 1992 and September 1996 to a concentration of 77 µg/L. Benzene concentrations dropped to non-detect by March 2003 and have remained non-detect since then.
- **MW12 (TOC/Farmasonis Property):** MW12 is located approximately 120 feet downgradient from the former UST complex/excavation area on the TOC Property. Benzene concentrations in MW12 have been non-detect since the first sampling event at that well in October 2001 through the most recent groundwater sampling event in February 2016. MW12 is located on the TOC/Farmasonis Property, downgradient (to the south) of the former UST complex on the TOC Property.

Benzene is consistently non-detect in groundwater samples collected from wells immediately downgradient of MW02 and MW04 and in wells on the TOC/Farmasonis and Drake Properties, indicating that Shallow Zone contamination did not extend very far downgradient from the TOC Property boundary.

9.2.2 Gasoline-Range Petroleum Hydrocarbons

As shown on ***Figure 16***, GRPH concentrations in MW02, MW04 and MW12 follow the same general trend as the benzene concentrations shown on ***Figure 15***. A summary of GRPH concentration trends at MW02, MW04 and MW12 is provided below.

- **MW02 (TOC Property):** GRPH concentrations in MW02 reached a maximum of 50,000 µg/L in January 1994 followed by a steady decrease to 1,400 µg/L in March 2005. The GRPH concentrations dropped to non-detect during the following sampling event in December 2005, and have remained non-detect through the February 2016 event. ***Figure 17*** shows groundwater elevations and GRPH concentrations in MW02 over time. There appeared to be a slight inverse correlation between GRPH concentrations and groundwater elevations prior to March 2001; however, correlations are not evident since GRPH concentrations became non-detect in February 2006.
- **MW04 (56th Avenue West ROW):** GRPH concentrations in MW04 have decreased from a maximum of 100,000 µg/L in July 1992, then fluctuating between 1,000 µg/L and 38,100 µg/L between September 1996 to October 2003, and since March 2005 through the February 2016 event, have been non-detect.
- **MW12 (TOC/Farmasonis Property):** GRPH in MW12 has not been detected since the first sampling event in October 2001 through the most recent sampling event in February 2016.

The distribution of GRPH concentrations in the Shallow Zone has likely not changed significantly over this past year. The presence of LNAPL or significantly elevated concentrations of GRPH in wells on the Shin/Choi Property during sampling events during 2008-2010, and then again in March 2015 and February 2016 indicate that contamination has been historically present and is still present in these areas. As stated earlier, based on historical distribution of contaminants in the Shallow Zone that indicate that shallow contamination did not extend as far south as the Drake Property, the Shallow Zone contamination that is observed on the Herman and Shin/Choi properties appears to be associated with the current or former presence of USTs at those properties.

9.2.3 Other Constituents

Total and dissolved lead concentrations have been detected in Shallow Zone wells since 2005; however, there are not enough historical data to analyze trends. As summarized below, only two Shallow Zone wells (MW34 and MW102), and one Shallow-Intermediate Intersect Zone well (MW100) have historical concentrations of total lead exceeding the MTCA Method A Cleanup Level of 15 µg/L.

- **MW34 (TOC Property):** The concentration of total lead in MW34 decreased from 23.7 µg/L in January 2006 to 2.45 µg/L in March 2014. Dissolved lead has not been detected in MW34 above the MRL. Since lead concentrations in groundwater samples collected from this location were consistently below cleanup levels, samples collected from MW34 are no longer analyzed for total or dissolved lead.
- **MW100 (TOC/Farmasonis Property):** The concentration of total lead in MW100 decreased from 23.7 µg/L in March 2012 to non-detect in February 2013. Dissolved lead decreased from 1.15 µg/L to non-detect in February 2013. Lead concentrations have remained non-detect in MW100 through February 2016.
- **MW102 (Herman Property):** The concentration of total lead was 15.6 µg/L and the concentration of dissolved lead was 16.7 µg/L in MW102 in July 2013. Due to the presence of LNAPL in the well, MW102 has not been sampled since the 2014 annual event.

9.3 Intermediate Zone Contaminant Trends

Contaminant trends in the Intermediate Zone were evaluated by generating time versus groundwater elevation and time versus concentration plots for benzene and GRPH for the period covered by the quarterly sampling events (September 2005, or first available, through the February 2016 sampling event). Also, any changes in contamination distribution over the past year were evaluated by comparing the GRPH plume in the Intermediate Zone for the 1Q2015 event (Stantec 2015) with the plume for the 1Q2016 event. For the concentration trend plots, the selected wells include monitoring and remediation wells installed on the TOC Property (MW09, MW11, MW18, MW25, MW32 and MW91), the TOC/Farmasonis Property (MW31 and MW57), the 56th Avenue West ROW (MW45, MW48, MW49, and MW63), and the Drake Property (MW69, MW86, MW95, MW96 and MW98). These wells were chosen because they are representative of groundwater concentrations distributed across the TOC Site. Below is a list of figures used for the contamination trend evaluation in the Intermediate Zone.

- **Figure 18:** Benzene concentrations versus time for selected wells (MW09, MW11, MW18, MW25, MW31, MW32, MW45, MW48, MW49, MW57, MW69, and MW86).
- **Figure 19:** Benzene concentrations and groundwater elevations versus time for MW48 and benzene concentrations versus time for selected wells in the vicinity of MW48 (MW57, MW63, MW95, MW96 and MW98).
- **Figure 20:** GRPH concentrations versus time for the same selected wells shown on ***Figure 18***.
- **Figure 21:** GRPH concentrations and groundwater elevations versus time for the same selected wells shown on ***Figure 19***.
- **Figure 22:** Comparison of GRPH plumes in the Intermediate Zone for the March 2015 event and February 2016 event.
- **Figure 23:** Total lead concentrations and groundwater elevations versus time for MW31, MW32 and MW91.

9.3.1 Benzene

As shown on ***Figure 18***, the benzene concentrations in the selected Intermediate Zone wells listed above show variable concentrations over time, with the overall trend showing a decrease in concentrations over time. Benzene concentrations were highest prior to February 2008, and have shown a gradual decrease through February 2016.

Benzene concentrations at MW48 (located in the 56th Avenue West ROW) have been variable over the course of the historical sampling period and have fluctuated between a high of 300 μg/L in September 2012 to non-detect in June 2012 and June 2013. The most recent sampling event in February 2016 showed a non-detect benzene concentration in MW48, which is significantly lower than the March 2015 concentration of 120 μg/L detected the previous year.

Figure 19 shows benzene concentration trends for MW48 and nearby wells. Benzene concentrations in MW48 fluctuate from above MTCA Method A Cleanup Levels (typically in the seasonally wetter months of December and March) to non-detect (typically in the drier months of June and September). The benzene concentration in MW48 was non-detect during this 2016 annual event (February 2016), which is the first time concentrations were below the MTCA Method A Cleanup Level during the first quarter. Benzene concentrations and groundwater elevation trends observed in MW48 fluctuated inversely until July 2014, after which time a more direct relationship appears to occur. A slight increase in benzene concentration was observed in MW57 in March 2013 (from non-detect in March 2014 to 2.2 μg/L in December 2014; however, concentrations have decreased since August 2007 to non-detect in March and June 2015 (the well has been dry since the June 2015 field event). Benzene concentrations at the other wells located near MW48 have been predominantly non-detect since the wells were installed in 2012.

With the exception of MW48, the concentrations of benzene in groundwater at the TOC Site show a general overall decreasing trend in the Intermediate Zone, likely due to operation of the MPE remediation systems since 2012.

9.3.2 Gasoline-Range Petroleum Hydrocarbons

Figure 20 shows GRPH concentrations in the selected Intermediate Zone wells (MW09, MW11, MW18, MW25, MW31, MW32, MW45, MW48, MW49, MW57, MW69 and MW86) follow a similar overall decreasing trend as the benzene concentrations. The highest GRPH concentrations generally occurred prior to February 2008 and have steadily decreased over time. Exceptions to this trend occur at the four wells discussed below.

- **MW32 (TOC Property):** MW32 is located approximately 35 feet south of the former UST complex/excavation area on the TOC Property. GRPH concentrations were consistently decreasing in MW32 from 40,000 µg/L in December 2005 to 2.2 µg/L in March 2012, then switched to an increasing trend through December 2012 where the concentrations increased to a maximum of 33,000 µg/L. Since December 2012, GRPH concentrations have steadily decreased to non-detect in December 2014. Since then, GRPH concentrations have fluctuated between non-detect in December 2014 to 1,200 µg/L in February 2016.
- **MW45 (56th Avenue West ROW):** MW45 is located in the 56th Avenue West ROW to the west of the vacant building on the TOC/Farmasonis Property. GRPH concentrations in MW45 have shown a consistent decreasing trend from 57,000µg/L in August 2006 to 4,700 µg/L in September 2012; however, GRPH increased to 19,000 µg/L in the next sampling event in February 2013. The following sampling event in June 2013 showed a decrease in GRPH concentrations to 8,300 µg/L. MW45 has not been sampled since June 2013 due to insufficient groundwater volume for sample collection.
- **MW48 (56th Avenue West ROW):** MW45 is located in the 56th Avenue West ROW near the southwest corner of the TOC/Farmasonis Property. GRPH concentrations in MW48 seemed to follow a similar trend as the benzene concentrations and appear to be somewhat correlated to seasonal fluctuations. The GRPH concentrations have fluctuated between a high of 37,000 µg/L in March 2012 and a low of 1,800 µg/L in February 2016; however, the overall trend since March 2012 has been that GRPH concentrations are steadily decreasing in MW48.
- **MW69 (Drake Property):** MW69 is located just west of the Getaway Tavern on the Drake Property. GRPH concentrations decreased from a high of 19,000 µg/L in February 2009 to 200 µg/L in December 2012. GRPH concentrations increased again in February 2013 to 7,600 µg/L, and have decreased since that time varying between 2,700 µg/L in March 2015 to 4,100 µg/L in September 2015. GRPH in MW69 decreased to 3,700 µg/L in February 2016.

As shown on ***Figure 21***, GRPH concentration and groundwater elevation trends observed in MW48 fluctuated inversely until July 2014, after which time a more direct relationship appears between the GRPH concentration and the groundwater elevation. Similar to what is observed with benzene, there does not appear to be a direct correlation between the GRPH trends in MW48 and those observed in the nearby wells (MW57, MW63, MW95, MW96 and MW98). The only other well where GRPH concentrations have been elevated in this area historically above cleanup levels was MW57, where GRPH values have steadily decreased from 18,000 µg/L in August 2007 to 3,100 µg/L in February 2013. Although MW57 showed a slight increase in GRPH concentrations from 3,100 µg/L in February 2013 to 4,700 µg/L in December 2014, GRPH concentrations decreased to 280 µg/L in June 2015. Similar to benzene, GRPH concentrations at the other wells located near MW48 have been mostly non-detect since the wells were installed in 2012.

In general, the concentrations of GRPH in groundwater in the Intermediate Zone show an overall decreasing trend over time. Concentrations over the last year are relatively consistent, but show increases at some locations and decreases at others. A comparison of GRPH plumes in the Intermediate Zone for the 1Q2015 event and 1Q2016 event is provided as ***Figure 22***. As shown, the distribution of GRPH concentrations in the Intermediate Zone indicate that areas with concentrations exceeding the MTCA Method A cleanup levels are focused in three areas on the TOC Site: 1) on the TOC Property near the former UST complex/excavation area, 2) at MW48, located at the southwest corner of the TOC/Farmasonis Property, and 3) at MW69 on the Drake Property. Another plume area has been identified on the Shin/Choi Property based on historical concentrations observed in these wells between 2008 and 2010 and recent data in 2015 and 2016. Similar to the Shallow Zone data in this area (discussed in ***Sections 8.4.1*** and ***9.2***), this plume was not identified in 2014 because samples were not collected from the Shin/Choi Property wells per IRAWP requirements. Increases in GRPH concentrations on the TOC Property over the past year may reflect higher seasonal groundwater levels during the February 2016 event and release of residual contamination from shallower soils.

9.3.3 Other Constituents

Total and dissolved lead concentrations have been detected in Intermediate Zone wells since 2005, with concentrations during some events exceeding the MTCA Method A cleanup level of 15 µg/L. ***Figure 23*** shows total lead concentrations in groundwater in MW31 (located on the TOC Property) and MW32 and MW91 (both located on the TOC/Farmasonis Property). These wells were selected because they were the only wells located in the Intermediation Zone with enough available data to assess trends; however, data are still limited. As summarized below, these wells show fluctuating concentrations of total lead.

- **MW31 (TOC/Farmasonis Property):** MW31 shows total lead concentrations fluctuating between a high of 44.4 µg/L in February 2008 and a low of 3.51 µg/L in May 2006. More recently, the total lead concentration decreased from 26.5 µg/L in May 2012 to 11.4 µg/L in June 2014. Since February 2008, total lead concentrations appear to be on a decreasing trend. MW31 has been dry since it was last sampled in June 2014 and, therefore, has not been sampled due to insufficient groundwater volume.
- **MW32 (TOC Property):** Total lead in groundwater for MW32 shows an overall increasing trend from 17.5 µg/L in December 2005 to a high of 120 µg/L in September 2015. However, the total lead result for the sampling event in February 2016 dropped to 6.01 µg/L, well below the MTCA Method A cleanup level.
- **MW91 (TOC Property):** MW91 shows total lead concentrations decreasing from 6.3 µg/L in March 2015 to non-detect in February 2016.

Historically, total lead concentrations detected in the Intermediate Zone ranged from 1.07 µg/L in MW09 (December 2005) to 193 µg/L in MW36 (June 2006). Wells that historically contained groundwater with total lead concentrations exceeding the MTCA Method A cleanup level include MW29, MW31, MW32, MW35, MW36, MW41, MW45, MW48, MW60, MW75, MW91 and MW101. With the exception of MW32, total lead concentrations in groundwater in the Intermediate Zone appear to be decreasing.

9.4 Deep Zone Contaminant Trends

Petroleum hydrocarbons, VOCs and lead were not detected at or above MTCA Method A cleanup levels in the six monitoring wells installed in the Deep Zone; therefore, a discussion regarding groundwater trends for this Zone is not provided.

9.5 LNAPL Trends

Since 1995, LNAPL has been historically reported in several Shallow and Intermediate Zone wells, including MW03, MW71, MW72, MW102 (Shallow Zone); MW18, MW27, MW28. MW29 (Shallow-Intermediate Intersect Zone); and MW09, MW10, MW11, MW15, MW20, MW32, MW33, MW48, MW90, MW91 (Intermediate Zone). As discussed in ***Section 8.3***, measurable LNAPL was only encountered in three Shallow Zone wells (MW71 and MW72 located on the Shin/Choi Property and MW102 located on the Herman Property) during the 2016 annual event. LNAPL trends for these wells and other select wells located on the TOC Site (MW29 and MW48) are summarized below. These wells were selected for trend analyses due to the availability of historical data and the historical presence of LNAPL at these locations. LNAPL trends at the locations below are shown on ***Figure 24***, and represent system-off conditions.

- **MW29 (TOC Property):** Shallow-Intermediate Intersect Zone well MW29 contained LNAPL between December 2005 and February 2007. LNAPL has not been encountered in MW29 since May 2007**.**
- **MW71 (Shin/Choi Property):** LNAPL thicknesses in Shallow Zone well MW71 have fluctuated, but appear to be on an increasing trend from 0.29 feet in March 2014 to 1.57 feet in December 2015, which is the maximum observed at this location.
- **MW72 (Shin/Choi Property):** LNAPL thickness in Shallow Zone well MW72 decreased from 0.49 feet in March 2014 to 0.15 feet in December 2014; however, since December 2014, the LNAPL thickness has been increasing and was 1.34 feet in December 2015 and 1.54 feet during the 2016 annual event.
- **MW102 (Herman Property):** Shallow Zone well MW102 was installed in 2013 and has little historical data to assess trends over time, but appears to fluctuate possibly influenced by seasonal variability. LNAPL thickness decreased from 1.63 feet in March 2014 to 1.16 feet in June 2015, but then increased to a high of 2.28 feet during the 1Q2016. This increase in LNAPL thickness in the first quarter of the year is consistent with previous measurements.
- **MW48 (56th Avenue West ROW):** Intermediate Zone well MW48 has historically contained the largest occurrence of measurable LNAPL in the Intermediate Zone. As shown on ***Figure 25***, LNAPL in MW48 ranged from a high of 1.64 feet in May 2007 to 0.01 feet in March, April and June 2009. ***Figure 25*** shows an inverse relationship between groundwater elevations and LNAPL thicknesses. LNAPL has not been encountered in MW48 since December 2010, which was a year prior to the onset of operation of the current remediation systems.

In summary, LNAPL thicknesses and groundwater elevations appear to be somewhat inversely related at well MW48, although there is some variability. This is also the case for LNAPL trends at MW29 when LNAPL was observed in this well in 2007. Not enough data is available to assess a comparison of these trends in well MW71. This inverse trend could be related to the liberation of residual LNAPL within partially saturated soil pore spaces as the groundwater level decreases.

Based on historical information, greater LNAPL thicknesses are present on the Herman and Shin/Choi Properties than have ever been observed at the TOC Site. The source of the LNAPL in wells MW71, MW72 and MW102 appears to originate from the former USTs historically located on the Herman and Shin/Choi properties. The source of the LNAPL historically measured in the ROW well MW48 is unknown. There are no known sources of petroleum hydrocarbons associated with the southwest corner of the TOC/Farmasonis Property or northwest corner of the Drake Property, near the location of MW48. Due to the location of MW48 near the utilities corridor, it is suspected that the occurrence of LNAPL may have been associated with the utilities corridor acting as a preferential pathway from an upgradient source. During the 2016 annual event, no wells installed in the Intermediate Zone on the TOC Site exhibited measurable LNAPL.

10.0 CONCLUSIONS

A list of conclusions based on the results collected during sampling events over the last year (2Q2015 through 1Q2016) is provided below:

- The overall direction of groundwater flow through the Shallow, Intermediate, and Deep Zones is toward the south-southeast. Although groundwater flow to the south-southwest related to groundwater mounding also occurs in the Intermediate Zone on the TOC Property.

- Shallow Zone groundwater impacts from petroleum hydrocarbons are not currently observed at the TOC Site. Impacts to Shallow Zone groundwater exceeding MTCA Method A cleanup levels were limited to the Herman and Shin/Choi Properties during the reporting period.

- LNAPL has been consistently observed in Shallow Zone wells on the Shin/Choi Property and typically in the southernmost Shallow Zone well on the Herman Property (adjacent to the Shin/Choi Property line). Based on historical information (presented in the 2014 and 2015 Annual Groundwater Monitoring Reports [Stantec 2014 and Stantec 2015]), and the lack of current and historical measurable LNAPL in the Shallow Zone wells on the Drake Property (located directly upgradient of the wells containing LNAPL), the source of the free product in MW71, MW72 and MW102 is different than that of the TOC Property and may originate from USTs historically or currently located on the Herman and Shin/Choi Properties.

- Intermediate Zone groundwater impacts from petroleum hydrocarbons on the TOC Site are isolated to the 56th Avenue ROW in the area adjacent to the Drake and TOC/Farmasonis property line, and north of the shared Drake and Herman Property line. Additional impacts from petroleum hydrocarbons in the Intermediate Zone are observed on the Shin/Choi Property in the area adjacent to the Herman Property line, and in the area of the historic UST excavation. Based on the current and historical concentration distribution patterns and comparison of contaminant concentrations on the TOC Site with those in the southernmost plume area (located on the Shin/Choi Property), the Intermediate Zone impacts on the TOC Site are interpreted to be separate from those on the Shin/Choi Property.

11.0 FUTURE GROUNDWATER TASKS

The table below identifies the months each of the 2016 quarterly groundwater monitoring events will be conducted. Quarterly *Groundwater Monitoring Reports* will be submitted to Ecology by the end of the following quarter.

Dates of 2016 Quarterly Groundwater Monitoring Events

Quarter	Field Event Dates
2Q2016	May 11 to 26, 2016
3Q2016	August 2016
4Q2016	November 2016

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List of Tables

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW01	TOC	Shallow	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 10/02/2009**
MW02	TOC	Shallow	Monitoring Well	06/15/2015	10:22	358.71	12.78	345.93	--	
MW02	TOC	Shallow	Monitoring Well	09/28/2015	10:21	358.71	16.47	342.24	--	
MW02	TOC	Shallow	Monitoring Well	12/14/2015	12:57	358.71	12.76	345.95	--	
MW02	TOC	Shallow	Monitoring Well	02/19/2016	12:48	358.71	8.45	350.26	--	
MW03	TOC	Shallow	Monitoring Well	06/15/2015	10:12	361.85	14.31	347.54	--	
MW03	TOC	Shallow	Monitoring Well	09/28/2015	10:11	361.85	DRY	DRY	DRY	
MW03	TOC	Shallow	Monitoring Well	12/14/2015	10:31	361.85	13.78	348.07	--	
MW03	TOC	Shallow	Monitoring Well	02/19/2016	12:38	361.85	8.49	353.36	--	
MW04	56th Ave ROW	Shallow	Monitoring Well	06/15/2015	10:08	361.96	12.97	348.99	--	
MW04	56th Ave ROW	Shallow	Monitoring Well	09/28/2015	10:10	361.96	DRY	DRY	DRY	
MW04	56th Ave ROW	Shallow	Monitoring Well	12/14/2015	10:29	361.96	DRY	DRY	DRY	
MW04	56th Ave ROW	Shallow	Monitoring Well	02/19/2016	12:33	361.96	7.12	354.84	--	
MW05	242nd St ROW	Shallow	Monitoring Well	06/15/2015	10:02	363.70	12.95	350.75	--	
MW05	242nd St ROW	Shallow	Monitoring Well	09/28/2015	10:02	363.70	DRY	DRY	DRY	
MW05	242nd St ROW	Shallow	Monitoring Well	12/14/2015	10:24	363.70	14.20	349.50	--	
MW05	242nd St ROW	Shallow	Monitoring Well	02/19/2016	12:42	363.70	6.85	356.85	--	
MW06	TOC	Shallow	Monitoring Well	06/15/2015	10:45	358.98	14.26	344.72	--	
MW06	TOC	Shallow	Monitoring Well	09/28/2015	10:36	358.98	14.71	344.27	--	
MW06	TOC	Shallow	Monitoring Well	12/14/2015	11:03	358.98	DRY	DRY	DRY	
MW06	TOC	Shallow	Monitoring Well	02/19/2016	12:58	358.98	6.97	352.01	--	
MW07	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW08	56th Ave ROW	Shallow-Intermediate	Monitoring Well	06/15/2015	13:36	360.34	22.89	337.45	--	
MW08	56th Ave ROW	Shallow-Intermediate	Monitoring Well	09/28/2015	12:19	360.34	28.11	332.23	--	
MW08	56th Ave ROW	Shallow-Intermediate	Monitoring Well	12/14/2015	12:51	360.34	24.65	335.69	--	
MW08	56th Ave ROW	Shallow-Intermediate	Monitoring Well	02/19/2016	15:16	360.34	11.65	348.69	--	
MW09	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:15	360.32	27.02	333.30	--	
MW09	TOC	Shallow-Intermediate	Monitoring Well	09/28/2015	10:12	360.32	DRY	DRY	DRY	
MW09	TOC	Shallow-Intermediate	Monitoring Well	12/14/2015	10:32	360.32	30.20	330.12	--	
MW09	TOC	Shallow-Intermediate	Monitoring Well	02/19/2016	12:44	360.32	20.96	339.36	--	
MW10	TOC	Intermediate	Monitoring Well	06/15/2015	10:17	357.91	33.24	324.67	--	
MW10	TOC	Intermediate	Monitoring Well	09/28/2015	10:28	357.91	DRY	DRY	DRY	
MW10	TOC	Intermediate	Monitoring Well	12/14/2015	10:55	357.91	DRY	DRY	DRY	
MW10	TOC	Intermediate	Monitoring Well	02/19/2016	12:52	357.91	25.90	332.01	--	
MW11	TOC	Intermediate	4" Remediation Well	06/15/2015	8:52	362.34	24.76	337.58	--	
MW11	TOC	Intermediate	4" Remediation Well	09/28/2015	9:07	362.34	24.48	337.86	--	
MW11	TOC	Intermediate	4" Remediation Well	12/14/2015	9:33	362.34	27.68	334.66	--	
MW11	TOC	Intermediate	4" Remediation Well	02/19/2016	12:37	362.34	20.08	342.26	--	
MW12	56th Ave ROW	Shallow	Monitoring Well	06/15/2015	11:20	357.65	11.78	345.87	--	
MW12	56th Ave ROW	Shallow	Monitoring Well	09/28/2015	11:20	357.65	15.85	341.80	--	
MW12	56th Ave ROW	Shallow	Monitoring Well	12/14/2015	11:54	357.65	12.15	345.50	--	
MW12	56th Ave ROW	Shallow	Monitoring Well	02/19/2016	14:16	357.65	7.20	350.45	--	
MW13	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:21	357.34	DRY	DRY	DRY	
MW13	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:21	357.34	DRY	DRY	DRY	
MW13	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	11:54	357.34	DRY	DRY	DRY	
MW13	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	14:16	357.34	DRY	DRY	DRY	not sampled 1Q2016 (insufficient groundwater sample volume)
MW14	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW15	TOC	Intermediate	Monitoring Well	06/15/2015	8:36	357.56	41.14	316.42	--	
MW15	TOC	Intermediate	Monitoring Well	09/28/2015	9:14	357.56	DRY	DRY	DRY	
MW15	TOC	Intermediate	Monitoring Well	12/14/2015	9:08	357.56	DRY	DRY	DRY	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW15	TOC	Intermediate	Monitoring Well	02/19/2016	NM	357.56	NM	NM	NM	DTW level could not be measured and groundwater sample could not be collected 1Q2016 due to thick sediment/sludge in well.
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well	06/15/2015	10:00	365.18	46.10	319.08	--	
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well	09/28/2015	10:00	365.18	DRY	DRY	DRY	
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well	12/14/2015	10:23	365.18	DRY	DRY	DRY	
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well	02/19/2016	12:33	365.18	45.53	319.65	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW17	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW18	TOC	Shallow-Intermediate	4" Remediation Well	06/15/2015	8:33	357.91	DRY	DRY	DRY	
MW18	TOC	Shallow-Intermediate	4" Remediation Well	09/28/2015	8:55	357.91	DRY	DRY	DRY	
MW18	TOC	Shallow-Intermediate	4" Remediation Well	12/14/2015	9:05	357.91	DRY	DRY	DRY	
MW18	TOC	Shallow-Intermediate	4" Remediation Well	02/02/2016	NM	357.91	28.28	329.63	--	Well was dry during measurement event on 02/19/2016. Data represents measurement obtained at the time sample collection was attempted; however, a sample could not be collected during 1Q2016 due insufficient groundwater sample volume.
MW19	TOC	Shallow	Monitoring Well	06/15/2015	10:22	358.86	14.63	344.23	--	
MW19	TOC	Shallow	Monitoring Well	09/28/2015	10:24	358.86	DRY	DRY	DRY	
MW19	TOC	Shallow	Monitoring Well	12/14/2015	10:52	358.86	18.21	340.65	--	
MW19	TOC	Shallow	Monitoring Well	02/19/2016	12:50	358.86	9.59	349.27	--	
MW20	TOC	Intermediate	Monitoring Well	06/15/2015	10:26	359.93	33.88	326.05	--	
MW20	TOC	Intermediate	Monitoring Well	09/28/2015	10:19	359.93	DRY	DRY	DRY	
MW20	TOC	Intermediate	Monitoring Well	12/14/2015	12:56	359.93	DRY	DRY	DRY	
MW20	TOC	Intermediate	Monitoring Well	02/19/2016	12:48	359.93	27.75	332.18	--	
MW21	TOC	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 04/16/2012**
MW22	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:33	358.52	29.46	329.06	--	
MW22	TOC	Shallow-Intermediate	Monitoring Well	09/28/2015	10:22	358.52	DRY	DRY	DRY	
MW22	TOC	Shallow-Intermediate	Monitoring Well	12/14/2015	10:56	358.52	30.14	328.38	--	
MW22	TOC	Shallow-Intermediate	Monitoring Well	02/19/2016	12:50	358.52	26.94	331.58	--	
MW23	TOC	Intermediate	Monitoring Well	06/15/2015	10:57	357.08	39.14	317.94	--	
MW23	TOC	Intermediate	Monitoring Well	09/28/2015	10:41	357.08	DRY	DRY	DRY	
MW23	TOC	Intermediate	Monitoring Well	12/14/2015	11:09	357.08	DRY	DRY	DRY	
MW23	TOC	Intermediate	Monitoring Well	02/19/2016	13:01	357.08	38.76	318.32	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW24	TOC	Shallow-Intermediate	4" Remediation Well	06/15/2015	8:40	361.97	26.71	335.26	--	
MW24	TOC	Shallow-Intermediate	4" Remediation Well	09/28/2015	9:01	361.97	DRY	DRY	DRY	
MW24	TOC	Shallow-Intermediate	4" Remediation Well	12/14/2015	9:22	361.97	DRY	DRY	DRY	
MW24	TOC	Shallow-Intermediate	4" Remediation Well	02/19/2016	12:42	361.97	15.23	346.74	--	
MW25	TOC	Intermediate	Monitoring Well	06/15/2015	10:16	358.70	30.37	328.33	--	
MW25	TOC	Intermediate	Monitoring Well	09/28/2015	10:17	358.70	DRY	DRY	DRY	
MW25	TOC	Intermediate	Monitoring Well	12/14/2015	10:35	358.70	DRY	DRY	DRY	
MW25	TOC	Intermediate	Monitoring Well	02/19/2016	12:45	358.70	25.00	333.70	--	
MW26	TOC	Deep	Monitoring Well	06/15/2015	10:05	363.81	45.51	318.30	--	Possible water infiltration
MW26	TOC	Deep	Monitoring Well	09/28/2015	10:07	363.81	46.59	317.22	--	
MW26	TOC	Deep	Monitoring Well	12/14/2015	10:27	363.81	48.98	314.83	--	
MW26	TOC	Deep	Monitoring Well	02/19/2016	12:34	363.81	44.85	318.96	--	
MW27	TOC	Shallow-Intermediate	2" Remediation Well	06/15/2015	NM	362.51	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW27	TOC	Shallow-Intermediate	2" Remediation Well	09/28/2015	NM	362.51	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW27	TOC	Shallow-Intermediate	2" Remediation Well	12/14/2015	NM	362.51	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW27	TOC	Shallow-Intermediate	2" Remediation Well	02/19/2016	NM	362.51	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW28	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:39	358.41	28.43	329.98	--	

TABLE 1-1
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Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW28	TOC	Shallow-Intermediate	Monitoring Well	09/28/2015	10:30	358.41	DRY	DRY	DRY	
MW28	TOC	Shallow-Intermediate	Monitoring Well	12/14/2015	12:59	358.41	28.70	329.71	--	
MW28	TOC	Shallow-Intermediate	Monitoring Well	02/19/2016	12:56	358.41	24.03	334.38	--	
MW29	TOC	Shallow-Intermediate	2" Remediation Well	06/15/2015	NM	358.93	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW29	TOC	Shallow-Intermediate	2" Remediation Well	09/28/2015	NM	358.93	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW29	TOC	Shallow-Intermediate	2" Remediation Well	12/14/2015	NM	358.93	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW29	TOC	Shallow-Intermediate	2" Remediation Well	02/19/2016	NM	358.93	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW30	TOC/Farmasonis	Deep	Monitoring Well	06/15/2015	NM	356.46	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW30	TOC/Farmasonis	Deep	Monitoring Well	09/28/2015	10:50	356.46	42.20	314.26	--	
MW30	TOC/Farmasonis	Deep	Monitoring Well	12/14/2015	11:19	356.46	42.66	313.80	--	
MW30	TOC/Farmasonis	Deep	Monitoring Well	02/19/2016	13:02	356.46	38.45	318.01	--	
MW31	TOC/Farmasonis	Intermediate	2" Remediation Well	06/15/2015	NM	357.08	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW31	TOC/Farmasonis	Intermediate	2" Remediation Well	09/28/2015	NM	357.08	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW31	TOC/Farmasonis	Intermediate	2" Remediation Well	12/14/2015	NM	357.08	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW31	TOC/Farmasonis	Intermediate	2" Remediation Well	02/19/2016	NM	357.08	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW32	TOC	Intermediate	4" Remediation Well	06/15/2015	8:38	359.95	24.15	335.80	--	
MW32	TOC	Intermediate	4" Remediation Well	09/28/2015	8:58	359.95	27.88	332.07	--	
MW32	TOC	Intermediate	4" Remediation Well	12/14/2015	9:19	359.95	27.46	332.49	--	
MW32	TOC	Intermediate	4" Remediation Well	02/19/2016	12:47	359.95	19.80	340.15	--	
MW33	TOC	Intermediate	Monitoring Well	06/15/2015	10:34	358.24	DRY	DRY	DRY	
MW33	TOC	Intermediate	Monitoring Well	09/28/2015	10:31	358.24	DRY	DRY	DRY	
MW33	TOC	Intermediate	Monitoring Well	12/11/2015	10:40	358.24	34.25	323.99	--	Well was dry during measurement event on 12/14/2015. Therefore, the measurement provided was obtained at the time of sample collection.
MW33	TOC	Intermediate	Monitoring Well	02/19/2016	12:57	358.24	33.15	325.09	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW34	TOC	Shallow	Monitoring Well	06/15/2015	10:50	357.88	14.00	343.88	--	
MW34	TOC	Shallow	Monitoring Well	09/28/2015	10:40	357.88	DRY	DRY	DRY	
MW34	TOC	Shallow	Monitoring Well	12/14/2015	11:07	357.88	10.52	347.36	--	
MW34	TOC	Shallow	Monitoring Well	02/19/2016	13:00	357.88	7.16	350.72	--	
MW35	TOC	Intermediate	Monitoring Well	06/15/2015	10:49	358.46	DRY	DRY	DRY	
MW35	TOC	Intermediate	Monitoring Well	09/28/2015	10:39	358.46	DRY	DRY	DRY	
MW35	TOC	Intermediate	Monitoring Well	12/14/2015	11:06	358.46	DRY	DRY	DRY	
MW35	TOC	Intermediate	Monitoring Well	02/19/2016	12:59	358.46	38.90	319.56	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW36	TOC	Intermediate	Monitoring Well	06/15/2015	14:00	357.98	41.86	316.12	--	
MW36	TOC	Intermediate	Monitoring Well	09/28/2015	12:23	357.98	DRY	DRY	DRY	
MW36	TOC	Intermediate	Monitoring Well	12/14/2015	11:04	357.98	42.64	315.34	--	
MW36	TOC	Intermediate	Monitoring Well	02/19/2016	13:01	357.98	41.59	316.39	--	
MW37	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:47	358.90	22.45	336.45	--	
MW37	TOC	Shallow-Intermediate	Monitoring Well	09/28/2015	10:37	358.90	31.36	327.54	--	
MW37	TOC	Shallow-Intermediate	Monitoring Well	12/14/2015	11:01	358.90	28.65	330.25	--	
MW37	TOC	Shallow-Intermediate	Monitoring Well	02/19/2016	12:58	358.90	13.75	345.15	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:06	364.42	20.98	343.44	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	06/15/2015	10:06	364.42	20.98	343.44	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	09/28/2015	10:04	364.42	26.16	338.26	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	12/14/2015	10:20	364.42	23.66	340.76	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	02/19/2016	12:34	364.42	12.53	351.89	--	
MW39	TOC/Farmasonis	Deep	Monitoring Well	06/15/2015	11:01	355.88	39.36	316.52	--	
MW39	TOC/Farmasonis	Deep	Monitoring Well	09/28/2015	10:54	355.88	45.25	310.63	--	Data may be anomolous based on groundwater elevations for surrounding wells.
MW39	TOC/Farmasonis	Deep	Monitoring Well	12/14/2015	11:21	355.88	42.52	313.36	--	

TABLE 1-1
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Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW39	TOC/Farmasonis	Deep	Monitoring Well	02/19/2016	14:28	355.88	38.45	317.43	--	
MW40	TOC/Farmasonis	Deep	Monitoring Well	06/15/2015	11:27	356.32	39.32	317.00	--	
MW40	TOC/Farmasonis	Deep	Monitoring Well	09/28/2015	11:14	356.32	42.23	314.09	--	
MW40	TOC/Farmasonis	Deep	Monitoring Well	12/14/2015	13:01	356.32	42.61	313.71	--	
MW40	TOC/Farmasonis	Deep	Monitoring Well	02/19/2016	14:21	356.32	38.51	317.81	--	
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well	06/15/2015	NM	356.14	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well	09/28/2015	NM	356.14	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well	12/14/2015	NM	356.14	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well	02/19/2016	NM	356.14	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	11:25	356.43	DRY	DRY	DRY	
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	11:25	356.43	DRY	DRY	DRY	
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	11:54	356.43	DRY	DRY	DRY	
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:34	356.43	DRY	DRY	DRY	not sampled 1Q2016 (insufficient groundwater sample volume)
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well	06/15/2015	13:40	358.84	36.20	322.64	--	
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well	09/28/2015	12:15	358.84	DRY	DRY	DRY	
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well	12/14/2015	13:04	358.84	34.77	324.07	--	
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well	02/19/2016	15:29	358.84	34.23	324.61	--	
MW44	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:50	354.93	DRY	DRY	DRY	
MW44	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:42	354.93	DRY	DRY	DRY	
MW44	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	12:10	354.93	DRY	DRY	DRY	
MW44	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:10	354.93	DRY	DRY	DRY	not sampled 1Q2016 (insufficient groundwater sample volume)
MW45	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:22	356.49	DRY	DRY	DRY	
MW45	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:23	356.49	DRY	DRY	DRY	
MW45	56th Ave ROW	Intermediate	Monitoring Well	12/11/2015	11:15	356.49	39.37	317.12	--	Well was dry during measurement event on 12/14/2015. Therefore, the measurement provided was obtained at the time sample collection was attempted.
MW45	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:39	356.49	39.44	317.05	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW46	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:46	357.00	41.17	315.83	--	
MW46	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:11	357.00	DRY	DRY	DRY	
MW46	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:10	357.00	DRY	DRY	DRY	
MW46	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:57	357.00	40.63	316.37	--	
MW47	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:49	355.47	41.16	314.31	--	
MW47	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:07	355.47	DRY	DRY	DRY	
MW47	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:14	355.47	41.64	313.83	--	
MW47	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:29	355.47	40.97	314.50	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW48	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:30	355.41	40.38	315.03	--	
MW48	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:29	355.41	43.38	312.03	--	
MW48	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	12:05	355.41	43.68	311.73	--	
MW48	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:24	355.41	40.15	315.26	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:24	356.44	41.04	315.40	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:24	356.44	43.75	312.69	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	11:57	356.44	44.11	312.33	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:26	356.44	41.06	315.38	--	
MW50	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:30	361.99	35.42	326.57	--	
MW50	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:21	361.99	DRY	DRY	DRY	
MW50	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	12:47	361.99	DRY	DRY	DRY	
MW50	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	14:42	361.99	33.67	328.32	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW51	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	12:33	352.66	39.41	313.25	--	
MW51	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:32	352.66	41.99	310.67	--	
MW51	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:18	352.66	42.22	310.44	--	
MW51	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	14:05	352.66	39.62	313.04	--	
MW52	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:50	355.61	41.38	314.23	--	
MW52	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:07	355.61	DRY	DRY	DRY	
MW52	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:16	355.61	DRY	DRY	DRY	
MW52	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	14:22	355.61	41.21	314.40	--	
MW53	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:38	359.85	41.49	318.36	--	
MW53	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:16	359.85	44.49	315.36	--	
MW53	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	12:53	359.85	45.26	314.59	--	
MW53	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:42	359.85	40.89	318.96	--	
MW54	TOC/Farmasonis	Shallow	Monitoring Well	06/15/2015	11:17	357.93	12.68	345.25	--	
MW54	TOC/Farmasonis	Shallow	Monitoring Well	09/28/2015	11:16	357.93	16.11	341.82	--	
MW54	TOC/Farmasonis	Shallow	Monitoring Well	12/14/2015	11:44	357.93	13.73	344.20	--	
MW54	TOC/Farmasonis	Shallow	Monitoring Well	02/19/2016	14:14	357.93	8.26	349.67	--	
MW55	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:47	356.50	40.91	315.59	--	
MW55	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:09	356.50	44.40	312.10	--	
MW55	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:12	356.50	44.74	311.76	--	
MW55	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:27	356.50	40.82	315.68	--	
MW56	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	11:15	357.49	42.02	315.47	--	
MW56	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	11:18	357.49	44.78	312.71	--	
MW56	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	11:45	357.49	45.00	312.49	--	
MW56	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:00	357.49	40.97	316.52	--	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	06/15/2015	9:09	356.42	41.43	314.99	--	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	09/28/2015	9:26	356.42	44.49	311.93	--	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	12/14/2015	9:48	356.42	DRY	DRY	DRY	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	02/19/2016	14:36	356.42	41.42	315.00	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW58	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	NM	355.40	NM	NM	NM	wellhead inaccessible (trailer parked over well)
MW58	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	11:27	355.40	43.86	311.54	--	
MW58	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	12:02	355.40	44.02	311.38	--	
MW58	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:32	355.40	40.67	314.73	--	
MW59	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	11:14	356.51	41.08	315.43	--	
MW59	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	11:13	356.51	44.84	311.67	--	
MW59	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	11:41	356.51	44.05	312.46	--	
MW59	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:21	356.51	40.80	315.71	--	
MW60	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	13:42	358.58	41.97	316.61	--	
MW60	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	12:13	358.58	44.31	314.27	--	
MW60	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	13:05	358.58	44.97	313.61	--	
MW60	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:29	358.58	41.54	317.04	--	
MW61	56th Ave ROW	Shallow	Monitoring Well	06/15/2015	13:45	357.17	11.76	345.41	--	
MW61	56th Ave ROW	Shallow	Monitoring Well	09/28/2015	12:12	357.17	15.98	341.19	--	
MW61	56th Ave ROW	Shallow	Monitoring Well	12/14/2015	13:08	357.17	9.91	347.26	--	
MW61	56th Ave ROW	Shallow	Monitoring Well	02/19/2016	15:29	357.17	6.14	351.03	--	
MW62	56th Ave ROW	Shallow	Monitoring Well	06/15/2015	13:35	360.50	13.58	346.92	--	
MW62	56th Ave ROW	Shallow	Monitoring Well	09/28/2015	12:18	360.50	DRY	DRY	DRY	
MW62	56th Ave ROW	Shallow	Monitoring Well	12/14/2015	12:51	360.50	11.03	349.47	--	
MW62	56th Ave ROW	Shallow	Monitoring Well	02/19/2016	15:08	360.50	7.00	353.50	--	
MW63	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	11:51	355.11	40.69	314.42	--	
MW63	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	11:41	355.11	43.60	311.51	--	
MW63	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	12:09	355.11	43.86	311.25	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW63	56th Ave ROW	Intermediate	Monitoring Well	02/19/2016	15:07	355.11	40.38	314.73	--	
MW64	56th Ave ROW	Deep	Monitoring Well	06/15/2015	11:54	355.18	38.65	316.53	--	
MW64	56th Ave ROW	Deep	Monitoring Well	09/28/2015	11:40	355.18	40.72	314.46	--	
MW64	56th Ave ROW	Deep	Monitoring Well	12/14/2015	12:08	355.18	41.49	313.69	--	
MW64	56th Ave ROW	Deep	Monitoring Well	02/19/2016	15:17	355.18	37.97	317.21	--	
MW65	Drake	Intermediate	Monitoring Well	06/15/2015	12:02	353.08	39.49	313.59	--	
MW65	Drake	Intermediate	Monitoring Well	09/28/2015	11:50	353.08	42.39	310.69	--	
MW65	Drake	Intermediate	Monitoring Well	12/14/2015	12:17	353.08	42.36	310.72	--	
MW65	Drake	Intermediate	Monitoring Well	02/19/2016	14:46	353.08	39.01	314.07	--	
MW66	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	11:00	355.75	40.34	315.41	--	
MW66	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	10:53	355.75	43.05	312.70	--	
MW66	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	11:18	355.75	43.20	312.55	--	
MW66	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:23	355.75	40.07	315.68	--	
MW67	Drake	Shallow	Monitoring Well	06/15/2015	11:57	355.73	14.00	341.73	--	
MW67	Drake	Shallow	Monitoring Well	09/28/2015	11:45	355.73	18.49	337.24	--	
MW67	Drake	Shallow	Monitoring Well	12/14/2015	12:12	355.73	15.51	340.22	--	
MW67	Drake	Shallow	Monitoring Well	02/19/2016	14:44	355.73	9.85	345.88	--	
MW68	Drake	Shallow	Monitoring Well	06/15/2015	11:59	355.11	13.80	341.31	--	
MW68	Drake	Shallow	Monitoring Well	09/28/2015	11:48	355.11	18.14	336.97	--	
MW68	Drake	Shallow	Monitoring Well	12/14/2015	12:15	355.11	15.06	340.05	--	
MW68	Drake	Shallow	Monitoring Well	02/19/2016	14:46	355.11	9.46	345.65	--	
MW69	Drake	Intermediate	2" Remediation Well	06/15/2015	NM	353.76	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW69	Drake	Intermediate	2" Remediation Well	09/28/2015	NM	353.76	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW69	Drake	Intermediate	2" Remediation Well	12/14/2015	NM	353.76	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW69	Drake	Intermediate	2" Remediation Well	02/19/2016	NM	353.76	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW70	Drake	Intermediate	2" Remediation Well	06/15/2015	NM	354.17	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW70	Drake	Intermediate	2" Remediation Well	09/28/2015	NM	354.17	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW70	Drake	Intermediate	2" Remediation Well	12/14/2015	NM	354.17	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW70	Drake	Intermediate	2" Remediation Well	02/19/2016	NM	354.17	NM	NM	NM	Probe cannot fit past 2" pump tubing.
MW71	Shin/Choi	Shallow	Monitoring Well	06/15/2015	12:38	347.92	14.85	333.95	1.10	
MW71	Shin/Choi	Shallow	Monitoring Well	09/28/2015	12:52	347.92	17.66	331.00	0.92	
MW71	Shin/Choi	Shallow	Monitoring Well	12/14/2015	13:47	347.92	16.48	332.70	1.57	
MW71	Shin/Choi	Shallow	Monitoring Well	02/19/2016	NM	347.92	NM	NM	NM	Measurement not collected during system off event. See system on table for measurement data collected on 02/01/2016. Samples were not collected during 1Q2016 due to presence of LNAPL.
MW72	Shin/Choi	Shallow	Monitoring Well	06/15/2015	12:43	347.38	16.25	331.32	0.24	
MW72	Shin/Choi	Shallow	Monitoring Well	09/28/2015	12:57	347.38	20.19	327.44	0.31	
MW72	Shin/Choi	Shallow	Monitoring Well	12/14/2015	13:45	347.38	19.84	328.61	1.34	
MW72	Shin/Choi	Shallow	Monitoring Well	02/19/2016	NM	347.38	NM	NM	NM	Measurement not collected during system off event. See system on table for measurement data collected on 02/01/2016. Samples were not collected during 1Q2016 due to presence of LNAPL.
MW73	Shin/Choi	Intermediate	Monitoring Well	06/15/2015	12:41	347.33	37.21	310.12	--	
MW73	Shin/Choi	Intermediate	Monitoring Well	09/28/2015	12:55	347.33	39.76	307.57	--	
MW73	Shin/Choi	Intermediate	Monitoring Well	12/14/2015	13:42	347.33	40.11	307.22	--	
MW73	Shin/Choi	Intermediate	Monitoring Well	02/19/2016	15:11	347.33	36.50	310.83	--	
MW74	Shin/Choi	Intermediate	Monitoring Well	06/15/2015	12:35	347.94	36.60	311.34	--	
MW74	Shin/Choi	Intermediate	Monitoring Well	09/28/2015	12:50	347.94	DRY	DRY	DRY	
MW74	Shin/Choi	Intermediate	Monitoring Well	12/14/2015	13:48	347.94	39.36	308.58	--	
MW74	Shin/Choi	Intermediate	Monitoring Well	02/19/2016	15:10	347.94	36.80	311.14	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW75	56th Ave ROW	Intermediate	Monitoring Well	06/15/2015	NM	354.78	NM	NM	NM	Well is only measured during annual (first quarter) event and is subject to Traffic Control Plan (WSDOT 2014).
MW75	56th Ave ROW	Intermediate	Monitoring Well	09/28/2015	NM	354.78	NM	NM	NM	Well is only measured during annual (first quarter) event and is subject to Traffic Control Plan (WSDOT 2014).
MW75	56th Ave ROW	Intermediate	Monitoring Well	12/14/2015	NM	354.78	NM	NM	NM	Well is only measured during annual (first quarter) event and is subject to Traffic Control Plan (WSDOT 2014).
MW75	56th Ave ROW	Intermediate	Monitoring Well	02/18/2016	0.49	354.78	40.44	314.34	--	Since well is located in the middle of the roadway and subject to the Traffic Control Plan (WSDOT 2014), the DTW level is only measured at the time of sample collection to minimize adverse impacts to traffic.
MW76	Drake	Intermediate	Monitoring Well	06/15/2015	12:13	351.69	37.51	314.18	--	
MW76	Drake	Intermediate	Monitoring Well	09/28/2015	12:02	351.69	40.78	310.91	--	
MW76	Drake	Intermediate	Monitoring Well	12/14/2015	12:33	351.69	40.61	311.08	--	
MW76	Drake	Intermediate	Monitoring Well	02/19/2016	14:47	351.69	37.00	314.69	--	
MW77	Drake	Intermediate	Monitoring Well	06/15/2015	12:10	349.95	36.78	313.17	--	
MW77	Drake	Intermediate	Monitoring Well	09/28/2015	11:55	349.95	39.68	310.27	--	
MW77	Drake	Intermediate	Monitoring Well	12/14/2015	12:23	349.95	39.55	310.40	--	
MW77	Drake	Intermediate	Monitoring Well	02/13/2016	16:33	349.95	36.49	313.46	--	Wellhead inaccessible during measurement event on 02/19/2016 due to construction activities. Data represents measurement obtained at the time of sample collection.
MW78	Drake	Deep	Monitoring Well	06/15/2015	12:11	349.90	35.27	314.63	--	
MW78	Drake	Deep	Monitoring Well	09/28/2015	11:56	349.90	37.79	312.11	--	
MW78	Drake	Deep	Monitoring Well	12/14/2015	12:25	349.90	37.92	311.98	--	
MW78	Drake	Deep	Monitoring Well	02/13/2016	17:05	349.90	34.42	315.48	--	Wellhead inaccessible during measurement event on 02/19/2016 due to construction activities. Data represents measurement obtained at the time of sample collection.
MW79	TOC/Farmasonis	Shallow	Monitoring Well	06/15/2015	11:06	353.98	15.60	338.38	--	
MW79	TOC/Farmasonis	Shallow	Monitoring Well	09/28/2015	11:01	353.98	DRY	DRY	DRY	
MW79	TOC/Farmasonis	Shallow	Monitoring Well	12/14/2015	11:32	353.98	DRY	DRY	DRY	
MW79	TOC/Farmasonis	Shallow	Monitoring Well	02/19/2016	14:30	353.98	9.24	344.74	--	
MW80	TOC/Farmasonis	Shallow	Monitoring Well	06/15/2015	11:04	353.83	16.08	337.75	--	
MW80	TOC/Farmasonis	Shallow	Monitoring Well	09/28/2015	11:07	353.83	22.25	331.58	--	
MW80	TOC/Farmasonis	Shallow	Monitoring Well	12/14/2015	11:33	353.83	20.15	333.68	--	
MW80	TOC/Farmasonis	Shallow	Monitoring Well	02/19/2016	14:30	353.83	10.97	342.86	--	
MW81	TOC/Farmasonis	Intermediate	Monitoring Well	06/15/2015	11:12	355.60	40.58	315.02	--	
MW81	TOC/Farmasonis	Intermediate	Monitoring Well	09/28/2015	10:57	355.60	43.22	312.38	--	
MW81	TOC/Farmasonis	Intermediate	Monitoring Well	12/14/2015	11:27	355.60	43.31	312.29	--	
MW81	TOC/Farmasonis	Intermediate	Monitoring Well	02/19/2016	14:26	355.60	40.30	315.30	--	
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well	06/15/2015	11:08	355.59	29.04	326.55	--	
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well	09/28/2015	10:59	355.59	29.40	326.19	--	
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well	12/14/2015	11:29	355.59	DRY	DRY	DRY	
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well	02/19/2016	14:29	355.59	27.39	328.20	--	
MW83	TOC/Farmasonis	Shallow-Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/21/2011 (REPLACED WITH MW100)**
MW84	Drake	Intermediate	Monitoring Well	06/15/2015	9:19	353.75	40.24	313.51	--	
MW84	Drake	Intermediate	Monitoring Well	09/24/2015	9:20	353.75	42.57	311.18	--	Wellhead inaccessible during measurement event on 09/28/2015. Data represents measurement obtained at the time of sample collection.

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW84	Drake	Intermediate	Monitoring Well	12/14/2015	9:57	353.75	43.24	310.51	--	
MW84	Drake	Intermediate	Monitoring Well	02/17/2016	14:46	353.75	37.94	315.81	--	Wellhead inaccessible during measurement event on 02/19/2016 (vehicle parked on top). Data represents measurement at the time of sample collection.
MW85	Drake	Intermediate	Monitoring Well	06/15/2015	12:06	351.28	38.00	313.28	--	Drilling near well
MW85	Drake	Intermediate	Monitoring Well	09/28/2015	11:53	351.28	40.85	310.43	--	
MW85	Drake	Intermediate	Monitoring Well	12/14/2015	12:21	351.28	40.79	310.49	--	
MW85	Drake	Intermediate	Monitoring Well	02/19/2016	14:47	351.28	37.47	313.81	--	
MW86	Drake	Intermediate	Monitoring Well	06/15/2015	12:04	352.72	39.39	313.33	--	Drilling near well
MW86	Drake	Intermediate	Monitoring Well	09/28/2015	11:51	352.72	42.29	310.43	--	
MW86	Drake	Intermediate	Monitoring Well	12/14/2015	12:19	352.72	42.20	310.52	--	
MW86	Drake	Intermediate	Monitoring Well	02/19/2016	14:47	352.72	39.02	313.70	--	
MW87	Drake	Intermediate	Monitoring Well	06/15/2015	12:12	349.72	36.82	312.90	--	
MW87	Drake	Intermediate	Monitoring Well	09/28/2015	11:58	349.72	39.65	310.07	--	
MW87	Drake	Intermediate	Monitoring Well	12/14/2015	12:28	349.72	39.45	310.27	--	
MW87	Drake	Intermediate	Monitoring Well	02/13/2016	17:30	349.72	36.25	313.47	--	Wellhead inaccessible during measurement event on 02/19/2016 due to construction activities. Data represents measurement obtained at the time of sample collection.
MW88	Drake	Shallow-Intermediate	Monitoring Well	06/15/2015	12:14	351.63	18.55	333.08	--	
MW88	Drake	Shallow-Intermediate	Monitoring Well	09/28/2015	12:02	351.63	25.80	325.83	--	
MW88	Drake	Shallow-Intermediate	Monitoring Well	12/14/2015	12:33	351.63	23.83	327.80	--	
MW88	Drake	Shallow-Intermediate	Monitoring Well	02/19/2016	14:47	351.63	14.30	337.33	--	
MW89	Drake	Intermediate	Monitoring Well	06/15/2015	11:47	353.86	40.25	313.61	--	
MW89	Drake	Intermediate	Monitoring Well	09/28/2015	11:46	353.86	43.13	310.73	--	
MW89	Drake	Intermediate	Monitoring Well	12/14/2015	12:36	353.86	43.30	310.56	--	
MW89	Drake	Intermediate	Monitoring Well	02/19/2016	14:46	353.86	39.90	313.96	--	
MW90	TOC	Intermediate	4" Remediation Well	06/15/2015	8:58	362.87	25.29	337.58	--	
MW90	TOC	Intermediate	4" Remediation Well	09/28/2015	9:10	362.87	35.37	327.50	--	
MW90	TOC	Intermediate	4" Remediation Well	12/14/2015	9:35	362.87	32.36	330.51	--	
MW90	TOC	Intermediate	4" Remediation Well	02/19/2016	12:36	362.87	23.65	339.22	--	
MW91	TOC	Intermediate	4" Remediation Well	06/15/2015	8:50	362.67	25.85	336.82	--	
MW91	TOC	Intermediate	4" Remediation Well	09/28/2015	9:05	362.67	29.77	332.90	--	
MW91	TOC	Intermediate	4" Remediation Well	12/14/2015	9:32	362.67	28.91	333.76	--	
MW91	TOC	Intermediate	4" Remediation Well	02/19/2016	12:40	362.67	21.30	341.37	--	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well	06/15/2015	9:04	357.91	42.19	315.72	--	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well	09/28/2015	9:23	357.91	45.05	312.86	--	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well	12/14/2015	9:45	357.91	DRY	DRY	DRY	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well	02/19/2016	14:18	357.91	41.98	315.93	--	
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well	06/15/2015	9:02	355.97	40.34	315.63	--	
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well	09/28/2015	9:31	355.97	DRY	DRY	DRY	
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well	12/14/2015	9:39	355.97	DRY	DRY	DRY	
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well	02/19/2016	14:22	355.97	40.13	315.84	--	
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well	06/15/2015	13:57	357.94	DRY	DRY	DRY	
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well	09/28/2015	9:20	357.94	DRY	DRY	DRY	
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well	12/14/2015	9:41	357.94	DRY	DRY	DRY	
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well	02/19/2016	14:14	357.94	DRY	DRY	DRY	not sampled 1Q2016 (insufficient groundwater sample volume)
MW95	Drake	Intermediate	4" Remediation Well	06/15/2015	9:15	354.67	40.50	314.17	--	Remediation pump turned off 04/30/2015.
MW95	Drake	Intermediate	4" Remediation Well	09/28/2015	9:38	354.67	43.37	311.30	--	
MW95	Drake	Intermediate	4" Remediation Well	12/14/2015	9:55	354.67	43.59	311.08	--	
MW95	Drake	Intermediate	4" Remediation Well	02/19/2016	14:46	354.67	40.10	314.57	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW96	Drake	Intermediate	4" Remediation Well	06/15/2015	9:11	356.00	41.24	314.76	--	
MW96	Drake	Intermediate	4" Remediation Well	09/28/2015	9:36	356.00	44.15	311.85	--	
MW96	Drake	Intermediate	4" Remediation Well	12/14/2015	9:52	356.00	44.40	311.60	--	
MW96	Drake	Intermediate	4" Remediation Well	02/19/2016	14:46	356.00	40.92	315.08	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW97	Drake	Intermediate	4" Remediation Well	06/15/2015	9:33	354.29	40.11	314.18	--	
MW97	Drake	Intermediate	4" Remediation Well	09/28/2015	9:43	354.29	DRY	DRY	DRY	
MW97	Drake	Intermediate	4" Remediation Well	12/14/2015	10:02	354.29	DRY	DRY	DRY	
MW97	Drake	Intermediate	4" Remediation Well	02/19/2016	14:46	354.29	39.77	314.52	--	not sampled 1Q2016 (insufficient groundwater sample volume)
MW98	Drake	Intermediate	4" Remediation Well	06/15/2015	9:29	354.75	DRY	DRY	DRY	
MW98	Drake	Intermediate	4" Remediation Well	09/28/2015	9:42	354.75	DRY	DRY	DRY	
MW98	Drake	Intermediate	4" Remediation Well	12/14/2015	9:59	354.75	DRY	DRY	DRY	
MW98	Drake	Intermediate	4" Remediation Well	02/04/2016	12:00	354.75	41.75	313.00	--	Wellhead inaccessible during measurement event on 02/19/2016. Data represents measurement obtained at the time of sample collection.
MW99	Drake	Intermediate	4" Remediation Well	06/15/2015	9:40	353.58	DRY	DRY	DRY	
MW99	Drake	Intermediate	4" Remediation Well	09/28/2015	9:47	353.58	DRY	DRY	DRY	
MW99	Drake	Intermediate	4" Remediation Well	12/14/2015	10:06	353.58	DRY	DRY	DRY	
MW99	Drake	Intermediate	4" Remediation Well	02/04/2016	14:35	353.58	DRY	DRY	DRY	Wellhead inaccessible during measurement event on 02/19/2016 (vehicle parked on top). Well was noted as dry at the time of sample collection on 02/04/2016.
MW100	Drake	Shallow-Intermediate	Monitoring Well	06/15/2015	11:10	355.75	18.30	337.45	--	
MW100	Drake	Shallow-Intermediate	Monitoring Well	09/28/2015	10:56	355.75	25.59	330.16	--	
MW100	Drake	Shallow-Intermediate	Monitoring Well	12/14/2015	11:23	355.75	22.75	333.00	--	
MW100	Drake	Shallow-Intermediate	Monitoring Well	02/19/2016	14:25	355.75	13.53	342.22	--	
MW101	Drake	Intermediate	4" Remediation Well	06/15/2015	9:41	352.05	38.64	313.41	--	
MW101	Drake	Intermediate	4" Remediation Well	09/28/2015	9:50	352.05	41.53	310.52	--	
MW101	Drake	Intermediate	4" Remediation Well	12/14/2015	10:08	352.05	41.50	310.55	--	
MW101	Drake	Intermediate	4" Remediation Well	02/19/2016	NM	352.05	NM	NM	NM	Wellhead inaccessible during measurement event on 02/19/2016 (vehicle parked on top). Measurement could not be obtained at the time of sample collection on 02/04/2016.
MW102	Herman	Shallow	Monitoring Well	06/15/2015	12:52	352.39	16.85	336.47	1.16	
MW102	Herman	Shallow	Monitoring Well	09/28/2015	12:44	352.39	DRY	DRY	DRY	
MW102	Herman	Shallow	Monitoring Well	12/14/2015	13:53	352.39	16.86	335.53	--	Well was dry during the DTW/DTP measurement event on 12/14/2015. A DTW measurement was recorded at the time sample collection was attempted on 12/11/2015 but the measurement is likely representative of water in the end cap rather than actual groundwater conditions. Therefore, the well is considered dry.
MW102	Herman	Shallow	Monitoring Well	02/19/2016	NM	352.39	NM	NM	NM	Measurement not collected during system off event. See system on table for measurement data collected on 02/01/2016. Samples were not collected during 1Q2016 due to presence of LNAPL.
MW103	Herman	Intermediate	Monitoring Well	06/15/2015	12:50	352.21	40.97	311.24	--	
MW103	Herman	Intermediate	Monitoring Well	09/28/2015	12:46	352.21	43.98	308.23	--	
MW103	Herman	Intermediate	Monitoring Well	12/14/2015	13:31	352.21	44.43	307.78	--	
MW103	Herman	Intermediate	Monitoring Well	02/19/2016	15:05	352.21	40.72	311.49	--	
MW104	Herman	Shallow	Monitoring Well	06/15/2015	12:29	353.00	13.91	339.09	--	
MW104	Herman	Shallow	Monitoring Well	09/28/2015	12:36	353.00	17.20	335.80	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW104	Herman	Shallow	Monitoring Well	12/14/2015	13:24	353.00	15.38	337.62	--	
MW104	Herman	Shallow	Monitoring Well	02/19/2016	15:06	353.00	11.20	341.80	--	possible product (hydrocarbon odor noted at time of sampling on 02/12/2016)
MW105	Herman	Intermediate	Monitoring Well	06/15/2015	12:28	353.05	39.81	313.24	--	
MW105	Herman	Intermediate	Monitoring Well	09/28/2015	12:36	353.05	DRY	DRY	DRY	
MW105	Herman	Intermediate	Monitoring Well	12/11/2015	14:35	353.05	42.28	310.77	--	Well was dry during measurement event on 12/14/2015. Therefore, the measurement provided was obtained at the time of sample collection.
MW105	Herman	Intermediate	Monitoring Well	02/19/2016	15:06	353.05	40.06	312.99	--	
MW106	Herman	Shallow	Monitoring Well	06/13/2015	NM	349.24	16.54	332.70	--	Wellhead was inaccessible during measurement event on 06/15/2015 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW106	Herman	Shallow	Monitoring Well	09/26/2015	11:15	349.24	18.85	330.39	--	Wellhead was inaccessible during measurement event on 09/28/2015 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW106	Herman	Shallow	Monitoring Well	12/12/2015	10:35	349.24	12.87	336.37	--	Wellhead was inaccessible during measurement event on 12/14/2015 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW106	Herman	Shallow	Monitoring Well	02/13/2016	14:27	349.24	11.86	337.38	--	Wellhead was inaccessible during measurement event on 02/19/2016 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW107	Herman	Intermediate	Monitoring Well	06/13/2015	NM	349.56	37.74	311.82	--	
MW107	Herman	Intermediate	Monitoring Well	06/15/2015	NM	349.56	NM	NM	NM	Wellhead was inaccessible during measurement event due to construction activities on the Mountlake Senior Property.
MW107	Herman	Intermediate	Monitoring Well	09/26/2015	9:50	349.56	39.28	310.28	--	Wellhead was inaccessible during measurement event on 09/28/2015 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW107	Herman	Intermediate	Monitoring Well	12/12/2015	9:30	349.56	40.25	309.31	--	Wellhead was inaccessible during measurement event on 12/14/2015 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW107	Herman	Intermediate	Monitoring Well	02/13/2016	13:16	349.56	37.59	311.97	--	Wellhead was inaccessible during measurement event on 02/19/2016 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW108	Herman	Intermediate	Monitoring Well	06/18/2015	9:45	351.09	38.15	312.94	--	Well installed on 06/15/2015.
MW108	Herman	Intermediate	Monitoring Well	09/28/2015	12:39	351.09	40.83	310.26	--	
MW108	Herman	Intermediate	Monitoring Well	12/14/2015	13:27	351.09	40.71	310.38	--	

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Second, Third and Fourth Quarters 2015
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well Type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW108	Herman	Intermediate	Monitoring Well	02/15/2016	13:30	351.09	37.85	313.24	--	Wellhead was inaccessible during measurement event on 02/19/2016 due to construction activities on the Mountlake Senior Property. Therefore, the measurement provided was obtained at the time of sample collection.
MW109	Herman	Intermediate	Monitoring Well	06/18/2015	NM	353.35	40.35	313.00	--	Well installed on 06/15/2015.
MW109	Herman	Intermediate	Monitoring Well	09/28/2015	12:34	353.35	DRY	DRY	DRY	
MW109	Herman	Intermediate	Monitoring Well	12/11/2015	14:30	353.35	40.66	312.69	--	Well was dry during measurement event on 12/14/2015. Measurement provided was collected at the time sample collection was attempted.
MW109	Herman	Intermediate	Monitoring Well	12/14/2015	13:20	353.35	DRY	DRY	DRY	
MW109	Herman	Intermediate	Monitoring Well	02/15/2016	0:00	353.35	DRY	DRY	DRY	Well was dry during measurement and sampling event.

Notes:
2016 measurements were collected by HydroCon Environmental, LLC and 2015 measurements were collected by Stantec Consulting Services Inc.
(a) Reference elevation is the north side of the top of the well casing (except for MW25 where the reference elevation is the high point on the PVC casing and for MW99 where the reference elevation is the top of the well cap). Elevations are measured in feet above mean sea level (North American Vertical Datum of 1988 [NAVD 88]). PACE Engineers, Inc. performed well location and elevation surveys for all active wells in April and May 2014.
(b) DTW/DTP was measured from surveyed reference elevation [see note (b)].
(c) Where product (LNAPL) thickness was measured, groundwater elevation was adjusted to account for the presence of LNAPL using the method from "Estimation of Free Hydrocarbon Volume from Fluid Levels in Monitoring Wells" (Lenhard & Parker 1990). Product thickness is calculated using DTP level measured concurrently with DTW level.
(d) Groundwater elevation represents "system off" data (i.e., natural site conditions).

Definitions:
-- = No measurable product or odor observed.
DRY = Unable to measure DTW due to insufficient groundwater (in monitoring well) or groundwater level was below the top of pump (in remediation well).

Acronyms:
DTW = depth-to-groundwater
LNAPL = liquid non-aqueous phase liquid
NA = not available
NM = not measured

List of Properties:
TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
242nd St ROW = portion of right-of-way adjacent to TOC Property

TABLE 1-2
Depth-to-Groundwater Level and Product Thickness Measurements (System On)
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW01	TOC	Shallow	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 10/02/2009**
MW02	TOC	Shallow	Monitoring Well	02/01/2016	13:51	358.71	9.63	349.08	--	
MW03	TOC	Shallow	Monitoring Well	02/01/2016	13:40	361.85	9.84	352.01	--	
MW04	56th Ave ROW	Shallow	Monitoring Well	02/01/2016	11:34	361.96	9.02	352.94	--	
MW05	242nd St ROW	Shallow	Monitoring Well	02/01/2016	13:35	363.70	9.51	354.19	--	
MW06	TOC	Shallow	Monitoring Well	02/01/2016	13:25	358.98	6.54	352.44	--	
MW07	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW08	56th Ave ROW	Shallow-Intermediate	Monitoring Well	02/01/2016	16:18	360.34	17.74	342.60	--	
MW09	TOC	Shallow-Intermediate	Monitoring Well	02/01/2016	13:41	360.32	26.82	333.50	--	
MW10	TOC	Intermediate	Monitoring Well	02/01/2016	13:46	357.91	34.55	323.36	--	
MW11	TOC	Intermediate	4" Remediation Well	02/01/2016	15:20	362.34	32.90	329.44	--	
MW12	56th Ave ROW	Shallow	Monitoring Well	02/01/2016	14:00	357.65	8.04	349.61	--	
MW13	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	14:01	357.34	DRY	DRY	DRY	
MW14	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW15	TOC	Intermediate	Monitoring Well	NM	NM	357.56	NM	NM	NM	
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well	02/01/2016	13:30	365.18	DRY	DRY	DRY	
MW17	TOC/Farmasonis	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW18	TOC	Shallow-Intermediate	4" Remediation Well	02/01/2016	16:00	357.91	28.28	329.63	--	
MW19	TOC	Shallow	Monitoring Well	02/01/2016	13:49	358.86	9.93	348.93	--	
MW20	TOC	Intermediate	Monitoring Well	02/01/2016	13:53	359.93	36.41	323.52	--	
MW21	TOC	Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 04/16/2012**
MW22	TOC	Shallow-Intermediate	Monitoring Well	02/01/2016	13:49	358.52	29.16	329.36	--	
MW23	TOC	Intermediate	Monitoring Well	02/01/2016	13:16	357.08	38.99	318.09	--	
MW24	TOC	Shallow-Intermediate	4" Remediation Well	02/01/2016	12:25	361.97	32.30	329.67	--	
MW25	TOC	Intermediate	Monitoring Well	02/01/2016	13:45	358.70	31.75	326.95	--	
MW26	TOC	Deep	Monitoring Well	02/01/2016	13:38	363.81	46.95	316.86	--	
MW27	TOC	Shallow-Intermediate	2" Remediation Well	02/01/2016	NM	362.51	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW28	TOC	Shallow-Intermediate	Monitoring Well	02/01/2016	13:53	358.41	26.58	331.83	--	
MW29	TOC	Shallow-Intermediate	2" Remediation Well	02/01/2016	NM	358.93	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW30	TOC/Farmasonis	Deep	Monitoring Well	02/01/2016	13:15	356.46	40.36	316.10	--	
MW31	TOC/Farmasonis	Intermediate	2" Remediation Well	02/01/2016	NM	357.08	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW32	TOC	Intermediate	4" Remediation Well	02/01/2016	13:35	359.95	28.82	331.13	--	
MW33	TOC	Intermediate	Monitoring Well	02/01/2016	13:55	358.24	34.31	323.93	--	
MW34	TOC	Shallow	Monitoring Well	02/01/2016	13:18	357.88	6.98	350.90	--	
MW35	TOC	Intermediate	Monitoring Well	02/01/2016	13:21	358.46	39.23	319.23	--	
MW36	TOC	Intermediate	Monitoring Well	02/01/2016	13:19	357.98	42.50	315.48	--	
MW37	TOC	Shallow-Intermediate	Monitoring Well	02/01/2016	13:27	358.90	14.40	344.50	--	
MW38	TOC	Shallow-Intermediate	Monitoring Well	02/01/2016	13:29	364.42	14.99	349.43	--	
MW39	TOC/Farmasonis	Deep	Monitoring Well	02/01/2016	14:16	355.88	40.23	315.65	--	
MW40	TOC/Farmasonis	Deep	Monitoring Well	02/01/2016	14:09	356.32	40.35	315.97	--	
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well	02/01/2016	NM	356.14	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	14:06	356.43	DRY	DRY	DRY	
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well	02/01/2016	16:22	358.84	35.97	322.87	--	
MW44	56th Ave ROW	Intermediate	Monitoring Well	06/10/2015	9:38	354.93	DRY	DRY	DRY	
MW44	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:45	354.93	DRY	DRY	DRY	
MW45	56th Ave ROW	Intermediate	Monitoring Well	06/10/2015	9:48	356.49	DRY	DRY	DRY	

TABLE 1-2
Depth-to-Groundwater Level and Product Thickness Measurements (System On)
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW45	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	14:02	356.49	39.45	317.04	--	
MW46	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:28	357.00	42.36	314.64	--	
MW47	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:31	355.47	41.66	313.81	--	
MW48	56th Ave ROW	Intermediate	Monitoring Well	06/10/2015	9:30	355.41	40.84	314.57	--	
MW48	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	11:18	355.41	40.33	315.08	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	06/10/2015	9:44	356.44	41.65	314.79	--	
MW49	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	14:03	356.44	43.00	313.44	--	
MW50	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:15	361.99	35.96	326.03	--	
MW51	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	11:15	352.66	40.82	311.84	--	
MW52	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:31	355.61	41.93	313.68	--	
MW53	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:20	359.85	42.99	316.86	--	
MW54	TOC/Farmasonis	Shallow	Monitoring Well	02/01/2016	13:56	357.93	9.39	348.54	--	
MW55	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:29	356.50	42.83	313.67	--	
MW56	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	13:58	357.49	43.86	313.63	--	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	06/10/2015	9:19	356.42	44.97	311.45	--	
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well	02/01/2016	14:50	356.42	40.68	315.74	--	
MW58	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	14:07	355.40	42.55	312.85	--	
MW59	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	14:11	356.51	43.14	313.37	--	
MW60	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:24	358.58	23.60	334.98	--	
MW61	56th Ave ROW	Shallow	Monitoring Well	02/01/2016	16:26	357.17	6.31	350.86	--	
MW62	56th Ave ROW	Shallow	Monitoring Well	02/01/2016	16:19	360.50	7.89	352.61	--	
MW63	56th Ave ROW	Intermediate	Monitoring Well	06/10/2015	9:35	355.11	42.09	313.02	--	
MW63	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	16:46	355.11	42.11	313.00	--	
MW64	56th Ave ROW	Deep	Monitoring Well	02/01/2016	16:49	355.18	39.63	315.55	--	
MW65	Drake	Intermediate	Monitoring Well	02/01/2016	16:55	353.08	40.49	312.59	--	
MW66	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	14:14	355.75	42.20	313.55	--	
MW67	Drake	Shallow	Monitoring Well	02/01/2016	16:52	355.73	11.11	344.62	--	
MW68	Drake	Shallow	Monitoring Well	02/01/2016	16:53	355.11	10.64	344.47	--	
MW69	Drake	Intermediate	2" Remediation Well	02/01/2016	NM	353.76	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW70	Drake	Intermediate	2" Remediation Well	02/01/2016	NM	354.17	NM	NM	NM	Diameter of water probe is too large to fit past 2-inch remediation pump tubing.
MW71	Shin/Choi	Shallow	Monitoring Well	02/01/2016	11:00	347.92	15.04	335.07	2.74	
MW72	Shin/Choi	Shallow	Monitoring Well	02/01/2016	10:55	347.38	15.06	332.32	1.54	
MW73	Shin/Choi	Intermediate	Monitoring Well	02/01/2016	10:53	347.33	37.83	309.50	--	
MW74	Shin/Choi	Intermediate	Monitoring Well	02/01/2016	10:54	347.94	38.08	309.86	--	
MW75	56th Ave ROW	Intermediate	Monitoring Well	02/01/2016	14:00	354.78	40.44	314.34	--	Well is subject to Traffic Control Plan (WSDOT 2014).
MW76	Drake	Intermediate	Monitoring Well	02/01/2016	17:02	351.69	38.48	313.21	--	
MW77	Drake	Intermediate	Monitoring Well	02/01/2016	12:05	349.95	36.49	313.46	--	
MW78	Drake	Deep	Monitoring Well	02/01/2016	12:02	349.90	34.42	315.48	--	
MW79	TOC/Farmasonis	Shallow	Monitoring Well	02/01/2016	14:19	353.98	9.62	344.36	--	
MW80	TOC/Farmasonis	Shallow	Monitoring Well	02/01/2016	14:20	353.83	11.93	341.90	--	
MW81	TOC/Farmasonis	Intermediate	Monitoring Well	02/01/2016	14:24	355.60	42.25	313.35	--	
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well	02/01/2016	14:22	355.59	28.83	326.76	--	
MW83	TOC/Farmasonis	Shallow-Intermediate	Abandoned	NA	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED (REPLACED WITH MW100)**
MW84	Drake	Intermediate	Monitoring Well	02/01/2016	11:29	353.75	41.13	312.62	--	
MW85	Drake	Intermediate	Monitoring Well	02/01/2016	16:57	351.28	38.91	312.37	--	
MW86	Drake	Intermediate	Monitoring Well	02/01/2016	17:00	352.72	40.40	312.32	--	

TABLE 1-2

Depth-to-Groundwater Level and Product Thickness Measurements (System On)

Second Quarter 2015 through First Quarter 2016

TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier	Property	Groundwater Zone	Well type	Date	Time (24:00)	Reference Elevation (feet) (a)	DTW (feet) (b)	Groundwater Elevation (feet) (c, d)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW87	Drake	Intermediate	Monitoring Well	02/01/2016	22:20	349.72	36.25	313.47	--	
MW88	Drake	Shallow-Intermediate	Monitoring Well	02/01/2016	17:04	351.63	15.26	336.37	--	
MW89	Drake	Intermediate	Monitoring Well	02/01/2016	16:42	353.86	41.46	312.40	--	
MW90	TOC	Intermediate	4" Remediation Well	02/01/2016	10:42	362.87	34.83	328.04	--	
MW91	TOC	Intermediate	4" Remediation Well	02/01/2016	10:39	362.67	32.31	330.36	--	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well	02/01/2016	15:53	357.91	41.70	316.21	--	
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well	02/01/2016	14:56	355.97	41.74	314.23	--	
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well	02/01/2016	14:58	357.94	DRY	DRY	DRY	
MW95	Drake	Intermediate	4" Remediation Well	02/01/2016	15:20	354.67	41.50	313.17	--	Remediation pump turned off 04/30/2015.
MW96	Drake	Intermediate	4" Remediation Well	06/10/2015	9:14	356.00	DRY	DRY	DRY	
MW96	Drake	Intermediate	4" Remediation Well	02/01/2016	12:55	356.00	DRY	DRY	DRY	
MW97	Drake	Intermediate	4" Remediation Well	02/01/2016	12:00	354.29	DRY	DRY	DRY	
MW98	Drake	Intermediate	4" Remediation Well	02/01/2016	11:55	354.75	41.75	313.00	--	
MW99	Drake	Intermediate	4" Remediation Well	02/01/2016	NM	353.58	DRY	DRY	DRY	
MW100	Drake	Shallow-Intermediate	Monitoring Well	02/01/2016	14:23	355.75	14.74	341.01	--	
MW101	Drake	Intermediate	4" Remediation Well	02/01/2016	NM	352.05	NM	NM	NM	Could not get probe down well.
MW102	Herman	Shallow	Monitoring Well	02/01/2016	11:50	352.39	16.90	337.31	2.28	
MW103	Herman	Intermediate	Monitoring Well	02/01/2016	16:35	352.21	42.75	309.46	--	
MW104	Herman	Shallow	Monitoring Well	02/01/2016	11:09	353.00	12.02	340.98		
MW105	Herman	Intermediate	Monitoring Well	02/01/2016	16:38	353.05	40.88	312.17	--	
MW106	Herman	Shallow	Monitoring Well	02/01/2016	NM	349.24	NM	NM	NM	DTW not measured due to construction site.
MW107	Herman	Intermediate	Monitoring Well	02/01/2016	NM	349.56	NM	NM	NM	DTW not measured due to construction site.
MW108	Herman	Intermediate	Monitoring Well	02/01/2016	11:11	351.09	38.28	312.81	--	
MW109	Herman	Intermediate	Monitoring Well	02/01/2016	16:40	353.35	40.73	312.62	--	

Notes:

2016 measurements were collected by HydroCon Environmental, LLC and 2015 measurements were collected by Stantec Consulting Services Inc.

System on data is collected during the annual event but was collected from select locations during 2Q2015 (see rows shaded gray).

(a) Reference elevation is the north side of the top of the well casing (except for MW25 where the reference elevation is the high point on the PVC casing and for MW99 where the reference elevation is the top of the well cap). Elevations are measured in feet above mean sea level (North American Vertical Datum of 1988 [NAVD 88]). PACE Engineers, Inc. performed well location and elevation surveys for all active wells in April and May 2014.

(b) DTW/DTP was measured from surveyed reference elevation [see note (b)].

(c) Where product (LNAPL) thickness was measured, groundwater elevation was adjusted to account for the presence of LNAPL using the method from "Estimation of Free Hydrocarbon Volume from Fluid Levels in Monitoring Wells" (Lenhard & Parker 1990). Product thickness is calculated using DTP level measured concurrently with DTW level.

(d) Groundwater elevation represents "system on" data (i.e., pumping conditions).

Definitions:

-- = No measurable product or odor observed.

DRY = Unable to measure DTW due to insufficient groundwater (in monitoring well) or groundwater level was below the top of pump (in remediation well).

Acronyms:

DTW = depth-to-groundwater

LNAPL = liquid non-aqueous phase liquid

NA = not available

NM = not measured

List of Properties:

TOC = 24205 56th Avenue West, Mountlake Terrace WA

TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA

Drake = 24309 56th Avenue West, Mountlake Terrace WA

Herman = 24311 56th Avenue West, Mountlake Terrace WA

Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA

56th Ave ROW = right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

242nd St ROW = portion of right-of-way adjacent to TOC Property

TABLE 2-1
Groundwater Quality Results for Select Constituents
Shallow Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800[2]	500	500	5	1,000	700	1,000	NE[3]	NE[3]
MW02	Monitoring Well	TOC	2/8/2016	MW02	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW02	Monitoring Well	TOC	2/8/2016	MLT-01*	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW03	Monitoring Well	TOC	2/8/2016	MW03	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW04	Monitoring Well	56th Ave ROW	2/11/2016	MW04	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW05	Monitoring Well	242nd St ROW	2/11/2016	MW05	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW06	Monitoring Well	TOC	2/9/2016	MW06	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW12	Monitoring Well	56th Ave ROW	2/15/2016	MW12	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW19	Monitoring Well	TOC	2/9/2016	MW19	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW34	Monitoring Well	TOC	2/10/2016	MW34	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW54	Monitoring Well	TOC/Farmasonis	6/10/2015	MW54	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	9/23/2015	MW54	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	12/15/2015	MW54	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	2/16/2016	MW54	Peristaltic Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW61	Monitoring Well	56th Ave ROW	2/15/2016	MW61	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW62	Monitoring Well	56th Ave ROW	2/11/2016	MW62	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW67	Monitoring Well	Drake	6/11/2015	MW67	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW67	Monitoring Well	Drake	9/24/2015	MW67	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW67	Monitoring Well	Drake	12/15/2015	MW67	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW67	Monitoring Well	Drake	2/18/2016	MW67	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW68	Monitoring Well	Drake	6/11/2015	MW68	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW68	Monitoring Well	Drake	9/24/2015	MW68	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW68	Monitoring Well	Drake	12/15/2015	MW68	Peristaltic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW68	Monitoring Well	Drake	2/18/2016	MW68	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW71	Monitoring Well	Shin/Choi	6/12/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW71	Monitoring Well	Shin/Choi	9/25/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW71	Monitoring Well	Shin/Choi	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW71	Monitoring Well	Shin/Choi	2/12/2016	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW72	Monitoring Well	Shin/Choi	6/12/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW72	Monitoring Well	Shin/Choi	9/25/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW72	Monitoring Well	Shin/Choi	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW72	Monitoring Well	Shin/Choi	2/12/2016	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW79	Monitoring Well	TOC/Farmasonis	2/16/2016	MW79	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW80	Monitoring Well	TOC/Farmasonis	2/16/2016	MW80	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW102	Monitoring Well	Herman	6/15/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW102	Monitoring Well	Herman	9/25/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was dry but measurable LNAPL is typically observed at this location.**								
MW102	Monitoring Well	Herman	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	**Well was dry but measurable LNAPL is typically observed at this location.**								
MW102	Monitoring Well	Herman	2/12/2016	-- *(not sampled)*	-- *(not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**								
MW104	Monitoring Well	Herman	6/12/2015	MW104	Peristaltic Pump	**40,000**	**580**	**8,000**	**9.5**	**720**	**2,000**	**10,000**	NA	NA

TABLE 2-1
Groundwater Quality Results for Select Constituents
Shallow Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

						Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[(1)]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800[(2)]	500	500	5	1,000	700	1,000	NE[(3)]	NE[(3)]
MW104	Monitoring Well	Herman	6/12/2015	MLT-04*	Peristaltic Pump	**41,000**	**580**	**7,700**	**11**	**830**	**2,100**	**11,000**	NA	NA
MW104	Monitoring Well	Herman	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW104	Monitoring Well	Herman	12/15/2015	MW104	Peristaltic Pump	**60,000**	**400**	**8,400J**	**78**	**6,300**	**2,100**	**11,000**	NA	NA
MW104	Monitoring Well	Herman	12/15/2015	MLT-04*	Peristaltic Pump	**59,000**	**410**	**6,200J**	**81**	**6,900**	**2,000**	**10,000**	NA	NA
MW104	Monitoring Well	Herman	2/12/2016	MW104	Peristaltic Pump	**15,000**	380U	**4,600J**	**0.66J**	**210**	**460**	NA	**2,300**	**740**
MW104	Monitoring Well	Herman	2/12/2016	MLT-07*	Peristaltic Pump	**14,000**	300U	**3,500J**	**0.87**	**230**	**510**	NA	**2,500**	**800**
MW106	Monitoring Well	Herman	6/13/2015	MW106	Submersible Pump	100U	500U	**480**	1U	1U	1U	3U	NA	NA
MW106	Monitoring Well	Herman	9/26/2015	MW106	Submersible Pump	100U	250U	**490**	1U	1U	1U	3U	NA	NA
MW106	Monitoring Well	Herman	9/26/2015	MLT-06*	Submersible Pump	100U	300U	**500**	1U	1U	1U	3U	NA	NA
MW106	Monitoring Well	Herman	12/12/2015	MW106	Submersible Pump	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW106	Monitoring Well	Herman	2/13/2016	MW106	Peristaltic Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

(1) For groundwater samples with detected concentrations of DRPH, the sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation

(2) Cleanup level is 1,000 µg/L when benzene is not present and 800 µg/L when benzene is present

(3) MTCA Method A cleanup levels for individual xylenes have not been established.

-- = Sample was not collected.

* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.

Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.

LABORATORY NOTES:

U = Indicates the compound was undetected at the method reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned based on data validation protocol.

ACRONYMS:

µg/L = micrograms per liter
LNAPL = light non-aqueous phase liquid
MTCA = Model Toxics Control Act
NA = not analyzed
NE = not established
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon - diesel-range organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon - gasoline-range organics
WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
242nd St ROW = portion of right-of-way adjacent to TOC Property
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA

TABLE 2-2
Groundwater Quality Results for Select Fuel Additives
Shallow Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																			
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]														
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM														
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						20	5	0.01	15	15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	160	0.1	0.1
MW02	Monitoring Well	TOC	2/8/2016	MW02	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW02	Monitoring Well	TOC	2/8/2016	MLT-01*	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW03	Monitoring Well	TOC	2/8/2016	MW03	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW04	Monitoring Well	56th Ave ROW	2/11/2016	MW04	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW05	Monitoring Well	242nd St ROW	2/11/2016	MW05	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW06	Monitoring Well	TOC	2/9/2016	MW06	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW12	Monitoring Well	56th Ave ROW	2/15/2016	MW12	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW19	Monitoring Well	TOC	2/9/2016	MW19	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW34	Monitoring Well	TOC	2/10/2016	MW34	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	6/10/2015	MW54	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	9/23/2015	MW54	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	12/15/2015	MW54	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW54	Monitoring Well	TOC/Farmasonis	2/16/2016	MW54	Peristaltic Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW61	Monitoring Well	56th Ave ROW	2/15/2016	MW61	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW62	Monitoring Well	56th Ave ROW	2/11/2016	MW62	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW67	Monitoring Well	Drake	6/11/2015	MW67	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW67	Monitoring Well	Drake	9/24/2015	MW67	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW67	Monitoring Well	Drake	12/15/2015	MW67	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW67	Monitoring Well	Drake	2/18/2016	MW67	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW68	Monitoring Well	Drake	6/11/2015	MW68	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW68	Monitoring Well	Drake	9/24/2015	MW68	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW68	Monitoring Well	Drake	12/15/2015	MW68	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW68	Monitoring Well	Drake	2/18/2016	MW68	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW71	Monitoring Well	Shin/Choi	6/12/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW71	Monitoring Well	Shin/Choi	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW71	Monitoring Well	Shin/Choi	12/14/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW71	Monitoring Well	Shin/Choi	2/12/2016	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW72	Monitoring Well	Shin/Choi	6/12/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW72	Monitoring Well	Shin/Choi	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW72	Monitoring Well	Shin/Choi	12/14/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW72	Monitoring Well	Shin/Choi	2/12/2016	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW79	Monitoring Well	TOC/Farmasonis	2/16/2016	MW79	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW80	Monitoring Well	TOC/Farmasonis	2/16/2016	MW80	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW102	Monitoring Well	Herman	6/15/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW102	Monitoring Well	Herman	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was dry but measurable LNAPL is typically observed at this location.**																				
MW102	Monitoring Well	Herman	12/11/2015	*-- (not sampled)*	*-- (not sampled)*	**Well was dry but measurable LNAPL is typically observed at this location.**																				
MW102	Monitoring Well	Herman	2/12/2016	*-- (not sampled)*	*-- (not sampled)*	**Well was not sampled due to presence of measurable LNAPL.**																				
MW104	Monitoring Well	Herman	6/12/2015	MW104	Peristaltic Pump	1U	1U	**0.098**	1U	1U	**0.16**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	**0.19**	0.1U	**360J**	0.1U	0.1U
MW104	Monitoring Well	Herman	6/12/2015	MLT-04*	Peristaltic Pump	1U	1U	**0.1**	1U	1U	**0.15**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	**0.17**	0.1U	**260J**	0.1U	0.1U
MW104	Monitoring Well	Herman	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

Stantec

TABLE 2-2
Groundwater Quality Results for Select Fuel Additives
Shallow Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						20	5	0.01	15	15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	160	0.1	0.1
MW104	Monitoring Well	Herman	12/15/2015	MW104[a]	Peristaltic Pump	1U	1U	0.05	1U	1U	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	520	***0.6U***	***0.6U***
MW104	Monitoring Well	Herman	12/15/2015	MLT-04*[a]	Peristaltic Pump	1U	1U	0.052	1U	1U	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	***0.6U***	500	***0.6U***	***0.6U***
MW104	Monitoring Well	Herman	2/12/2016	MW104	Peristaltic Pump	1U	1U	0.01U	1U	1U	**0.075**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.067**	0.06U	**110**	0.06U	0.06U
MW104	Monitoring Well	Herman	2/12/2016	MLT-07*	Peristaltic Pump	1U	1U	0.01U	1U	1U	**0.074**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.069**	0.06U	**110**	0.06U	0.06U
MW106	Monitoring Well	Herman	6/13/2015	MW106	Submersible Pump	1U	1U	0.01U	1U	1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.18	0.1U	0.1U	0.1U	0.1U
MW106	Monitoring Well	Herman	9/26/2015	MW106	Submersible Pump	1U	1U	0.01U	1U	***R***	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.13	0.06U	0.06U	0.06U	0.06U
MW106	Monitoring Well	Herman	9/26/2015	MLT-06*	Submersible Pump	1U	1U	0.01U	1U	***R***	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.11	0.06U	0.06U	0.06U	0.06U
MW106	Monitoring Well	Herman	12/12/2015	MW106	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW106	Monitoring Well	Herman	2/13/2016	MW106	Peristaltic Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007
2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.
Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.
Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.
Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.
Italic denotes the constituent was not detected at or above the method reporting limit (MRL); however, the MRL was elevated due to sample dilution and exceeds the MTCA cleanup level
Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.
[1] With the exception of Napthalene, preliminary screening results for carcinogenic PAHs are compared to the MTCA Method A Cleanup Level provided for benzo(a)pyrene on Table 720-1 of WAC 173-340-900. Per MTCA, this value represents the total concentration that all PAHs must meet using the toxicity equivalency methodology of WAC 173-340-708(8).
[a] Concentrations of all PAH constituents analyzed (excluding napthalene) were not detected at or above the MRLs in the sample collected from MW104; however, the MRLs were elevated due to sample dilution and exceeded the MTCA cleanup level
-- = Sample was not collected.
* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.
Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.
R = Total lead results for samples MW106 and MLT-06 were rejected based on data review and data validation and are considered unusable

LABORATORY NOTES:

U = Indicates the compound was undetected at the method reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned based on data validation protocol.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NA = not analyzed
PAH = Polycyclic Aromatic Hydrocarbons
WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
242nd St ROW = portion of right-of-way adjacent to TOC Property
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA

TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						**1,000/800[2]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NE[3]**	**NE[3]**
MW10	Monitoring Well	TOC	6/10/2015	MW10	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW10	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW10	Monitoring Well	TOC	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW10	Monitoring Well	TOC	2/9/2016	MW10	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW11	4" Remediation Well	TOC	2/2/2016	MW11	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW13	Monitoring Well	56th Ave ROW	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15	Monitoring Well	TOC	6/10/2015	MW15	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW15	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15	Monitoring Well	TOC	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15 [a]	Monitoring Well	TOC	2/1/2016	-- *(not sampled)*	-- *(not sampled)*	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW20	Monitoring Well	TOC	6/11/2015	MW20	Submersible Pump	100U	500U	**100**	1U	1U	1U	**4.5**	NA	NA
MW20	Monitoring Well	TOC	6/11/2015	MLT-02	Submersible Pump	100U	500U	100U	1U	1U	1U	**3.8**	NA	NA
MW20	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW20	Monitoring Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW20	Monitoring Well	TOC	2/5/2016	MW20	Bailer	100U	300U	60U	0.35U	1U	1U	NA	2U	1U
MW20	Monitoring Well	TOC	2/5/2016	MLT-03*	Bailer	100U	300U	60U	0.35U	1U	1U	NA	2U	1U
MW23	Monitoring Well	TOC	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW25	Monitoring Well	TOC	2/9/2016	MW25	Peristaltic Pump	**5,200**	NA	NA	**4.8**	**120**	**95**	NA	**750**	**290**
MW31	2" Remediation Well	TOC/Farmasonis	6/9/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	9/22/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW32	4" Remediation Well	TOC	6/9/2015	MW32	Pneumatic Pump	**410**	NA	NA	**2.6**	**3.5**	**11**	**28**	NA	NA
MW32	4" Remediation Well	TOC	9/22/2015	MW32	Pneumatic Pump	**140**	NA	NA	1U	1U	1U	**4.4**	NA	NA
MW32	4" Remediation Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW32	4" Remediation Well	TOC	2/2/2016	MW32	Pneumatic Pump	**1,200**	NA	NA	**1.1**	**21**	**21**	NA	**110**	**53**
MW33	Monitoring Well	TOC	6/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW35	Monitoring Well	TOC	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW36	Monitoring Well	TOC	2/5/2016	MW36	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW41	2" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW42	Monitoring Well	TOC/Farmasonis	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW44	Monitoring Well	56th Ave ROW	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	6/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)(1)	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800(2)	500	500	5	1,000	700	1,000	NE(3)	NE(3)
MW46	Monitoring Well	56th Ave ROW	2/10/2016	MW46	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW47	Monitoring Well	56th Ave ROW	Feb. 2016 (4)	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW48	Monitoring Well	56th Ave ROW	6/11/2015	MW48	Bailer	**2,200**	NA	NA	1U	**4.5**	1U	**110**	NA	NA
MW48	Monitoring Well	56th Ave ROW	9/23/2015	MW48	Bailer	**5,400**	NA	NA	**5.9**	**14**	**20**	**83**	NA	NA
MW48	Monitoring Well	56th Ave ROW	12/11/2015	MW48	Bailer	**11,000**	NA	NA	**32**	**30**	**61**	**480**	NA	NA
MW48	Monitoring Well	56th Ave ROW	2/8/2016	MW48	Bailer	**1,800**	NA	NA	0.35U	1U	1U	NA	**8.5**	1U
MW49	Monitoring Well	56th Ave ROW	6/10/2015	MW49	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW49	Monitoring Well	56th Ave ROW	9/23/2015	MW49	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW49	Monitoring Well	56th Ave ROW	12/9/2015	MW49	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW49	Monitoring Well	56th Ave ROW	2/16/2016	MW49	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW50	Monitoring Well	56th Ave ROW	6/11/2015	MW50	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW50	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW50	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW50	Monitoring Well	56th Ave ROW	2/8/2016	MW50	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW51	Monitoring Well	56th Ave ROW	6/16/2015	MW51	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW51	Monitoring Well	56th Ave ROW	9/23/2015	MW51	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW51	Monitoring Well	56th Ave ROW	12/11/2015	MW51	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW51	Monitoring Well	56th Ave ROW	2/15/2016	MW51	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW52	Monitoring Well	56th Ave ROW	6/12/2015	MW52	Bailer	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW52	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW52	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW52	Monitoring Well	56th Ave ROW	2/8/2016	MW52	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW53	Monitoring Well	56th Ave ROW	6/11/2015	MW53	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW53	Monitoring Well	56th Ave ROW	9/25/2015	MW53	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW53	Monitoring Well	56th Ave ROW	12/15/2015	MW53	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW53	Monitoring Well	56th Ave ROW	2/15/2016	MW53	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW55	Monitoring Well	56th Ave ROW	6/15/2015	MW55	Submersible Pump	**120**	NA	NA	**7.6**	**3.2**	**1.8**	**8.4**	NA	NA
MW55	Monitoring Well	56th Ave ROW	9/24/2015	MW55	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW55	Monitoring Well	56th Ave ROW	12/10/2015	MW55	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW55	Monitoring Well	56th Ave ROW	2/15/2016	MW55	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW56	Monitoring Well	TOC/Farmasonis	6/10/2015	MW56	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	9/23/2015	MW56	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	12/9/2015	MW56	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	2/19/2016	MW56	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW57	4" Remediation Well	TOC/Farmasonis	6/9/2015	MW57	Pneumatic Pump	**280**	NA	NA	1U	1U	**6.4**	**60**	NA	NA
MW57	4" Remediation Well	TOC/Farmasonis	9/22/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW57	4" Remediation Well	TOC/Farmasonis	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW57	4" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW58	Monitoring Well	TOC/Farmasonis	6/10/2015	MW58	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW58	Monitoring Well	TOC/Farmasonis	9/23/2015	MW58	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA

TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

						Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800[2]	500	500	5	1,000	700	1,000	NE[3]	NE[3]
MW58	Monitoring Well	TOC/Farmasonis	12/9/2015	MW58	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW58	Monitoring Well	TOC/Farmasonis	2/11/2016	MW58	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW59	Monitoring Well	TOC/Farmasonis	6/10/2015	MW59	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	9/23/2015	MW59	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	12/9/2015	MW59	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	2/11/2016	MW59	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW60	Monitoring Well	56th Ave ROW	6/11/2015	MW60	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW60	Monitoring Well	56th Ave ROW	9/26/2015	MW60	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW60	Monitoring Well	56th Ave ROW	12/10/2015	MW60	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW60	Monitoring Well	56th Ave ROW	2/15/2016	MW60	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW63	Monitoring Well	56th Ave ROW	6/12/2015	MW63	Submersible Pump	100U	NA	NA	**2.9**	**1.2**	1U	**3.5**	NA	NA
MW63	Monitoring Well	56th Ave ROW	9/25/2015	MW63	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW63	Monitoring Well	56th Ave ROW	9/25/2015	MLT-05*	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW63	Monitoring Well	56th Ave ROW	12/11/2015	MW63	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW63	Monitoring Well	56th Ave ROW	2/16/2016	MW63	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW65	Monitoring Well	Drake	6/16/2015	MW65	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW65	Monitoring Well	Drake	9/25/2015	MW65	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW65	Monitoring Well	Drake	12/11/2015	MW65	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW65	Monitoring Well	Drake	2/18/2016	MW65	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW65	Monitoring Well	Drake	2/18/2016	MLT-05*	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW66	Monitoring Well	TOC/Farmasonis	6/10/2015	MW66	Bailer	100U	500U	100U	1U	1U	1U	3U	NA	NA
MW66	Monitoring Well	TOC/Farmasonis	9/24/2015	MW66	Bailer	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW66	Monitoring Well	TOC/Farmasonis	12/11/2015	MW66	Bailer	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW66	Monitoring Well	TOC/Farmasonis	2/8/2016	MW66	Bailer	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW69	2" Remediation Well	Drake	6/10/2015	MW69	Pneumatic Pump	**3,100**	500U	**290**	1U	**1.4**	**12**	**200**	NA	NA
MW69	2" Remediation Well	Drake	9/22/2015	MW69	Pneumatic Pump	**4,100**	250U	**510**	1U	**1.3**	1U	**230**	NA	NA
MW69	2" Remediation Well	Drake	12/10/2015	MW69	Pneumatic Pump	**2,700**	250U	**530**	1U	**1.4**	1U	**120**	NA	NA
MW69	2" Remediation Well	Drake	2/4/2016	MW69	Pneumatic Pump	**3,700**	250U	**1,600JL**	**0.48**	1U	**22**	NA	**160**	**3.1**
MW70	2" Remediation Well	Drake	6/10/2015	MW70	Pneumatic Pump	100U	500U	100U	1U	1U	1U	3U	NA	NA
MW70	2" Remediation Well	Drake	9/23/2015	MW70	Pneumatic Pump	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW70	2" Remediation Well	Drake	12/10/2015	MW70	Pneumatic Pump	100U	300U	**250**	1U	1U	1U	3U	NA	NA
MW70	2" Remediation Well	Drake	2/4/2016	MW70	Pneumatic Pump	**590JL**	250U	50U	0.35U	1U	1U	NA	2U	1U
MW73	Monitoring Well	Shin/Choi	6/12/2015	MW73	Submersible Pump	**83,000**	500U	**2,800**	**17,000**	**4,400**	**2,400**	**12,000**	NA	NA
MW73	Monitoring Well	Shin/Choi	9/25/2015	MW73	Bailer	**68,000**	250U	**3,500**	**12,000**	**1,500**	**1,700**	**8,300**	NA	NA
MW73	Monitoring Well	Shin/Choi	12/11/2015	MW73	Bailer	**55,000**	**280**	**2,300**	**11,000**	**590**	**1,500**	**6,100**	NA	NA

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TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						**1,000/800[2]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NE[3]**	**NE[3]**
MW73	Monitoring Well	Shin/Choi	2/12/2016	MW73	Submersible Pump	**60,000**	250U	**3,600JL**	**12,000**	**1,500**	**1,600**	NA	**4,300**	**2,500**
MW74	Monitoring Well	Shin/Choi	6/12/2015	MW74	Bailer	**60,000**	500U	**4,500**	**13,000**	**8,300**	**850**	**4,000**	NA	NA
MW74	Monitoring Well	Shin/Choi	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW74	Monitoring Well	Shin/Choi	12/11/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW74	Monitoring Well	Shin/Choi	2/12/2016	MW74	Bailer	**3,800**	250U	**230JL**	**1,500**	**5.1**	**1.6**	NA	**3.2**	**2.2**
MW75	Monitoring Well	56th Ave ROW	2/18/2016	MW75	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW76	Monitoring Well	Drake	2/17/2016	MW76	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW77	Monitoring Well	Drake	6/13/2015	MW77	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW77	Monitoring Well	Drake	9/28/2015	MW77	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW77	Monitoring Well	Drake	12/12/2015	MW77	Submersible Pump	100U	330U	65U	1U	1U	1U	3U	NA	NA
MW77	Monitoring Well	Drake	2/13/2016	MW77	Submersible Pump	100U	250U	50U	**0.36**	1U	1U	NA	2U	1U
MW81	Monitoring Well	TOC/Farmasonis	2/18/2016	MW81	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW84	Monitoring Well	Drake	6/15/2015	MW84	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW84	Monitoring Well	Drake	9/24/2015	MW84	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW84	Monitoring Well	Drake	12/10/2015	MW84	Submersible Pump	100U	350U	70U	1U	1U	1U	3U	NA	NA
MW84	Monitoring Well	Drake	2/17/2016	MW84	Submersible Pump	**300**	300U	**79**	0.35U	1U	**1.4**	NA	**4.9**	1U
MW85	Monitoring Well	Drake	6/11/2015	MW85	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW85	Monitoring Well	Drake	9/24/2015	MW85	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW85	Monitoring Well	Drake	12/11/2015	MW85	Submersible Pump	100U	500U	100U	1U	1U	1U	3U	NA	NA
MW85	Monitoring Well	Drake	2/17/2016	MW85	Submersible Pump	100U	300U	**65**	0.35U	1U	1U	NA	2U	1U
MW86	Monitoring Well	Drake	6/12/2015	MW86	Submersible Pump	100U	500U	100U	**1.1**	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	6/12/2015	MLT-03	Submersible Pump	100U	500U	100U	**1.1**	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	9/25/2015	MW86	Submersible Pump	100U	300U	60U	1U	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	9/25/2015	MLT-03*	Submersible Pump	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	12/11/2015	MW86	Submersible Pump	100U	330U	65U	1U	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	12/11/2015	MLT-03*	Submersible Pump	100U	330U	65U	1U	1U	1U	3U	NA	NA
MW86	Monitoring Well	Drake	2/17/2016	MW86	Submersible Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW86	Monitoring Well	Drake	2/17/2016	MLT-06*	Submersible Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW87	Monitoring Well	Drake	2/13/2016	MW87	Bailer	100U	NA	NA	**0.42**	1U	1U	NA	2U	1U
MW89	Monitoring Well	Drake	6/15/2015	MW89	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW89	Monitoring Well	Drake	9/24/2015	MW89	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW89	Monitoring Well	Drake	12/10/2015	MW89	Submersible Pump	100U	300U	60U	1U	1U	1U	3U	NA	NA
MW89	Monitoring Well	Drake	2/17/2016	MW89	Submersible Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW90	4" Remediation Well	TOC	2/2/2016	MW90	Pneumatic Pump	**530**	NA	NA	0.35U	**2.1**	1U	NA	**46**	**35**

TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800[2]	500	500	5	1,000	700	1,000	NE[3]	NE[3]
MW91	4" Remediation Well	TOC	2/2/2016	MW91	Pneumatic Pump	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW92	4" Remediation Well	TOC/Farmasonis	2/3/2016	MW92	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW93	4" Remediation Well	TOC/Farmasonis	2/3/2016	MW93	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW94	4" Remediation Well	Drake	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW95	4" Remediation Well	Drake	6/11/2015	MW95	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW95	4" Remediation Well	Drake	9/23/2015	MW95	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW95	4" Remediation Well	Drake	12/10/2015	MW95	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW95	4" Remediation Well	Drake	2/4/2016	MW95	Pneumatic Pump	100U	NA	NA	**0.38**	1U	1U	NA	2U	1U
MW96	4" Remediation Well	Drake	6/10/2015	MW96	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW96	4" Remediation Well	Drake	9/22/2015	MW96	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW96	4" Remediation Well	Drake	12/10/2015	MW96	Pneumatic Pump	**130**	NA	NA	1U	**1.1**	**3.5**	**26**	NA	NA
MW96	4" Remediation Well	Drake	2/4/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW97	4" Remediation Well	Drake	2/4/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW98	4" Remediation Well	Drake	6/9/2015	MW98	Pneumatic Pump	**380**	NA	NA	1U	1U	**3.1**	**17**	NA	NA
MW98	4" Remediation Well	Drake	9/22/2015	MW98	Pneumatic Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW98	4" Remediation Well	Drake	12/10/2015	MW98	Pneumatic Pump	**110**	NA	NA	1U	1U	**1.1**	**4.4**	NA	NA
MW98	4" Remediation Well	Drake	2/4/2016	MW98	Pneumatic Pump	**290**	NA	NA	**0.71**	1U	**2.6**	NA	**8.6**	1U
MW99	4" Remediation Well	Drake	2/4/2016	MW99	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW101	4" Remediation Well	Drake	12/10/2015	MW101	Pneumatic Pump	100U	250U	**610**	1U	1U	1U	3U	NA	NA
MW101	4" Remediation Well	Drake	2/4/2016	MW101	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW103	Monitoring Well	Herman	6/16/2015	MW103	Bailer	100U	250U	**350**	**0.37**	1U	1U	3U	2U	1U
MW103	Monitoring Well	Herman	9/25/2015	MW103	Bailer	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW103	Monitoring Well	Herman	12/11/2015	MW103	Bailer	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW103	Monitoring Well	Herman	2/15/2016	MW103	Bailer	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW105	Monitoring Well	Herman	6/12/2015	MW105	Bailer	100U	500U	100U	1U	1U	1U	3U	NA	NA
MW105	Monitoring Well	Herman	9/25/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW105	Monitoring Well	Herman	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW105	Monitoring Well	Herman	2/12/2016	MW105	Bailer	100U	330U	65U	0.35U	1U	1U	NA	2U	1U
MW107	Monitoring Well	Herman	6/13/2015	MW107	Submersible Pump	100U	500U	100U	1U	1U	1U	3U	NA	NA
MW107	Monitoring Well	Herman	9/26/2015	MW107	Submersible Pump	100U	300U	**77**	1U	1U	1U	3U	NA	NA
MW107	Monitoring Well	Herman	12/12/2015	MW107	Submersible Pump	100U	250U	50U	1U	1U	1U	3U	NA	NA
MW107	Monitoring Well	Herman	2/13/2016	MW107	Peristaltic Pump	100U	250U	50U	**0.62**	1U	1U	NA	2U	1U
MW108	Monitoring Well	Herman	6/18/2015	MW108	Submersible Pump	**110**	NA	NA	1U	1U	1U	3U	NA	NA
MW108	Monitoring Well	Herman	9/25/2015	MW108	Bailer	**500**	250U	**740**	1U	**1.5**	1U	3U	NA	NA

TABLE 3-1
Groundwater Quality Results for Select Constituents
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)(1)	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800(2)	500	500	5	1,000	700	1,000	NE(3)	NE(3)
MW108	Monitoring Well	Herman	12/15/2015	MW108	Bailer	100U	250U	**140**	1U	1U	1U	3U	NA	NA
MW108	Monitoring Well	Herman	2/15/2016	MW108	Bailer	100U	250U	50U	0.35U	1U	1U	NA	2U	1U
MW109	Monitoring Well	Herman	6/19/2015	MW109	Bailer	**130**	NA	NA	0.35U	1U	1U	NA	2U	1U
MW109	Monitoring Well	Herman	9/25/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW109	Monitoring Well	Herman	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW109	Monitoring Well	Herman	Feb. 2016 (4)	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.
2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.
Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.
Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.
Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.
Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.
(1) For groundwater samples with detected concentrations of DRPH, the sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation
(2) Cleanup level is 1,000 µg/L when benzene is not present and 800 µg/L when benzene is present
(3) MTCA Method A cleanup levels for individual xylenes have not been established.
(4) Only the month and year were recorded on the field sampling data sheet.
(a) MW15 could not be sampled due to the presence of thick sediment in the well.
-- = Sample was not collected.
* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.
Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.
JL = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned by the laboratory based on their quality control protocol.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NA = Indicates the compound was not analyzed.
NE = Indicates MTCA Method A Cleanup Level has not been established.
NS = Indicates well could not be sampled.
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon - diesel-range organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon - gasoline-range organics
WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA

TABLE 3-2
Groundwater Sample Results for Select Fuel Additives
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																			
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]														
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM														
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW10	Monitoring Well	TOC	6/10/2015	MW10	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW10	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW10	Monitoring Well	TOC	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW10	4" Remediation Well	TOC	2/9/2016	MW10	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW11	Monitoring Well	TOC	2/2/2016	MW11	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW13	Monitoring Well	56th Ave ROW	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15	Monitoring Well	TOC	6/10/2015	MW15	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW15	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15	Monitoring Well	TOC	12/14/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW15 [a]	Monitoring Well	TOC	2/1/2016	-- *(not sampled)*	-- *(not sampled)*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW20	Monitoring Well	TOC	6/11/2015	MW20	Submersible Pump	1U	NA	NA	NA	NA	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW20	Monitoring Well	TOC	6/11/2015	MLT-02	Submersible Pump	1U	NA	NA	NA	NA	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW20	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW20	Monitoring Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW20	Monitoring Well	TOC	2/5/2016	MW20	Bailer	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW20	Monitoring Well	TOC	2/5/2016	MLT-03*	Bailer	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW23	Monitoring Well	TOC	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW25	Monitoring Well	TOC	2/9/2016	MW25	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW31	2" Remediation Well	TOC/Farmasonis	6/9/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	9/22/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW31	2" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW32	4" Remediation Well	TOC	6/9/2015	MW32	Pneumatic Pump	NA	NA	NA	**1.18**	**32.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW32	4" Remediation Well	TOC	9/22/2015	MW32	Pneumatic Pump	NA	NA	NA	1U	**120**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW32	4" Remediation Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW32	4" Remediation Well	TOC	2/2/2016	MW32	Pneumatic Pump	NA	NA	NA	**1.26**	**6.01**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW33	Monitoring Well	TOC	6/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW33	Monitoring Well	TOC	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW35	Monitoring Well	TOC	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW36	Monitoring Well	TOC	2/5/2016	MW36	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW41	2" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW42	Monitoring Well	TOC/Farmasonis	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW44	Monitoring Well	56th Ave ROW	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	6/10/158	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW45	Monitoring Well	56th Ave ROW	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW46	Monitoring Well	56th Ave ROW	2/10/2016	MW46	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW47	Monitoring Well	56th Ave ROW	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW48	Monitoring Well	56th Ave ROW	6/11/2015	MW48	Bailer	NA	NA	NA	**1.2**	**7.06**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW48	Monitoring Well	56th Ave ROW	9/23/2015	MW48	Bailer	NA	NA	NA	**4.85**	**16.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW48	Monitoring Well	56th Ave ROW	12/11/2015	MW48	Bailer	NA	NA	NA	**13.4**	**25.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW48	Monitoring Well	56th Ave ROW	2/8/2016	MW48	Bailer	NA	NA	NA	**5.89**	**13.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW49	Monitoring Well	56th Ave ROW	6/10/2015	MW49	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW49	Monitoring Well	56th Ave ROW	9/23/2015	MW49	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW49	Monitoring Well	56th Ave ROW	12/9/2015	MW49	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW49	Monitoring Well	56th Ave ROW	2/16/2016	MW49	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2
Groundwater Sample Results for Select Fuel Additives
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																						
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]																	
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM																	
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW50	Monitoring Well	56th Ave ROW	6/11/2015	MW50	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW50	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW50	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW50	Monitoring Well	56th Ave ROW	2/8/2016	MW50	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	Monitoring Well	56th Ave ROW	6/16/2015	MW51	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	Monitoring Well	56th Ave ROW	9/23/2015	MW51	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	Monitoring Well	56th Ave ROW	12/11/2015	MW51	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	Monitoring Well	56th Ave ROW	2/15/2016	MW51	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW52	Monitoring Well	56th Ave ROW	6/12/2015	MW52	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW52	Monitoring Well	56th Ave ROW	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW52	Monitoring Well	56th Ave ROW	12/11/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW52	Monitoring Well	56th Ave ROW	2/8/2016	MW52	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	Monitoring Well	56th Ave ROW	6/11/2015	MW53	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	Monitoring Well	56th Ave ROW	9/25/2015	MW53	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	Monitoring Well	56th Ave ROW	12/15/2015	MW53	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	Monitoring Well	56th Ave ROW	2/15/2016	MW53	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW55	Monitoring Well	56th Ave ROW	6/15/2015	MW55	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW55	Monitoring Well	56th Ave ROW	9/24/2015	MW55	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW55	Monitoring Well	56th Ave ROW	12/10/2015	MW55	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW55	Monitoring Well	56th Ave ROW	2/15/2016	MW55	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	6/10/2015	MW56	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	9/23/2015	MW56	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	12/9/2015	MW56	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW56	Monitoring Well	TOC/Farmasonis	2/19/2016	MW56	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW57	4" Remediation Well	TOC/Farmasonis	6/9/2015	MW57	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW57	4" Remediation Well	TOC/Farmasonis	9/22/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW57	4" Remediation Well	TOC/Farmasonis	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW57	4" Remediation Well	TOC/Farmasonis	2/3/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW58	Monitoring Well	TOC/Farmasonis	6/10/2015	MW58	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW58	Monitoring Well	TOC/Farmasonis	9/23/2015	MW58	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW58	Monitoring Well	TOC/Farmasonis	12/9/2015	MW58	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW58	Monitoring Well	TOC/Farmasonis	2/11/2016	MW58	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	6/10/2015	MW59	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	9/23/2015	MW59	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	12/9/2015	MW59	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW59	Monitoring Well	TOC/Farmasonis	2/11/2016	MW59	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW60	Monitoring Well	56th Ave ROW	6/11/2015	MW60	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW60	Monitoring Well	56th Ave ROW	9/26/2015	MW60	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW60	Monitoring Well	56th Ave ROW	12/10/2015	MW60	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW60	Monitoring Well	56th Ave ROW	2/15/2016	MW60	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	Monitoring Well	56th Ave ROW	6/12/2015	MW63	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	Monitoring Well	56th Ave ROW	9/25/2015	MW63	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	Monitoring Well	56th Ave ROW	9/25/2015	MLT-05*	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	Monitoring Well	56th Ave ROW	12/11/2015	MW63	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	Monitoring Well	56th Ave ROW	2/16/2016	MW63	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	Monitoring Well	Drake	6/16/2015	MW65	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	Monitoring Well	Drake	9/25/2015	MW65	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	Monitoring Well	Drake	12/11/2015	MW65	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

Groundwater Sample Results for Select Fuel Additives

Intermediate Zone Wells

Second Quarter 2015 through First Quarter 2016

TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW65	Monitoring Well	Drake	2/18/2016	MW65	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	Monitoring Well	Drake	2/18/2016	MLT-05*	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW66	Monitoring Well	TOC/Farmasonis	6/10/2015	MW66	Bailer	1U	NA	NA	NA	NA	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW66	Monitoring Well	TOC/Farmasonis	9/24/2015	MW66	Bailer	NA	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW66	Monitoring Well	TOC/Farmasonis	12/11/2015	MW66	Bailer	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW66	Monitoring Well	TOC/Farmasonis	2/8/2016	MW66	Bailer	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW69	2" Remediation Well	Drake	6/10/2015	MW69	Pneumatic Pump	1U	NA	NA	NA	NA	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	**11**	0.1U	0.1U
MW69	2" Remediation Well	Drake	9/22/2015	MW69	Pneumatic Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.79**	0.06U	0.06U
MW69	2" Remediation Well	Drake	12/10/2015	MW69	Pneumatic Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**11**	0.06U	0.06U
MW69	2" Remediation Well	Drake	2/4/2016	MW69	Pneumatic Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**2.8**	0.06U	0.06U
MW70	2" Remediation Well	Drake	6/10/2015	MW70	Pneumatic Pump	1U	NA	0.01U	1U	1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW70	2" Remediation Well	Drake	9/23/2015	MW70	Pneumatic Pump	1U	1U	0.01U	1U	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW70	2" Remediation Well	Drake	12/10/2015	MW70	Pneumatic Pump	1U	NA	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW70	2" Remediation Well	Drake	2/4/2016	MW70	Pneumatic Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW73	Monitoring Well	Shin/Choi	6/12/2015	MW73	Submersible Pump	**7.2**	1U	**1.3**	1U	1U	**0.12**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	**280**	0.1U	0.1U
MW73	Monitoring Well	Shin/Choi	9/25/2015	MW73	Bailer	**21**	1U	**0.1**	1U	**2.89**	**0.16**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**320**	0.06U	0.06U
MW73	Monitoring Well	Shin/Choi	12/11/2015	MW73	Bailer	**150**	1U	**0.11**	1U	**5.3**	**0.12**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**320**	0.06U	0.06U
MW73	Monitoring Well	Shin/Choi	2/12/2016	MW73	Submersible Pump	**31**	1U	**0.09**	1U	1U	**0.12**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**320**	0.06U	0.06U
MW74	Monitoring Well	Shin/Choi	6/12/2015	MW74	Bailer	**1,300**	1U	**0.3**	**9.72**	**11**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	**97**	0.1U	0.1U
MW74	Monitoring Well	Shin/Choi	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW74	Monitoring Well	Shin/Choi	12/11/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW74	Monitoring Well	Shin/Choi	2/12/2016	MW74	Bailer	**540**	1U	0.01U	1U	**1.27**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.25**	0.06U	0.06U
MW75	Monitoring Well	56th Ave ROW	2/18/2016	MW75	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW76	Monitoring Well	Drake	2/17/2016	MW76	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW77	Monitoring Well	Drake	6/13/2015	MW77	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW77	Monitoring Well	Drake	9/28/2015	MW77	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW77	Monitoring Well	Drake	12/12/2015	MW77	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW77	Monitoring Well	Drake	2/13/2016	MW77	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW81	Monitoring Well	TOC/Farmasonis	2/18/2016	MW81	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW84	Monitoring Well	Drake	6/15/2015	MW84	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW84	Monitoring Well	Drake	9/24/2015	MW84	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW84	Monitoring Well	Drake	12/10/2015	MW84	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW84	Monitoring Well	Drake	2/17/2016	MW84	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.84**	0.06U	0.06U
MW85	Monitoring Well	Drake	6/11/2015	MW85	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW85	Monitoring Well	Drake	9/24/2015	MW85	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW85	Monitoring Well	Drake	12/11/2015	MW85	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW85	Monitoring Well	Drake	2/17/2016	MW85	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	6/12/2015	MW86	Submersible Pump	1U	1U	0.01U	1U	1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW86	Monitoring Well	Drake	6/12/2015	MLT-03	Submersible Pump	1U	1U	0.01U	1U	1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW86	Monitoring Well	Drake	9/25/2015	MW86	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	9/25/2015	MLT-03*	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	12/11/2015	MW86	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	12/11/2015	MLT-03*	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	2/17/2016	MW86	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW86	Monitoring Well	Drake	2/17/2016	MLT-06*	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U

TABLE 3-2
Groundwater Sample Results for Select Fuel Additives
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW87	Monitoring Well	Drake	2/13/2016	MW87	Bailer	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW89	Monitoring Well	Drake	6/15/2015	MW89	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW89	Monitoring Well	Drake	9/24/2015	MW89	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW89	Monitoring Well	Drake	12/10/2015	MW89	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW89	Monitoring Well	Drake	2/17/2016	MW89	Submersible Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW90	4" Remediation Well	TOC	2/2/2016	MW90	Pneumatic Pump	NA	NA	NA	1U	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW91	4" Remediation Well	TOC	2/2/2016	MW91	Pneumatic Pump	1U	NA	NA	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW92	4" Remediation Well	TOC/Farmasonis	2/3/2016	MW92	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW93	4" Remediation Well	TOC/Farmasonis	2/3/2016	MW93	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW94	4" Remediation Well	Drake	2/3/2016	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW95	4" Remediation Well	Drake	6/11/2015	MW95	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW95	4" Remediation Well	Drake	9/23/2015	MW95	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW95	4" Remediation Well	Drake	12/10/2015	MW95	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW95	4" Remediation Well	Drake	2/4/2016	MW95	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW96	4" Remediation Well	Drake	6/10/2015	MW96	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW96	4" Remediation Well	Drake	9/22/2015	MW96	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW96	4" Remediation Well	Drake	12/10/2015	MW96	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW96	4" Remediation Well	Drake	2/4/2016	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW97	4" Remediation Well	Drake	2/4/2016	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW98	4" Remediation Well	Drake	6/9/2015	MW98	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW98	4" Remediation Well	Drake	9/22/2015	MW98	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW98	4" Remediation Well	Drake	12/10/2015	MW98	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW98	4" Remediation Well	Drake	2/4/2016	MW98	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW99	4" Remediation Well	Drake	2/4/2016	MW99	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW101	4" Remediation Well	Drake	12/10/2015	MW101	Pneumatic Pump	1U	NA	NA	NA	NA	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW101	4" Remediation Well	Drake	2/4/2016	MW101	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW103	Monitoring Well	Herman	6/16/2015	MW103	Bailer	**380**	1U	0.01U	**14.8**	**17.9**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW103	Monitoring Well	Herman	9/25/2015	MW103	Bailer	1U	1U	0.01U	1U	**3.47**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW103	Monitoring Well	Herman	12/11/2015	MW103	Bailer	**3.1**	1U	0.01U	1U	**5.39**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW103	Monitoring Well	Herman	2/15/2016	MW103	Bailer	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW105	Monitoring Well	Herman	6/12/2015	MW105	Bailer	1U	1U	0.01U	1U	**4.58**	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW105	Monitoring Well	Herman	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW105	Monitoring Well	Herman	12/11/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW105	Monitoring Well	Herman	2/12/2016	MW105	Bailer	1U	1U	0.01U	1U	**6.22JL**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW107	Monitoring Well	Herman	6/13/2015	MW107	Submersible Pump	1U	1U	0.01U	1U	1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
MW107	Monitoring Well	Herman	9/26/2015	MW107	Submersible Pump	1U	1U	0.01U	1U	**1.13**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW107	Monitoring Well	Herman	12/12/2015	MW107	Submersible Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW107	Monitoring Well	Herman	2/13/2016	MW107	Peristaltic Pump	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.061	0.06U	0.06U
MW108	Monitoring Well	Herman	6/18/2015	MW108	Submersible Pump	1U	1U	0.01U	1U	**6.24**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW108	Monitoring Well	Herman	9/25/2015	MW108	Bailer	1U	1U	0.01U	1U	**1.14**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.22**	0.06U	0.06U
MW108	Monitoring Well	Herman	12/15/2015	MW108	Bailer	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.076**	0.06U	0.06U
MW108	Monitoring Well	Herman	2/15/2016	MW108	Bailer	1U	1U	0.01U	1U	1U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
MW109	Monitoring Well	Herman	6/19/2015	MW109	Bailer	1U	1U	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW109	Monitoring Well	Herman	9/25/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW109	Monitoring Well	Herman	12/11/2015	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

Stantec

TABLE 3-2
Groundwater Sample Results for Select Fuel Additives
Intermediate Zone Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
						Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW109	Monitoring Well	Herman	Feb. 2016 [2]	*-- (not sampled)*	*-- (not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

[1] With the exception of Napthalene, preliminary screening results for carcinogenic PAHs are compared to the MTCA Method A Cleanup Level provided for benzo(a)pyrene on Table 720-1 of WAC 173-340-900. Per MTCA, this value represents the total concentration that all PAHs must meet using the toxicity equivalency methodology of WAC 173-340-708(8).

[2] Only the month and year were recorded on the field sampling data sheet.

[a] MW15 could not be sampled due to the presence of thick sediment in the well.

-- = Sample was not collected.

* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.

Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.

JL = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. Qualifier was assigned by the laboratory based on their quality control protocol.

ACRONYMS:

µg/L = micrograms per liter

MTCA = Model Toxics Control Act

NA = Indicates the compound was not analyzed.

NS = Indicates well could not be sampled.

PAH = Polycyclic Aromatic Hydrocarbons

WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA

TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA

Drake = 24309 56th Avenue West, Mountlake Terrace WA

56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

242nd St ROW = portion of right-of-way adjacent to TOC Property

Herman = 24311 56th Avenue West, Mountlake Terrace WA

Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA

TABLE 5-1
Groundwater Quality Results for Select Constituents
Deep Zone Wells
First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)(1)	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						**1,000/800(2)**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NE(3)**	**NE(3)**
MW26	Monitoring Well	TOC	2/9/2016	MW26	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW30	Monitoring Well	TOC/Farmasonis	2/10/2016	MW30	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW39	Monitoring Well	TOC/Farmasonis	2/10/2016	MW39	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW40	Monitoring Well	TOC/Farmasonis	2/11/2016	MW40	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW64	Monitoring Well	56th Ave ROW	2/16/2016	MW64	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW78	Monitoring Well	Drake	2/13/2016	MW78	Submersible Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

(1) For groundwater samples with detected concentrations of DRPH, the sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation.

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

(3) MTCA Method A cleanup levels for individual xylenes have not been established.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NA = not analyzed
NE = not established
NS = not sampled
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon - diesel-range organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon - gasoline-range organics
WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

TABLE 4-2

Groundwater Quality Results for Select Fuel Additives

Deep Zone Wells

First Quarter 2016

TOC Facility #01-176; Mountlake Terrace, WA

						Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
Sample Location/ Well Identifier	Well Type	Property	Sample Date	Sample Identifier	Sample Method	Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW26	Monitoring Well	TOC	2/9/2016	MW26	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW30	Monitoring Well	TOC/Farmasonis	2/10/2016	MW30	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW39	Monitoring Well	TOC/Farmasonis	2/10/2016	MW39	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW40	Monitoring Well	TOC/Farmasonis	2/11/2016	MW40	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW64	Monitoring Well	56th Ave ROW	2/16/2016	MW64	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW78	Monitoring Well	Drake	2/13/2016	MW78	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES & DEFINITIONS:

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

[1] With the exception of Napthalene, preliminary screening results for carcinogenic PAHs are compared to the MTCA Method A Cleanup Level provided for benzo(a)pyrene on Table 720-1 of WAC 173-340-900. Per MTCA, this value represents the total concentration that all PAHs must meet using the toxicity equivalency methodology of WAC 173-340-708(8).

-- = Sample was not collected.

NA = Indicates the compound was not analyzed.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.

ACRONYMS:

µg/L = micrograms per liter

MTCA = Model Toxics Control Act

NA = Indicates the compound was not analyzed.

NS = Indicates well could not be sampled.

PAH = Polycyclic Aromatic Hydrocarbons

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LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA

TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA

Drake = 24309 56th Avenue West, Mountlake Terrace WA

56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

TABLE 5-1
Groundwater Quality Results for Select Constituents
Shallow-Intermediate Zone Intersect Wells
Second Quarter 2015 through First Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Well Type	Property	Date	Sample Identifier	Sample Method	Analytical Results (µg/L)								
						Total Petroleum Hydrocarbons			Volatile Organic Compounds					
						Method NWTPH-Gx	Method NWTPH-Dx		Method SW8021B / SW8260C					
						Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[1]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)						1,000/800[2]	500	500	5	1,000	700	1,000	NE[3]	NE[3]
MW08	Monitoring Well	56th Ave ROW	2/11/2016	MW08	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW09	Monitoring Well	TOC	6/16/2015	MW09	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW09	Monitoring Well	TOC	6/16/2015	MLT-01*	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW09	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW09	Monitoring Well	TOC	12/10/2015	MW09	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW09	Monitoring Well	TOC	12/10/2015	MLT-01*	Submersible Pump	100U	NA	NA	1U	1U	1U	3U	NA	NA
MW09	Monitoring Well	TOC	2/9/2016	MW09	Peristaltic Pump	**730**	NA	NA	0.35U	1U	**1.9**	NA	**58**	**23**
MW09	Monitoring Well	TOC	2/9/2016	MLT-02*	Peristaltic Pump	**760**	NA	NA	0.35U	1U	**2.3**	NA	**69**	**26**
MW16	Monitoring Well	242nd Ave ROW	Feb. 2016 [4]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW18	4" Remediation Well	TOC	2/2/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW22	Monitoring Well	TOC	2/10/2016	MW22	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW24	4" Remediation Well	TOC	2/3/2016	MW24	Pneumatic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW27	2" Remediation Well	TOC	6/9/2015	MW27	Pneumatic Pump	**740**	NA	NA	1U	**6.7**	**21**	**140**	NA	NA
MW27	2" Remediation Well	TOC	9/22/2015	MW27	Pneumatic Pump	**910**	NA	NA	1U	**1.6**	1U	**22**	NA	NA
MW27	2" Remediation Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW27	2" Remediation Well	TOC	2/3/2016	MW27	Pneumatic Pump	100U	NA	NA	0.35U	1U	**1.8**	NA	**5.3**	1U
MW28	Monitoring Well	TOC	2/5/2016	MW28	Peristaltic Pump	**1,300**	NA	NA	0.35U	1U	1U	NA	**43**	**32**
MW28	Monitoring Well	TOC	2/5/2016	MLT-04*	Pneumatic Pump	**1,400**	NA	NA	0.35U	1U	1U	NA	**44**	**32**
MW29	2" Remediation Well	TOC	2/3/2016	MW29	Pneumatic Pump	**1,900**	NA	NA	0.35U	1U	**14**	NA	**80**	**8**
MW37	Monitoring Well	TOC	2/10/2016	MW37	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW38	Monitoring Well	TOC	2/10/2016	MW38	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW43	Monitoring Well	56th Ave ROW	2/17/2016	MW43	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW82	Monitoring Well	TOC/Farmasonis	2/8/2016	MW82	Bailer	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW88	Monitoring Well	Drake	2/17/2016	MW88	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U
MW100	Monitoring Well	TOC/Farmasonis	2/16/2016	MW100	Peristaltic Pump	100U	NA	NA	0.35U	1U	1U	NA	2U	1U

NOTES & DEFINITIONS:

MW16 intersects Intermediate and Deep Zone conditions. All other well screens intersect Shallow and Intermediate Zone conditions.

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

(1) For groundwater samples with detected concentrations of DRPH, the sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation.

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

(3) MTCA Method A cleanup levels for individual xylenes have not been established.

(4) Only the month and year were recorded on the field sampling data sheet.

-- = Sample was not collected.

* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.

Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NA = not analyzed
NE = not established
NS = not sampled
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon - diesel-range organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon - gasoline-range organics
WAC = Washington Administrative Code

LIST OF PROPERTIES:

TOC = 24205 56th Avenue West, Mountlake Terrace WA
TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
242nd St ROW = portion of right-of-way adjacent to TOC Property

TABLE 5-2

Groundwater Quality Results for Select Fuel Additives
Shallow-Intermediate Zone Intersect Wells
Second Quarter 2015 through First Quarter 2016

TOC Facility #01-176; Mountlake Terrace, WA

						Analytical Results (µg/L)																				
						Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[1]															
						Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM															
Sample Location/ Well Identifier	Well Type	Property	Date	Sample Identifier	Sample Method	Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Lead (Dissolved)	Lead (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MTCA Method A Cleanup Level (µg/L)						**20**	**5**	**0.01**	**15**	**15**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**160**	**0.1**	**0.1**
MW08	Monitoring Well	56th Ave ROW	2/11/2016	MW08	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	6/16/2015	MW09	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	6/16/2015	MLT-01*	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	9/23/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW09	Monitoring Well	TOC	12/10/2015	MW09	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	12/10/2015	MLT-01*	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	2/9/2016	MW09	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	Monitoring Well	TOC	2/9/2016	MLT-02*	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW16	Monitoring Well	242nd Ave ROW	Feb. 2016 [2]	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW18	4" Remediation Well	TOC	2/2/2016	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW22	Monitoring Well	TOC	2/10/2016	MW22	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW24	4" Remediation Well	TOC	2/3/2016	MW24	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW27	2" Remediation Well	TOC	6/9/2015	MW27	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW27	2" Remediation Well	TOC	9/22/2015	MW27	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW27	2" Remediation Well	TOC	12/10/2015	-- *(not sampled)*	-- *(not sampled)*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW27	2" Remediation Well	TOC	2/3/2016	MW27	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW28	Monitoring Well	TOC	2/5/2016	MW28	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW28	Monitoring Well	TOC	2/5/2016	MLT-04*	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW29	2" Remediation Well	TOC	2/3/2016	MW29	Pneumatic Pump	NA	NA	NA	1U	**37.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW37	Monitoring Well	TOC	2/10/2016	MW37	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW38	Monitoring Well	TOC	2/10/2016	MW38	Peristaltic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW43	Monitoring Well	56th Ave ROW	2/17/2016	MW43	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW82	Monitoring Well	TOC/Farmasonis	2/8/2016	MW82	Bailer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW88	Monitoring Well	Drake	2/17/2016	MW88	Peristaltic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW100	Monitoring Well	TOC/Farmasonis	2/16/2016	MW100	Peristaltic Pump	NA	NA	NA	1U	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES & DEFINITIONS:

MW16 intersects Intermediate and Deep Zone conditions. All other well screens intersect Shallow and Intermediate Zone conditions.

Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.

2016 groundwater samples were collected by HydroCon Environmental, LLC and 2015 groundwater samples were collected by Stantec Consulting Services, Inc.

Groundwater samples were analyzed by Friedman & Bruya, Inc. The analytical laboratory reports are included as an appendix.

Red denotes sample concentration equals or exceeds MTCA Method A Cleanup Levels for groundwater.

Black denotes sample concentration was detected but does not exceed MTCA Method A Cleanup Levels for groundwater.

Gray denotes sample concentration was undetected at the method reporting limit, the constituent was not analyzed, or the well was dry.

[1] With the exception of Napthalene, preliminary screening results for carcinogenic PAHs are compared to the MTCA Method A Cleanup Level provided for benzo(a)pyrene on Table 720-1 of WAC 173-340-900. Per MTCA, this value represents the total concentration that all PAHs must meet using the toxicity equivalency methodology of WAC 173-340-708(8).

[2] Only the month and year were recorded on the field sampling data sheet.

-- = Sample was not collected.

* = Indicates blind field duplicate sample was collected for quality assurance/quality control purposes.

Dry = Indicates well could not be sampled due to insufficient groundwater sample volume.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NA = Indicates the compound was not analyzed.
NS = not sampled
PAH = Polycyclic Aromatic Hydrocarbons
WAC = Washington Administrative Code

LIST OF PROPERTIES:

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56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties
242nd St ROW = portion of right-of-way adjacent to TOC Property

List of Figures

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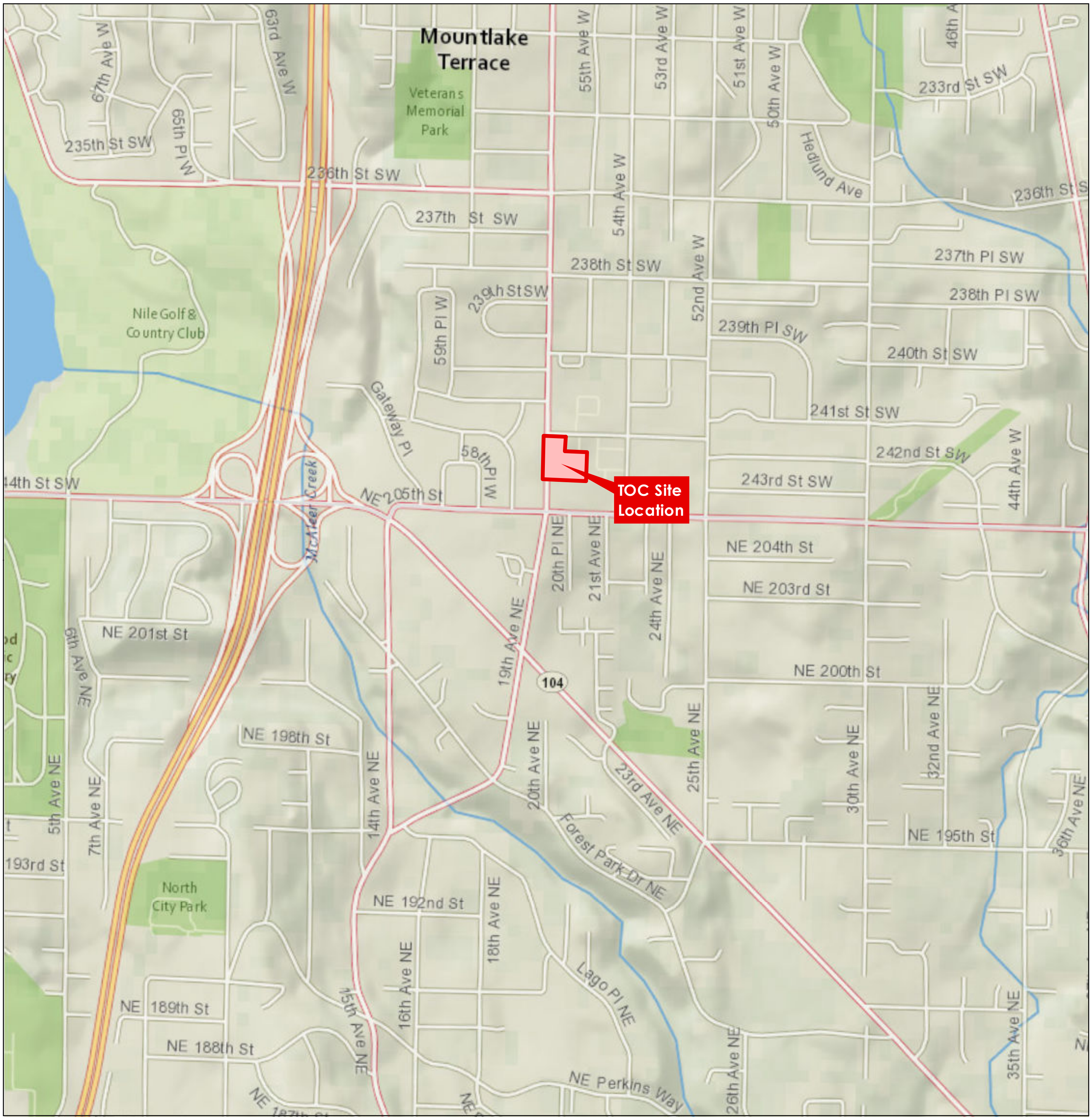

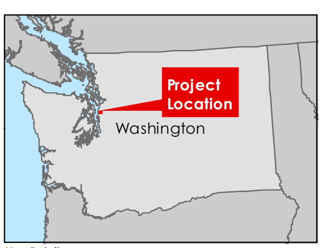

Map Details
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Legend

TOC Site Location

Figure No.
1

Title
Project Location

Client/Project
TOC Holdings Co.

Facility 01-176

Project Location 185703259
24205-24309 56th Avenue West
Mountlake Terrace,
Washington

Prepared by NF
Technical Review by RB
Independent Review by MM

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Notes
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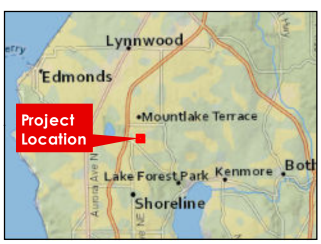
2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.



Map Details
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Legend
- Parcel Boundary
- Site Boundary
- County Boundary

Figure No.
2

Title
Site Map

Client/Project
TOC Holdings Co.

Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace,
Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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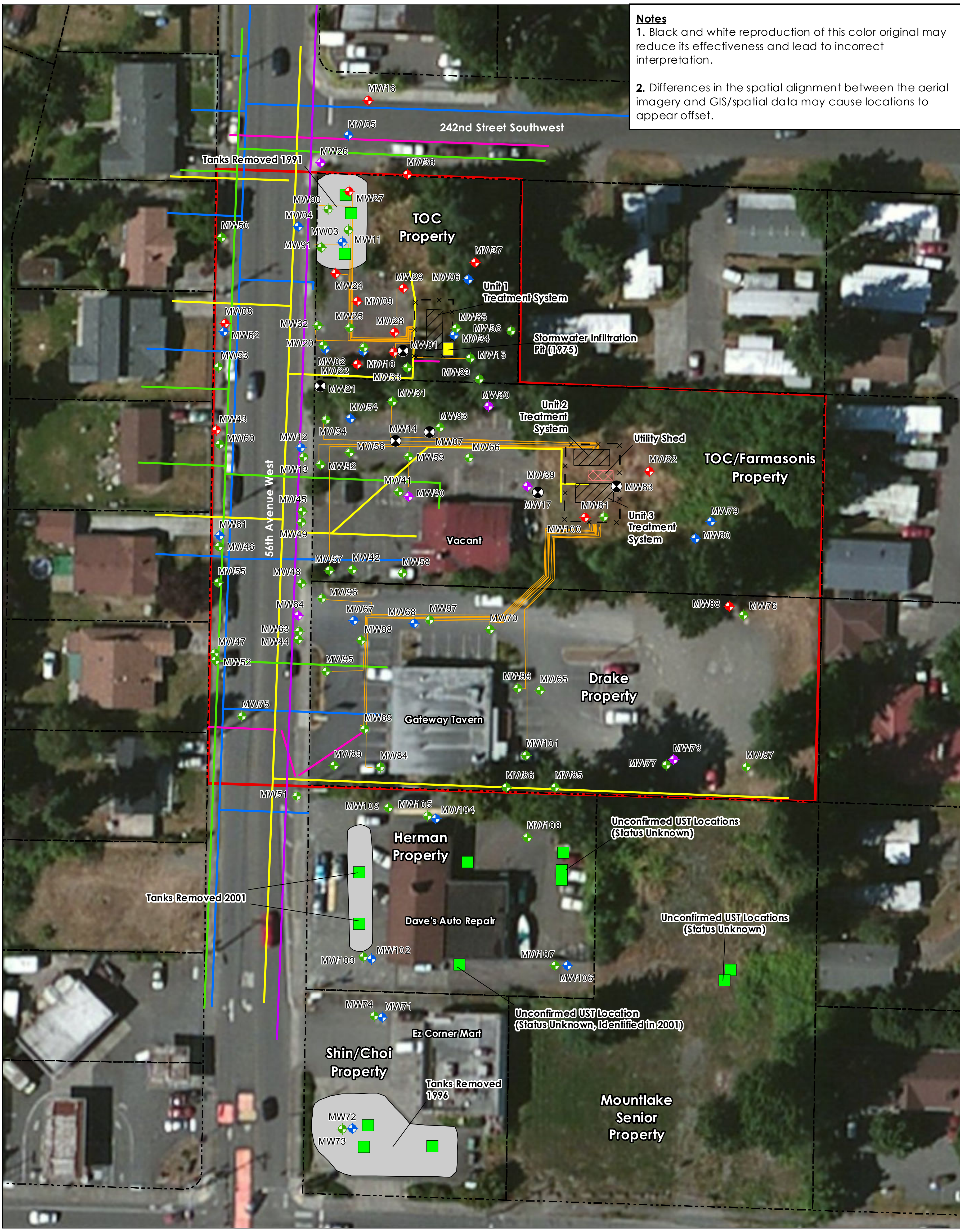

Notes

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2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

Map Details

1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Legend

- Shallow Groundwater Zone Monitoring Well Location
- Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones)
- Intermediate Groundwater Zone Monitoring Well Location
- Deep Groundwater Zone Monitoring Well Location
- Abandoned Monitoring Well Location
- Historic Underground Storage Tank
- Fiber Optic Line
- Gas Line
- Sewer Line
- Stormwater Line
- Water Line
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Stormwater Pit
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
3

Title
Locations of Wells and Remediation Systems

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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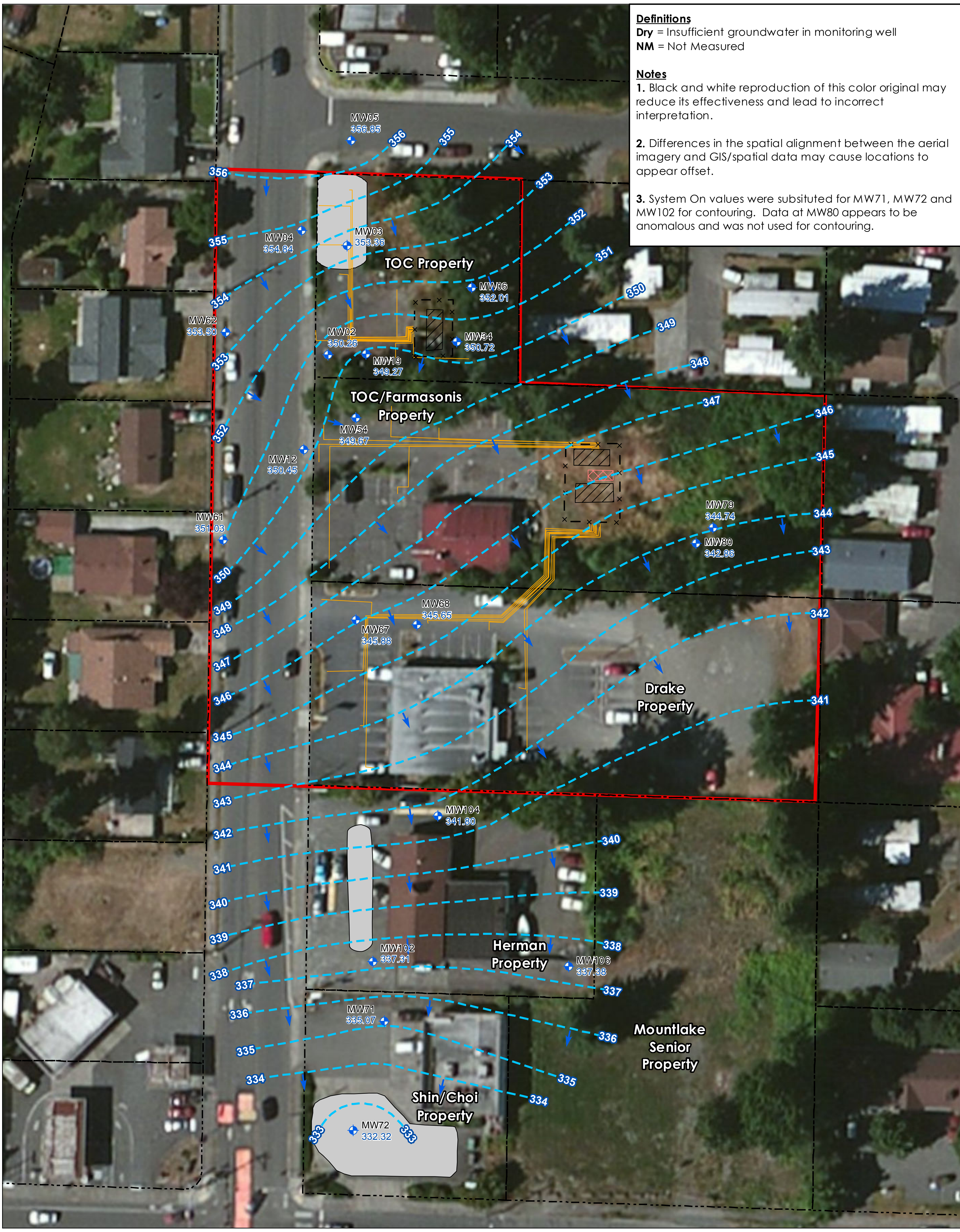

Definitions
Dry = Insufficient groundwater in monitoring well
NM = Not Measured

Notes
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. System On values were subsituted for MW71, MW72 and MW102 for contouring. Data at MW80 appears to be anomalous and was not used for contouring.

Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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Legend

- MW72 331.32 — Shallow Groundwater Zone Monitoring Well Location & Groundwater Elevation (feet, mean sea level)
- Groundwater Elevation Contour (feet, mean sea level)
- Approximate Groundwater Flow Direction
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
4

Title
Groundwater Elevation Contours, Shallow Zone (System Off), February 19, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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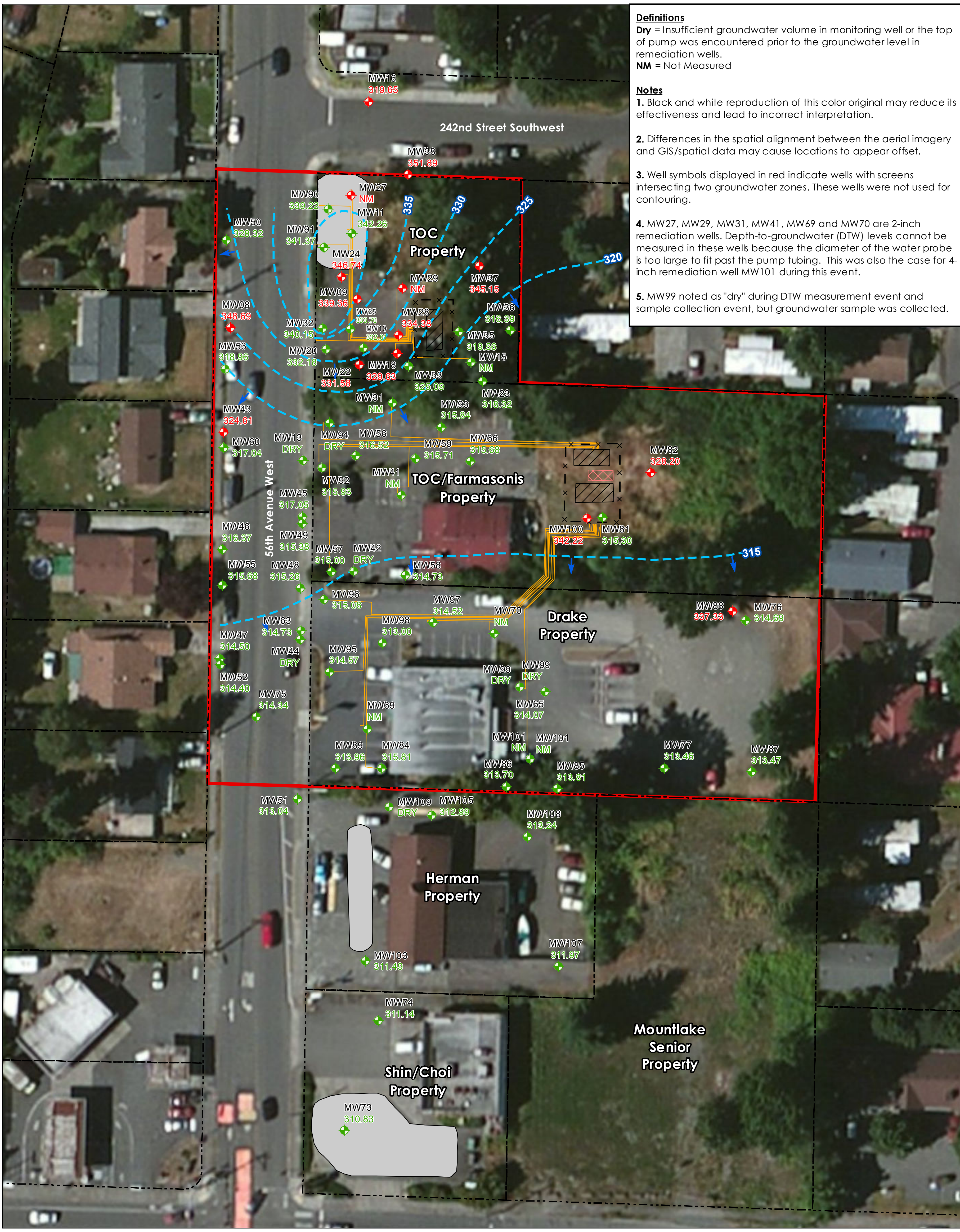


Definitions

Dry = Insufficient groundwater volume in monitoring well or the top of pump was encountered prior to the groundwater level in remediation wells.
NM = Not Measured

Notes

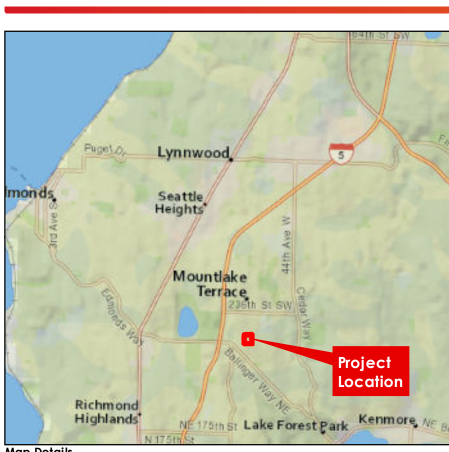
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. Well symbols displayed in red indicate wells with screens intersecting two groundwater zones. These wells were not used for contouring.

4. MW27, MW29, MW31, MW41, MW69 and MW70 are 2-inch remediation wells. Depth-to-groundwater (DTW) levels cannot be measured in these wells because the diameter of the water probe is too large to fit past the pump tubing. This was also the case for 4-inch remediation well MW101 during this event.

5. MW99 noted as "dry" during DTW measurement event and sample collection event, but groundwater sample was collected.



Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- MW72 331.32 — Intermediate Groundwater Zone Monitoring Well Location & Groundwater Elevation (feet, mean sea level)
- MW72 331.32 — Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones) & Groundwater Elevation (feet, mean sea level)
- Groundwater Elevation Contour (feet, mean sea level)
- Approximate Groundwater Flow Direction
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
5

Title
Groundwater Elevation Contours, Intermediate Zone (System Off), February 19, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
1:720 (At Original document size of 11x17)

N

Stantec

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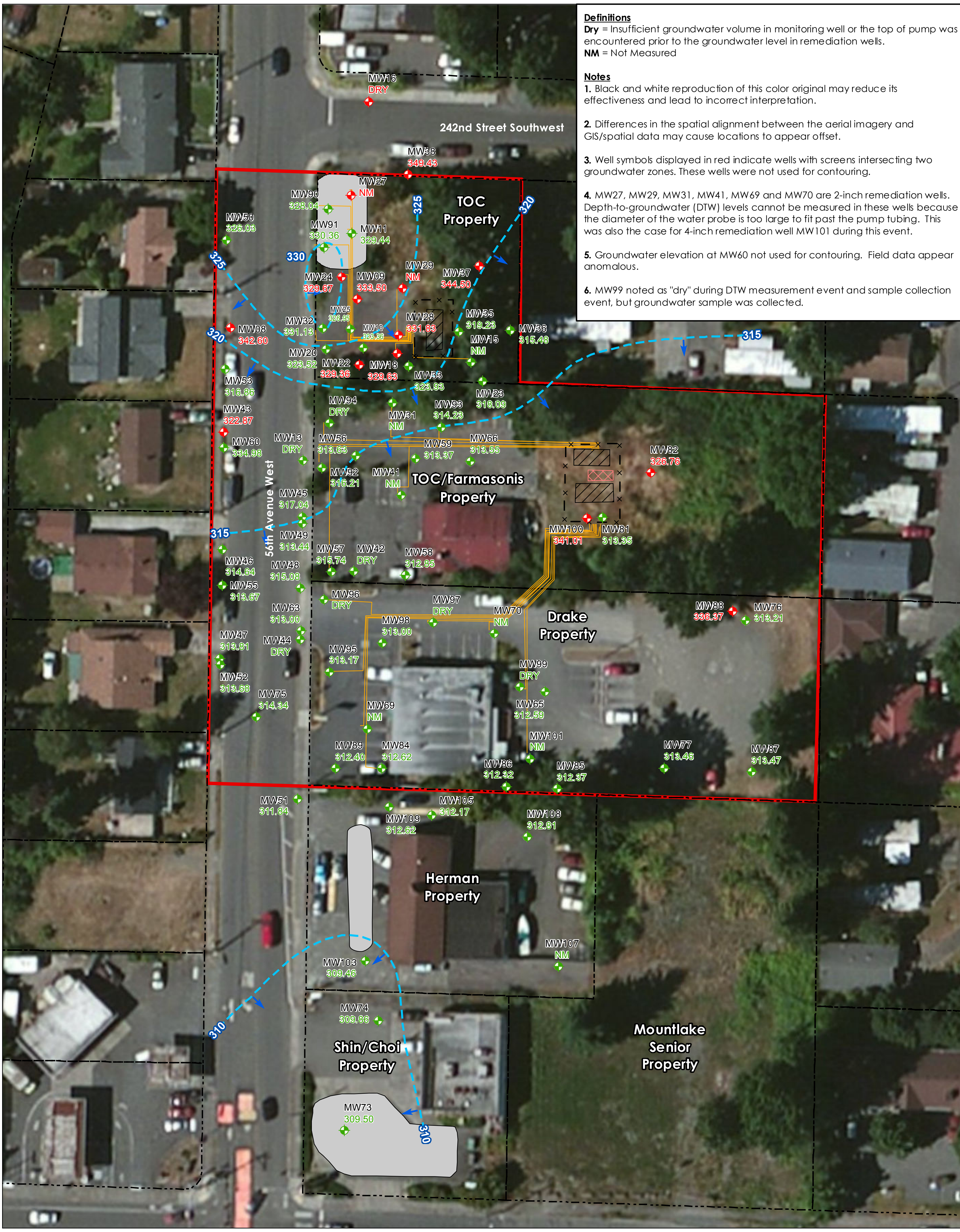


Definitions

Dry = Insufficient groundwater volume in monitoring well or the top of pump was encountered prior to the groundwater level in remediation wells.
NM = Not Measured

Notes

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

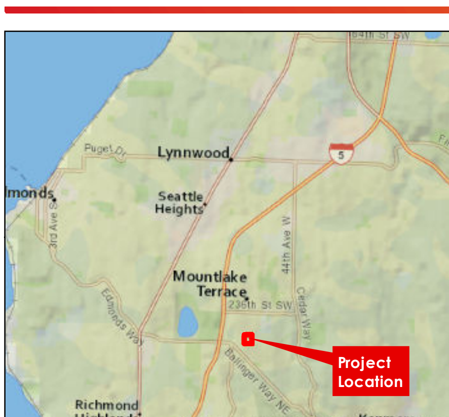
2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. Well symbols displayed in red indicate wells with screens intersecting two groundwater zones. These wells were not used for contouring.

4. MW27, MW29, MW31, MW41, MW69 and MW70 are 2-inch remediation wells. Depth-to-groundwater (DTW) levels cannot be measured in these wells because the diameter of the water probe is too large to fit past the pump tubing. This was also the case for 4-inch remediation well MW101 during this event.

5. Groundwater elevation at MW60 not used for contouring. Field data appear anomalous.

6. MW99 noted as "dry" during DTW measurement event and sample collection event, but groundwater sample was collected.



Map Details

1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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Legend

- MW72 331.32 — Intermediate Groundwater Zone Monitoring Well Location & Groundwater Elevation (feet, mean sea level)
- MW72 331.32 — Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones) & Groundwater Elevation (feet, mean sea level)
- Groundwater Elevation Contour (feet, mean sea level)
- Approximate Groundwater Flow Direction
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
6

Title
Groundwater Elevation Contours, Intermediate Zone (System On), February 1, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
1:720 (At Original document size of 11x17)

N

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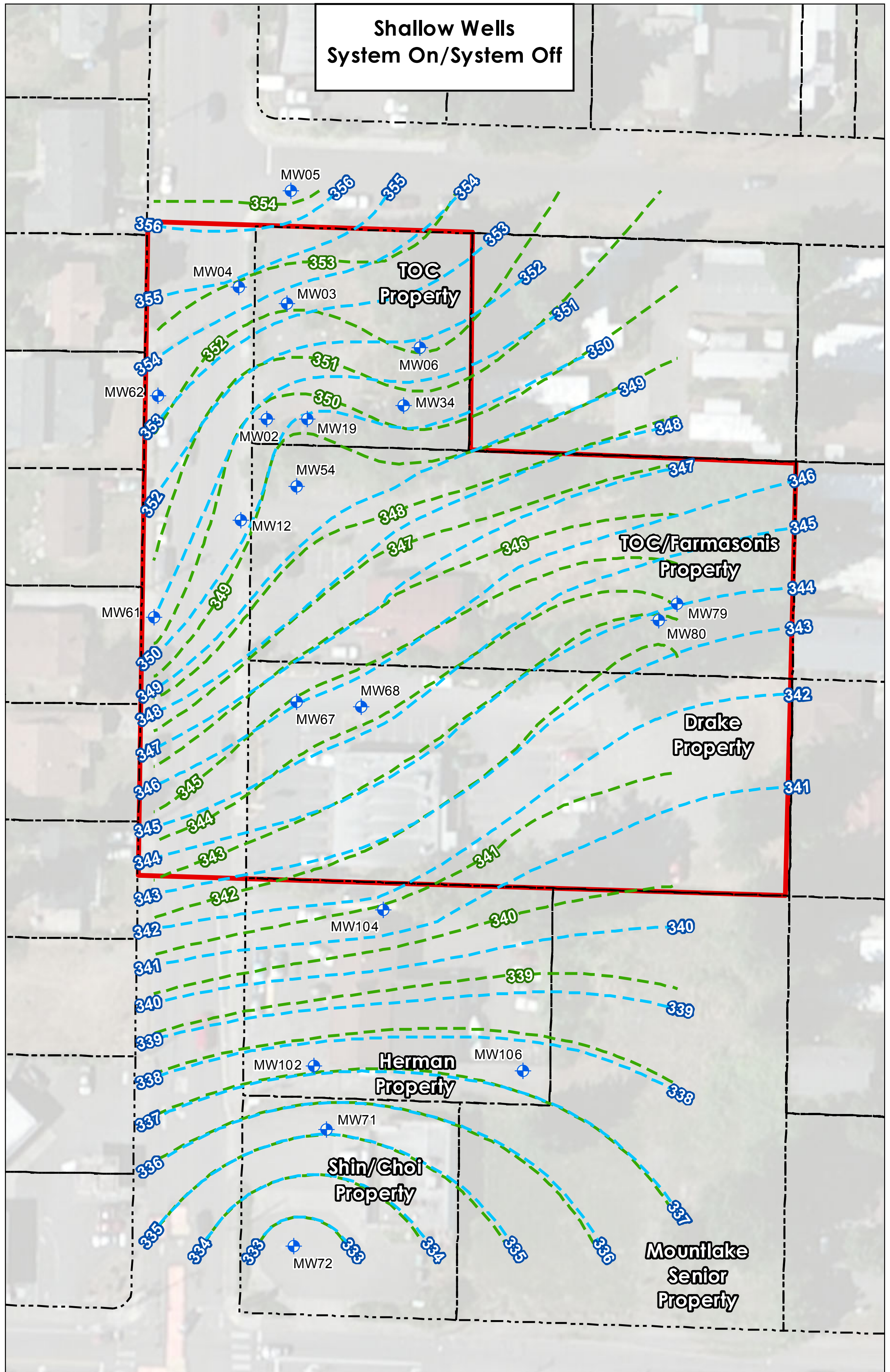

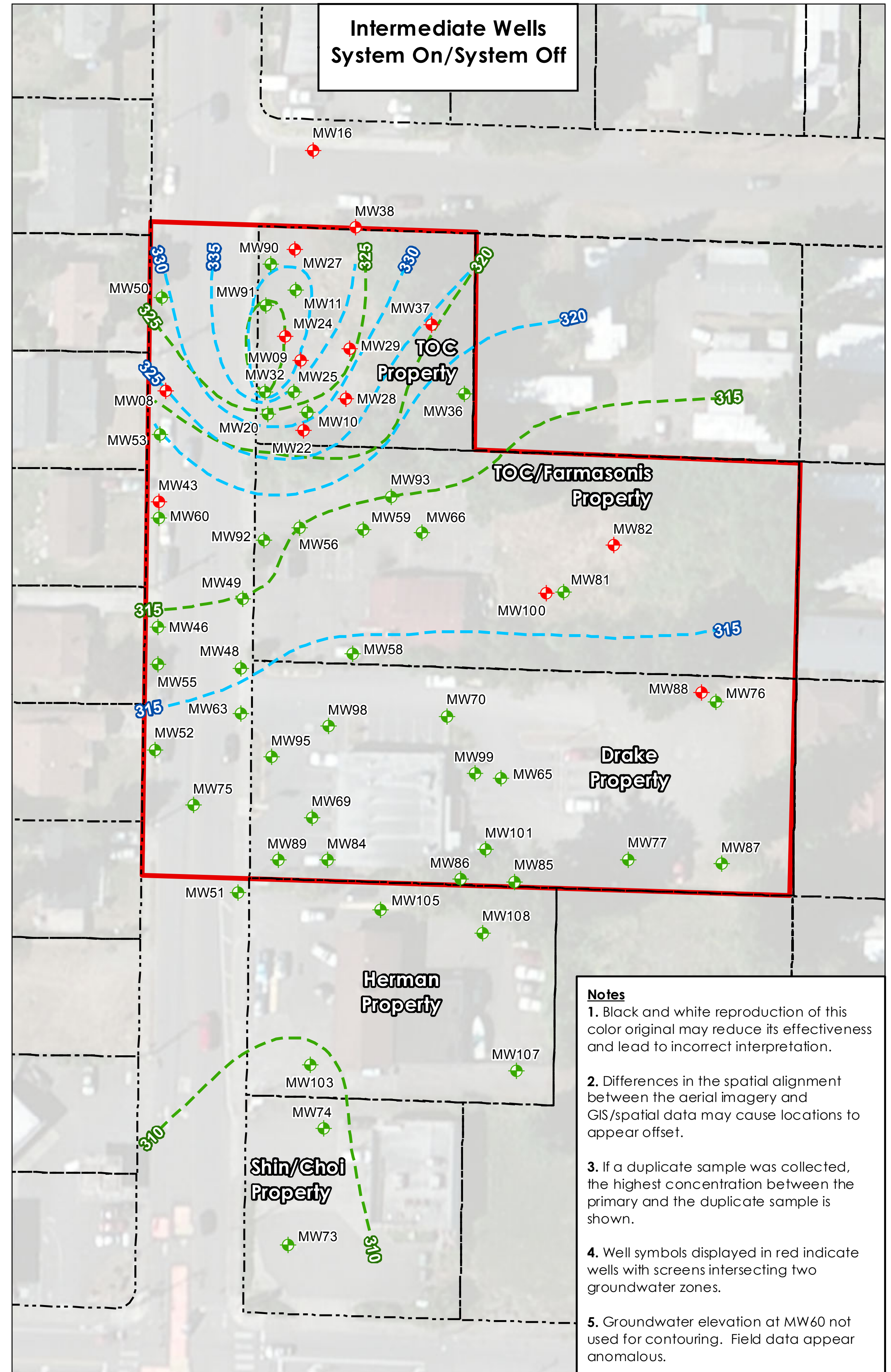

Notes

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2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Well symbols displayed in red indicate wells with screens intersecting two groundwater zones.

5. Groundwater elevation at MW60 not used for contouring. Field data appear anomalous.

Figure No.
7

Title
Comparison of System-On and System-Off Groundwater Elevation Contours, Shallow and Intermediate Zones, February 2016

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 80 160 Feet
1:960 (At original document size of 11x17)

N

Legend

MW72 Shallow Groundwater Zone Monitoring Well Location & Groundwater Elevation

MW72 Intermediate Groundwater Zone Monitoring Well Location

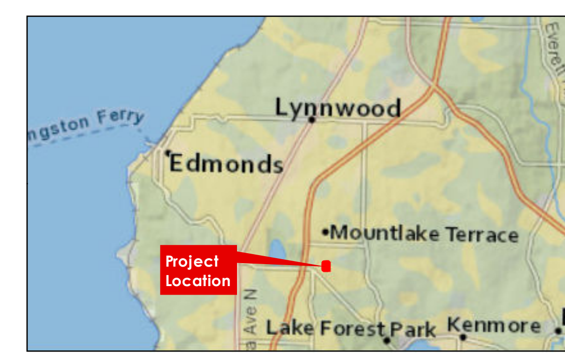
MW72 Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones)

System Off - Groundwater Elevation Contour (feet, mean sea level), February 19, 2016

System On - Groundwater Elevation Contour (feet, mean sea level), February 1, 2016

Parcel Boundary

Site Boundary



Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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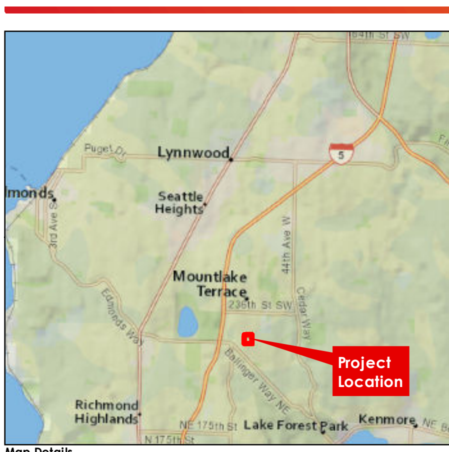
Definitions
Dry = Insufficient groundwater in monitoring well
NM = Not Measured

Notes
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.



Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- MW72 331.32 — Deep Groundwater Zone Monitoring Well Location & Groundwater Elevation (feet, mean sea level)
- Groundwater Elevation Contour (feet, mean sea level)
- Approximate Groundwater Flow Direction
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
8

Title
Groundwater Elevation Contours, Deep Zone (System Off), February 19, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

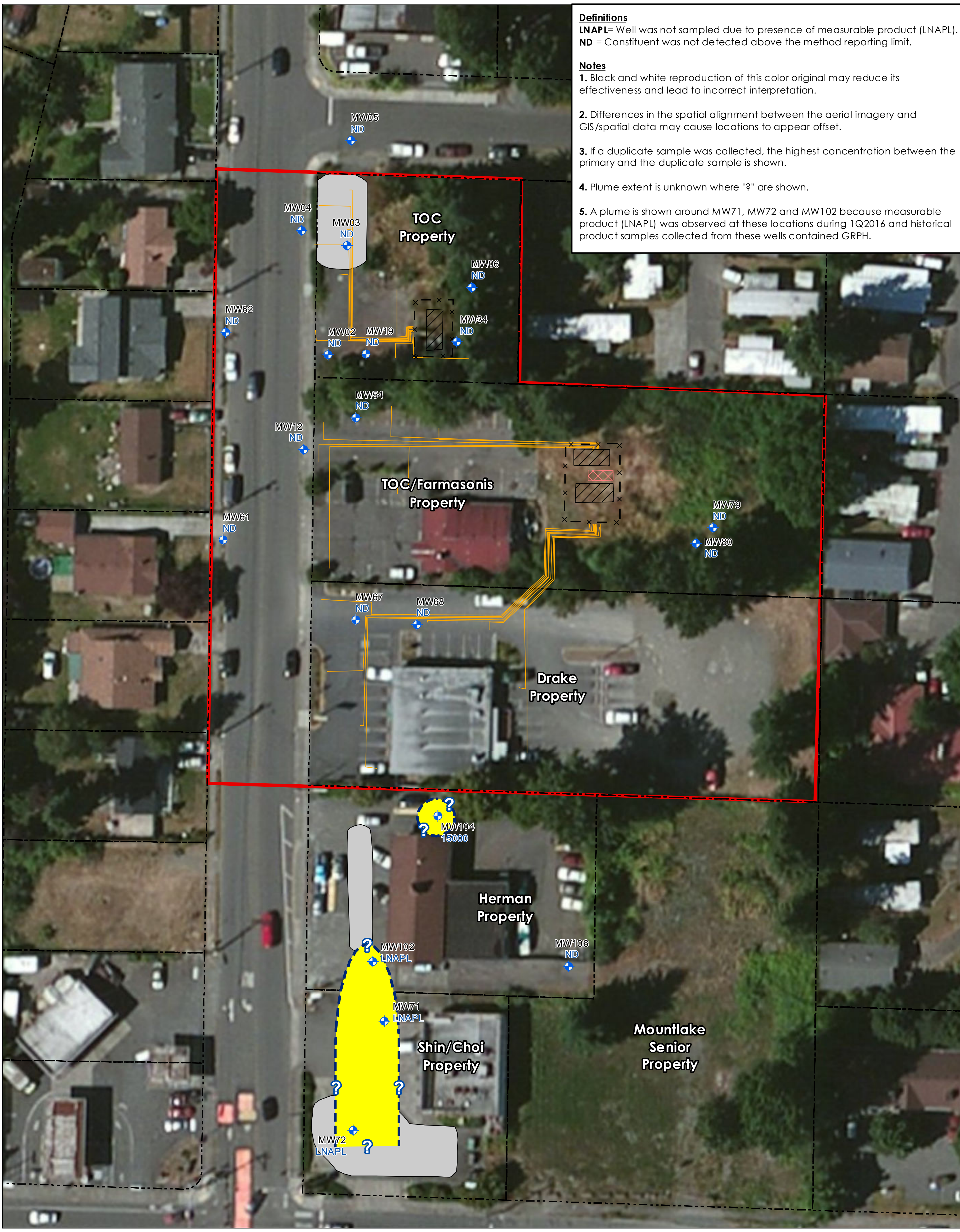
Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
1:720 (At Original document size of 11x17)

N

Stantec



Definitions
LNAPL= Well was not sampled due to presence of measurable product (LNAPL).
ND = Constituent was not detected above the method reporting limit.

Notes
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Plume extent is unknown where "?" are shown.

5. A plume is shown around MW71, MW72 and MW102 because measurable product (LNAPL) was observed at these locations during 1Q2016 and historical product samples collected from these wells contained GRPH.

Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- MW72 800 Shallow Groundwater Zone Monitoring Well Location & GRPH Concentration (µg/L)
- Remediation System Piping
- Sample Concentration exceeds MTCA Method A Cleanup (800 µg/L when GRPH is present)
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
9

Title
GRPH Concentrations Shallow Zone, 2016 Annual Monitoring Event (1Q 2016)

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
1:720 (At Original document size of 11x17)

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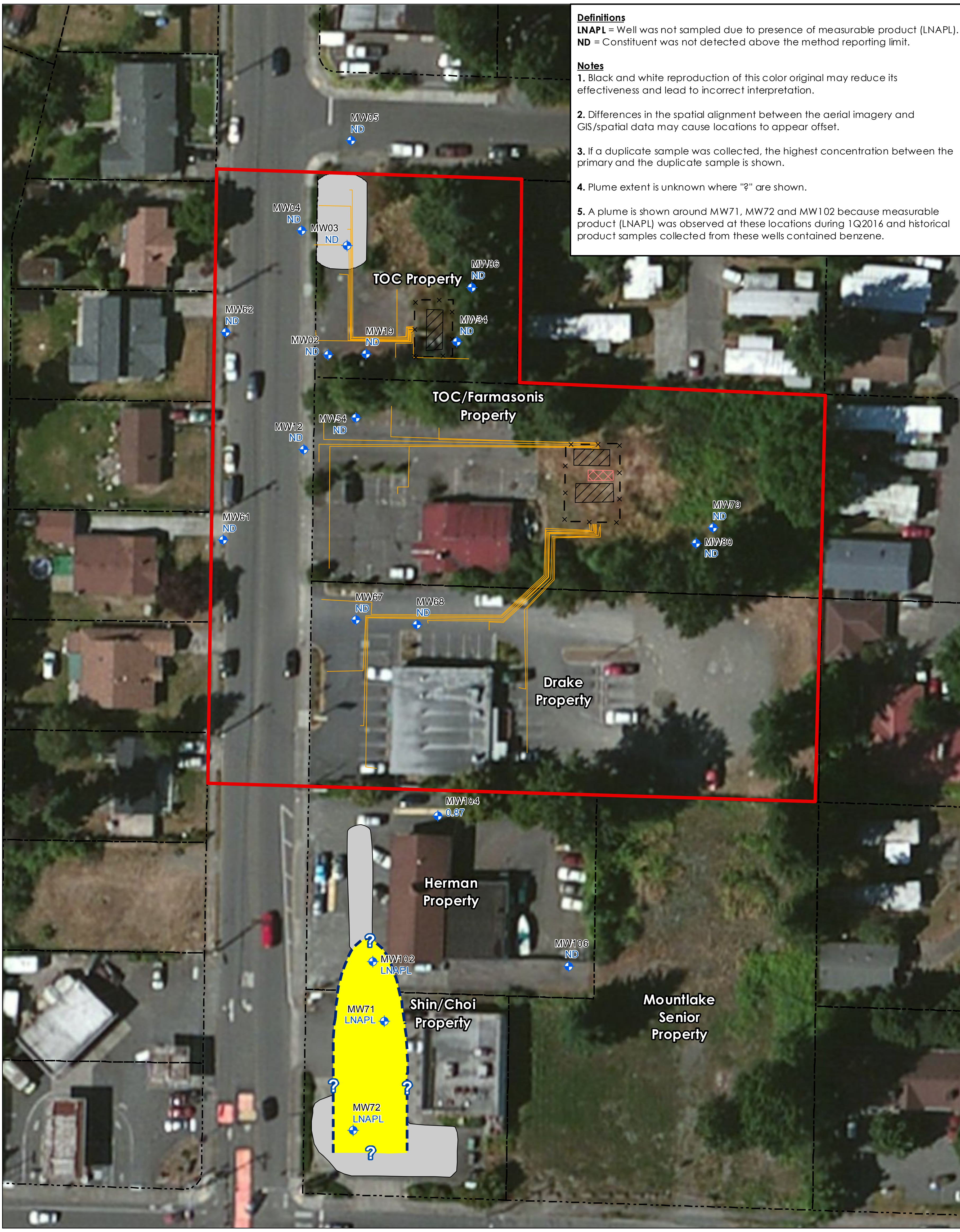
Stantec



Definitions
LNAPL = Well was not sampled due to presence of measurable product (LNAPL).
ND = Constituent was not detected above the method reporting limit.

Notes
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Plume extent is unknown where "?" are shown.

5. A plume is shown around MW71, MW72 and MW102 because measurable product (LNAPL) was observed at these locations during 1Q2016 and historical product samples collected from these wells contained benzene.

Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- MW72 5 — Shallow Groundwater Zone Monitoring Well Location & Benzene Concentration (µg/L)
- Remediation System Piping
- Minimum Preliminary Screening Level for Benzene (5 µg/L; MTCA Method A Cleanup Level)
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
10

Title
Benzene Concentrations
Shallow Zone,
2016 Annual Monitoring Event (1Q 2016)

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
1:720 (At Original document size of 11x17)

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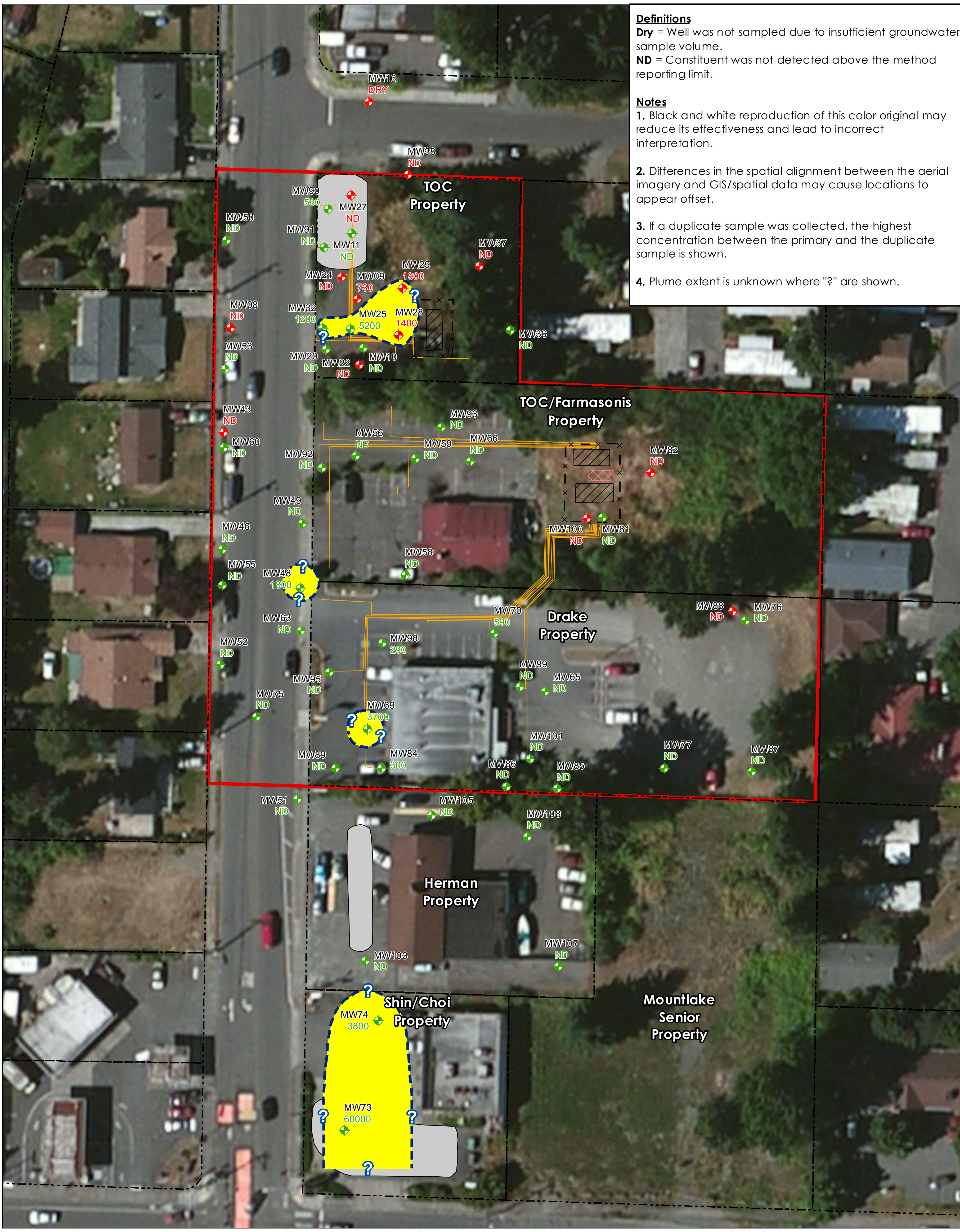
Stantec



Definitions

Dry = Well was not sampled due to insufficient groundwater sample volume.

ND = Constituent was not detected above the method reporting limit.

Notes

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Plume extent is unknown where "?" are shown.

Map Details

1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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Legend

- MW72 800 — Intermediate Groundwater Zone Monitoring Well Location & GRPH Concentration (µg/L)
- MW72 800 — Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones) & GRPH Concentration (µg/L)
- Remediation System Piping
- Sample Concentration exceeds MTCA Method A Cleanup (800 µg/L when GRPH is present)
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
11

Title
GRPH Concentrations Intermediate Zone, 2016 Annual Monitoring Event (1Q 2016)

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
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Stantec

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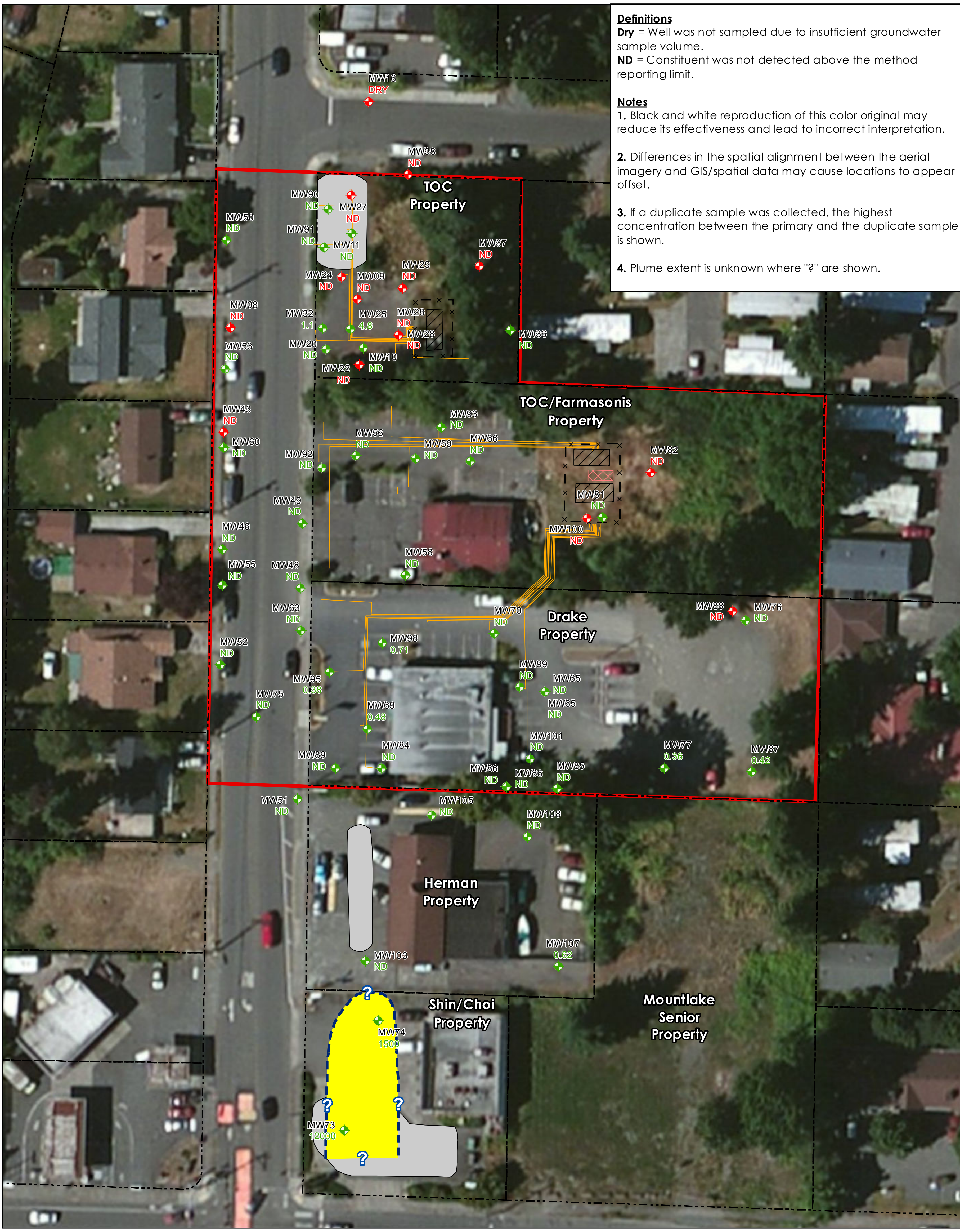
U:\Pre_MEDAD\WA\Clients\Time_Oil\TOC-MountlakeTerrace_BA1402800\MXDs\2016_1Q\Fig_12_1Q16_Benzene_IZ_map.mxd Revised: 2016-06-29 By: nfaust



Definitions

Dry = Well was not sampled due to insufficient groundwater sample volume.

ND = Constituent was not detected above the method reporting limit.

Notes

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2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Plume extent is unknown where "?" are shown.

Map Details

1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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Legend

- MW72 5 — Intermediate Groundwater Zone Monitoring Well Location & Benzene Concentration (µg/L)
- MW72 5 — Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones) & Benzene Concentration (µg/L)
- Remediation System Piping
- Minimum Preliminary Screening Level for Benzene (5 µg/L; MTCA Method A Cleanup Level)
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
12

Title
Benzene Concentrations Intermediate Zone, 2016 Annual Monitoring Event (1Q 2016)

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 60 120 Feet
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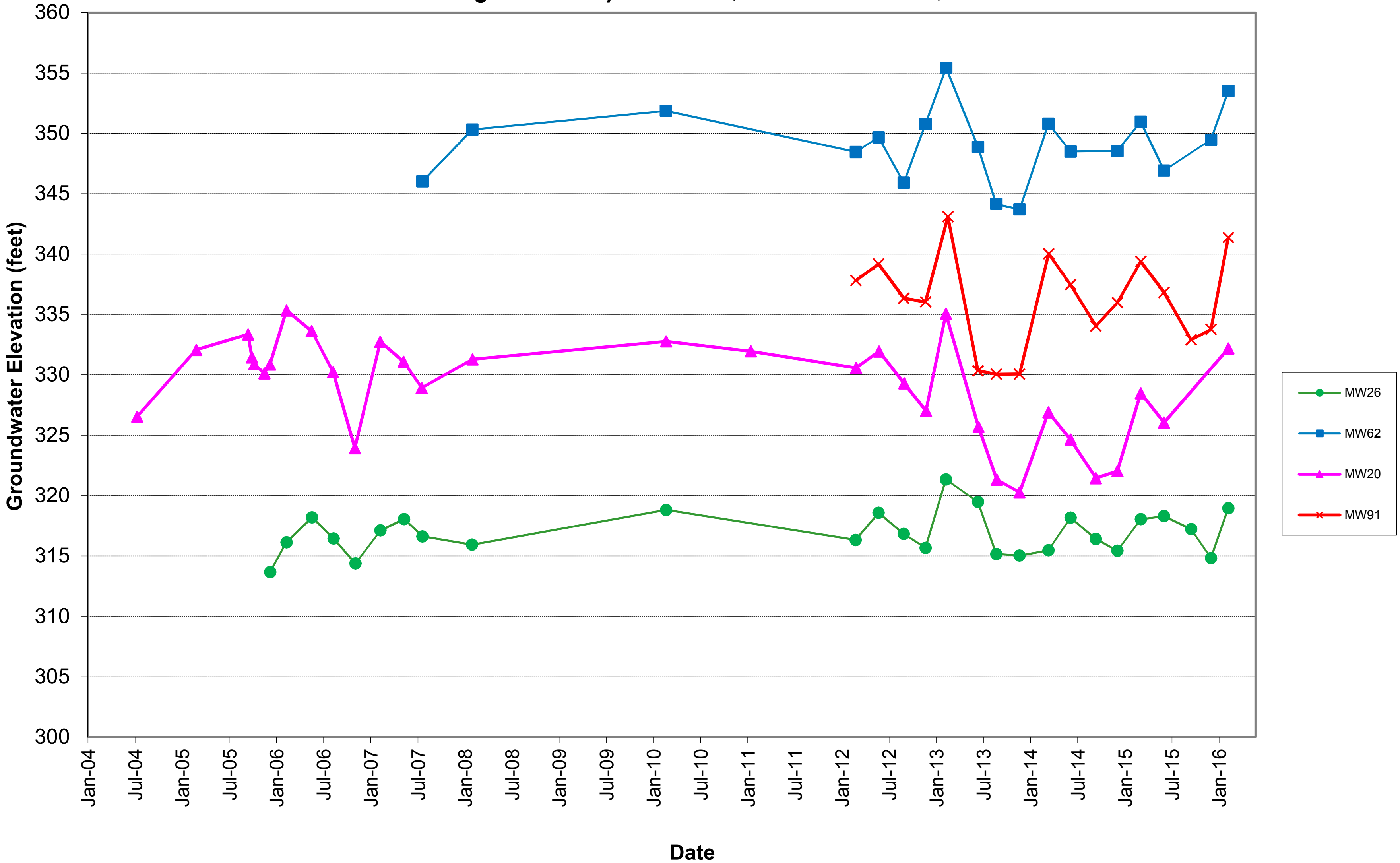
FIGURE 13

Shallow (MW62), Intermediate (MW20 and MW91) and Deep (MW26) Zone Groundwater Elevations
TOC and TOC/Farmasonis Properties
December 2006 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

FIGURE 14

Shallow (MW67), Intermediate (MW63) and Deep (MW64) Zone Groundwater Elevations
Drake Property
December 2006 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA

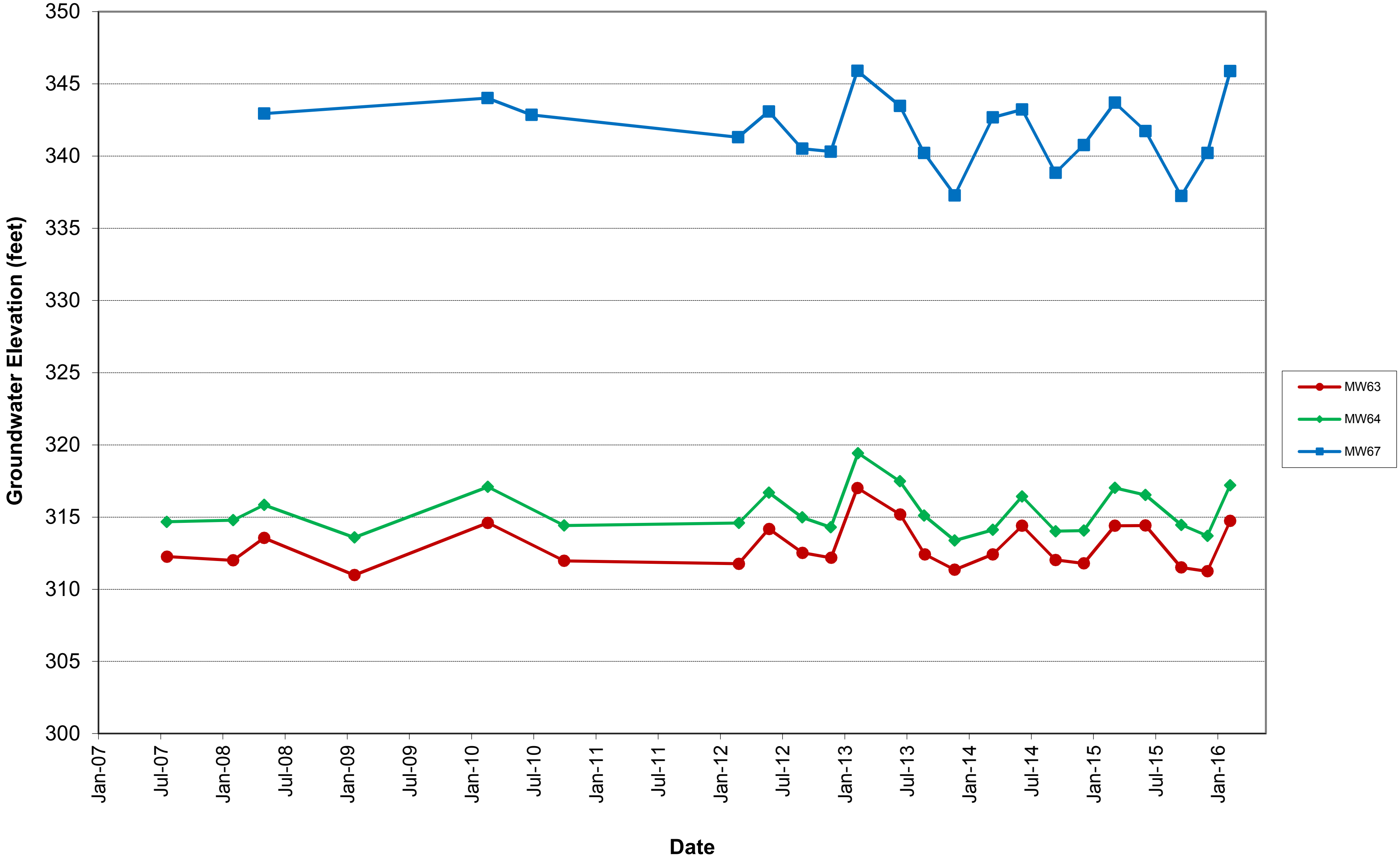


FIGURE 15

Benzene Concentrations in Groundwater, Shallow Zone Wells MW02, MW04 and MW12
June 1992 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA

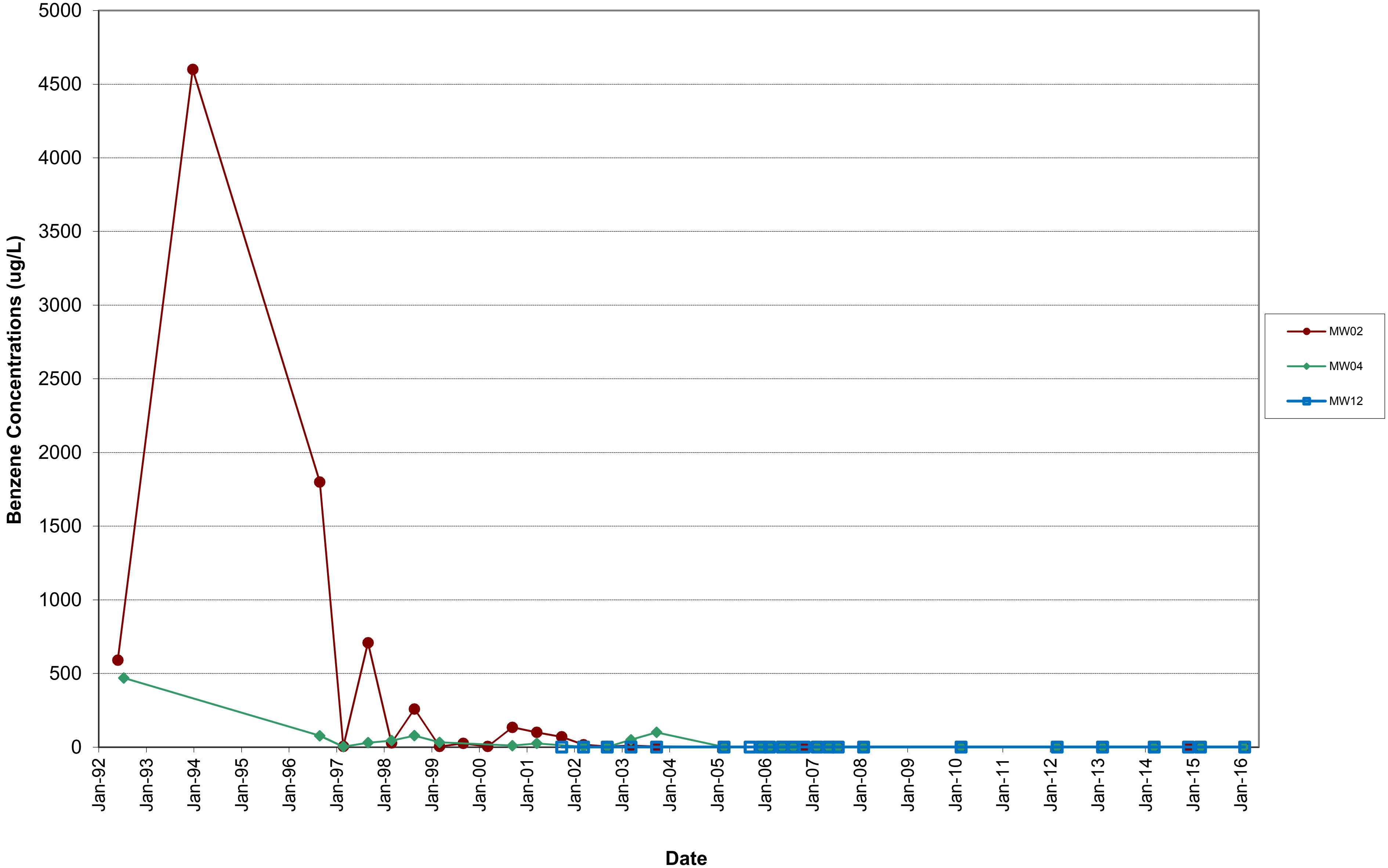


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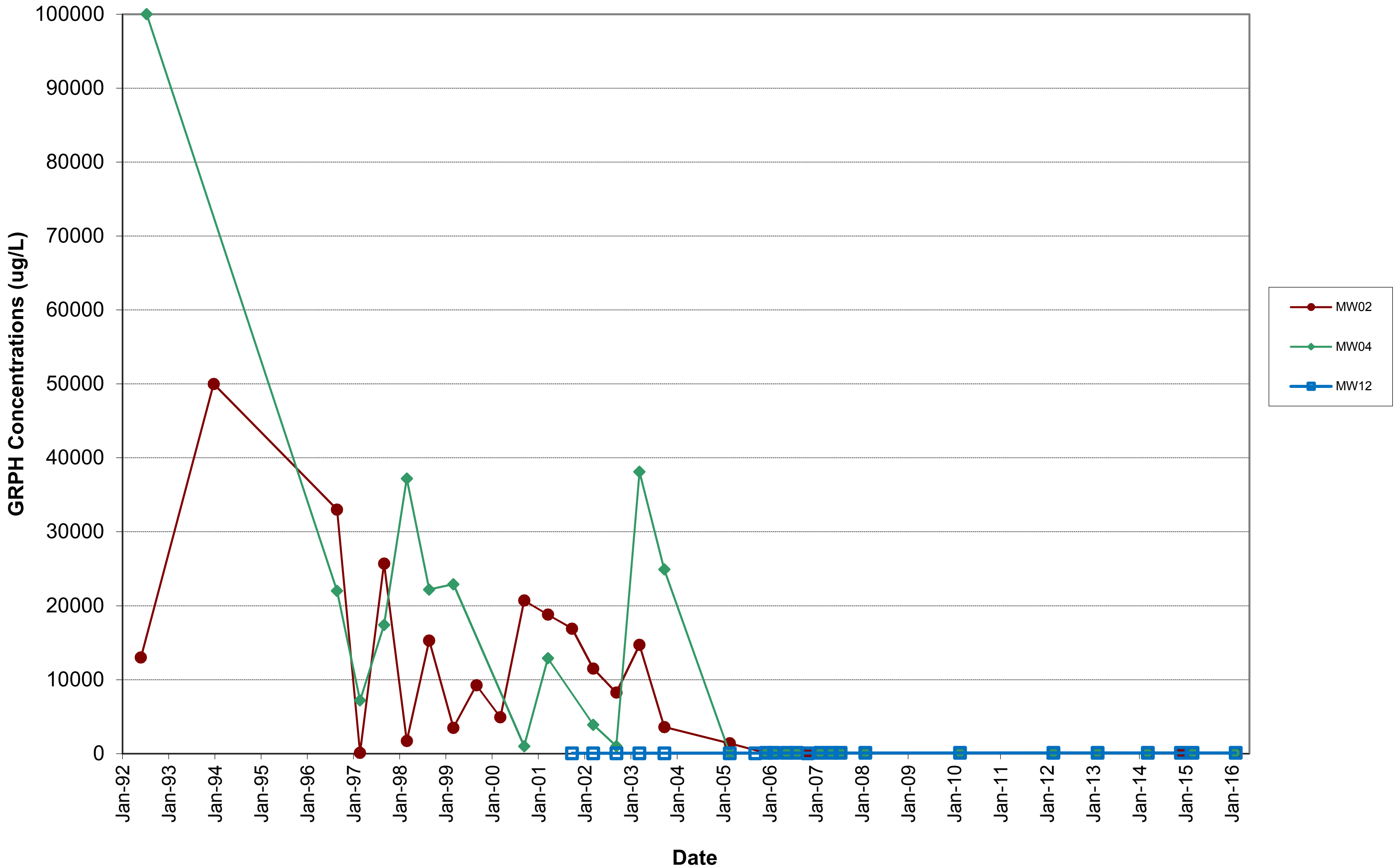
FIGURE 16

GRPH Concentrations in Groundwater, Shallow Zone Wells MW02, MW04 and MW12

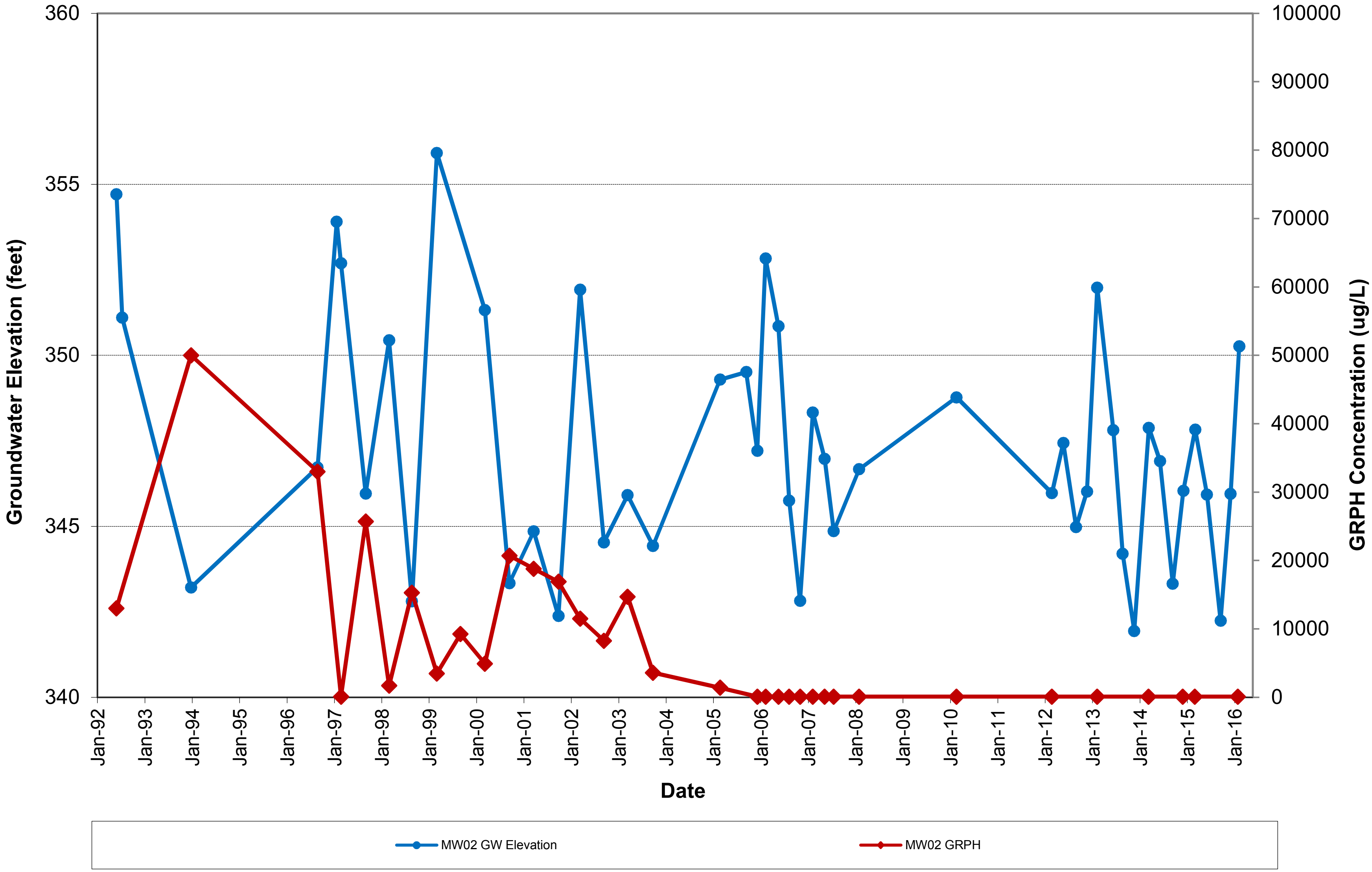
June 1992 - February 2016

TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

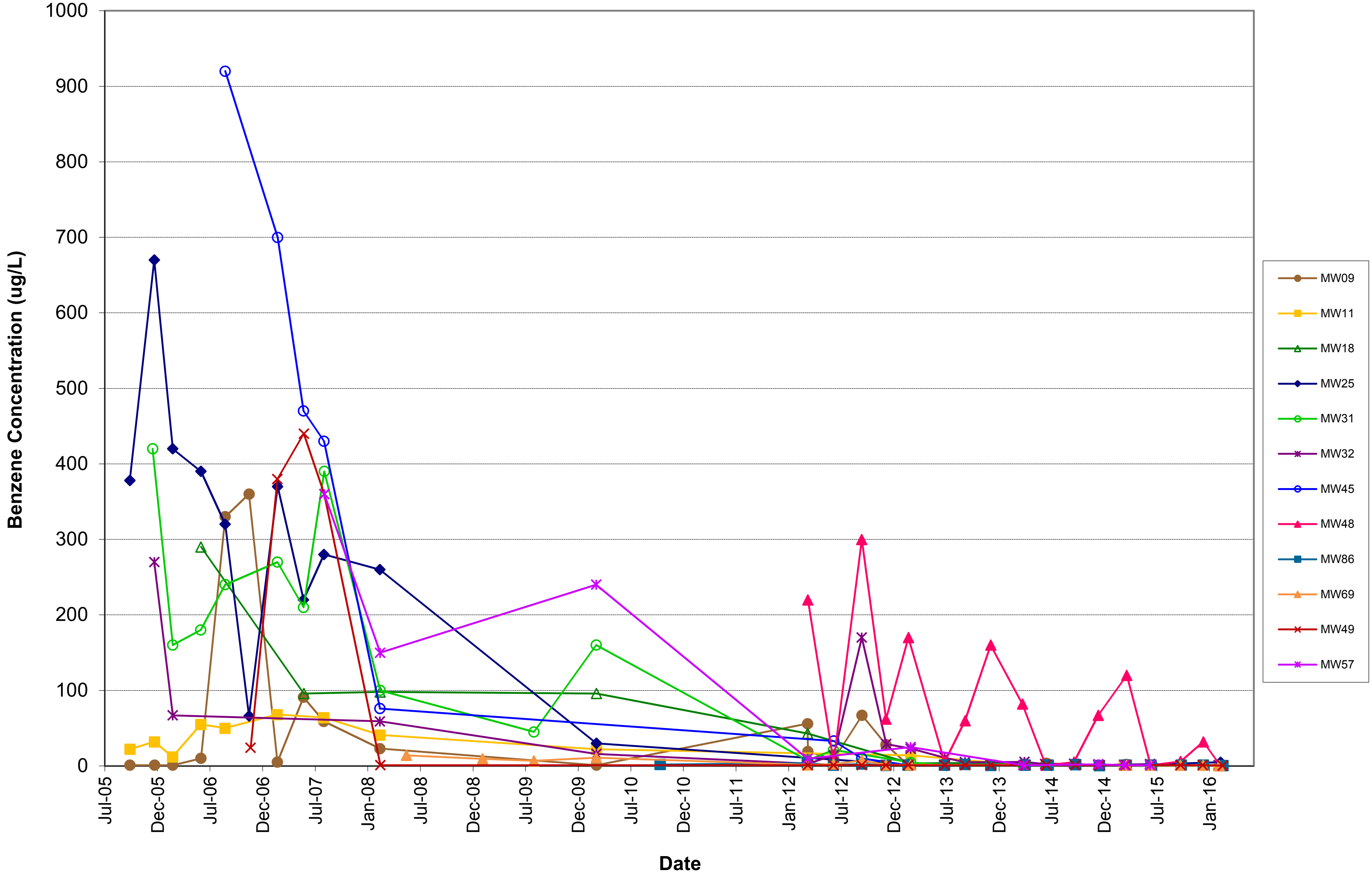
FIGURE 17
Groundwater Elevation and GRPH Concentrations in Groundwater, Shallow Zone Well MW02
June 1992 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

FIGURE 18

Benzene Concentrations in Groundwater, Selected Intermediate Zone Wells
September 2005 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

FIGURE 19

Groundwater Elevation and Benzene Concentrations in Groundwater, Intermediate Zone Well MW48 and Benzene Concentrations in Wells Near MW48

December 2006 - February 2016

TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA

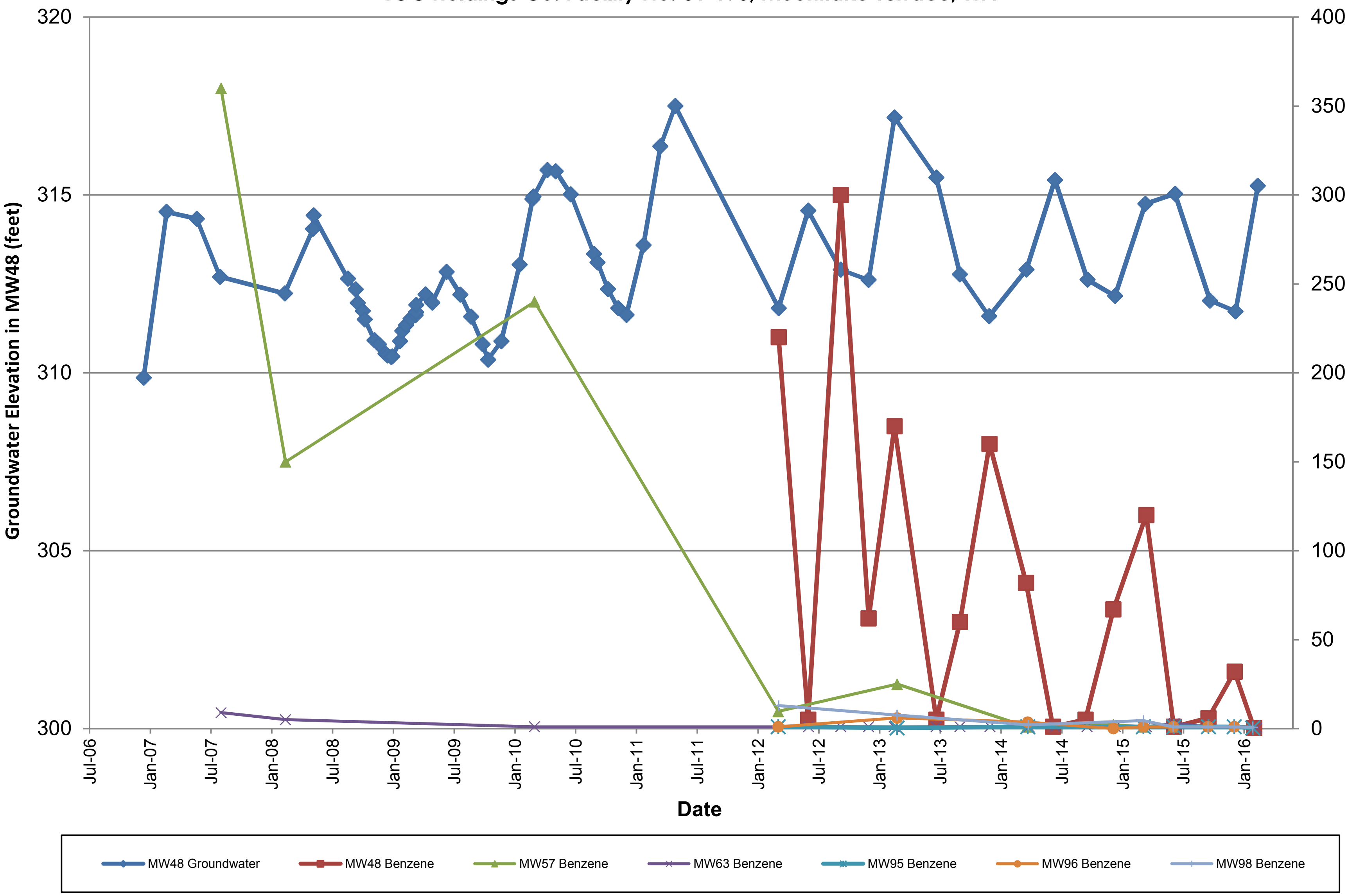
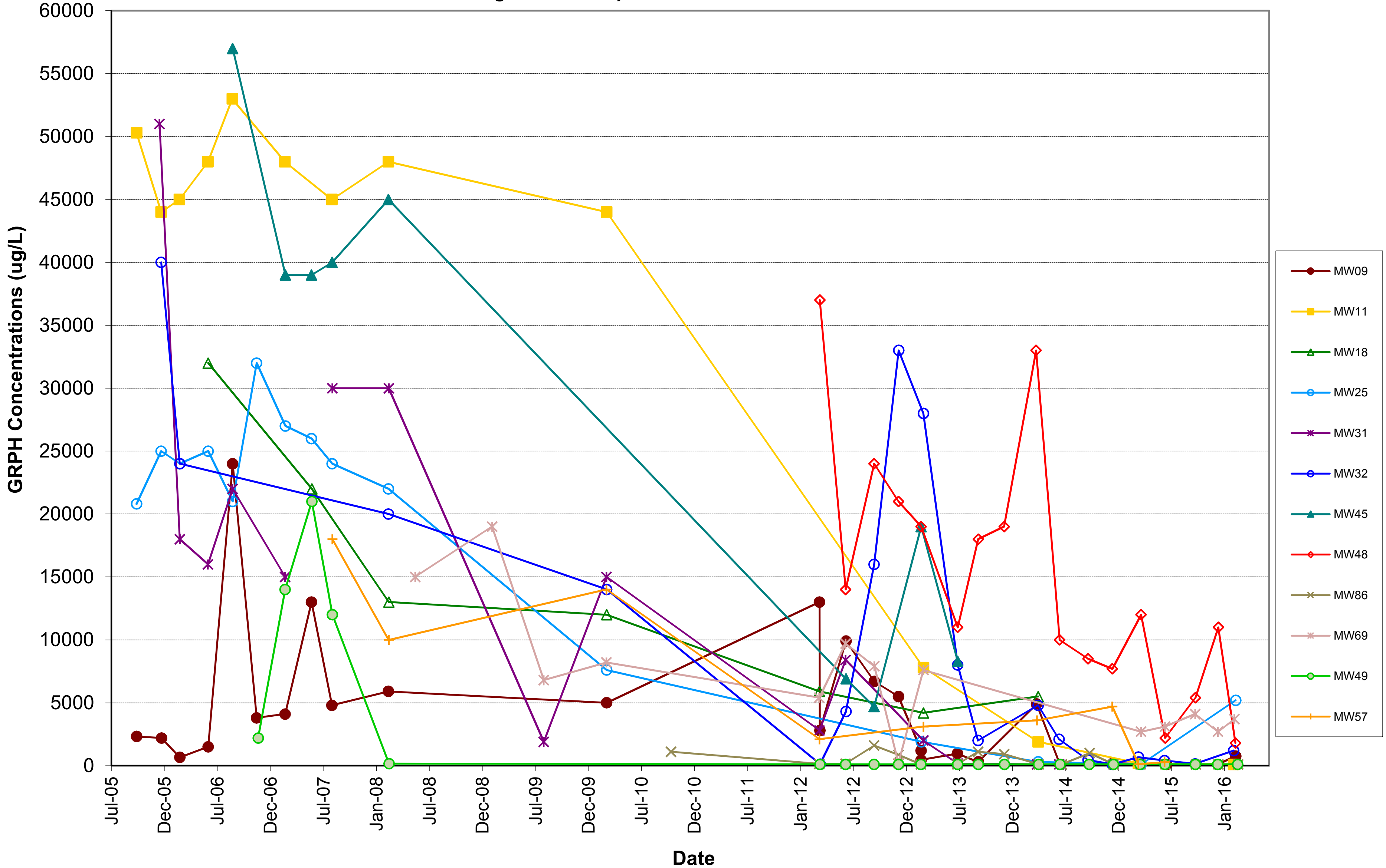


FIGURE 20

GRPH Concentrations in Groundwater, Selected Intermediate Zone Wells
September 2005 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



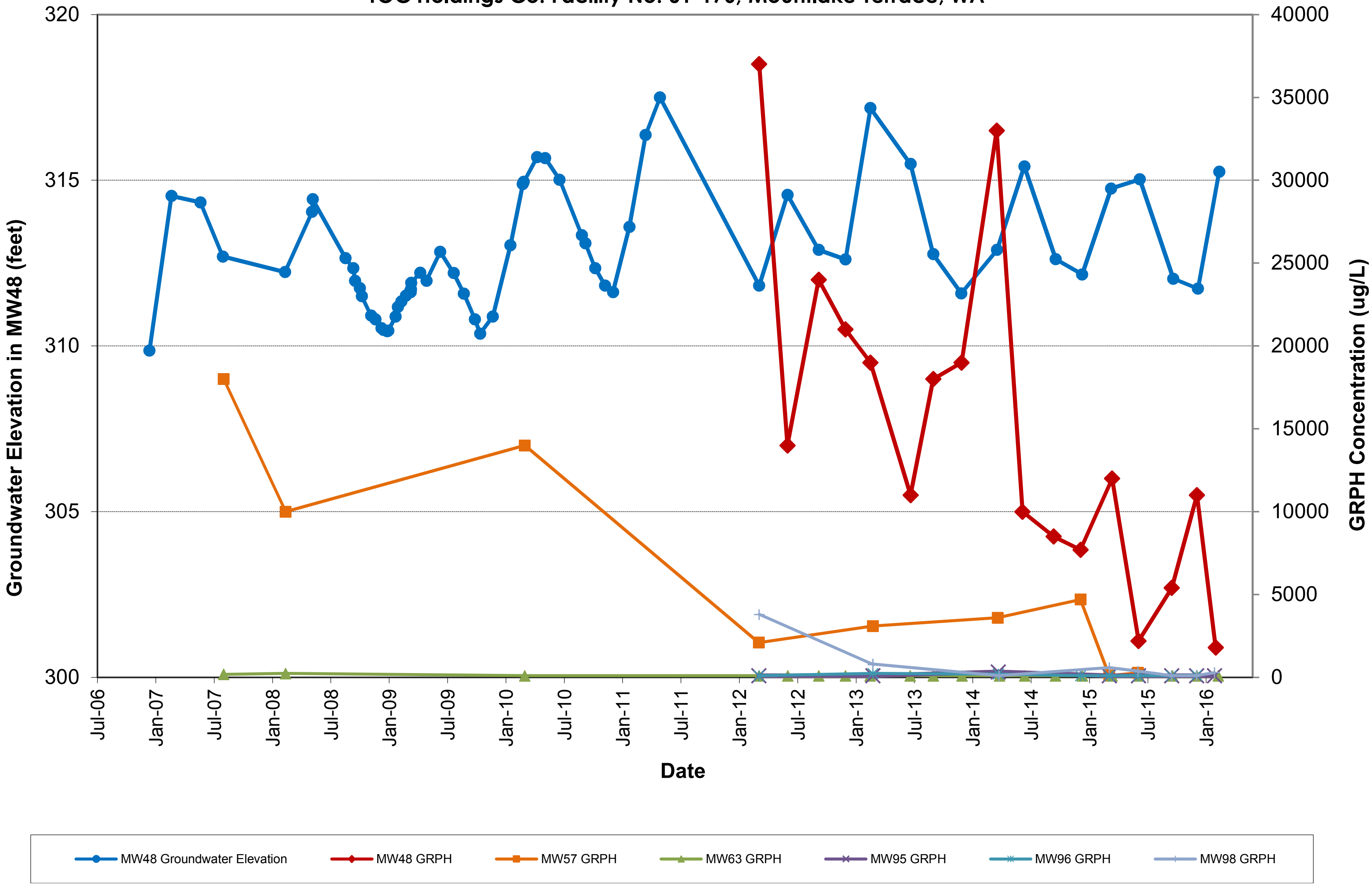
Stantec

FIGURE 21

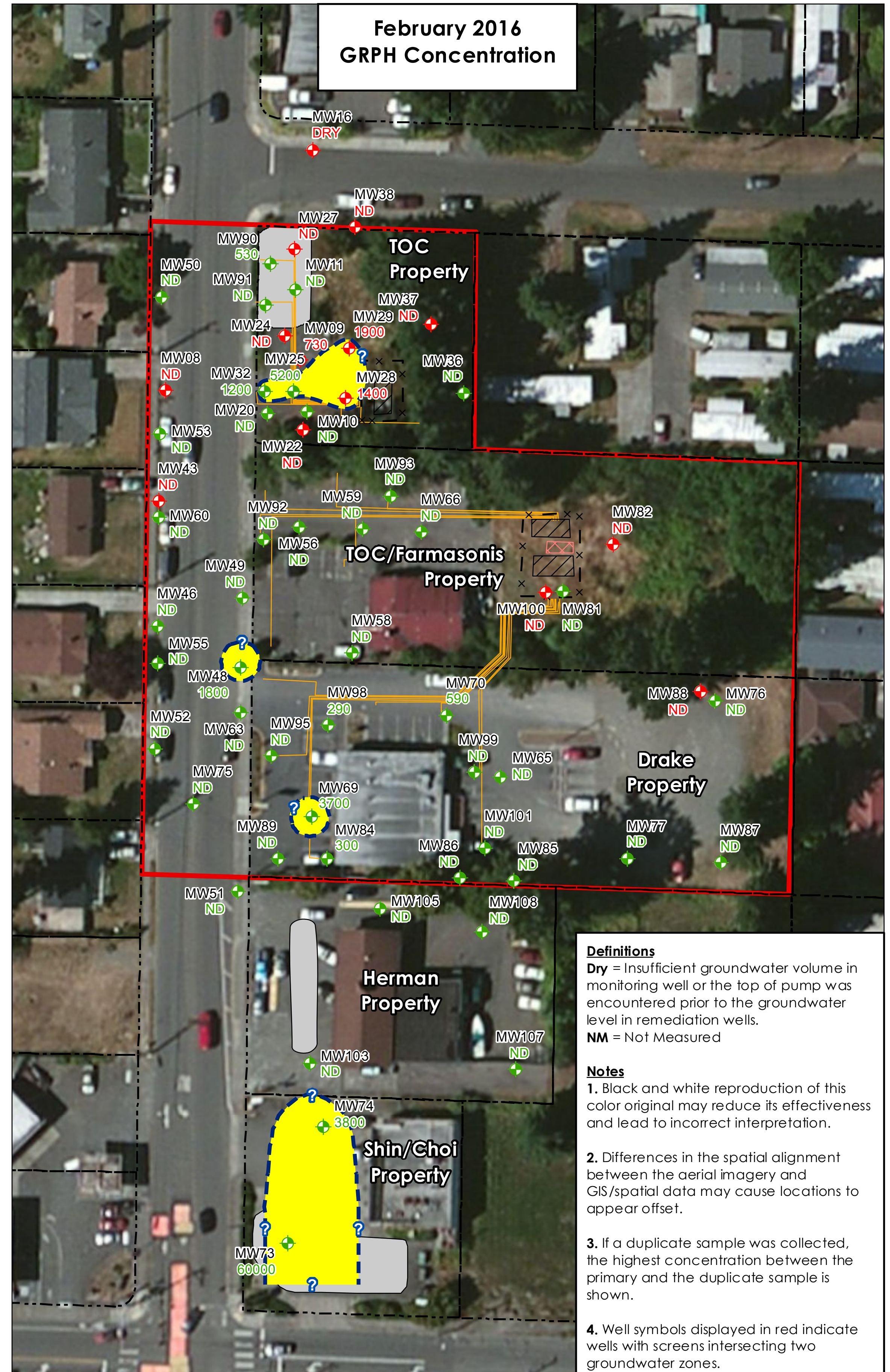
Groundwater Elevation and GRPH Concentrations in Groundwater, Intermediate Zone Well MW48 and GRPH Concentrations in Wells Near MW48

December 2006 - February 2016

TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec



Definitions

Dry = Insufficient groundwater volume in monitoring well or the top of pump was encountered prior to the groundwater level in remediation wells.

NM = Not Measured

Notes

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2. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations to appear offset.

3. If a duplicate sample was collected, the highest concentration between the primary and the duplicate sample is shown.

4. Well symbols displayed in red indicate wells with screens intersecting two groundwater zones.

Figure No.
22

Title
GRPH Plume Concentration Comparison - Intermediate Zone, March 2015 and February 2016

Client/Project
TOC Holdings Co.
Facility 01-176

Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 80 160 Feet

1:960 (At original document size of 11x17)

N

Legend

MW72 800 — Intermediate Groundwater Zone Monitoring Well Location & GRPH Concentration (µg/L)

MW72 800 — Groundwater Zone Intersect Monitoring Well Location (well screen intersects two groundwater zones) & GRPH Concentration (µg/L)

Remediation System Piping

Sample Concentration exceeds MTCA Method A Cleanup for GRPH (800 µg/L when benzene is present)

Parcel Boundary

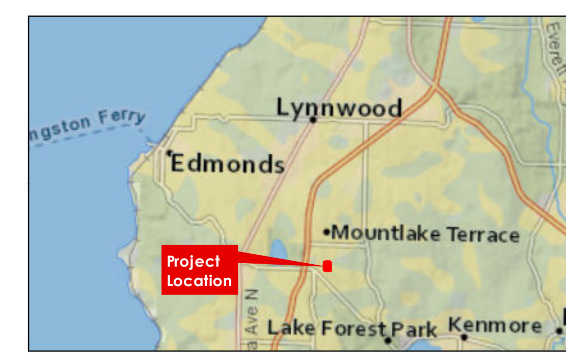
Site Boundary

Estimated Historic Soil Excavation

Remediation System Compound

Compound Fence

Equipment Shed



Map Details

1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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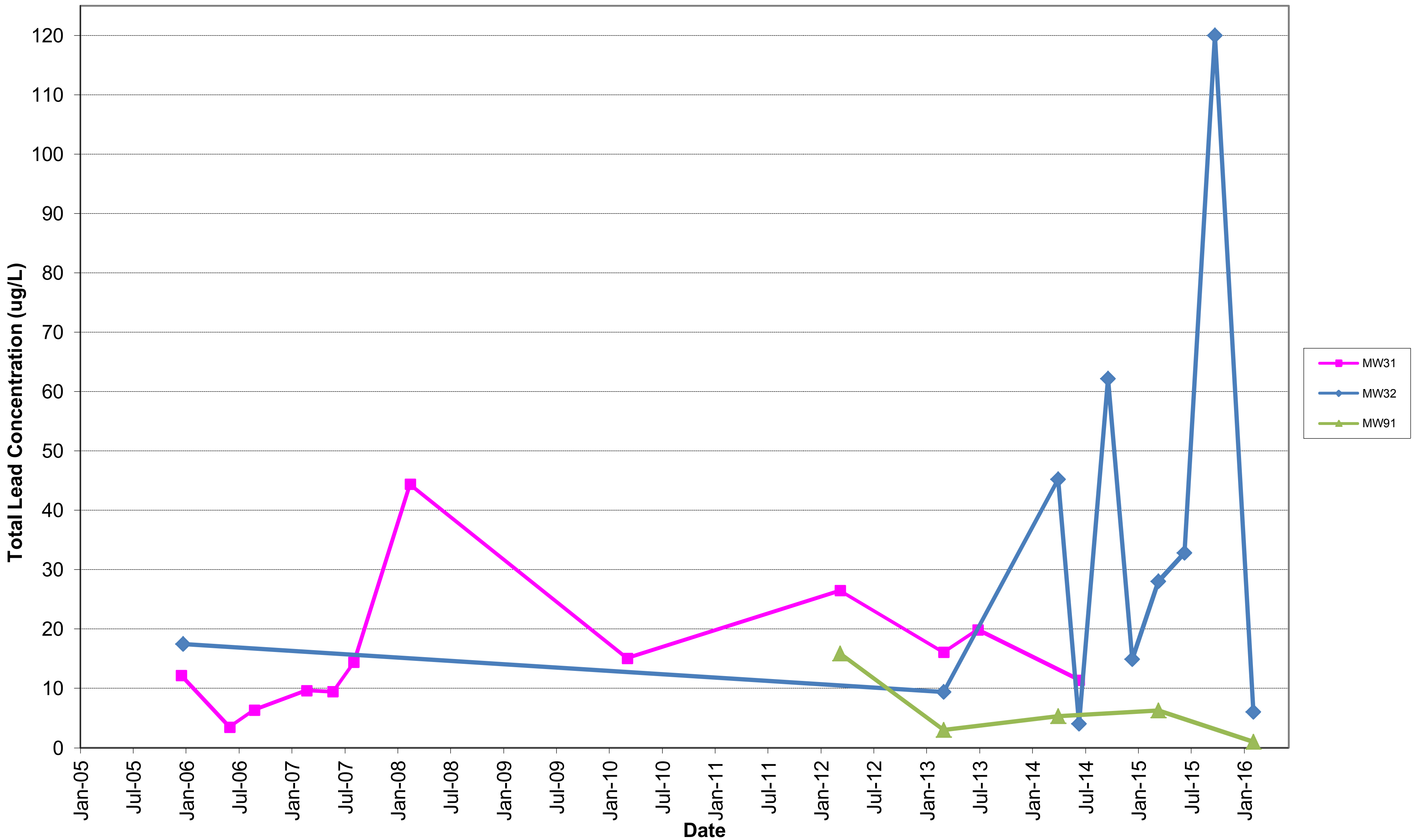
FIGURE 23

Total Lead Concentrations in Groundwater, Intermediate Zone Wells MW31, MW32 and MW91

December 2005 - February 2016

TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



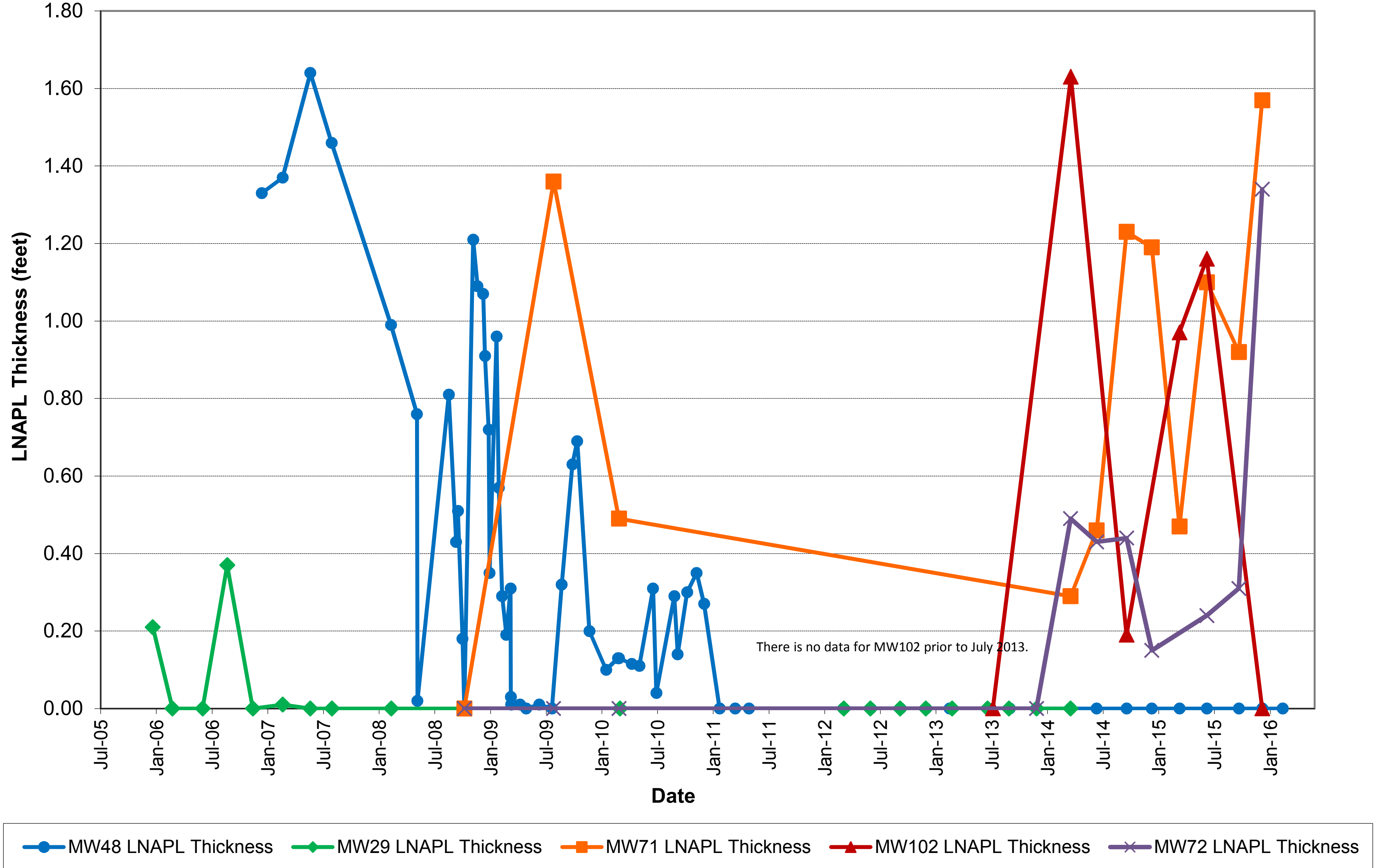
Stantec

FIGURE 24

LNAPL Thickness, Shallow Zone Wells MW29, MW71, MW72 and MW102 and Intermediate Well MW48

December 2005 - February 2016

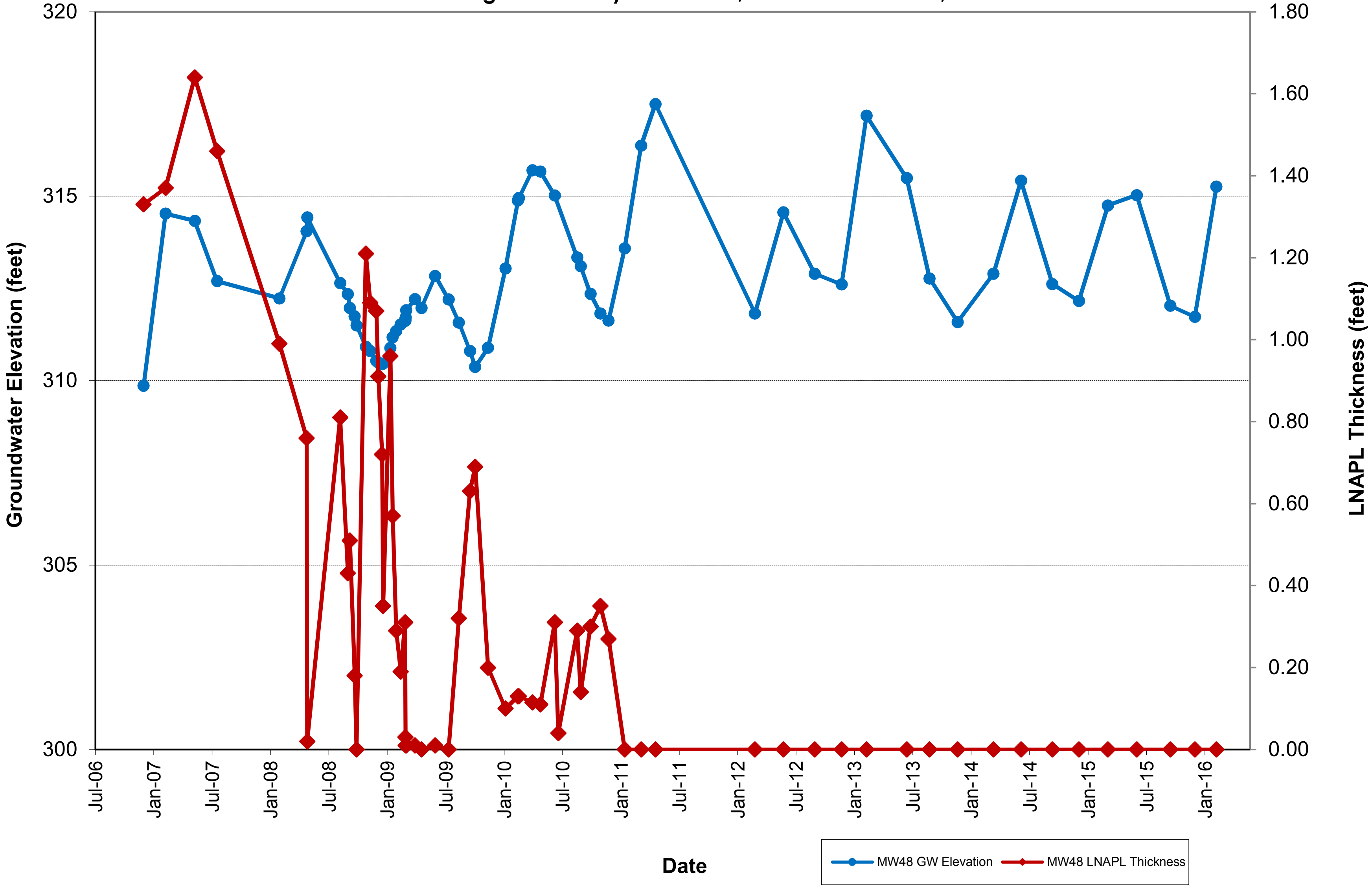
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

FIGURE 25

Groundwater Elevation and LNAPL Thickness, Intermediate Zone Well MW48
December 2006 - February 2016
TOC Holdings Co. Facility No. 01-176; Mountlake Terrace, WA



Stantec

Appendix A
Groundwater Monitoring Plan

Stantec

Groundwater Monitoring Plan

TOC Holdings Co.
Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA 98043

Stantec

Prepared for:
TOC Holdings Co.
2737 West Commodore Way
Seattle, WA 98199

Prepared by:
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Sign-off Sheet

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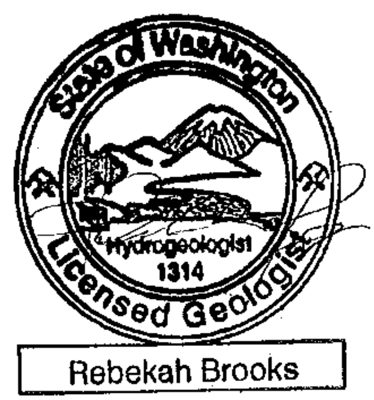

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ATTACHMENTS

Acronyms & Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
AO	Agreed Order
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and total xylenes
BTOC	below top of casing
CFR	Code of Federal Regulations
COC	chain of custody
DOT	U.S. Department of Transportation
DRPH	diesel-range petroleum hydrocarbons
DTP	depth to product
DTW	depth to water
Ecology	Washington State Department of Ecology
EDB	ethylene dibromide (1,2-dibromoethane)
EDC	ethylene dichloride (1,2-dicholoroethane)
EPA	U.S. Environmental Protection Agency
FSDS	Field Sample Data Sheet
GRPH	gasoline-range petroleum hydrocarbons
HASP	Health and Safety Plan
HCl	hydrochloric acid
HNO_3	nitric acid
HydroCon	HydroCon Environmental, LLC
ID	Identifier
IRAWP	Interim Remedial Action Work Plan
L/min	liters per minute
LNAPL	light non-aqueous phase liquid
MTBE	methyl tertiary-butyl ether
NWTPH-Dx	Northwest Total Petroleum Hydrocarbon for diesel-range organics
NWTPH-Gx	Northwest Total Petroleum Hydrocarbon for gasoline-range organics
ORPH	Oil-Range Petroleum Hydrocarbons
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
QA/QC	Quality Assurance / Quality Control
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
RPD	relative percent difference
Stantec	Stantec Consulting Services Inc.
TOC	TOC Holdings Co.
USGS	U.S. Geology Survey
VOA	volatile organic analysis
VOC	volatile organic compound

List of Properties – TOC Site

TOC Property	24205 56th Avenue West, Mountlake Terrace, WA
TOC/Farmasonis Property	24225 56th Avenue West, Mountlake Terrace, WA
Drake Property	24309 56th Avenue West, Mountlake Terrace, WA
56th Avenue West ROW	Right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

List of Properties – Adjacent to TOC Site

Herman Property	24311 56th Avenue West, Mountlake Terrace, WA
Shin/Choi Property	24325 56th Avenue West, Mountlake Terrace, WA
242nd Street Southwest ROW	Right-of-way adjacent to TOC Property

1.0 INTRODUCTION

This *Groundwater Monitoring Plan* presents the field procedures and protocol to be followed during annual and quarterly groundwater monitoring events associated with the interim remedial action at the TOC Holdings Co. (TOC) Facility No. 01-176 located in Mountlake Terrace, Snohomish County, Washington. Ongoing groundwater monitoring is conducted under Agreed Order (AO) No. DE 8661, entered in October 2011 between TOC and the Washington State Department of Ecology (Ecology 2011). As specified in the AO, the site encompasses the following four properties located in Mountlake Terrace, Washington:

- **TOC Property:** 24205 56th Avenue West;
- **TOC/Farmasonis Property**: 24225 56th Avenue West;
- **Drake Property:** 24309 56th Avenue West; and
- **56th Avenue West Right-of-Way (ROW):** adjacent to the three properties identified above.

- The groundwater monitoring scope of work defined in the *Interim Remedial Action Work Plan* (IRAWP; SES 2011) encompasses the four properties identified above (collectively referred to as the "TOC Site") as well as the following two adjacent properties:
- **Shin/Choi Property:** 24325 56th Avenue West (south of the TOC Site) and
- **242nd Street Southwest ROW:** adjacent to the TOC Property (north of the TOC Site).

- Following completion of the IRAWP, several monitoring wells were installed on the following property that is also adjacent to the TOC Site:
- **Herman Property:** 24311 56th Avenue West (directly south of the TOC Site).

The procedures presented herein are intended to be general in nature and, as the work progresses and, when warranted, appropriate revisions may be made based on current site conditions. Beginning with the 2016 annual (first quarter) event, all groundwater monitoring field activities will be performed by HydroCon Environmental, LLC (HydroCon) and data evaluation and reporting will be performed by Stantec Consulting Services Inc. (Stantec) as a subconsultant to HydroCon.

2.0 HEALTH AND SAFETY

A site-specific Health and Safety Plan (HASP) was prepared by HydroCon (provided as ***Attachment 1***) in accordance with the Occupational Safety and Health Administration (OSHA) Code of Federal Regulation (CFR) 1910.120. The HASP includes a site-specific chemical and physical hazard evaluation; operations plan; safety equipment and procedures; and emergency procedures. The HASP encompasses health and safety protocols to be used by HydroCon field personnel during performance of groundwater monitoring and other field activities. The HASP will also be used to inform HydroCon field personnel of the site hazards and appropriate safety measures to be undertaken when working onsite.

All personnel that perform field activities must read and understand the contents of the HASP and sign the signature page prior to conducting fieldwork. The recent HASP must be in the possession field personnel when onsite. The field crew lead will hold an onsite safety meeting at the beginning (and end, if necessary) of each workday. All field personnel and any other personnel onsite at the time of the groundwater monitoring event must attend the daily safety meetings. Safety meetings will be documented by the field crew lead on the Daily Tailgate Meeting form.

In the case of a safety Incident involving injury, potential injury, or report of pain, soreness, or discomfort, field personnel must immediately report the incident (within one hour) to TOC Holdings (Mark Chandler), the Stantec project manager (Rebekah Brooks), and the HydroCon project manager (Craig Hultgren). Protocols indicated in HydroCon's HASP must be followed for response and reporting of any incidents.

3.0 GROUNDWATER MONITORING METHODS & PROCEDURES

The methods and procedures described in this plan were developed primarily from the U.S. Environmental Protection Agency (EPA) and U.S. Geological Survey (USGS) sources identified below.

- *Standard Operating Procedure for the Standard/Well-Volume Method for Collecting a Ground-Water Sample from Monitoring Wells for Site Characterization* (EPA, Region 9)
- *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells* (EPA 2010)
- *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers. Ground Water Forum Issue Paper* (EPA 2002)
- *National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations*, Book 9, Chapters A1-A9 (USGS, Various Dates)

The following sections summarize the methods and protocols that will be used for the annual and quarterly groundwater monitoring events.

3.1 Depth-to-Water/Depth-to-Product Measurements

In accordance with the scope of work defined in the IRAWP (SES 2011), depth-to-water/depth-to-product (DTW/DTP) levels are measured during each field event to determine groundwater flow characteristics and contaminant distribution. DTW/DTP measurements will be collected in accordance with the following schedule:

1) "System-on" Measurements: System-on measurements will be collected from all active wells at the beginning of each annual and quarterly groundwater monitoring event while the multi-phase extraction (MPE) remediation systems are operating. Data will be used to assess performance of the remediation systems and how pumping is influencing groundwater flow. All measurements will be collected on the same day.

2) "System-off" Measurements: System-off measurements will be collected from all active wells during annual and quarterly groundwater monitoring events. However, the DTW level will only be measured in MW75 (located in the 56th Avenue ROW) during the annual event per the Traffic Control Plan (WSDOT 2014). Prior to collecting system-off measurements, the remediation systems will be turned off for several days (typically 5 days) to allow groundwater levels to equilibrate. System-off measurements will be used to assess natural groundwater conditions (i.e. without influence of the remediation systems). All measurements will be collected on the same day.

3) DTW measurements will also be collected from each well location where sampling is attempted during annual and quarterly groundwater monitoring events. Measurements will be obtained prior to collecting the groundwater sample.

3.1.1 Materials & Equipment for DTW/DTP Measurements

Materials and equipment required for DTW/DTP level measurements are described below.

- **Project Records:**
  - Well Construction Records and Previous DTW/DTP Measurements
  - HASP (provided in **Attachment 1**)
  - *Groundwater Monitoring Plan* (provided herein)
- **Field Notebook and Forms** (provided in **Attachment 2**)
  - Daily Field Report Forms
  - Groundwater Data Information Form
  - Water Quality Meter Calibration Form
- **Electronic Probes:** An electronic probe consists of a contact electrode attached to the end of an insulated electrical cable marked with length indicators, and a reel which houses an ammeter, buzzer or other closed circuit indicator. The indicator shows a closed circuit and flow of current when the electrode touches a water or light non-aqueous phase liquid (LNAPL) surface. At locations where LNAPL is not present, DTW levels will be measured with an electronic water level probe to an accuracy of 0.01 feet. Where LNAPL is present (or was previously observed or is expected to occur), an oil/water interface probe will be used to check for the presence of LNAPL and measure the DTP and DTW.

3.1.2 Electronic Probe Calibration

The electronic probes used for DTW/DTP measurements will be calibrated at least annually (as part of regular maintenance) by comparing the position of the electrode relative to the marked graduations on the cable to those on a steel surveyors tape. The electronic probes will be calibrated more frequently if there is reason to suspect the probe was stretched (e.g. it was stuck in a well and pulled vigorously for retrieval or if the probe requires repair that could have affected the length of the cable).

If more than one electronic probe will be used for the measurement event, a baseline measurement from one well location will be collected using each probe to check for consistency between the instruments. Any differences between measurements will then be used to calibrate the instruments and correct the groundwater elevations, if necessary. The serial number of the electronic probe(s) selected for the measurement event will be recorded on the Groundwater Data Information form and/or in the designated field notebook. If an instrument cannot be calibrated, it will be removed from service and labeled as needing repair.

3.1.3 Measuring Point Locations

A measuring point has been established and marked at the top of the inner casing of each well where DTW/DTP measurements are made. The measuring point is based on the reference point used for the topographic survey conducted by a licensed surveyor following well installation or following any modification of the well casing or previously established measuring point. Generally, this point is the top of the well casing on the north side. The measuring point is permanently marked using an indelible marker or a notch cut into the casing. When a monitoring well is surveyed, the licensed surveyor will reference the measuring point elevation relative to the local datum for location and elevation.

3.1.4 Measuring Procedures

As described in ***Section 3.1.1***, DTW/DTP measurements will be collected using an electronic water level probe or an electronic oil-water interface probe. The procedures summarized below will be used by field staff for each DTW/DTP measurement event.

- During field event preparation activities, check the electronic probe(s) to confirm the battery is fully charged.
- Prior to collecting DTW/DTP measurements, review well construction details and previously collected measurements from each well location to gain insight on expected measurement values and to be alerted to any anomalous readings.
- Prior to collecting measurements, open each well casing for a minimum of 15 minutes to allow groundwater levels to equilibrate with atmospheric pressure.
- Select the appropriate electronic probe for each measurement location. (As described in ***Section 3.1.1***, where LNAPL was previously observed or is expected to occur, an electronic oil/water interface probe will be used to check for the presence of LNAPL and measure the DTP and DTW.)
- To avoid cross contamination between wells, rinse the indicator probes and affected cables with deionized or tap water prior to the first measurement location, between each measurement location, and following the last measurement location.
- Lower the probe into the well until the indicator shows a closed circuit. Raise and lower the probe slightly until the shortest length of cable that gives the maximum indicator response is found.
- With the cable in this fixed position, measure the DTW/DTP levels relative to the measuring point at the top of the well casing (described further in ***Section 4.1.3***) to an accuracy of 0.01 feet. In the event LNAPL is encountered in the well, the DTP level will be recorded first and the DTW level will be recorded second. The probe(s) will identify the DTP level with a solid, continuous buzzer sound and will identify the DTW level with a pulsating buzzer sound.
- The measurement procedures will be repeated as many times as necessary until two identical DTW/DTP measurements are obtained at each well location.
- System-on and system-off measurements will be recorded on the Groundwater Data Information form along with the date and time of each measurement and any notable observations. Measurements collected at the time of sampling will be recorded on the Groundwater Purge and Sample Collection forms. Field forms are provided in ***Attachment 2***.

Groundwater elevations will be calculated from the DTW measurement and the surveyed measuring point elevation at each well. If DTP measurements are collected, the product (LNAPL) thickness will be determined by subtracting the DTP from the DTW measurement. LNAPL is lighter than water and slightly depresses the groundwater table as a function of the specific gravity difference between the two media. If LNAPL is measured in any wells, the reported groundwater elevations will be normalized using the industry-standard specific gravity estimate of the LNAPL (gasoline at the TOC Site) relative to a specific gravity of 1.0 for water. The following equation and associated values will be used to obtain the normalized groundwater elevation:

Normalized Groundwater Elevation (feet) = $[(H_{TOC} - H_W) * 1.0] + [(H_W - H_{LNAPL}) * SG]$	
H_{TOC} = top of well casing elevation	H_{LNAPL} = DTP level below the top of well casing
H_W = DTW level below the top of well casing	**SG** = specific gravity of LNAPL

3.1.5 Total Well Casing Depth Measurement Procedures

To confirm the total depth of an existing well casing (if needed), the total depth of a well casing will be measured immediately after construction or at any time when conditions of the well may have changed or are in question. The total well depth is measured by sounding the bottom of the well with a weighted steel surveyors' tape or other graduated and weighted steel or fiberglass measuring tape. The electronic water level probe may also be used as a measuring device, if weighted.

To measure the total depth of the well, the weighted measuring tape or probe will be lowered into the well until there is slack in the tape or until there is a noticeable decrease in weight, which indicates the instrument has reached the bottom of the well. The tape will be lowered slowly to avoid damaging the bottom of the well with the additional weight. The tape will be raised slowly until it just becomes taut. With the tape in this fixed position, the tape reading opposite the measuring point at the top of the casing (or on the north side of the casing, if the well has not yet been surveyed) will be recorded to the nearest 0.1 feet.

3.2 Groundwater Sample Collection

Groundwater samples are collected to monitor contaminant concentrations and distribution and to evaluate the performance and efficacy of the remediation systems located on the TOC Site and their effect on groundwater quality. The groundwater sampling method selected for each well location depends upon the function of the well (i.e. monitoring or remediation), the depth to groundwater in the well, and the volume of groundwater available for sample collection.

3.2.1 Materials & Equipment

Materials and equipment required for groundwater sampling are listed below.

- **Project Records:**
    - Well Construction Records
    - HASP (provided in ***Attachment 1***)
    - *Groundwater Monitoring Plan* (provided herein)
    - Sampling Schedule (***Table A-1*** for annual event or ***Table A-2*** for quarterly events)
- **Field Notebook and Forms** (provided in ***Attachment 2***)
    - Daily Field Report Forms
    - Groundwater Purge and Sample Collection Form
    - Water Quality Meter Calibration Forms
    - Chain of Custody (COC) Form (provided by analytical laboratory)
    - Health and Safety Forms (Daily Tailgate Meeting Form)
- **Groundwater Sampling Equipment:**
    - Pneumatic Pump
    - Peristaltic Pump
    - Submersible Pump
    - Bailers
    - Water Quality Meters
    - Flow-through Cells and Filters
    - Sample Containers and Insulated Coolers (provided by analytical laboratory)
    - Ice for Coolers

3.2.2 Sample Containers & Volumes

Groundwater samples will be collected into sample containers appropriate for the analytical method. Pre-cleaned containers will be obtained from the licensed analytical laboratory performing the analyses (Friedman & Bruya, Inc.). Different containers will be required for specific groups of analytes in accordance with applicable EPA Methods. ***Table A-1*** (subject to change and approved by the Project Manager prior to the field events) provides the quarterly sampling schedule and analyses for each well, per the requirements of the IRAWP (SES 2011). Field personnel will coordinate with Friedman & Bruya to confirm the appropriate containers and preservatives are provided prior to each sampling event. The table provided in this section summarizes the types of analyses and associated sample containers and preservatives that will be provided for each well scheduled for sampling.

Type & Quantity of Sample Containers Required per Sample Location

<table>
<tr><th rowspan="2">Laboratory Analysis</th><th rowspan="2">Analytical Method</th><th colspan="3">Sample Containers</th></tr>
<tr><th>40mL VOA Glass Vials (preserved with HCl)</th><th>250mL Plastic Bottle (preserved with HNO_3)</th><th>500mL Amber Glass Bottle (unpreserved)</th></tr>
<tr><td>Gasoline-Range Petroleum Hydrocarbons (GRPH)</td><td>NWTPH-Gx</td><td rowspan="2">3</td><td rowspan="2">-</td><td rowspan="2">-</td></tr>
<tr><td>Benzene, Toluene, Ethylbenzene, & Total Xylenes (BTEX)</td><td>EPA Method 8021B or 8260C</td></tr>
<tr><td>Methyl Tertiary-Butyl Ether (MTBE)</td><td>EPA Method 8260C</td><td>1</td><td>-</td><td>-</td></tr>
<tr><td>1,2-Dicholoroethane/ Ethylene Dichloride (EDC)</td><td>EPA Method 8260C</td><td rowspan="4">-</td><td rowspan="4">2</td><td rowspan="4">-</td></tr>
<tr><td>1,2-Dibromoethane/ Ethylene Dibromide (EDB)</td><td>EPA Method 8011M</td></tr>
<tr><td>Dissolved Lead*</td><td>EPA Method 200.8</td></tr>
<tr><td>Total Lead</td><td>EPA Method 200.8</td></tr>
<tr><td>Oil-Range Petroleum Hydrocarbons (ORPH)</td><td>NWTPH-Dx</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">1</td></tr>
<tr><td>Diesel-Range Petroleum Hydrocarbons (DRPH)</td><td>NWTPH-Dx</td></tr>
<tr><td>Polycyclic Aromatic Hydrocarbons (PAH)</td><td>EPA Method 8270SIM</td></tr>
</table>

HCl = hydrochloric acid; HNO_3 = nitric acid; mL = milliliter; VOA = volatile organic analysis

Groundwater samples for this analysis will typically be field-filtered using the procedure described in **Section 3.2.7.*

3.2.3 Sample Container Labeling

Prior to collecting samples, field personnel will label each sample container with the project identifier (ID), unique sample ID, and date and time written in waterproof ink on a self-adhesive label. The label will also specify if the sample is field-filtered during collection or if preservatives are added. The following protocol will be used for assigning a unique sample ID:

- **Original Groundwater Samples**: Assign a sample ID that corresponds to the well location from which the sample was collected (e.g. a sample collected from MW02 will be given the sample ID MW02).
- **Blind Field Duplicates Samples** (described in ***Section 4.1.1***)**:** Assign a unique sample ID (e.g. MLT-01, MLT-02, MLT-03, etc.) that does not identify the well location from which the sample was collected. The original sample ID and blind field duplicate sample ID will be identified on the FSDS prepared for that sample location and will not be identified on the COC form provided to the analytical laboratory.
- **Field Blank Samples** (described in ***Section 4.1.2***): Water blanks and equipment/rinsate blanks will be given a sample ID that includes two letters identifying the type of sample collected (e.g. WB = water blank and EB = equipment blank) followed by the sample date (e.g. WB-031815 and EB-031815).

3.2.4 Sample Equipment Calibration

Water quality meters will be calibrated daily by field personnel prior to collecting groundwater samples. Equipment will be calibrated in accordance with the manufacturer's instructions. Calibration checks for all instruments will be documented on Water Quality Meter Calibration form (provided in ***Attachment 2***). At a mimimum, equipment will be calibrated at the beginning of each sampling day and any time an anomalous meter reading is observed. If an instrument cannot be calibrated, it will be removed from service and labeled for repair.

3.2.5 Groundwater Sampling Methods & Procedures

Four sampling methods (pneumatic pump, peristaltic pump, submersible pump, and bailer) will be used during each groundwater monitoring events. The procedures and rational for each groundwater sampling method are described below.

- **Pneumatic Pump:** For remediation wells connected to a MPE remediation system, groundwater samples will be collected using a dedicated downhole pneumatic pump. The pneumatic pump delivers a pulse of groundwater to the wellhead whenever the groundwater table rises above the pump intake. Groundwater samples will be collected from the pneumatic pump directly into laboratory-prepared sample containers using disposable polyethylene tubing.

- **Peristaltic Pump:** This sampling method will be used for monitoring wells installed in the Shallow and/or Shallow-Intermediate Intersect Zone with DTW levels less than 31 feet bgs (due to the inability of the pump to lift the water for sampling from greater depths). Purging and sampling with a peristaltic pump will be performed using disposable polyethylene tubing at approximate flow rates of 0.1 liters per minute (L/min) or less.

- **Submersible Pump:** This sampling method will be used for monitoring wells installed in the Intermediate, Deep, and/or Intermediate-Deep Intersect Zones with DTW levels greater than 31 feet bgs (in which case a peristaltic pump cannot be used for sampling). Submersible pumps will be used in wells that have insufficient groundwater recharge rates and/or insufficient water column heights. Purging and sampling with a submersible pump will be performed using disposable polyethylene tubing at flow rates ranging from 0.1 to 0.5 L/min. If the water table is above the top of the screen and, hence, the well screen is saturated, the intake tubing or the submersible pump will be placed in the middle of the screen (approximately). However, if the groundwater table is below the top of the screen and, hence, the well screen is not fully-saturated, the intake tubing or submersible pump will be placed near the middle of the water column.

- **Bailer:** The disposable polyethylene bailer sampling method will be the last selected method and will only be used under the following circumstances:
    - Historical analytical results indicate that elevated turbidity associated with bailing would not be likely to result in detectable concentrations of petroleum hydrocarbons in groundwater samples.
    - Historical water columns are less than five feet and recharge makes sampling with a submersible pump problematic.

Samples collected with a pneumatic, peristaltic, or submersible pump will be collected in accordance with low-flow protocols (EPA 2010a). When purging and sampling in accordance with low-flow protocols, field parameters will be monitored using a water quality meter equipped with a flow-through cell. One set of field parameters will be collected from the remediation wells sampled with a pneumatic pump. Field parameters (described in ***Section 3.2.5.1***) will be monitored and recorded on the Groundwater Purge and Sample Collection Form. Following purging and stabilization of the field parameters, groundwater samples will be collected from the pump outlet tubing located upstream of the flow-through cell and placed directly into laboratory-prepared sample containers.

Well purging and groundwater sampling with disposable bailers will require removal of at least three well volumes of groundwater from each monitoring well prior to sampling. If fewer than three well volumes are purged when attempting to collect groundwater samples, the wells will be allowed to recharge for several hours (or overnight) before sample collection is reattempted. Following well purging, samples will be collected from the bailer directly into laboratory-prepared sample containers.

Purge water generated during each sampling event will be placed in appropriately labeled 55-gallon steel drums and temporarily stored on the TOC Site for transfer to the remediation systems for treatment and permitted discharge to the sanitary sewer.

3.2.5.1 Field Parameters

One set of applicable field parameters will be collected from each sampling location. Field parameters will be monitored using a Quanda, YSI, or HF Scientific Turbidity water quality meter equipped with a flow-through cell during well purging and at the time of groundwater sampling. Use of a flow-through cell is not is not possible when sampling with a bailer. Field parameters and stabilization criteria that will be monitored and recorded are identified in the table provided in this section. Stabilization criteria will be met prior to sampling using three field readings recorded approximately five minutes apart.

Field Parameters & Stabilization Criteria

Field Parameter Type	Units	Stabilization Criteria
Water Level	**feet below top of casing (BTOC)**	**± 0.05**
Purge Rate	**L/min**	0.100-0.500
Temperature	**degrees Celsius (°C)**	**±3%**
Specific Conductance	**millisiemens per centimeter (mS/cm)**	**±3%**
Dissolved Oxygen	**milligrams per liter (mg/L)**	**±10% or ≤1.00 ±0.2**
pH	**standard unit (SU)**	**±0.1**
Oxidation-Reduction Potential (ORP)	**millivolts (mV)**	**±10**
Turbidity	**Nephelometric Turbidity Unit (NTU)**	**±10% or ≤10**

Data obtained from the field parameter measurements will be recorded on the Groundwater Purge and Sample Collection Form. Separate aliquots of water will be used for taking field measurements (i.e. sample containers for laboratory analysis will not be reopened). If the parameters have not stabilized after collecting three field readings or three well volumes, the field instruments will be checked to determine if they are operating correctly and are still calibrated. If needed, the instruments will be recalibrated.

3.2.6 Groundwater Sampling

Following purging and stabilization of the field parameters, groundwater samples will be collected from the pump outlet tubing located upstream of the flow-through cell or directly from the bailer, and placed directly into laboratory-prepared sample containers that have been pre-labeled by field staff (see ***Section 3.2.3***). Clean gloves will be worn by field personnel when collecting each sample to avoid cross-contamination. The groundwater samples will be discharged or poured slowly and carefully into the sample containers to minimize aeration. Groundwater samples collected for Volatile Organic Compound (VOC) analyses will be collected in vials and completely filled so no head space remains. Following groundwater collection, VOC sample containers will be checked for air bubbles. If air bubbles are observed, the container will be emptied and a new container will be used. Following collection, the groundwater samples will be stored in coolers or a refrigerator until transported to the analytical laboratory.

Purge water generated during the sampling event will be placed in 55-gallon steel drums that will be labeled and temporarily stored on the TOC Property for transfer to the remediation systems for treatment and permitted discharge to the sanitary sewer.

3.2.7 Sample Filtration

Groundwater samples collected for dissolved parameters (e.g. metals) will be field-filtered using a disposable in-line, 0.45 micron filter. The groundwater sample will be pumped through the filter attached directly to the discharge tubing of the groundwater pumping system (in accordance with low-flow sampling procedures) or a peristaltic pump and a section of Tygon (polyvinylchloride) tubing or other appropriate method may be used if the sample is first collected in a clean container (volume based sampling). The filter cartridge will be rinsed with an aliquot of sample prior to collection of sample in the containers or as recommended by the filter manufacturer. A new filter and tubing will be used for each sample. A note will be made on the sample label, Groundwater Purge and Sample Collection form, and COC form to indicate the sample has been field filtered.

3.2.8 Sample Documentation

The information listed below will be documented on the Groundwater Purge and Sample Collection form for each groundwater sample.

- Project Name/ID
- Sample location (well ID and property location)
- Sample ID (and duplicate sample ID [if applicable])
- Date and time of sample collection
- Sample method (i.e. bailer, submersible pump, peristaltic pump or pneumatic pump)
- Well information (i.e. diameter and well condition observations)
- Purging information (i.e. total well depth, DTW/DTP level measurement [obtained at time of sampling], well screen interval, casing volume, sampling depth [feet below top of casing {BTOC}, total purge volume, purging method, disposal method, etc.)
- Field parameter measurements (described in ***Section 3.2.5.1***)
- Sample container inventory (i.e. container type/volume, quantity, preservatives or filters [if applicable], and type of laboratory analysis requested)
- Make, model and serial number of field instruments
- Notable observations
- Field personnel name and signature

If required, other notable field observations will be documented on the Daily Field Report form, in a project-specific field notebook, and/or by taking photographs. Following completion of the sampling event, a quality assurance/quality control (QA/QC) review of the field records will be completed by the HydroCon Project Manager (or his/her designee). The original records will be placed in the project files maintained by HydroCon and an electronic copy of all field records will be provided to Stantec.

3.2.9 Sample Packaging, Preservation & Shipping

Samples will be packaged and transported in a manner that will protect the integrity of the sample and prevent detrimental effects due to the possible hazardous nature of the samples. Regulations for packaging, marking, labeling and shipping hazardous materials are promulgated by the U.S. Department of Transportation (DOT) 49 CFR 171 through 177. The sample containers will be carefully packaged to avoid breakage or cross contamination.

If required by the analytical method, groundwater samples will be placed on ice inside an insulated cooler (at an approximate cooler temperature of 4 °C [39.2 °F]) immediately after collection or in a refrigerator until packaged for transport to the laboratory. This approximate temperature will be maintained until delivery to the analytical laboratory.

3.2.10 Sample Custody

The primary objective of sample custody is to create an accurate record that can be used to trace the possession and handling of samples so their quality and integrity can be documented and maintained from collection until completion of all required analyses. Sample custody will be achieved by filling out a COC Form. The COC form is initially completed by field personnel collecting the sample, and thereafter signed by each individual accepting custody of the sample.

A sample will be considered to be in custody under the following conditions:

- field or laboratory personnel have the sample in physical possession;
- field or laboratory personnel have the sample in view;
- the sample is locked or secured in a locked container or otherwise sealed so that tampering is evident; and/or
- the sample is kept in a secured area that is restricted to authorized personnel only.

When samples are transferred to another entity, the personnel receiving the samples will sign the COC form and document the date and time of transfer. Laboratory personnel accepting custody will sign and document the date and time transfer on the COC Form. Laboratory personnel will also note any integrity issues on the COC form and will maintain sample security and custody through the analytical process.

The coolers in which the samples are packaged will be accompanied by the COC Form(s) identifying their contents. If coolers are shipped via commercial courier, the COC Form(s) will be sealed in plastic bags and placed inside the coolers and the coolers will be secured with custody seals.

3.2.11 Equipment Decontamination Procedures

Decontamination procedures for groundwater sampling equipment will be used to minimize the possibility of cross-contaminating samples. Sampling equipment that will be used to sample multiple locations will be cleaned between sampling locations and at the end of the sampling day. Sampling equipment that comes in contact with potentially contaminated material will be decontaminated before and after each use. Equipment cleaning methods will be recorded in the field records.

Steel surveyors' tape, electrical probes and other measuring tapes will be cleaned before and after each measurement location. Cleaning will be accomplished by washing off visible contamination with a laboratory-grade detergent/water solution and rinsing with clean, potable, municipal water followed by rinsing with distilled or deionized water. If equipment is potentially contaminated by LNAPL, it will be rinsed with a weak hexane solution or warm, soapy water before the final distilled or deionized water rinse. Extra decontamination will be performed after sampling wells in the vicinity of wells containing product (i.e. after sampling MW73 and MW74 [Shin/Choi Property] and MW104 [Herman Property]) and the wells with the most contamination will be sampled at the end of the sampling event after wells containing less or no contamination to minimize the potential for cross-contamination. After cleaning, equipment will be handled carefully to minimize contact with contaminants.

Sample bottles and bottle caps will be cleaned and prepared by the analytical laboratory (or their supplier) using standard EPA-approved protocols. Sample bottles and bottle caps will be protected from contamination between the time they are in the custody of the sampler(s) and the time of use.

4.0 QA/QC METHODS & PROCEDURES

The objective of the QA/QC procedures described below is to confirm that project data are of known and appropriate quality and integrity, and sufficient to support their intended use. QA/QC will be accomplished by collecting field QA/QC samples or measurements at specific well locations in the field or specific samples in the laboratory. The results of the QA/QC samples will be used to evaluate precision, accuracy, representativeness, completeness and comparability of the analytical results.

4.1 Field QA/QC Samples

4.1.1 Blind Field Duplicate Samples

Blind field duplicate samples will be collected during groundwater monitoring events and used to evaluate precision and accuracy and whether sample collection methods are reproducible. For every 10 groundwater samples collected, one duplicate sample will be collected, or one duplicate sample will be collected per day. The relative percent difference (RPD) between the original and duplicate sample result should be less than 20 percent. Duplicate samples will be collected from the same well location and at the same time as the original sample and placed in different bottles than the primary sample. The bottles will be labeled such that the laboratory cannot determine the sample location (i.e. well ID). Samples will be collected by alternately filling sample containers for both the original and corresponding duplicate sample to decrease variability between samples, except for samples collected for VOC analysis.

4.1.2 Field Blank Samples

Field blanks will be used to evaluate precision and accuracy. The QA/QC samples described below will be collected for all groundwater monitoring events.

- **Water Blanks:** A water blank sample will be collected in the field to evaluate the potential presence of contamination originating from sources not associated with sample collection procedures (e.g., water purchased by field personnel for collection of equipment/rinsate blanks or for decontamination of equipment). Each sample container is filled with deionized or distilled water in the field, preserved as required, and returned to the laboratory for analysis along with the other samples.Deionized water is provided by the analytical laboratory in new 5 gallon cube containers. One water blank is collected per batch.,. The water will be submitted to the laboratory with the groundwater samples collected on the same day as the blank was collected and documented on the same COC.

- **Equipment/Rinsate Blanks:** Following the last equipment decontamination of each sampling day, a deionized or distilled water rinse of the down hole equipment used to collect groundwater samples using submersible pumps on that sampling day will be collected, preserved as required, and returned to the laboratory for analysis along with the other samples. Equipment/rinsate samples will only be collected on days that a submersible pump was used. The equipment/rinsate blanks will be submitted to the laboratory with the groundwater samples collected on the same day as the blank was collected and documented on the same COC.

- **Trip Blanks:** Trip blanks are prepared by the laboratory to evaluate the presence of contamination (volatiles) during transit, from sample bottles, or from laboratory conditions. Each bottle is filled with deionized or distilled water in the laboratory, preserved as required, and returned to the laboratory for analysis in the same shipping container with groundwater samples that will require analysis for volatile constituents. In general, one trip blank will be included in each shipping container. No analytes should be detected in the trip blank.

4.2 Laboratory QA/QC Samples

The following samples will be used to evaluate laboratory QA/QC:

- **Laboratory Method Blanks:** Laboratory method blanks are samples prepared in the laboratory to identify any potential contamination introduced within the laboratory and are used to evaluate representativeness of the sample result. One method blank will be analyzed per batch of 20 samples. Analytes should not be detected in the laboratory method blank(s).
- **Laboratory Matrix Spikes/Matrix Spike Duplicates:** Laboratory matrix spikes and matrix spike duplicates are used to evaluate potential matrix effects on sample analysis for inorganic parameters and laboratory accuracy and precision. One matrix spike and one matrix spike duplicate sample (generally run as a pair) will be included with analyses per batch of 20, (at a minimum of one per sampling event). The percent recoveries of target analytes from the matrix spike sample and the RPD for the matrix spike duplicate should be within the laboratory method requirements.
- **Laboratory Duplicates:** Laboratory duplicate samples are prepared by the laboratory to assess laboratory precision. One laboratory duplicate sample is analyzed per batch of 20 groundwater samples. The RPD between the original and duplicate sample should be within the laboratory method requirements.
- **Laboratory Control Samples:** A laboratory control sample is a sample of known analyte concentrations that is similar to the field sample matrix and is analyzed identically with the field samples in a sample batch. The laboratory control sample demonstrates that the analytical method and instrumentation are within specified control limits for acceptability. One laboratory control sample and one laboratory control sample duplicate (generally run as a pair) will be analyzed per batch of 20 samples (at a minimum of one per sampling event). The percent recoveries of analytes from the laboratory control sample should be within the laboratory method requirements. The laboratory control sample duplicate evaluates precision and the RPD should be within the laboratory method requirements.

4.3 Data Validation

Both field and laboratory QA/QC results will be evaluated to ensure sample integrity and data of known quality. Analytical reports from the laboratory will be accompanied by QA/QC results necessary to enable data reviewers to determine the quality of the data. The data validation process will identify QA/QC problems and potential limitations on the use of the data, if any. Results of samples that are outside of the laboratory or field QA/QC requirements will be marked with qualifiers (flags). Data validation will be conducted using the appropriate EPA guidelines for inorganics and organics (EPA 2008 and EPA 2010b). The QA/QC review will be completed by the Project Manager's designee and will include an evaluation of the following:

- COC Forms;
- laboratory data completeness;
- laboratory sample integrity and holding times;
- field and method duplicate samples;
- water and equipment/rinsate blank samples;
- laboratory duplicate and blank samples;
- laboratory accuracy and precision;
- field sampling and analysis precision;
- field comparability (e.g. similar site conditions, collection techniques, measurement procedures, and methods and reporting); and
- sample representativeness.

Copies of the evaluations conducted for the data validation will be maintained in Stantec's project files. Any data qualifiers applied to the data will be documented on the groundwater quality results tables attached to each groundwater monitoring report prepared by Stantec.

5.0 REFERENCES

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USGS. United States Geological Survey (USGS). various dates. *National field manual for the collection of water quality data: U.S. Geological Survey Techniques of Water-Resources Investigations*, Book 9, Chapters A1-A9, available online at http://pubs.water.usgs.gov/twri9A.

WSDOT 2014. Washington State Department of Transportation (WSDOT). *Traffic Control Plan: Left and Center Lane Closure Two-Way Left Turn Lane Standard Plan, K-26 40-01*. Revised March 30.

Tables

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Well Information						Container Type & Quantity			Sample Method & Quantity(1)					Laboratory Analyses & Method				
Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/ SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW01	TOC	Shallow	Abandoned	Decommissioned 10/01/09	--	--	--	--										
MW02	TOC	Shallow	Monitoring Well	**QA/QC sample location**	1	6	0	0		2				2				
MW03	TOC	Shallow	Monitoring Well		1	3	0	0		1				1				
MW04	56th Ave ROW	Shallow	Monitoring Well		1	3	0	0		1				1				
MW05	242nd St ROW	Shallow	Monitoring Well		1	3	0	0		1				1				
MW06	TOC	Shallow	Monitoring Well		1	3	0	0		1				1				
MW07	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW08	56th Ave W ROW	Shallow-Intermediate	Monitoring Well		1	3	0	0		1				1				
MW09*	TOC	Shallow-Intermediate	Monitoring Well	**QA/QC sample location**	16	6	0	0		2				2				
MW10*	TOC	Intermediate	Monitoring Well		1	3	0	0		1				1				
MW11	TOC	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW12	56th Ave ROW	Shallow	Monitoring Well		1	3	0	0		1				1				
MW13	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0				1		1				
MW14	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW15*	TOC	Intermediate	Monitoring Well	*Do not sample if well contains sediment or biological buildup.*	1	3	0	0					1	1				
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well		1	3	0	0				1		1				
MW17	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW18	TOC	Shallow-Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW19	TOC	Shallow	Monitoring Well		1	3	0	0		1				1				
MW20*	TOC	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	0	2			2		2	2	2	2		
MW21*	TOC	Intermediate	Abandoned	Decommissioned 04/16/12	--	--	--	--										
MW22	TOC	Shallow-Intermediate	Monitoring Well		1	3	0	0		1				1				
MW23	TOC	Intermediate	Monitoring Well		1	3	0	0				1		1				
MW24	TOC	Shallow-Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW25	TOC	Intermediate	Monitoring Well		1	3	0	0		1				1				
MW26	242nd St ROW	Deep	Monitoring Well		9	3	0	0				1		1				
MW27*	TOC	Shallow-Intermediate	2" Remediation Well		0	3	0	0	1					1				
MW28	TOC	Shallow-Intermediate	Monitoring	**QA/QC sample location**	2	6	0	0		1		1		2				
MW29	TOC	Shallow-Intermediate	2" Remediation Well		0	3	1	0	1					1			1	
MW30	TOC/Farmasonis	Deep	Monitoring		11	3	0	0			1			1				
MW31*	TOC/Farmasonis	Intermediate	2" Remediation Well		0	3	1	0	1					1			1	
MW32*	TOC	Intermediate	4" Remediation Well		0	3	1	0	1					1			1	
MW33*	TOC	Intermediate	Monitoring Well		2	3	0	0				1		1				

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Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/ SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW34	TOC	Shallow	Monitoring Well		1	3	0	0		1				1				
MW35	TOC	Intermediate	Monitoring Well		1	3	1	0					1	1			1	
MW36	TOC	Intermediate	Monitoring Well		4	3	0	0					1	1				
MW37	TOC	Shallow-Intermediate	Monitoring Well		1	3	0	0		1				1				
MW38	242nd St ROW	Shallow-Intermediate	Monitoring Well		1	3	0	0		1				1				
MW39	TOC/Farmasonis	Deep	Monitoring Well		17	3	0	0			1			1				
MW40	TOC/Farmasonis	Deep	Monitoring Well		17	3	0	0			1			1				
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well		0	3	1	0	1					1			1	
MW42	TOC/Farmasonis	Intermediate	Monitoring Well	well is typically dry	1	3	0	0				1		1				
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well		1	3	0	0				1		1				
MW44	56th Ave ROW	Intermediate	Monitoring Well	well is typically dry	1	3	0	0				1		1				
MW45*	56th Ave ROW	Intermediate	Monitoring Well	well is typically dry	1	3	1	0				1		1			1	
MW46	56th Ave ROW	Intermediate	Monitoring Well		1	3	1	0				1		1			1	
MW47	56th Ave ROW	Intermediate	Monitoring Well	well is typically dry	1	3	1	0				1		1			1	
MW48*	56th Ave ROW	Intermediate	Monitoring Well		1	3	1	0				1		1			1	
MW49*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW50*	56th Ave ROW	Intermediate	Monitoring Well		8	3	0	0					1	1				
MW51*	56th Ave ROW	Intermediate	Monitoring Well		8	3	0	0					1	1				
MW52*	56th Ave ROW	Intermediate	Monitoring Well		3	3	0	0					1	1				
MW53*	56th Ave ROW	Intermediate	Monitoring Well		21	3	0	0			1			1				
MW54	TOC/Farmasonis	Shallow	Monitoring Well		8	3	0	0		1				1				
MW55*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW56*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW58*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW59*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW60*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW61	56th Ave ROW	Shallow	Monitoring Well		1	3	0	0		1				1				
MW62	56th Ave ROW	Shallow	Monitoring Well		1	3	0	0		1				1				
MW63*	56th Ave ROW	Intermediate	Monitoring Well		2	3	0	0			1			1				
MW64	56th Ave ROW	Deep	Monitoring Well		20	3	0	0			1	1		1				
MW65*	Drake	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	0	0			2			2	2			
MW66*	TOC/Farmasonis	Intermediate	Monitoring Well		18	4	0	1					1	1	1	1		
MW67	Drake	Shallow	Monitoring Well		1	4	0	0		1				1	1			

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Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/ SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW68	Drake	Shallow	Monitoring Well		1	4	0	0		1				1	1			
MW69*	Drake	Intermediate	2" Remediation Well		0	4	0	1	1					1	1	1		
MW70*	Drake	Intermediate	2" Remediation Well		0	4	2	1	1					1	1	1	1	1
MW71	Shin/Choi	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW72	Shin/Choi	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW73	Shin/Choi	Intermediate	Monitoring Well	Extra decon.	1	4	2	1			1	1		1	1	1	1	1
MW74	Shin/Choi	Intermediate	Monitoring Well	Extra decon.	1	4	2	1			1	1		1	1	1	1	1
MW75	56th Ave ROW	Intermediate	Monitoring Well	Located in roadway and subject to Traffic Control Plan (WSDOT 2014).	1	3	0	0			1			1				
MW76	Drake	Intermediate	Monitoring Well		6	4	0	0			1			1	1			
MW77*	Drake	Intermediate	Monitoring Well		6	4	0	0				1		1	1			
MW78	Drake	Deep	Monitoring Well		20	4	0	0			1			1	1			
MW79	TOC/Farmasonis	Shallow	Monitoring Well		1	3	0	0		1				1				
MW80	TOC/Farmasonis	Shallow	Monitoring Well		1	3	0	0		1				1				
MW81	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0				1		1				
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well		1	3	0	0		1		1		1				
MW83	TOC/Farmasonis	Shallow-Intermediate	Abandoned	Decommissioned 11/21/11	--	--	--	--										
MW84*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW85*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW86*	Drake	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	4	2			2			2	2	2	2	2
MW87	Drake	Intermediate	Monitoring Well		7	4	0	0				1		1	1			
MW88	Drake	Shallow-Intermediate	Monitoring Well		1	3	0	0		1				1				
MW89*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW90	TOC	Intermediate	4" Remediation Well		0	3	1	0	1					1			1	
MW91	TOC	Intermediate	4" Remediation Well		0	4	1	1	1					1	1	1	1	
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW95	Drake	Intermediate	4" Remediation Well	Pump turned off 04/30/15.	0	4	0	0	1					1	1			
MW96	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			
MW97	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			
MW98	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			

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MW99	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			
MW100	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well		1	3	1	0		1				1			1	
MW101	Drake	Intermediate	4" Remediation Well		0	4	1	0	1					1	1		1	
MW102	Herman	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW103	Herman	Intermediate	Monitoring Well		1	4	2	1				1		1	1	1	1	1
MW104	Herman	Shallow	Monitoring Well	**QA/QC sample location**	1	8	4	2		2				2	2	2	2	2
MW105	Herman	Intermediate	Monitoring Well		1	4	2	1				1		1	1	1	1	1
MW106	Herman	Shallow	Monitoring Well		1	4	2	1		1				1	1	1	1	1
MW107	Herman	Intermediate	Monitoring Well		1	4	2	1			1			1	1	1	1	1
MW108	Herman	Intermediate	Monitoring Well		2	4	2	1			1			1	1	1	1	1
MW109	Herman	Intermediate	Monitoring Well		2	4	2	1				1		1	1	1	1	1
Subtotal					**268**	**368**	**45**	**21**	**22**	**34**	**28**	**23**	**9**	**110**	**38**	**21**	**29**	**16**
Equipment/Rinsate Blank x4					**--**	**16**	**8**	**4**						**As needed/All**				
Water Blank x2					**--**	**8**	**4**	**2**						**As needed/All**				
Total					**268**	**392**	**57**	**27**	**22**	**34**	**28**	**23**	**9**	**110**	**38**	**21**	**29**	**16**
No. of 55-Gallon Drums					**6**													

SAMPLE ID PROTOCOL:

Primary Sample: Well ID

QA/QC Sample: MLT-01, MLT-02, MLT-03, etc. (First three letters are "MLT" and are followed a two digit number that does not correspond to the well ID.)

Equipment/Rinsate Blank: EB-031815 (First two letters identify the sample type and are followed a six digit sampling date [e.g., mm/dd/yy].)

Water Blank: WB-031815 (First two letters identify the sample type and are followed a six digit sampling date [e.g., mm/dd/yy].)

NOTES:

*Well is sampled quarterly (per the requirements of the *Interim Redial Action Work Plan* attached to the Agreed Order).

(1) If the water column is less than five feet and recharge makes sampling with a submersible pump problematic, a bailer may be used to collect groundwater samples.

ACRONYMS:

BTEX = benzene, toluene, ethylbenzene and total xylenes
Dx = diesel- and motor oil-range petroleum hydrocarbons
EDB = ethylene dibromide (1,2-dibromoethane)
EDC = ethylene dichloride (1,2-dicholoroethane)
Gx = gasoline-range petroleum hydrocarbons
HNO_3 = nitric acid
mL = milliLiter
MTBE = methyl tertiary-butyl ether
PAH = polycyclic aromatic hydrocarbons
QA/QC = quality assurance / quality control
ROW = right-of-way
T/D Pb = total and dissolved lead
UN-P = unpreserved
VOA = volatile organic analysis

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19101 36th Ave W, Ste. 203
Lynnwood, WA 98036
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TABLE A-2
Groundwater Sampling Schedule - Second, Third and Fourth Quarter Events
TOC Holdings Co. Facility #01-176
Mountlake Terrace, Washington

Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	**Property**	**Groundwater Zone**	**Current Well Use**	**Notes**	**Purge Water Estimate**	**40mL VOA**	**250mL HNO_3**	**500mL UN-P Amber**	**Pneumatic Pump**	**Peristaltic Pump**	**Submersible Pump**	**Bailer (2-inch)**	**Bailer (4-inch)**	**Gx + BTEX (NWTPH-Gx + EPA SW8021B/SW8260C)**	**MTBE (EPA 8260C)**	**Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)**	**Total + Dissolved Pb (EPA 200.8)**	**EDC + EDB (EPA SW8260C + EPA 2021B)**
MW01	TOC	Shallow	Abandoned	Decommissioned 10/01/09	--	--	--	--										
MW02	TOC	Shallow	Monitoring Well		NS	NS	NS	NS										
MW03	TOC	Shallow	Monitoring Well		NS	NS	NS	NS										
MW04	56th Ave ROW	Shallow	Monitoring Well		NS	NS	NS	NS										
MW05	242nd St ROW	Shallow	Monitoring Well		NS	NS	NS	NS										
MW06	TOC	Shallow	Monitoring Well		NS	NS	NS	NS										
MW07	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW08	56th Ave W ROW	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW09*	TOC	Shallow-Intermediate	Monitoring Well	**QA/QC sample location**	16	6	0	0		2				2				
MW10*	TOC	Intermediate	Monitoring Well		1	3	0	0		1				1				
MW11	TOC	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW12	56th Ave ROW	Shallow	Monitoring Well		NS	NS	NS	NS										
MW13	56th Ave ROW	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW14	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW15*	TOC	Intermediate	Monitoring Well	*Do not sample if well contains sediment or biological buildup.*	1	3	0	0					1	1				
MW16	242nd St ROW	Intermediate-Deep	Monitoring Well		NS	NS	NS	NS										
MW17	TOC/Farmasonis	Intermediate	Abandoned	Decommissioned 11/29/04	--	--	--	--										
MW18	TOC	Shallow-Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW19	TOC	Shallow	Monitoring Well		NS	NS	NS	NS										
MW20*	TOC	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	0	2			2		2	2	2	2		
MW21*	TOC	Intermediate	Abandoned	Decommissioned 04/16/12	--	--	--	--										
MW22	TOC	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW23	TOC	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW24	TOC	Shallow-Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW25	TOC	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW26	242nd St ROW	Deep	Monitoring Well		NS	NS	NS	NS										

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Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW27*	TOC	Shallow-Intermediate	2" Remediation Well		0	3	0	0	1					1				
MW28	TOC	Shallow-Intermediate	Monitoring		NS	NS	NS	NS										
MW29	TOC	Shallow-Intermediate	2" Remediation Well		NS	NS	NS	NS										
MW30	TOC/Farmasonis	Deep	Monitoring		NS	NS	NS	NS										
MW31*	TOC/Farmasonis	Intermediate	2" Remediation Well		0	3	1	0	1					1			1	
MW32*	TOC	Intermediate	4" Remediation Well		0	3	1	0	1					1			1	
MW33*	TOC	Intermediate	Monitoring Well		2	3	0	0				1		1				
MW34	TOC	Shallow	Monitoring Well		NS	NS	NS	NS										
MW35	TOC	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW36	TOC	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW37	TOC	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW38	242nd St ROW	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW39	TOC/Farmasonis	Deep	Monitoring Well		NS	NS	NS	NS										
MW40	TOC/Farmasonis	Deep	Monitoring Well		NS	NS	NS	NS										
MW41	TOC/Farmasonis	Intermediate	2" Remediation Well		NS	NS	NS	NS										
MW42	TOC/Farmasonis	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW43	56th Ave ROW	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW44	56th Ave ROW	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW45*	56th Ave ROW	Intermediate	Monitoring Well	well is typically dry	1	3	1	0				1		1			1	
MW46	56th Ave ROW	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW47	56th Ave ROW	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW48*	56th Ave ROW	Intermediate	Monitoring Well		1	3	1	0				1		1			1	
MW49*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW50*	56th Ave ROW	Intermediate	Monitoring Well		8	3	0	0					1	1				
MW51*	56th Ave ROW	Intermediate	Monitoring Well		8	3	0	0					1	1				
MW52*	56th Ave ROW	Intermediate	Monitoring Well		3	3	0	0					1	1				
MW53*	56th Ave ROW	Intermediate	Monitoring Well		21	3	0	0			1			1				

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Mountlake Terrace, Washington

Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW54	TOC/Farmasonis	Shallow	Monitoring Well		8	3	0	0		1				1				
MW55*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW56*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW57	TOC/Farmasonis	Intermediate	4" Remediation Well		0	3	0	0	1					1				
MW58*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW59*	TOC/Farmasonis	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW60*	56th Ave ROW	Intermediate	Monitoring Well		1	3	0	0			1			1				
MW61	56th Ave ROW	Shallow	Monitoring Well		NS	NS	NS	NS										
MW62	56th Ave ROW	Shallow	Monitoring Well		NS	NS	NS	NS										
MW63*	56th Ave ROW	Intermediate	Monitoring Well		2	3	0	0			1			1				
MW64	56th Ave ROW	Deep	Monitoring Well		NS	NS	NS	NS										
MW65*	Drake	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	0	0			2			2	2			
MW66*	TOC/Farmasonis	Intermediate	Monitoring Well		18	4	0	1					1	1	1	1		
MW67	Drake	Shallow	Monitoring Well		1	4	0	0		1				1	1			
MW68	Drake	Shallow	Monitoring Well		1	4	0	0		1				1	1			
MW69*	Drake	Intermediate	2" Remediation Well		0	4	0	1	1					1	1	1		
MW70*	Drake	Intermediate	2" Remediation Well		0	4	2	1	1					1	1	1	1	1
MW71	Shin/Choi	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW72	Shin/Choi	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW73	Shin/Choi	Intermediate	Monitoring Well	Extra decon.	1	4	2	1			1	1		1	1	1	1	1
MW74	Shin/Choi	Intermediate	Monitoring Well	Extra decon.	1	4	2	1			1	1		1	1	1	1	1
MW75	56th Ave ROW	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW76	Drake	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW77*	Drake	Intermediate	Monitoring Well		6	4	0	0			1	1		1	1			
MW78	Drake	Deep	Monitoring Well		NS	NS	NS	NS										
MW79	TOC/Farmasonis	Shallow	Monitoring Well		NS	NS	NS	NS										

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Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	**Property**	**Groundwater Zone**	**Current Well Use**	**Notes**	**Purge Water Estimate**	**40mL VOA**	**250mL HNO_3**	**500mL UN-P Amber**	**Pneumatic Pump**	**Peristaltic Pump**	**Submersible Pump**	**Bailer (2-inch)**	**Bailer (4-inch)**	**Gx + BTEX (NWTPH-Gx + EPA SW8021B/SW8260C)**	**MTBE (EPA 8260C)**	**Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)**	**Total + Dissolved Pb (EPA 200.8)**	**EDC + EDB (EPA SW8260C + EPA 2021B)**
MW80	TOC/Farmasonis	Shallow	Monitoring Well		NS	NS	NS	NS										
MW81	TOC/Farmasonis	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW82	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW83	TOC/Farmasonis	Shallow-Intermediate	Abandoned	Decommissioned 11/21/11	--	--	--	--										
MW84*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW85*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW86*	Drake	Intermediate	Monitoring Well	**QA/QC sample location**	1	8	4	2			2			2	2	2	2	2
MW87	Drake	Intermediate	Monitoring Well		NS	NS	NS	NS										
MW88	Drake	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW89*	Drake	Intermediate	Monitoring Well		1	4	0	0			1			1	1			
MW90	TOC	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW91	TOC	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW92	TOC/Farmasonis	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW93	TOC/Farmasonis	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW94	TOC/Farmasonis	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW95	Drake	Intermediate	4" Remediation Well	Pump turned off 04/30/15.	0	4	0	0	1					1	1			
MW96	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			
MW97	Drake	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW98	Drake	Intermediate	4" Remediation Well		0	4	0	0	1					1	1			
MW99	Drake	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW100	TOC/Farmasonis	Shallow-Intermediate	Monitoring Well		NS	NS	NS	NS										
MW101	Drake	Intermediate	4" Remediation Well		NS	NS	NS	NS										
MW102	Herman	Shallow	Monitoring Well	*Do not sample if well contains product.*	1	4	2	1		1				1	1	1	1	1
MW103	Herman	Intermediate	Monitoring Well		1	4	2	1				1		1	1	1	1	1
MW104	Herman	Shallow	Monitoring Well	**QA/QC sample location**	1	8	4	2		2				2	2	2	2	2
MW105	Herman	Intermediate	Monitoring Well		1	4	2	1				1		1	1	1	1	1
MW106	Herman	Shallow	Monitoring Well		1	4	2	1		1				1	1	1	1	1

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Well Information						Container Type & Quantity			Sample Method & Quantity[1]					Laboratory Analyses & Method				
Well ID	Property	Groundwater Zone	Current Well Use	Notes	Purge Water Estimate	40mL VOA	250mL HNO_3	500mL UN-P Amber	Pneumatic Pump	Peristaltic Pump	Submersible Pump	Bailer (2-inch)	Bailer (4-inch)	Gx + BTEX (NWTPH-Gx + EPA SW8021B/SW8260C)	MTBE (EPA 8260C)	Dx + PAHs (NWTPH-Dx + EPA 8270D SIM)	Total + Dissolved Pb (EPA 200.8)	EDC + EDB (EPA SW8260C + EPA 2021B)
MW107	Herman	Intermediate	Monitoring Well		1	4	2	1			1			1	1	1	1	1
MW108	Herman	Intermediate	Monitoring Well		2	4	2	1			1			1	1	1	1	1
MW109	Herman	Intermediate	Monitoring Well		2	4	2	1				1		1	1	1	1	1
				Subtotal	**124**	**193**	**36**	**20**	**9**	**12**	**22**	**9**	**7**	**54**	**31**	**20**	**20**	**16**
				Equipment/Rinsate Blank x4	**--**	**16**	**8**	**4**						**As needed/All**				
				Water Blank x2	**--**	**8**	**4**	**2**						**As needed/All**				
				Total	**124**	**217**	**48**	**26**	**9**	**12**	**22**	**9**	**7**	**54**	**31**	**20**	**20**	**16**
				No. of 55-Gallon Drums	**3**													

SAMPLE ID PROTOCOL:
Primary Samples: Well ID
QA/QC Samples: MLT-01, MLT-02, MLT-03, etc. (First three letters are "MLT" and are followed a two digit number that does not correspond to the well ID.)
Equipment/Rinsate Blank: EB-031815 (First two letters identify the sample type and are followed a six digit sampling date [e.g., mm/dd/yy].)
Water Blank: WB-031815 (First two letters identify the sample type and are followed a six digit sampling date [e.g., mm/dd/yy].)

NOTES:
*Well is sampled quarterly (per the requirements of the *Interim Redial Action Work Plan* attached to the Agreed Order).
[1] If the water column is less than five feet and recharge makes sampling with a submersible pump problematic, a bailer may be used to collect groundwater samples.

ACRONYMS:
BTEX = benzene, toluene, ethylbenzene and total xylenes
Dx = diesel- and motor oil-range petroleum hydrocarbons
EDB = ethylene dibromide (1,2-dibromoethane)
EDC = ethylene dichloride (1,2-dicholoroethane)
Gx = gasoline-range petroleum hydrocarbons
HNO_3 = nitric acid
mL = milliLiter
MTBE = methyl tertiary-butyl ether
NS = not sampled
PAH = polycyclic aromatic hydrocarbons
QA/QC = quality assurance / quality control
ROW = right-of-way
T/D Pb = total and dissolved lead
UN-P = unpreserved
VOA = volatile organic analysis

Health & Safety Plan

SITE SPECIFIC HEALTH AND SAFETY PLAN

TOC MOUNTLAKE TERRACE 01-176

Date: May 27, 2015

Version 1.0

Prepared By:
HydroCon, LLC
510 Allen Street
Kelso, WA 98626

This Health & Safety Plan (HASP) has been prepared to meet the requirements of the Occupational Safety and Health Administration (OSHA) standards, 29 CFR Part 1910 and 29 CFR Part 1926, including the "Hazardous Waste Operations and Emergency Response" regulation (29 CFR §1910.120 and 29 CFR §1926.65) and other regulations that are referred to or cross referenced in these standards. Washington DOSH was also referred to during the creation of this document.

Although the aforementioned regulations were used to generate this plan, this plan does not substitute for any provisions of local, state or federal health & safety law.

If a change in conditions occurs, an addendum will be created and acknowledged by signature by all affected personnel.

Table of Contents

Site Safety Plan Acknowledgement

I have reviewed the Site Safety Plan for the TOC Montlake Terrace project and understand the hazards presented on this project. I agree to follow the procedures outlined in this plan and to inform the Site Manager and/or the Contractor Safety Representative should any unsafe conditions be noted. I understand that failure to follow safety requirements can result in my removal from this project.

Name	Signature	Date	Organization

Introduction

This Health & Safety Plan (HASP) addresses worker exposure to potentially hazardous and/or contaminated substances expected to be encountered during site work.

Compliance with this plan is required of all on-site personnel, subcontractors, and associated third parties at any of the properties. All field personnel, subcontractors, and visitors will review the HASP prior to site work. Personnel who do not comply with safety requirements may be immediately dismissed from the site.

The contents of this HASP may be revised and/or amended should additional information become available regarding the hazards present at a site and/or should significant changes occur in the scope of work, operational procedures, or control measures. The HASP shall be implemented and/or revised by key personnel listed in the next section. All affected personnel will be informed of any changes. A copy of this HASP will be maintained onsite during work activities and will be available for inspection and review by any site or agency personnel.

Project Organization & Responsibilities

Project Manager	**Craig Hultgren**
Office	360.703.6079
Cell	360.431.6253
Site Manager	**Rob Honsberger**
Office	360.703.6079
Cell	206.856.6679
Site Safety Representative	**Larry Namba**
Office	N/A
Cell	360.846.3966
Health & Safety Director	**Brian Daltoso**
Office	360.703.6079
Cell	509.288.1443

These personnel are responsible for site safety and delegation of responsibilities for ensuring compliance with this HASP. In addition, the Site Manager will be responsible for implementing this plan and will serve as the site safety representative in the absence of the HydroCon Project Manager and Health & Safety Director.

Project Manager
The Project Manager (PM) is responsible for overall direction, coordination, technical consistency, and review of the entire project contract. In coordination with HydroCon's Health & Safety Director, the PM will emphasize the importance of safety and hold site personnel accountable for safe performance. The PM will enforce implementation and compliance with the HASP. Lastly, the PM will provide resources and support to the Site Manager for effective completion of duties.

Health & Safety Director
The Health & Safety Director is responsible for the overall health and safety of site work. They will emphasize the importance of safety and hold site personnel accountable for safe performance. In conjunction with the PM and other required personnel, they are responsible for revision of the HASP. They are also responsible for managing health and safety paperwork including daily tailgate meeting notes, incident reports, and for completing incident investigations. The Health & Safety Director may also complete unannounced site inspections at any time during the project.

Site Manager / Site Safety Representative
The Site Manager (SM) is charged with overall responsibility for the successful completion of field operations. The SM is responsible for the implementation and enforcement of the HASP. The SM may serve as the contractor safety representative in the absence of the PM and Health & Safety Director. SM responsibilities also include:

- Prepare and organize project activities onsite
- Review and approve site specific health and safety plans
- Provide operation / health and safety equipment for project operations
- Emphasize the importance of safety and hold site personnel accountable for safe job performance
- Ensure immediate correction of identified unsafe work condition and/or work practices
- Monitor and evaluate health and safety performance of project operations

Site Safety Representative
The Contractor Safety Representative (CSR) is the onsite health and safety representative and is present during field work activities. If the CSR must be absent from the site, the health and safety duties will be delegated to another responsible party at the site with appropriate qualifications. CSR responsibilities include:

- Maintain copies of HASP onsite during field activities
- Be on-site and present during hazardous and/or contaminated substance(s) work
- Implementation, enforcement, and monitoring of the HASP
- Conducting pre-construction training, pre-entry briefings, and other periodic training of all onsite personnel with regard to contents of the HASP and other safety requirements to be observed during construction
- Require that site personnel meet training, medical monitoring and field experience requirements

- Ensure personnel work in a safe manner
- Direct decontamination procedures
- Perform and/or coordinate site exposure monitoring requirements
- Maintain project health and safety records
- Investigate incidents, accidents, and near-misses as needed

Onsite Personnel
Onsite personnel responsibilities include:
- Understand and comply with the HASP and health and safety instructions given by the CSR or other competent authority
- Promptly report all incidents, accidents, and near-misses
- Immediately report any unsafe work conditions, practices and violation of the HASP to the SS or CSR.

Site Characterization

Site Address	24205 56th Avenue West, Montlake Terrace, WA
Field Activities	Quarterly groundwater monitoring
Potential Hazards	• Ergonomic hazards • Slips, trips, and falls • Temperature extremes • Traffic & moving equipment • Heavy equipment

Site background

TOC operated a retail gasoline station on the TOC Property between 1968 and 1990. The facility included three underground storage tanks (USTs), six fuel dispensers and associated product delivery lines. One 8,000-gallon and two 6,000-gallon USTs and ancillary equipment were removed from the TOC Property in 1991 and petroleum constituents including gasoline-range petroleum hydrocarbons (GRPH), benzene, and total xylenes were observed in soil and groundwater in excess of the applicable Model Toxics Control Act (MTCA) Method A Cleanup Levels. Between 1992 and March 2015, site investigations were conducted to determine the extent of petroleum contamination and 107 monitoring and remediation wells (six of which have been decommissioned) were installed in three groundwater zones on the TOC Site and three adjacent properties.

In 1996, a dual-phase extraction (DPE) remediation system was installed at the TOC Property to remediate Shallow Zone groundwater impacted by petroleum hydrocarbons and remove LNAPL. The DPE system operated from February 1997 to June 2005 and was later removed following confirmation that the system effectively remediated Shallow Zone groundwater. In 2006, groundwater monitoring results collected by SES confirmed gasoline-related contamination extended directly downgradient of the TOC Property to the south and west.

In accordance with the AO, a remedial investigation (RI) was initiated at the TOC Site and three MPE remediation systems (further discussed in Section 5.0) were installed between November 2011 and August 2012 to remediate residual petroleum-contaminated groundwater, soil vapor and LNAPL (if present) in the Intermediate Zone beneath and downgradient of the TOC Site. The MPE remediation systems are located within fenced enclosures on the TOC Property and TOC/Farmasonis Property and are served by remediation wells installed on the TOC, TOC/Farmasonis and Drake properties.

Available information regarding historical operations on the TOC/Farmasonis and Drake properties do not indicate the presence of USTs. Historical operations on the downgradient Herman and Shin/Choi properties indicate three USTs were removed from the Shin/Choi Property in 1991 and two USTs were removed from the Herman Property in 2001; however, five additional USTs may still exist on the Herman Property.

Site Control

Site work zones will be established as needed where contaminated media is known to exist or whenever field observations or screening tests show the possibility of contaminated materials. Work zone demarcation may include with the use of barricades, cones, warning tape, and/or other physical markers. If an area is located where pedestrian access is possible, temporary fencing will be considered.

Exclusion Zone
The Exclusion Zone (EZ) is the work zone which represents the area of highest contamination at the site and/or the area with the greatest risk of exposure to safety hazards. The outer border of the EZ will be identified with warning tape, barricades, and/or cones. No personnel or visitors will be allowed to enter the EZ without prior approval, without first reviewing this HASP, and must possess the appropriate training, medical review, and personal protective equipment (PPE).

Contamination Reduction Zone
The contamination reduction zone (CRZ) is the work zone which represents the transition area between the EZ and the support zone. The outer border of the CRZ will be delineated as necessary. Single use equipment, contaminated PPE, and trash will be left here for disposal.

Support Zone
The support zone (SZ) is the work zone just outside the CRZ which represents the clean areas established at the site. The medical station, equipment and supply station, and other support facilities will be located in the SZ. All breaks, lunches, and meetings take place in the SZ. Any visitors or site personnel who are not required to be in the EZ must remain in the SZ.

Site Communication
This area is served by the 911 Emergency Number System. 911 will be used for any serious medical emergencies. In addition, site communications are critical to allow for expedient communication of operational instructions and safety information. Cell phones will be carried by key personnel.

Site Security
Site security measures will be taken to prevent unauthorized access to the sites. When working hours conclude, all work areas will be protected to prevent public access. Any stockpiled contaminated material will be secured away from public access. Other measures will be taken as necessary to prevent unauthorized access and ensure the safety of individuals.

Pre-Entry Briefings
All personnel must review the HASP prior to beginning work on the site. Personnel will receive site hazard training before being allowed to work at the site in known areas of contamination. Briefings will include:

- Site hazards anticipated including health effects and hazards of contaminants
- Exposure monitoring program
- Site control procedures
- PPE requirements
- Decontamination measures
- Procedure for reporting unsafe conditions or unsafe work practices
- Procedures for reporting and injury, illness, or near-miss
- Emergency procedures
- Location and route to the nearest hospital
- Training requirements

Acknowledgement of this plan for general site testing is sufficient; however, should field work (drilling, remedial excavation, etc.) occur a daily tailgate meeting will be performed to document the day’s work and potential hazards. All documented meetings will be returned to HydroCon’s Health & Safety Director at the end of each work week.

Hazard Analysis

The information provided in this section is based on current data provided to HydroCon during the development of this plan. Hazards not anticipated may be encountered during site work. This section may be updated at any time to address these encounters.

Chemical Hazards
The following chemical hazards are a result of the highest known concentrations found at the project site for groundwater as reported in the 2014 quarters 2-4 and 2015 annual groundwater

monitoring events. Earlier historical groundwater and historical soil data were not currently available to HydroCon. Soil concentrations will be added when available.

Media: Groundwater

Analyte	Maximum Concentration (ug/L or ppm)
Gx	87,0
Diesel	5,900
Oil	1,700
Benzene	15,000
Toluene	6,700
Ethylbenzene	2,000
Xylenes	9,700
MTBE	680
EDB	1.8
EDC	N/A
Naphthalene	330
Total Lead	62.2

Please note that levels of each analyte will vary due to remediation activities.

A summary of the health effects, potential routes of entry and the OSHA 8-hour time-weighted average (TWA), permissible exposure limits (PELs) and/or ACGIH threshold limit values (TLV)s for the contaminants listed are summarized in the Appendix.

Physical Hazards

Physical hazards associated with the use of heavy equipment generally are the most significant hazards on site. Other physical hazards may be present on site. The remainder of this section will list other hazards that may be encountered during site work with a list of procedures to follow while onsite.

Working Alone

- Prior to entering the work site, personnel will assess risks of the tasks to be completed and will implement any measure to avoid or control risks.
- Personnel are only permitted to work alone if there is safe ingress/egress, all temporary access equipment, machinery and goods can be safety handled by one person, the use of non-hazardous chemicals/materials are present. In addition, all high risk tasks (confined space entry, work from heights, use of hazardous equipment, etc.) required additional personnel to be present.
- Personnel must be medically fit and suitable to work alone; consider the routine work and foreseeable emergencies which may impose additional physical and mental burdens on an individual.
- Personnel must be sufficiently experienced and competent in the tasks they are completing.
- Ensure personnel know when to stop work and seek advice from a supervisor.

- Supervision: Lone workers cannot be subject to constant supervision. Supervision can be carried out when checking the progress and quality of the work; it may take the form of periodic site visits combined with discussion in which health and safety issues are raised or pre-agreed intervals of regular contact using phones or email.

Emergencies: Lone workers should be capable of responding correctly to emergencies. Risk assessments should identify foreseeable events. Information about emergency procedures and danger areas should be provided to the lone worker based on the jobsite. All personnel should have access to first-aid materials suitable for treating minor injuries.

Underground Utilities
Underground utilities present a number of specialized problems. Utilities that need to be considered are:

- Natural gas – fire and explosive hazard
- Electrical – electrocution and fire hazard
- Water lines – excavation, erosion, unsafe working conditions
- Telephone – major disruption of local communication networks

Washington Dig Law:

- Prior to calling for a locate you must outline the area you intend to dig with white paint
- It is HydroCon's responsibility to maintain the locate marks for up to 45 days. After that time, HydroCon has to call for a new locate
- If digging within 100 feet of a transmission pipeline, HydroCon must notify the pipeline company of your intent
- No digging will take place until all known facilities are marked or HydroCon is provided information regarding underground facilities by the utility operator
- All damage to underground utilities must be reported to the Utilities Transportation Commission within 45 days of the incident

Vehicle Traffic
Vehicle and equipment traffic control procedures will be required due to the presence of vehicle and/or pedestrian traffic and will require the following precautions:

- Highly visible reflective safety vests will be worn by site personnel where exposure to vehicle or equipment traffic exists.
- Workers will be cautioned to look carefully where they walk to avoid vehicles and moving equipment and to maintain eye contact with heavy equipment operators.
- Use of traffic signs, barricades, flashers, delineators, traffic cones, caution tape, and/or flagmen around work areas with vehicle or equipment traffic (as needed).
- The SS and/or CSR will establish vehicle and equipment traffic patterns to be used. Traffic haul routes will be identified during daily safety meetings and will take into account times and locations of concern for vehicle, heavy equipment, and pedestrian traffic exposures in the work area.

- Vehicle and heavy equipment traffic control patterns, other control measures, and times of operation will be communicated to facility and other affected personnel.
- If the level of vehicle and equipment traffic warrants, the SS and/or CSR will:
  - Establish a written traffic control plan
  - Identify type of traffic concerns (i.e., vehicle, heavy equipment, pedestrian, etc.)
  - Identify specific locations of traffic concerns
  - Identify peak traffic exposure times
  - Designate quantity and placement of traffic control equipment, including use of traffic signs, barricades, flashers, delineators, cones, caution tape, and flagmen
  - Construct and/or designate protected walkways for pedestrians, as needed
  - Designate hours of work operation

Noise Exposure

The operation of heavy equipment and machinery at a site may generate excessive noise levels and will require:

- Hearing protection to be used by site personnel whenever noise exposures exceed 85 decibels on the A-weighted scale (dBA)
- Noise exposures in excess of 85 dBA will be assumed to be present whenever voices must be raised to be heard in normal conversation at three (3) feet apart and also whenever working in the immediate areas of operating heavy equipment, generators, compressors, and similar equipment.
- Personnel working in the immediate area of operating equipment will use hearing protection (e.g., foam ear plugs). Hearing protection shall have a corrected NRR rating capable of reducing noise levels in the ear to a maximum of 85 dBA.

Inclement Weather

In cases of inclement weather or other adverse environmental conditions (strong winds, rain, lightning, snow, hurricane, tornado, earthquake, etc.), the following safety instructions are required:

- Presence of strong winds will cause stoppage of affected work activities at elevated work locations (e.g., towers, roofs, ladders, scaffolds, platforms, etc.) and stoppage of use of equipment whose safe operation can be affected by high winds.
- Presence of heavy rain or snow will cause stoppage of affected work activities where the heavy rain or snow can create safety hazards due to limited visibility, wet work surfaces, slippery equipment controls, increased electrical hazards, cold stress, etc.
- Presence of lightning will cause stoppage of affected work activities where lightning presents an increased safety hazard of electrocution.
- Occurrence of a hurricane, tornado, or earthquake will require stoppage of affected work activities and evacuation of workers from excavations/trenches, confined spaces, and buildings of questionable stability.
- In case of work stoppage due to inclement weather conditions, work will not resume until an all clear signal has been communicated to affected personnel. In case of work stoppage

due to lightning, an all-clear will not be given until no lightning has appeared in the area for a period of ten (10) minutes.

Temperature Stress (Heat & Cold)

Heat Stress

If heat stress is a concern, the following heat stress precautions and prevention measures will be taken.

- Personnel will be made aware that heat stress can occur during periods of elevated ambient temperatures, moderate to heavy workloads, and when impermeable protective clothing is in use.
- Personnel will be informed regarding the various forms of heat stress (e.g., heat cramps, heat exhaustion, and heat stroke) and the symptoms of exposure.

Disorder	Symptoms	Signs	Cause	First Aid	Prevention
Heat Stroke	Chills, restlessness, irritability	Euphoria, red face, disorientation, hot/dry skin, erratic behavior, unconsciousness, convulsions, body temp ≥104°F	Excessive exposure, subnormal heat tolerance (genetic or acquired), drug/alcohol abuse	Immediate, aggressive effective cooling; transport to hospital	Self-determination of heat stress exposure; maintain a healthy life-style; acclimation; follow prevention methods below
Heat Exhaustion	Fatigue, weakness, blurred vision, dizziness, headache	High pulse rate, profuse sweating, low blood pressure, insecure gait, pale face, collapse, body temperature – normal to slightly increased	Dehydration (caused by sweating, diarrhea, vomiting), distribution of blood to the periphery, low level of acclimation, low level of fitness	Lie down flat on back in cool environment; drink water, loosen clothing	Drink water frequently; add salt to food; acclimation
Dehydration	No early symptoms, fatigue/weakness; dry mouth	Loss of work capacity, increased response time	Excessive fluid loss cause by sweating, illness (vomiting or diarrhea), alcohol consumption	Fluid and salt replacement	Drink water frequently; add salt to food
Heat Syncope	Blurred vision (gray out), fainting (brief	Brief fainting or near-fainting	Pooling of blood in the	Lie on back in cool	Flex leg muscles several

Disorder	Symptoms	Signs	Cause	First Aid	Prevention
	black out), normal temperature	behavior	legs and skin from prolonged static posture & heat exposure	environment; drink water	times before moving; stand or sit up slowing
Heat Cramps	Painful muscle cramps, especially in abdominal or fatigued muscles	Incapacitating pain in muscles	Electrolyte, imbalance caused by prolonged sweating without adequate fluid and salt intake	Rest in cool environment; drink salted water (0.5% salt solution); massage muscles	If hard physical work is part of the job, workers should add extra salt to food
Heat Rash	Itching skin, skin eruptions, reduced sweating	Skin eruptions	Prolonged, uninterrupted sweating, inadequate hygiene practices	Keep skin clean & dry; reduce heat exposure	Keep skin clean and periodically allow skin to dry

- Initial phases of work activity will be closely monitored to identify personnel who are more susceptible to heat exposure; it takes approximately 5 days to fully acclimate.
- Workers will be responsible for observing each other and themselves for development of heat stress symptoms.
- Personnel will be encouraged to drink generous amounts water and electrolyte replacement fluids (even if not thirsty) to prevent dehydration.
- Adequate shelter will be provided to protect personnel from direct sun exposure.
- Sufficient breaks will be provided so that personnel can remove impermeable protective clothing and cool down.
    - Personal protective equipment can increase the risk of heat stress. It is important to remove PPE while taking breaks. In addition, if employees should notify the site safety officer when PPE is causing them to overheat or feel uncomfortable.
- Work/rest regimens will be adjusted as required to avoid heat stress.
- Personnel are encouraged to wear cotton, non-synthetic clothing.

Heat Stress Monitoring

Heat stress monitoring will be conducted at times when elevated ambient temperatures, moderate to heavy workloads and impermeable protective clothing are being used (Note: Level D Protection will not require the use of impermeable protective clothing). Heat stress monitoring will be completed, as required by the SSO, when impermeable protective clothing is in use and ambient temperatures exceed 75°F. The frequency of monitoring will increase as the ambient temperature increases or if slow recovery rates are indicated. When ambient temperatures exceed 80°F, monitoring will be completed after each work period (approx. every 2 hours or as determined by the SSO/CIH).

Heat stress monitoring and establishment of work-rest regimens for heat stress prevention will be completed through physiological monitoring of workers. Physiological monitoring is completed by measuring the body temperature in degrees Fahrenheit (°F) with an ear thermometer set on an adult oral temperature setting.

Heart rate is measured by measuring the worker's radial pulse rate. Action levels for elevated body temperatures to be used are 99.6°F (for the SSO to observe/evaluate the condition of the individual) and 100.6°F (for removal of the individual from work involving heat exposure for the rest of the work day). Physiological monitoring for heat stress involves the following:

- Body temperature monitoring:
  - Complete baseline measurements at the start of work before entering the Exclusion Zone. Measure the body temperature (BT) using an ear thermometer.
  - Following the first work period, measure the BT as soon as possible in the rest period before drinking. If the BT exceeds 99.6°F (or the baseline by 1°F), reduce the next work cycle by one-third without changing the duration of the rest period.
  - Following the next work period, if the BT still exceeds 99.6°F (or the baseline by 1°F), then again shorten the following work cycle by one-third while keeping the length of the rest period the same.
  - Watch for signs and symptoms of heat stress throughout the work process. Pay strict attention to anyone whose body temperature exceeds 99.6°F (or 1-2°F above baseline) and contact the SSO for an evaluation of the individual. Do not permit a worker to wear semi-impermeable or impermeable garments when the BT exceeds 100.6°F. If the BT exceeds 100.6°F, immediately contact the SSO, remove the worker from the work area, remove protective clothing from the worker, and treat for heat exhaustion/heat stroke if symptoms are evident. If the BT exceeds 100.6°F, the worker must not be allowed to do work involving heat exposure for the rest of the work day.
- Heart rate monitoring:
  - Complete baseline measurements at the start of work before entering the Exclusion Zone. Measure the heart rate (HR) by counting the radial pulse for a 30 second period and multiply the value by two to determine the number of beats per minute (bpm).
  - Following the first work period, measure the HR as early as possible in the resting period. If the HR exceeds 110 bpm, then reduce the next work period by one-third while keeping the length of the rest period the same.
  - Following the next work period, if the HR still exceeds 110 bpm, then again shorten the following work cycle by one-third while keeping the length of the rest period the same.
  - Watch for signs and symptoms of heat stress throughout the work process. Contact the SSO for an evaluation when a worker's HR exceeds 110 bpm.

Cold Stress

Cold stress can occur upon exposure to cold environments where there is heat loss to the body, feet, hands, and/or head. Cold stress can occur from exposure to external elements including weather or as a result from falling into water.

- Personnel will be informed about the various forms of cold stress (e.g., hypothermia, frostbite, etc.) and the symptoms of exposure (Table reproduced from National Safety Council's Fundamentals of Industrial Hygiene, 4th Ed.)

Disorder	Symptoms	Signs	Causes	First Aid
Hypothermia	Chills, pain in extremities, fatigue or drowsiness	Euphoria, slow/ weak pulse, slurred speech, collapse, shivering, unconsciousness, body temperature <95°F	Excessive exposure, exhaustion or dehydration, subnormal tolerance (genetic or acquired)	Move to warm area and remove wet clothing; modest external warming (external heat packs, blankets, etc.); drink warm, sweet fluids if conscious; transport to hospital
Frostbite	Burning sensation at first, coldness, numbness, tingling	Skin color white or grayish, yellow to reddish, violet to black, blisters, response to touch depends on depth of freezing	Exposure to cold, vascular disease	Move to warm area and remove wet clothing; external warming (e.g. warm water); drink warm, sweet fluids if conscious; treat as a burn, do not rub affected area; transport to hospital
Frost-nip	Possible itching or pain	Skin turns white	Exposure to cold (above freezing)	Similar to frostbite
Trench Foot	Severe pain, tingling, itching	Edema, blisters, response to touch depends on depth of freezing	Exposure to cold (above freezing) and dampness	Similar to frostbite
Chilblain	Recurrent localized itching, painful inflammation	Swelling, sever spasms	Inadequate clothing, exposure to cold and dampness, vascular disease	Remove to warm area; consult physician
Raynaud's Disorder	Finger tingle, intermittent	Fingers blanch with cold exposure	Exposure to cold and vibration	Remove to warm area

- Cold stress can occur upon exposure to cold environments where there is heat loss to the body, feet, hands, and/or head. Primary cold stress injuries are hypothermia and frostbite. Cold can also adversely affect mental capabilities resulting in accidents or injuries. The body's initial response to cold is shivering, vasoconstriction, increased oxygen consumption, accelerated respiration and pulse, and increased heart output and blood pressure.
- Cold stress prevention measures include:

- Recognize cold stress conditions and exposure symptoms. Use personal protection by dressing for warmth, wind, and wet conditions. Wear layered clothing (i.e., wear thinner, lighter clothing next to the body with heavier clothing layered outside the inner clothing. Stay active as activity generates heat. Provide a warm break area when working in cold environments. Have first-aid equipment available.
- At temperatures lower than 25°F, do not permit continuous cold exposure to exposed skin.
- At temperatures lower than 45°F, wear warm clothing to include as needed: Boots; heavy socks (e.g., wool or polypropylene); mittens, insulated gloves; insulated head covers; thermal underwear; and insulated coveralls.
- Workers that get immersed in water or whose clothing becomes wet will be immediately provided with a change of clothing and be treated for hypothermia if symptoms become evident.

Environmental Monitoring

All monitoring will be determined on a case-by-case basis. Monitoring may be performed to determine personnel exposures to chemical contaminants and physical agents during various project activities. It will also be used to determine the level of PPE to be worn onsite.

Combustible Gases
Monitoring for combustible gases and oxygen deficiency is conducted where the presence of flammable vapors/gases or oxygen deficient/enriched atmospheres is suspected. Work is not permitted in areas where combustible gas concentrations exceed 10% LEL and where oxygen levels are below 19.5% or are above 23.5%. The combustible gas/oxygen indicator is calibrated before use to a known concentration of combustible gas in accordance with manufacturer instructions.

A combustible gas indicator/oxygen meter is used as a direct reading air monitoring instrument to detect flammable vapor and gas concentrations in percent of the lower explosive limit (LEL). Oxygen can be measured within a range of 0-25 %.

Total Petroleum Hydrocarbons (TPH) and Volatile Organic Compounds (VOCs)
A Photo-ionization Detector (PID) will be used during excavation activities to determine the presence of TPH and VOCs. Personnel will wear level D PPE during removal of these materials unless the PID indicates a sustained airborne concentration >15ppm.

Personal Protective Equipment

At a minimum all field crew and visitors will wear Level D Protection. Visitors should supply their own PPE; however, should they not have the appropriate gear, they are required to remain in their vehicle or go to a designated area to meet with the appropriate personnel.

The HydroCon contractor safety representative is charged with either increasing or reducing PPE as required.

Level D Protection
Level D Protection is worn when minimal protection is needed and activities are not likely to involve direct contact with contaminated materials. Level D protection consists of:

- Steel-toe work boots
- Gloves (nitrile)
- Orange safety vest
- Hardhat (may be removed while taking measurement, collecting samples, etc.)
- Safety glasses
- Ear protection (as needed)

Modified Level D Protection
Modified Level D Protection is used when some skin protection is desired to avoid accidental skin contact with contaminants. Modified Level D Protection consists of:

- Disposable coveralls (e.g. PVC, Kleenguard or Tyvek)
- Steel-toe work boots

- Chemical-resistant gloves (e.g. nitrile or PVC)
- Hardhat
- Respiratory protection – NIOSH approved dust mask or half-mask
- Safety vest
- Boot covers (PVC or latex)
- Safety glasses with side shields
- Goggles and/or face shield (as needed for liquid splash protection)
- Ear protection (as needed)

Level C Protection

Level C Protection may be required if the conditions are upgraded. Level C Protection consists of:

- Air-purifying respirator or powered air-purifying respirator with appropriate cartridge/filter (e.g. P-100 HEPA for dust exposure) and organic vapor for hydrocarbon exposures)
- Suit, chemical-resistant, disposable with hood (e.g. PVC, Kleenguard, or Tyvek)
- Boots, chemical-resistant, steel-toe/shank (e.g. PVC, neoprene or nitrile blend)
- Gloves, inner, chemical-resistant (e.g. nitrile or latex)
- Gloves, outer, chemical-resistant (e.g. nitrile or PVC)
- Hard hat
- Safe vest
- Boot covers (PVC or latex)
- Ear Protection (as needed)

PPE Maintenance

Personnel are responsible for the proper use of required PPE. Maintenance of reusable PPE (e.g. hardhats, safety glasses, boots, etc.) and respirators is the responsibility of each worker. Torn protective clothing or damaged PPE is prohibited and must be immediately repaired or replaced.

Decontamination

Eating, drinking, chewing gum, tobacco, or smoking in a contaminated zone is prohibited. These actions may occur in a personal vehicle or in a location that is considered outside the working area. Site personnel will wash prior to eating, drinking, and returning home.

The remainder of this section will outline decontamination procedures based on the level of protection used.

Level D Protection - Decontamination Procedures with Low Contamination

Station 1:	Equipment Drop	1. Deposit used equipment on sheet plastic or in container/plastic bag.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Remove and dispose of Coveralls (if worn) and Outer Gloves in a lined plastic container (trash)
Station 3:	Field Wash	3. Wash hands and face thoroughly.

Modified Level D Protection - Decontamination Procedures

Station 1:	Equipment Drop	1. Deposit used equipment on sheet plastic or in container/plastic bag.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves, and suit with detergent/water solution. Rinse off with water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Boots and Outer Garments Removal	4. Remove boots, suit, and inner gloves and deposit in container with plastic bag.
Station 5:	Field Wash	5. Wash hands and face thoroughly.

Level C Protection - Decontamination Procedures

Station 1:	Equipment Drop	1. Deposit used equipment on sheet plastic or in container/plastic bag.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves, and suit with detergent/water solution. Rinse off with water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Cartridge or Mask Change-Out	4. Change-out cartridge or facepiece as needed, don new outer gloves and boot covers, tape at joints, and return to Exclusion Zone (Note: Last step in decon sequence for canister, cartridge, or mask change-out; continue decon sequence if entering Support Zone)

Station 5:	Boots, Gloves and Outer Garment Removal	5. Remove boots and suit and deposit in container with plastic bag.
Station 6:	Respirator Facepiece and Inner Gloves Removal	6. Remove respirator facepiece (avoid touching face with fingers) and deposit on sheet plastic or in plastic bag. Remove inner gloves.
Station 7:	Field Wash	7. Wash hands and face thoroughly.

Waste Storage and Disposal

Waste will be handled, stored and disposed accordingly. The appropriate level of PPE will be worn when handling waste materials. Waste of any kind will not remain on site at project completion unless pre-arranged with the project owner.

Emergency Response Plan

For major emergency events (e.g. large fires, gas line or electrical line breaks, etc.) personnel will be evacuated to a designated refuge area and local fire, police, and/or emergency medical services will be notified. The Site Manager, contractor safety representative, and/or project manager will work cooperatively to resolve emergency events.

All site personnel are required to immediately notify the site manager in the event of any type of emergency. Once notified, the Site Manager will contact any necessary emergency services. An emergency telephone list will be maintained at the site during all operations.

Emergency supplies that will be immediately available at the site will include:
- First aid kit
- Emergency eyewash supplies
- Supply of clean water
- Fire extinguisher

The remainder of this section will outline response procedure for various emergency situations.

Response to Fire
In the event of a fire, the following procedures will be implemented:
- Large fire (beyond immediate control of a small onsite fire extinguisher)
    - Personnel will immediately evacuate the work area and reassemble at a pre-determined safe location
    - Fire department will be called

    - Site personnel will not re-enter the fire area and will wait for fire department arrival
- Small fire
    - Trained personnel will use an onsite fire extinguisher to put out the fire

Response to Chemical Spill
In the event of a chemical spill, the following procedures will be implemented:
- If containment can be done safety without exposure to personnel
    - Liquid chemical spills will be contained through prompt application of absorbents (e.g. absorbent boom, pads or solid absorbent) and placement of containment berms (or equivalent method)
    - Solid chemical spills will be contained initially by covering with sheet plastic (or equivalent method)
    - Spilled material will be collected in bags, drums, overpack drums, dump trucks or other suitable containers and disposed of as required
    - Necessary person will be contacted regarding the spill

Response to Heat Stress
In the event of a heat stress illness, the following procedures will be implemented:
- Heat Exhaustion
    - Move them to a cool shaded area to rest & stay with them
    - Loosen & remove heavy clothing
    - Give cool water to drink, about a cup every 15 minutes
    - Fan the person, spray with cool water, or apply a wet cloth to skin (back of neck)
    - Remove from hot environment work that day
    - Call 911 if they do not feel better in a few minutes
- Heat Stroke
    - CALL 911
    - Move them to a cool shaded area & stay with them
    - Lay the person down
    - Loosen & remove heavy clothing
    - Fan the person, spray with cool water, or wipe with a wet cloth or cover with a wet sheet
    - Place icepacks under the armpits and in the groin area

Response to Medical Emergency
In the event of a medical emergency, the following procedures will be implemented:
- All personnel will be notified and if necessary, will evacuate to a designated refuge area.
- The exposed or injured employee will be removed from immediate danger, first aid and/or CPR will be administered by a trained employee and the victim will be decontaminated according to methods determined by the CSR if it is safe to do so.
- Emergency services will be called and the following will be provided:
    - Name and location of person reporting
    - Location of accident or incident
    - Specific directions to the location

    - Phone number from which the person is called
    - Number of persons needing help
    - What is currently being done for the victim(s)
    - Name and affiliation of victim(s)
    - Description of injuries
    - Details of any chemical(s) involved
    - Summary of the accident including suspected causes and time of occurrence
    - Temporary control measures taken to minimize further risk
- The CSR will designate an individual to accompany or follow the victim to the emergency hospital to assist with any needs that arise and to report back regarding the victim(s) status.

A map to the nearest hospital can be found at the conclusion of this document.

Emergency Contact List

Contact	Number
Ambulance (emergency)	911
Fire Department (emergency)	911
Police (emergency)	911
HydroCon Main Office	360.703.6079
Project Manager – Craig Hultgren	360.703.6079 or 360.431.6253
Site Manager – Rob Honsberger	206.856.6679
Site Safety Representative – Larry Namba	360.846.3966
HydroCon Health & Safety Director – Brian Daltoso	360.703.6079

Training

Any required certifications or licenses required to complete a project will be kept on site for review by any personnel requesting proof.

HAZWOPER Training
All personnel working or present in the Exclusion Zone requiring chemical protective PPE must have completed hazardous waste operations (HAZWOPER) training as required by OSHA standard 29 CFR §1910.120. Required training includes:

- 40-hours of initial training and 3 days of supervised field experience applicable to the site
- 8 additional hours of training for managers/supervisors
- 8-hours of an annual refresher

Personnel working in the areas of known contamination will receive training for the on-site contaminants, exposure, and decontamination procedures.

First Aid & CPR
At least one site worker must be trained and certified in the application of emergency first aid and CPR.

Medical Surveillance

Medical surveillance under the HAZWOPER standard is not required for this project.

Exposure Incident Medical Examinations
A chemical exposure incident medical examination will be completed if a worker is exposed to chemicals (or if suspicious symptoms exist). The chemical exposure incident medical examination is mandatory and should be completed as soon as possible, but in no case later than 48 hours after the incident. The contractor safety representative and/or CIH (if applicable) will provide the treating physician with a list of suspected chemicals that the worker may have contacted, and additional information which may aid the physician. The worker will not be allowed back to work until a return to work notice has been issued by the examining physician.

Alcohol & Controlled Substances Testing Program
HydroCon is committed to maintaining its reputation for quality work and customer service by providing a healthy, safe, and alcohol & controlled substance free work environment. Employees shall not use, sell, manufacture, receive, distribute, conceal, possess, or be under the influence of any controlled substances, including medicinal & recreational marijuana, and/or alcohol during scheduled working hours. Working hours include all lunches and breaks. Employees will not engage in the aforementioned activities while on company or client property, jobsites, or while operating company, client, or personally owned or leased vehicles & equipment.

The alcohol & controlled substances program requires field personnel to complete pre-employment, random, reasonable suspicion, post-accident, and return to duty testing, as applicable.

The request to undergo a reasonable suspicion test will be based on specific, contemporaneous, articulable observation concerning the appearance, behavior, speech, or odor of the employee. A HydroCon employee whom has undergone reasonable suspicion training must be the one to make this determination. In the event that the employee is unsure, they should consult another trained employee.

The complete program is kept under separate cover and can be provided upon request.

Recordkeeping

In general, all health and safety related documented will be maintained onsite by the CSR. At project completion documents will be provided to the Health & Safety Director to file accordingly.

Health and safety records can include the following:
- Safety data sheets
- Training documentation, including licenses/certifications
- Tailgate meeting records
- Equipment inspection reports
- Hot work Permits
- Confined Space Permits
- Exposure monitoring records, employee notifications and data summaries
- Accident investigation records
- Operating manuals and/or instructions
- Other necessary documentation

Confined Space Procedures

It is not anticipated that confined spaces will be entered. However, if confined space must be entered the confined space program, under separate cover, must be followed.

Spill Prevention Control & Countermeasures Plan

HydroCon is committed to the prevention of discharges of hazardous substances, including fuels and lubricants, to navigable waters or the environment. The following section describes general procedure for spill prevention and countermeasures (SPCC). In the event of a discharge of oil, fuel, or chemicals into water, or onto land with the potential for entry into waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup will include the proper disposal of all spilled material and used cleanup materials.

Spill Prevention & Response Procedures

<u>Housekeeping</u>

Housekeeping practices are designed to maintain a clean and orderly work environment. Areas where chemicals are used or stored must be maintained using good housekeeping and best management practices. This includes, but is not limited to clean and organized storage, labeling, and secondary containment where necessary. Every effort will be made to prevent pollutants from entering the environment by accidental spill or release.

Storage

All chemicals, including hazardous materials will be properly identified, handled, and stored. Any underground or aboveground storage tanks will be designed and managed in accordance with applicable regulations, be identified as a potential pollution source, and have secondary containment, such as a berm or dike with an impervious surface. Chemical substances will be stored in the appropriate tanks and containers to minimize the potential for a spill. Whenever possible, all chemicals will be kept in closed containers and stored so they are not exposed to stormwater or other environmental influences.

All site personnel will be made aware of and properly instructed of all chemicals stored on site.

Discharge Prevention

HydroCon employees are trained to implement spill prevention practices for work with and around liquid sources. They will use common sense and rely on spill prevention practices at all times to minimize the potential for a release of liquids. The following practices will be followed:

- Keep container lids securely fastened at all times
- Do not leave portable sources unattended (outside)
- Return portable sources to their storage location after use
- Use pads, drip pans, and funnels when transferring petroleum products from a portable container
- Protect liquid sources from damage by moving equipment
- Keep dike valves closed at all times except when discharging clean stormwater from the diked area
- Contaminated water within the diked area and piping and dispenser sumps will be removed and disposed of by a licensed hazardous waste contractor
- Do not store oil sources near catch basins or floor drains
- Loading and unloading of petroleum products will be attended at all times

Emergency Communication

Proper communication measures must be in place and initiated in the event of a spill or release of materials. Communication procedures will be based on type and quantity of materials spilled. Given that HydroCon performs work on an array of job sites, cell phones will be the main source of communication to outside emergency personnel such as the police, fire department or local emergency response teams. In addition, cell phones will be used to notify other personnel on large job sites. Specific emergency communication and procedures will be documented in site specific health and safety plans.

Important Telephone Numbers

National Response Center	1.800.424.8802

Washington Emergency Response System 1.800258.5990

The following information should be provided:

- Where is the spill?
- What spilled?
- How much spilled?
- How concentrated is the spilled material?
- Who spilled the material?
- Is anyone cleaning up the spill?
- Are there resource damages (e.g. dead fish or oiled birds)?
- Who is reporting the spill?
- Contact information

In Washington, you may receive additional requests to complete paperwork relating to the spill/release from the Department of Ecology.

If a single spill greater than 1,000 gallons occurs, or two spills each greater than 42 gallons occur within any twelve (12) month period, in addition to the notification procedures above, HydroCon will provide written information to the EPA Regional Administrator as required by the federal SPCC rules. A copy of this information must be provided to the appropriate state agency.

Appendix A - Chemical Hazard Information

COMPOUND	EXPOSURE LIMITS	ROUTE OF EXPOSURE	HEALTH EFFECTS
Benzene	DOSH PEL: 1ppm TWA 5ppm STEL AL: 0.5 ppm TWA NIOSH REL: 0.1 ppm TWA 1ppm STEL IDLH: 500 ppm FP: 12°F LEL: 1.2%	Inhalation, ingestion, skin absorption, eye contact	Irritation of eyes, skin, nose, respiratory system; dizziness; headache; nausea (carcinogen)
EDB (1,2-Dibromoethane, ethylene dibromide	OSHA PEL: 20 ppm TWA 30 ppm C 50 ppm (5 min max. peak)	Inhalation, skin absorption, ingestion, skin or eye contact	Irritation to eyes, skin, respiratory system; dermatitis with vesiculation; liver, heart, spleen, kidney damage; reproductive effects; potential occupational carcinogen
EDC (1,2-Dichloroethane, ethylene chloride)	OSHA PEL: 50 ppm TWA 100 ppm C 200 ppm (5 min max. peak)	Inhalation, ingestion, skin absorption, skin or eye contact	Irritation to eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; potential occupational carcinogen
Ethylbenzene	DOSH PEL: 100 ppm TWA 125 ppm STEL NIOSH REL: 50 ppm TWA 100 ppm STEL IDLH: 700 ppm FP: 55°F LEL: 0.8%	Inhalation, ingestion, skin or eye contact	Irritation of eyes, skin nose, respiratory system; dizziness; headache; drowsiness; unsteady gait; defatting; inflammation of skin; possible liver injury; reproductive effects
Lead	OSHA PEL: 0.050 mg/m^3 TWA NIOSH REL: 0.050 mg/m^3 TWA	Inhalation, ingestion, skin or eye contact	Lassitude, insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation to eyes; hypertension
MTBE (Methyl tertiary butyl ether)	ACGIH: 40 ppm TWA	Inhalation, ingestion, skin contact	Nose, throat irritation; headache, nausea, dizziness; mental confusion
Naphthalene	DOSH PEL: 10 ppm TWA 15 ppm STEL NIOSH REL: 10 ppm TWA 15 ppm STEL	Inhalation, ingestion, skin absorption, eye contact	Eye irritation, headache, confusion, excitement, malaise, nausea, vomiting, abdominal pain, irritable bladder, profuse sweating, jaundice, blood in urine, renal shutdown, inflammation of skin

	IDLH: 250 ppm LEL: 0.9%		
Toluene	OSHA PEL: 200 ppm TWA 300 ppm C 500 ppm 10 min. max. peak NIOSH REL: 100 ppm TWA	Inhalation, skin absorption, ingestion, skin or eye contact	Eye irritation, nose irritation; lassitude, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation; anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage
TPH as Diesel (petroleum distillates as a surrogate)	DOSH PEL: 100 ppm TWA 150 ppm STEL OSHA PEL: 500 ppm TWA NIOSH REL: 86 ppm TWA 444 ppm STEL IDLH: 1,100 ppm FP: -40 to -86°F LEL: 1.1%	Inhalation, ingestion, skin or eye contact	Irritation of eyes, nose, throat; dizziness; drowsiness; headache; nausea; dry cracked skin; inflammation of lungs
TPH as Gasoline	DOSH PEL: 300 ppm TWA 500 ppm STEL FP: -45°F LEL: 1.4%	Inhalation, ingestion, skin absorption, skin or eye contact	Irritation of eyes, skin, and mucous membranes; inflammation of skin and lungs; headache; weakness; exhaustion; blurred vision; dizziness, slurred speech; confusion; convulsions; possible liver and kidney damage; potential occupational carcinogen
Xylenes	DOSH PEL: 100 ppm TWA 150 ppm STEL NIOSH REL: 100 ppm TWA 150 ppm STEL IDLH: 900 ppm FP: 81-90°F LEL: 0.9-1.1%	Inhalation, ingestion, skin absorption, skin or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal cell debris; anorexia, nausea, vomiting, abdominal pain; inflammation of skin

LEGEND:

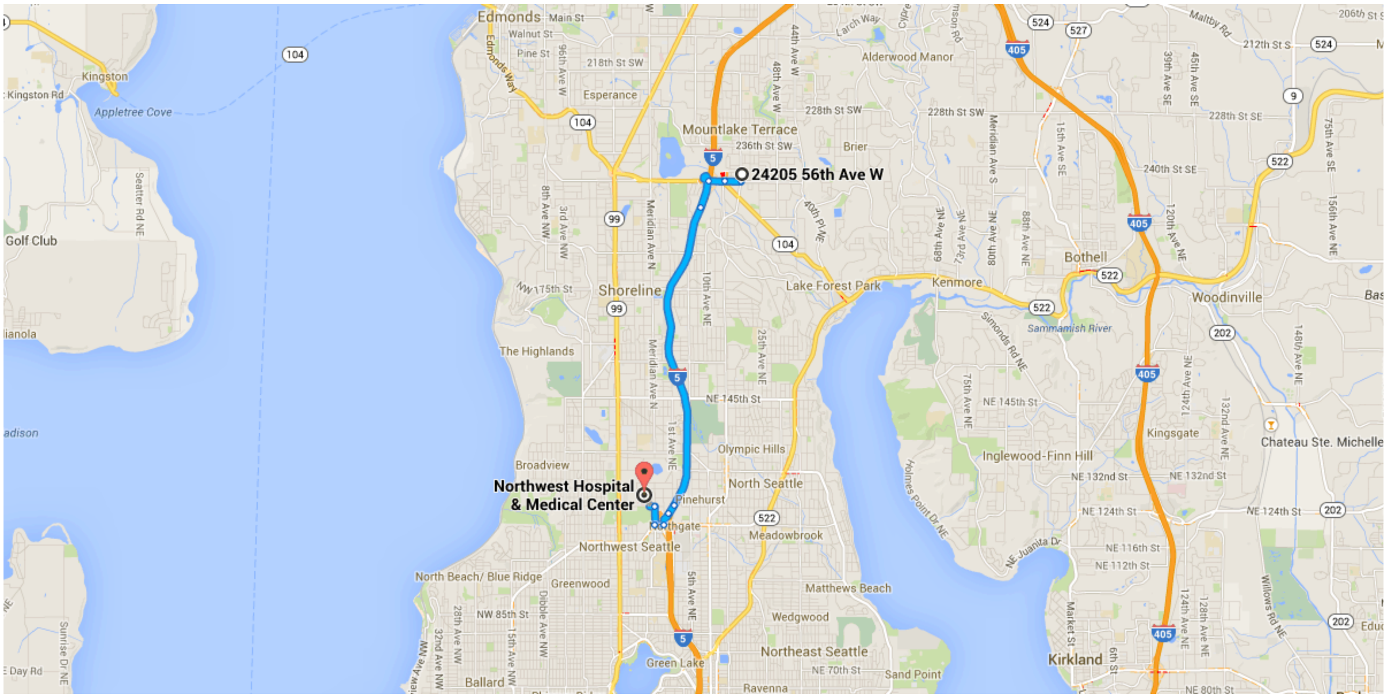
$\mu g/m^3$:	Micrograms per cubic meter of air
mg/m^3:	Milligrams per cubic meter of air
AL:	Occupational Safety and Health Administration (OSHA) 8-hour TWA Action Level
C:	Ceiling Limit
FP:	Freezing point
IDLH:	Immediately Dangerous to Life and Health
NIOSH:	National Institutes for Occupational Safety and Health
PEL:	OSHA 8-hour TWA Permissible Exposure Limit
REL:	Recommended exposure level
STEL:	Short-term exposure limit
TLV-TWA:	American Conference of Governmental Industrial Hygienists (ACGIH) 8-hour TWA Threshold Limit Value (TLV)
TLV-STEL:	ACGIH 15-minute Short-Term Exposure Limit (STEL)
TWA:	Time Weighted Average

Appendix B – Hospital Map

Google

Drive 6.3 mi, 9 min

Directions from **24205 56th Ave W** to **Northwest Hospital & Medical Center**



○ 24205 56th Ave W

Mountlake Terrace, WA 98043

Get on **I-5 S** in Shoreline

1.2 mi / 3 min

1. Head **south** on **56th Ave W** toward **244th St SW**

   0.1 mi

2. Turn **right** onto **244th St SW**

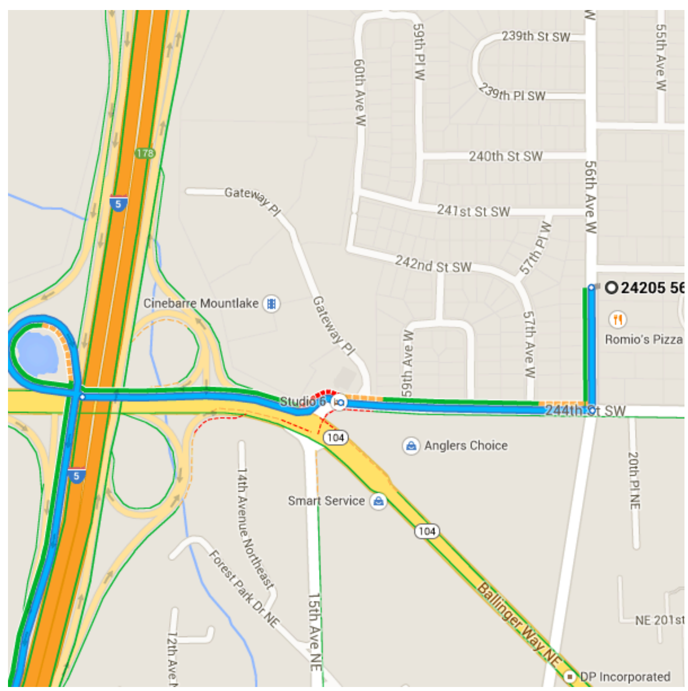
   0.2 mi

3. Slight **right** onto **NE 205th St**

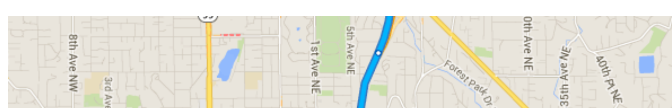
   0.2 mi

4. Take the ramp to **I-5 S/Seattle**

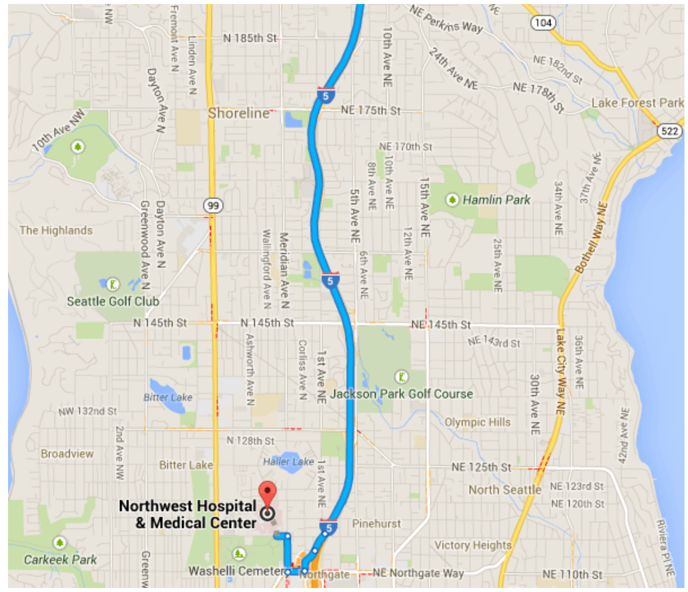
   0.6 mi



Follow **I-5 S** to **N Northgate Way** in Seattle.



Take exit **173** from **I-5 S**



5. Merge onto **I-5 S**

4.3 mi

6. Take exit **173** for **Northgate Way** toward **1st Ave NE**

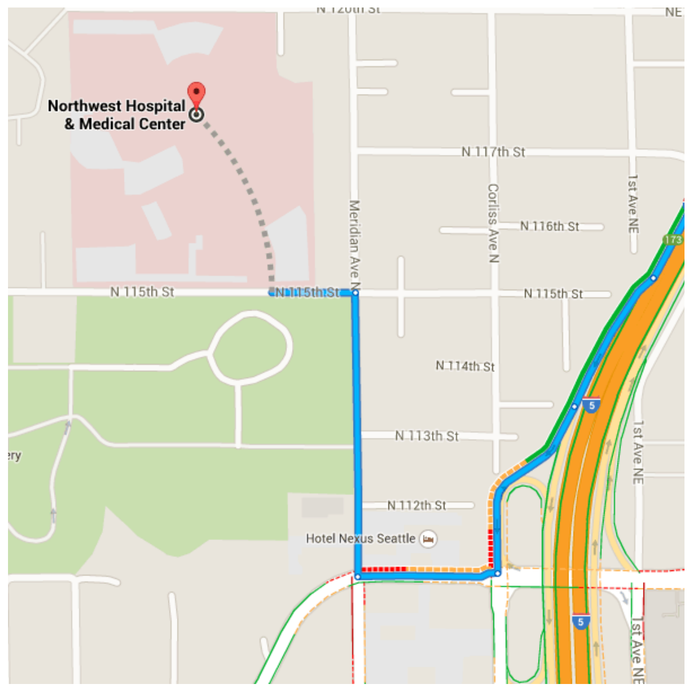
0.1 mi

7. Keep **right** at the fork, follow signs for **Northgate Way W**

0.2 mi

Take **Meridian Ave N** to **N 115th St**

0.4 mi / 1 min



8. Turn **right** onto **N Northgate Way**

0.1 mi

9. Turn **right** onto **Meridian Ave N**

0.3 mi

10. Turn **left** onto **N 115th St**

387 ft

Northwest Hospital & Medical Center

1550 N 115th St, Seattle, WA 98133

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Field Forms

Daily Field Report Form

Groundwater Purge and Sample Collection Form

Groundwater Data Information Form

Water Quality Meter Calibration Form

Daily Tailgate Meeting Form

Chain-of-Custody Form

	# DAILY FIELD REPORT	Hydrocon Job Number:
	Project Name: 01-176 Montlake Terrace	Date:
360.703.6079/Fax 360.703.6086 510 Allen Street, Suite B; Kelso, WA 98626	Client:	Page: Of
Prepared By (Print & Signiture):	Location:	Arrival: Departure:
Purpose:	Weather:	Permit:

GROUNDWATER PURGE AND SAMPLE COLLECTION

Hydro Con

Well I.D. Number:__________

Project Name (Number): TOC Mountlake Terrace (01-176) Sample I.D.:__________________________Time:________
Hydrocon Project Number:______________________________ Field Duplicate I.D.:____________________Time:_______
Date:____________________________ Personnel:______________________ Signature:____________________________

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:_____________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 (H_2O) 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 ☐ Pneumatic ☐ Submersible ☐ 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. (^{0}C) (±3%)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)

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 (Circle Appropriate Analysis)
40 ml VOA	6 /12 /18	HCl	No 0.45 0.10	NWTPH–GX / BTEX (8260C), MTBE, EDC / EDB (8011M)
500 ml AGB	2	None	No 0.45 0.10	NWTPH-Dx / PAH
500 ml Poly	1	HNO_3	No 0.45 0.10	Total Pb
500 ml Poly	1	HNO_3	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	

Sampling Comments:____
Sample Equipment: WL- 4891/5623 Interface-4369;Quanta-Qd04317/QT02215YSI-4891/14L100436 HF Sc. Turb-200612141
Submersible- Manu.: Model: Serial:

Hydro Con

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043
System-On

Field Personnel:____________________________________ Date Measured:________________________________

Date Opened:______________________________________ Meter Serial Number(s): WL -4891/5623 Interface-4369

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System On (4/3/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW01	ABANDONED									
MW02	4	5.0-20.0	TOC				10.66	18.70	+	
MW03	4	5.0-20.0	TOC				11.61	17.60	+	
MW04	4	4.0-19.0	TOC-ROW				10.87	18.70	+	
MW05	4	5.0-15.0	TOC/ 242nd ST ROW				10.73	14.90	+	
MW06	4	5.0-15.0	TOC				9.18	15.30	+	
MW07	ABANDONED									
MW08	2	5.0-38.0	TOC-ROW				23.32	38.20	+	
MW09	4	5.0-40.0	TOC				27.43	38.90	+	
MW10	4	20.0-40.0	TOC				Dry	38.30	+	Well dia. =4", screen tapers = 2"
MW11	4	20.0-40.0	TOC				33	39.50	33.63	
MW12	4	5.0-18.0	Romio/56th Ave ROW				9.60	17.80	+	
MW13	2	21.0-41.0	Romio/56th Ave ROW				Dry	41.46	+	
MW14	ABANDONED									
MW15	4	24.0-44.0	TOC				29.40	41.90	37.03	
MW16	2	22.0-47.0	TOC/242nd ST ROW				Dry	47.70	+	
MW17	ABANDONED									
MW18	4	24.0-39.0	TOC				Dry	39.30	27.85	
MW19	2	10.0-21.0	TOC				12.11	20.20	+	Screen dia. Taper?
MW20	4	26.0-41.0	TOC				36.3	40.10	+	
MW21	ABANDONED									
MW22	4	15.0-40.0	TOC				29.41	36.10	+	
MW23	2	25.0-40.0	TOC				38.56	39.50	+	
MW24	4	15.0-40.0	TOC				Dry	39.60	31.75	
MW25	4	15.0-40.0	TOC				32.82	38.70	+	

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043

Date:________________

System On

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System On (4/3/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW26	2	43.0-65.0	TOC/ 242nd ST ROW				47.77	61.70	+	
MW27	2	14.0-29.0	TOC				NM	27.20	+	
MW28	2	10.0-30.0	TOC				28.5	30.00	+	
MW29	2	11.0-30.0	TOC				NM	29.10	+	
MW30	2	53.0-68.0	TOC				41.29	61.60	+	
MW31	2	29.0-39.0	Romio's				NM	38.80	+	
MW32	4	15.0-35.0	TOC				28.95	34.10	29.37	
MW33	2	24.0-34.0	TOC				33.98	34.60	+	
MW34	4	6.0-16.0	TOC				9.26	15.90	+	
MW35	4	29.5-39.5	TOC				39.64	39.80	+	
MW36	4	28.0-43.0	TOC				42.41	43.70	+	
MW37	4	15.5-35.5	TOC				15.91	34.30	+	
MW38	2	14.0-34.0	TOC/ 242nd ST ROW				18.44	33.90	+	
MW39	2	63.0-73.0	Romio's				41.19	74.00	+	
MW40	2	64.0-74.0	Romio's				41.34	74.00	+	
MW41	2	31.0-41.0	Romio's				NM	40.30	+	
MW42	2	31.0-41.0	Romio's				Dry	39.90	+	
MW43	4	17.5-37.5	Romio/56th Ave ROW				34.72	37.60	+	
MW44	2	28.3-38.3	Drake/56th Ave ROW				Dry	38.70	+	
MW45	2	28.5-38.5	Romio/56th Ave ROW				Dry	39.70	+	
MW46	4	32.7-42.7	Romio/56th Ave ROW				43.4	43.40	+	
MW47	4	31.4-41.4	Drake/56th Ave ROW				Dry	41.70	+	
MW48	2	36.1-46.1	Drake/56th Ave ROW				42.19	46.30	+	
MW49	2	39.1-49.1	Romio/56th Ave ROW				44.74	49.40	+	
MW50	4	27.3-37.3	TOC/56th Ave ROW				35.88	37.70	+	
MW51	4	36.3-46.3	Herman/56th Ave ROW				41.88	46.60	+	
MW52	4	33.1-43.1	Drake/56th Ave ROW				43.45	43.80	+	
MW53	4	43.9-53.9	TOC/56th Ave ROW				44.00	54.20	+	

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043
System On

Date:________________

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System On (4/3/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW54	4	6.7-16.7	Romio's				10.53	16.80	+	
MW55	4	38.5-48.5	Drake/56th Ave ROW				43.78	48.70	+	
MW56	4	43.0-53.0	Romio's				44.55	52.60	+	
MW57	4	38.8-48.8	Romio's				NM	48.80	44.00	
MW58	4	39.3-49.3	Romio's				44.89	48.40	+	
MW59	4	41.7-51.7	Romio's				45.14	52.50	+	
MW60	4	42.5-52.5	Romio/56th Ave ROW				44.87	53.30	+	
MW61	4	8.2-18.2	Romio/56th Ave ROW				8.38	18.50	+	
MW62	4	6.8-16.8	TOC/56th Ave ROW				9.56	17.10	+	
MW63	2	41.9-51.9	Drake/56th Ave ROW				42.68	52.00	+	
MW64	4	64.1-74.1	Drake/56th Ave ROW				41.19	74.40	+	
MW65	2	41.9-51.9	Drake				41.82	48.30	+	
MW66	4	39.5-49.5	Romio's				43.78	50.00	+	
MW67	4	14.4-24.4	Drake				12.34	24.90	+	
MW68	4	13.8-23.8	Drake				11.65	24.10	+	
MW69	2	37.3-47.3	Drake				NM	47.30	+	
MW70	2	38.0-48.0	Drake				NM	48.00	+	
MW71	**2**	**7.7-17.9**	**Shin/Choi**				**11.91/12.16**	**17.70**	**+**	***Prod.***
MW72	**2**	**12.5-22.5**	**Shin/Choi**				**14.67/14.96**	**22.50**	**+**	***Prod.***
MW73	2	32.6-42.6	Shin/Choi				38.90	43.30	+	
MW74	2	29.2-39.2	Shin/Choi				39.10	39.38	+	
MW75	2	39.6-49.6	Drake/56th Ave ROW				43.91	49.50	+	Gauged only in Q1 Annual event
MW76	2	38.1-48.1	Drake				40.57	48.20	+	
MW77	2	37.6-47.6	Drake				39.73	47.50	+	
MW78	2	64.8-74.8	Drake				36.72	74.80	+	
MW79	2	6.9-16.9	Romio's				10.5	17.40	+	
MW80	2	19.5-29.5	Romio's				11.58	29.90	+	
MW81	2	40.1-50.1	Romio's				44.14	49.90	+	

Hydro Con

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043
System On

Date:________________

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System On (4/3/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW82	2	19.7-29.7	Romio's				28.96	29.90	+	
MW83	A B A N D O N E D									
MW84	4	39.2-48.9	Drake				NM	49.30	+	
MW85	2	37.4-47.1	Drake				40.95	47.50	+	
MW86	2	35.4-45.1	Drake				42.41	44.80	+	
MW87	2	38.3-48.0	Drake				39.26	48.50	+	
MW88	2	19.5-29.5	Drake				12.00	29.70	+	
MW89	2	39.6-49.3	Drake				44.00	49.60	+	
MW90	4	19.8-39.8	TOC				34.94	40.20	35.55	
MW91	4	19.0-39.0	TOC				32.6	39.40	33.30	
MW92	4	39.4-49.4	Romio's				44.80	49.80	45.10	
MW93	4	36.1-46.1	Romio's				42.15	46.50	42.29	
MW94	4	39.1-49.1	Romio's				Dry	49.50	40.44	
MW95	4	42.1-52.1	Drake				45.55	52.50	47.16	
MW96	4	44.0-54.0	Drake				Dry	54.40	47.50	
MW97	4	38.0-48.0	Drake				Dry	48.40	42.77	
MW98	4	38.4-48.4	Drake				NM	48.80	46.65	
MW99	4	37.9-47.9	Drake				Dry	48.30	38.55	
MW100	2	19.4-29.4	Romio's				13.94	29.70	+	
MW101	4	39.8-49.8	Drake				Dry	50.20	42.35	
MW102	**2**	**7.0-17.0**	**Herman**				**14.78/16.26**	**25.00**	**+**	***Prod.***
MW103	2	37.0-47.0	Herman				43.55	46.70	+	
MW104	**2**	**8.5-18.5**	**Herman**				**10.31**	**18.80**	**+**	***Prod.***
MW105	2	32.0-42.0	Herman				Dry	42.70	+	
MW106	2	12.0-22.0	Herman				9.02	22.90	+	
MW107	2	43.0-53.0	Herman				39.89	53.30	+	
MW108	2	34.3-44.3	Herman				N/A	44.09	+	
MW109	2	31.0-41.0	Herman				N/A	40.99	+	

NOTES

RED = Possible product present
BGS = below ground surface
BTOC = below top of casing (ft)
DTW= depth to water
DTP = depth to product
ft = feet
MW = monitoring well

N/A = not available
NM = not measured
ROW= right-of-way
- = Not present

List of Properties

TOC = 24205 56th Avenue West, Mountlake Terrace WA
Romios = TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA
242nd St ROW = portion of right-of-way adjacent to TOC Property
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043
System Off

Field Personnel:_______________________________________
Date Opened:____
Date System Turned Off:_____________________________

Date Measured:____________________________________
Meter Serial Number(s): WL -4891/5623
Interface-4369

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System Off (3/24/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW01	ABANDONED									
MW02	4	5.0-20.0	TOC				10.83	18.70	+	
MW03	4	5.0-20.0	TOC				11.00	17.60	+	
MW04	4	4.0-19.0	TOC-ROW				11.51	18.70	+	
MW05	4	5.0-15.0	TOC/ 242nd ST ROW				11.50	14.90	+	
MW06	4	5.0-15.0	TOC				8.68	15.30	+	
MW07	ABANDONED									
MW08	2	5.0-38.0	TOC-ROW				17.49	38.20	+	
MW09	4	5.0-40.0	TOC				22.44	38.90	+	
MW10	4	20.0-40.0	TOC				30.78	38.30	+	Screen dia. tapers = 2"
MW11	4	20.0-40.0	TOC				21.31	39.50	33.63	
MW12	4	5.0-18.0	Romio/56th Ave ROW				10.00	17.80	+	
MW13	2	21.0-41.0	Romio/56th Ave ROW				Dry	41.46	+	
MW14	ABANDONED									
MW15	4	24.0-44.0	TOC				36.70	41.90	37.03	
MW16	2	22.0-47.0	TOC/242nd ST ROW				Dry	47.70	+	
MW17	ABANDONED									
MW18	4	24.0-39.0	TOC				Dry	39.30	27.85	
MW19	2	10.0-21.0	TOC				12.09	20.20	+	Screen dia. Taper?
MW20	4	26.0-41.0	TOC				33.03	40.10	+	
MW21	ABANDONED									
MW22	4	15.0-40.0	TOC				27.92	36.10	+	
MW23	2	25.0-40.0	TOC				38.86	39.50	+	
MW24	4	15.0-40.0	TOC				14.10	39.60	31.75	
MW25	4	15.0-40.0	TOC				27.64	38.70	+	

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043

Date:________________

System Off

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System Off (3/24/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW26	2	43.0-65.0	TOC/ 242nd ST ROW				48.36	61.70	+	
MW27	2	14.0-29.0	TOC				NM	27.20	+	
MW28	2	10.0-30.0	TOC				26.99	30.00	+	
MW29	2	11.0-30.0	TOC				NM	29.10	+	
MW30	2	53.0-68.0	TOC				41.15	61.60	+	
MW31	2	29.0-39.0	Romio's				NM	38.80	+	
MW32	4	15.0-35.0	TOC				21.03	34.10	29.37	
MW33	2	24.0-34.0	TOC				34.51	34.60	+	
MW34	4	6.0-16.0	TOC				8.78	15.90	+	
MW35	4	29.5-39.5	TOC				39.36	39.80	+	
MW36	4	28.0-43.0	TOC				42.28	43.70	+	
MW37	4	15.5-35.5	TOC				14.97	34.30	+	
MW38	2	14.0-34.0	TOC/ 242nd ST ROW				16.15	33.90	+	
MW39	2	63.0-73.0	Romio's				41.00	74.00	+	
MW40	2	64.0-74.0	Romio's				41.22	74.00	+	
MW41	2	31.0-41.0	Romio's				NM	40.30	+	
MW42	2	31.0-41.0	Romio's				Dry	39.90	+	
MW43	4	17.5-37.5	Romio/56th Ave ROW				34.71	37.60	+	
MW44	2	28.3-38.3	Drake/56th Ave ROW				Dry	38.70	+	
MW45	2	28.5-38.5	Romio/56th Ave ROW				Dry	39.70	+	
MW46	4	32.7-42.7	Romio/56th Ave ROW				Dry	43.40	+	
MW47	4	31.4-41.4	Drake/56th Ave ROW				44.63	41.70	+	
MW48	2	36.1-46.1	Drake/56th Ave ROW				42.51	46.30	+	
MW49	2	39.1-49.1	Romio/56th Ave ROW				42.97	49.40	+	
MW50	4	27.3-37.3	TOC/56th Ave ROW				35.72	37.70	+	
MW51	4	36.3-46.3	Herman/56th Ave ROW				41.27	46.60	+	
MW52	4	33.1-43.1	Drake/56th Ave ROW				43.30	43.80	+	
MW53	4	43.9-53.9	TOC/56th Ave ROW				43.81	54.20	+	

Hydro Con

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043
System Off

Date:________________

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System Off (3/24/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW54	4	6.7-16.7	Romio's				10.92	16.80	+	
MW55	4	38.5-48.5	Drake/56th Ave ROW				43.63	48.70	+	
MW56	4	43.0-53.0	Romio's				44.00	52.60	+	
MW57	4	38.8-48.8	Romio's				Dry	48.80	44.00	
MW58	4	39.3-49.3	Romio's				44.15	48.40	+	
MW59	4	41.7-51.7	Romio's				42.12	52.50	+	
MW60	4	42.5-52.5	Romio/56th Ave ROW				43.88	53.30	+	
MW61	4	8.2-18.2	Romio/56th Ave ROW				8.29	18.50	+	
MW62	4	6.8-16.8	TOC/56th Ave ROW				9.72	17.10	+	
MW63	2	41.9-51.9	Drake/56th Ave ROW				42.69	52.00	+	
MW64	4	64.1-74.1	Drake/56th Ave ROW				41.06	74.40	+	
MW65	2	41.9-51.9	Drake				41.19	48.30	+	
MW66	4	39.5-49.5	Romio's				42.3	50.00	+	
MW67	4	14.4-24.4	Drake				13.05	24.90	+	
MW68	4	13.8-23.8	Drake				12.42	24.10	+	
MW69	2	37.3-47.3	Drake				Dry	47.30	+	
MW70	2	38.0-48.0	Drake				NM	48.00	+	
MW71	**2**	**7.7-17.9**	**Shin/Choi**				**12.70**	**17.70**	**+**	***Prod.***
MW72	**2**	**12.5-22.5**	**Shin/Choi**				**15.69**	**22.50**	**+**	***Prod.***
MW73	2	32.6-42.6	Shin/Choi				38.60	43.30	+	
MW74	2	29.2-39.2	Shin/Choi				39.10	39.38	+	
MW75	2	39.6-49.6	Drake/56th Ave ROW				NM	49.50	+	Gauged only in Q1 Annual event
MW76	2	38.1-48.1	Drake				39.01	48.20	+	
MW77	2	37.6-47.6	Drake				38.54	47.50	+	
MW78	2	64.8-74.8	Drake				36.33	74.80	+	
MW79	2	6.9-16.9	Romio's				10.53	17.40	+	
MW80	2	19.5-29.5	Romio's				11.7	29.90	+	
MW81	2	40.1-50.1	Romio's				42.45	49.90	+	

Hydro Con

Groundwater Data Information
TOC Mountlake Terrace (01-176)
24205 56th Avenue West
Mountlake Terrace, Washington 98043

Date:________________

System Off

Well Details				Measured Depths (Ft BTOC)			Historical Information		Additional Information	
Well ID	Diameter (Inches)	Screen Interval (Ft BGS)	Property	Time	DTP	DTW	DTP/DTW System Off (3/24/14)	Total Depth (3/17/15)	Top Of Pump (BTOC)	Comments
MW82	2	19.7-29.7	Romio's				26.3	29.90	+	
MW83	A B A N D O N E D									
MW84	4	39.2-48.9	Drake				NM	49.30	+	
MW85	2	37.4-47.1	Drake				39.87	47.50	+	
MW86	2	35.4-45.1	Drake				41.22	44.80	+	
MW87	2	38.3-48.0	Drake				38.17	48.50	+	
MW88	2	19.5-29.5	Drake				18.54	29.70	+	
MW89	2	39.6-49.3	Drake				42.07	49.60	+	
MW90	4	19.8-39.8	TOC				23.19	40.20	35.55	
MW91	4	19.0-39.0	TOC				22.64	39.40	33.30	
MW92	4	39.4-49.4	Romio's				44.30	49.80	45.10	
MW93	4	36.1-46.1	Romio's				Dry	46.50	42.29	
MW94	4	39.1-49.1	Romio's				Dry	49.50	40.44	
MW95	4	42.1-52.1	Drake				43.35	52.50	47.16	
MW96	4	44.0-54.0	Drake				43.25	54.40	47.50	
MW97	4	38.0-48.0	Drake				42.35	48.40	42.77	
MW98	4	38.4-48.4	Drake				42.46	48.80	46.65	
MW99	4	37.9-47.9	Drake				Dry	48.30	38.55	
MW100	2	19.4-29.4	Romio's				14.05	29.70	+	
MW101	4	39.8-49.8	Drake				40.36	50.20	42.35	
MW102	**2**	**7.0-17.0**	**Herman**				**15.29**	**25.00**	**+**	***Prod.***
MW103	2	37.0-47.0	Herman				43.27	46.70	+	
MW104	**2**	**8.5-18.5**	**Herman**				**10.84**	**18.80**	**+**	***Prod.***
MW105	2	32.0-42.0	Herman				42.26	42.70	+	
MW106	2	12.0-22.0	Herman				8.64	22.90	+	
MW107	2	43.0-53.0	Herman				39.16	53.30	+	
MW108	2	34.3-44.3	Herman				-	44.09	+	
MW109	2	31.0-41.0	Herman				-	40.99	+	

NOTES

RED = Possible product present
BGS = below ground surface
BTOC = below top of casing (ft)
DTW= depth to water
DTP = depth to product
ft = feet
MW = monitoring well

N/A = not available
NM = not measured
ROW= right-of-way
- = Not present

List of Properties

TOC = 24205 56th Avenue West, Mountlake Terrace WA
Romios = TOC/Farmasonis = 24225 56th Avenue West, Mountlake Terrace WA
Drake = 24309 56th Avenue West, Mountlake Terrace WA
Herman = 24311 56th Avenue West, Mountlake Terrace WA
Shin/Choi = 24325 56th Avenue West, Mountlake Terrace WA
242nd St ROW = portion of right-of-way adjacent to TOC Property
56th Ave ROW = portion of right-of-way adjacent to TOC, TOC/Farmasonis & Drake properties

WATER QUALITY METER

CALIBRATION

Site Name:____________________ Project #:______________ Calibration Date:_____________

Site #: __________________ Calibration Time:_____________

Weather:_________________________________ Temperature: ____________________

____ Barometric Pressure: _______________

Personnel:________________________________ Water Quality Meter

Calibration Location: Site Office Other______________ Make/Model: ____________________

Serial #: ____________________

Parameter	1st Standard	Initial Reading	Final Reading	2nd Standard	Initial Reading	Final Reading
Temperature (°C)	-----			-----		
Sp. Conductivity (mS/cm)	53.0			4.49		
Dissolved Oxygen (mg/L)/ %	-----	-----	-----	-----		
pH (SU)	6.86			4.00		
ORP (mV)	-----	-----	-----	240		
Turbidity (NTU)	40.0			0.0		

Notes: Quanta meters are calibrated beginning with a Level Two solution followed by the Auto-Cal solution.

Be aware of the procedure for calibrating the dissolved oxygen probe (each meter is different).

Temperature extremes will alter the calibration standards and the results.

Calibration Comments:____

____

____

____

Hydro Con	# Daily Tailgate Meeting	501 Allen St Suite B Kelso, WA, 98626 Phone: 360-703-6079 Fax: 360-703-6086

Return all completed forms to the Health & Safety Director at the end of each job week.
REPORT ALL INCIDENTS, INJURIES & NEAR MISSES IMMEDIATELY TO AT: 360-703-6079

INFORMATION

Project #:	**Date:**
Conducted By:	**Phone:**

Near Miss / Incident: Were there near-misses or incidents during yesterday's work? ❑ YES ❑ NO
If yes, was the project manager notified and was a report completed? ❑ YES ❑ NO

Daily Site Inspection Completed by Project Superintendent / Foreman: ❑ YES ❑ NO Initials:

SITE HAZARDS

❑ Fall Exposure	❑ Trenching/Excavating	❑ Lifting	❑ Material Handling
❑ Electrical	❑ Lockout/Tagout	❑ Ladders/Scaffolds	❑ Housekeeping
❑ Aerial Lifts	❑ Cranes/Rigging	❑ Confined Space	❑ Power Tools
❑ PPE	❑ Demolition	❑ Chemicals	❑ Heat Exposure/Cold Weather
❑ Hospital Route	❑ Heavy Equipment	❑ Shoring	❑ Traffic Control

TOPICS DISCUSSED

____
____
____

EQUIPMENT ONSITE

Equipment	In Use	Stand-By	Equipment	In Use	Stand-By	Equipment	In Use	Stand-By

MINIMUM PPE TO BE WORN ON ALL AEC JOB SITES

Hard Hat | Safety Glasses | Hi-Viz Clothing | Gloves | Safety Boots | Hearing Protection

By signing below, I acknowledge the topics discussed and agree to immediately report any hazards and incidents

Print Name	Sign Name	Company

Sampler's Name:	
Project Name:	TOC Holdings Company
Facility Number:	01-176 Montlake Terrace
Facility Address:	
PO Number:	
EDD Requested:	EIM DataConcourse

Report to: Rebekah Brooks & Kim Vik
cc: Craig Hultrgren
cc: Allison Greiner
Stantec Consulting Services, Inc.
19101 36th Avenue West Suite 203
Lynnwood WA 98036-5759

kim.vik@stantec.com
CraigH@hydroconllc.net
allisongreiner@eurekaprojectsolutions.net

Requested Turn Around Time

x	Standard 10 business days
	Rush

Rush Charges Authorized by:

Sample Disposal: 30 days Return Will Call

Additional Comments:

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	ANALYSES REQUESTED TPH-Gx	8260C BTEX	8260C MTBE	8260C EDC	8011M EDB	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF			Notes
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		

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

	Signature	Print Name	Time	Date
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Appendix B
Laboratory Analytical Reports – Groundwater Samples, February 2016

Stantec

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 19, 2016

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 February 11, 2016 from the TOC_01-176 F&BI 602188 project. There are 19 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, Rebekah Brooks, Kim Vik
HDC0219R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 11, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176 F&BI 602188 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602188 -01	MW02
602188 -02	MW03
602188 -03	MW06
602188 -04	MW09
602188 -05	MW10
602188 -06	MW19
602188 -07	MW22
602188 -08	MW25
602188 -09	MW26
602188 -10	MW34
602188 -11	MW37
602188 -12	MW38
602188 -13	MLT01
602188 -14	MLT02

Per your request, the results of samples MW26 and MW38 were issued in a separate report.

All quality control requirements were acceptable.

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176 F&BI 602188
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW02 602188-01	<100	83
MW03 602188-02	<100	82
MW06 602188-03	<100	83
MW09 602188-04	730	106
MW10 602188-05	<100	91
MW19 602188-06	<100	93
MW22 602188-07	<100	86
MW25 602188-08	5,200	129
MW34 602188-10	<100	79
MW37 602188-11	<100	79
MLT01 602188-13	<100	72

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176 F&BI 602188
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MLT02 602188-14	760	99
Method Blank 06-226 MB	<100	96

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-01
Date Analyzed:	02/12/16	Data File:	021214.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	105	63	127
4-Bromofluorobenzene	103	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:	MW03	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-02
Date Analyzed:	02/12/16	Data File:	021215.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	106	63	127
4-Bromofluorobenzene	102	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:	MW06	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-03
Date Analyzed:	02/12/16	Data File:	021216.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	107	63	127
4-Bromofluorobenzene	101	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:	MW09	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-04
Date Analyzed:	02/12/16	Data File:	021217.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	1.9
m,p-Xylene	58
o-Xylene	23

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW10	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-05
Date Analyzed:	02/12/16	Data File:	021218.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	107	63	127
4-Bromofluorobenzene	102	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:	MW19	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-06
Date Analyzed:	02/12/16	Data File:	021219.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	107	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW22	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-07
Date Analyzed:	02/12/16	Data File:	021220.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	106	63	127
4-Bromofluorobenzene	102	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:	MW25	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/15/16	Lab ID:	602188-08 1/10
Date Analyzed:	02/15/16	Data File:	021521.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	109	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	4.8
Toluene	120
Ethylbenzene	95
m,p-Xylene	750
o-Xylene	290

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW34	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-10
Date Analyzed:	02/12/16	Data File:	021222.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	108	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW37	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-11
Date Analyzed:	02/12/16	Data File:	021223.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	107	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT01	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-13
Date Analyzed:	02/12/16	Data File:	021225.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	106	63	127
4-Bromofluorobenzene	103	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:	MLT02	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-14
Date Analyzed:	02/12/16	Data File:	021233.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	106	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	2.3
m,p-Xylene	69
o-Xylene	26

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	06-0246 mb
Date Analyzed:	02/12/16	Data File:	021211.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	105	63	127
4-Bromofluorobenzene	101	60	133

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

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176 F&BI 602188

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

Laboratory Code: 602188-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	108	110	53-117	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	69-134

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176 F&BI 602188

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

Laboratory Code: 602188-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	<0.35	97	93	76-125	4
Toluene	ug/L (ppb)	50	<1	85	82	76-122	4
Ethylbenzene	ug/L (ppb)	50	<1	87	83	69-135	5
m,p-Xylene	ug/L (ppb)	100	<2	87	84	69-135	4
o-Xylene	ug/L (ppb)	50	<1	86	83	60-140	4

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	95	101	69-134	6
Toluene	ug/L (ppb)	50	84	89	72-122	6
Ethylbenzene	ug/L (ppb)	50	85	91	77-124	7
m,p-Xylene	ug/L (ppb)	100	85	91	83-125	7
o-Xylene	ug/L (ppb)	50	85	90	81-121	6

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.

602188

SAMPLE CHAIN OF CUSTODY ME 02-11-16

V5

Send Report To: C. Hultgren, R. Honsberger, A. Gremer, R. Brooks, K. Yik

Company: Hydrocon Environmental

Address: 510 Allen Street, Suite B

City, State, ZIP: Kelso, WA 98626

Phone #: 360.307.6079 Fax #: 360.703.6086

SAMPLERS (signature): L. Namba / W. Rajkovich

PROJECT NAME/NO.: TOC Mountlake Terrace (01-176) TOC Property

PO#:

REMARKS:

Page # 1 of 2

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW02	01 A-F	02/08/16	1530	Water	6		✓	✓										
MW03 (MS/MSD)	02 A-R	02/08/16	1542	Water	18		✓	✓										
MW06	03 A-F	02/08/16	1451	Water	6		✓	✓										
MW09	04	02/09/16	1346	Water	6		✓	✓										
MW10	05	02/09/16	1155	Water	6		✓	✓										
MW19	06	02/09/16	1546	Water	6		✓	✓										
MW22	07	02/10/16	1301	Water	6		✓	✓										
MW25	08	02/09/16	1429	Water	6		✓	✓										
MW26	09	02/09/16	1538	Water	6		✓	✓										
MW34	10	02/10/16	1603	Water	6		✓	✓										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/11/16	1400
Received by: [signature]	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

FORMS\COC\COC.DOC

602188

SAMPLE CHAIN OF CUSTODY

ME 02-11-16

V5

Send Report To: C. Hultgren, R. Honsberger, A. Greiner, R. Brooks, K. Vik
Company: Hydrocon Environmental
Address: 510 Allen Street, Suite B
City, State, ZIP: Kelso, WA 98626
Phone #: 360.703.6079 Fax #: 360.703.6086

SAMPLERS (signature): L. Namba, W. Rajkovich

PROJECT NAME/NO.: TOC Mountlake Terrace (01-176) TOC Property

PO#:

REMARKS:

Page # 2 of 2

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	TPH-Diesel	TPH-Gasoline	BTEX by 8260C	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW37	11 A-E	02/10/16	1518	water	6		✓	✓										
MW38	12 A-F	02/10/16	1436	water	6		✓	✓										
MLT01	13	02/08/16	1550	water	6		✓	✓										
MLT02	14	02/09/16	1400	water	6		✓	✓										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Larry Namba	Hydrocon Environmental	02/11/16	1400
Received by:	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 15, 2016

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 February 5, 2016 from the TOC_01-176, WORFDB8 F&BI 602084 project. There are 8 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, Rebekah Brooks, Kim Vik
HDC0215R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 5, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602084 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602084 -01	MW92
602084 -02	MW93

All quality control requirements were acceptable.

Date of Report: 02/15/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602084
Date Extracted: 02/08/16
Date Analyzed: 02/08/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW92 602084-01	<100	91
MW93 602084-02	<100	95
Method Blank 06-218 MB	<100	96

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW92	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602084
Date Extracted:	02/08/16	Lab ID:	602084-01
Date Analyzed:	02/08/16	Data File:	020823.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	103	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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW93	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602084
Date Extracted:	02/08/16	Lab ID:	602084-02
Date Analyzed:	02/08/16	Data File:	020824.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	103	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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602084
Date Extracted:	02/08/16	Lab ID:	06-0238 mb
Date Analyzed:	02/08/16	Data File:	020805.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	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

Date of Report: 02/15/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602084

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

Laboratory Code: 602100-07 (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	96	69-134

Date of Report: 02/15/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602084

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

Laboratory Code: 602086-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	100	76-125
Toluene	ug/L (ppb)	50	<1	91	76-122
Ethylbenzene	ug/L (ppb)	50	<1	93	69-135
m,p-Xylene	ug/L (ppb)	100	<2	93	69-135
o-Xylene	ug/L (ppb)	50	<1	91	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	99	98	69-134	1
Toluene	ug/L (ppb)	50	90	90	72-122	0
Ethylbenzene	ug/L (ppb)	50	92	91	77-124	1
m,p-Xylene	ug/L (ppb)	100	92	91	83-125	1
o-Xylene	ug/L (ppb)	50	90	89	81-121	1

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.

602084

SAMPLE CHAIN OF CUSTODY

ME 02-05-16

V2

Send Report To C. Hultgren, R. Hensberger, A. Greiner, R. Brooks, K. Vik

Company HydroCon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba / W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) Farmasonis (Romio's) Property

PO#

REMARKS All dissolved Pb samples were field filtered and preserved

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS							Notes
MW92	01 A-F	02/03/16	1555	water	6		✓	✓										
MW93	02 ↓	02/03/16	1500	water	6		✓	✓										

Samples received at 1 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/05/16	1440
Received by: [signature]	VINH	FBI	2/05/16	1440
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 19, 2016

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 February 5, 2016 from the TOC_01-176, WORFDB8 F&BI 602085 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, Rebekah Brooks, Kim Vik
HDC0219R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 5, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602085 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602085 -01	MW69
602085 -02	MW70
602085 -03	MW95
602085 -04	MW98
602085 -05	MW99
602085 -06	MW101

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085
Date Extracted: 02/08/16
Date Analyzed: 02/08/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW69 602085-01	3,700	98
MW70 602085-02	590 x	92
MW95 602085-03	<100	93
MW98 602085-04	290	99
MW99 602085-05	<100	95
MW101 602085-06	<100	92
Method Blank 06-218 MB	<100	96

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085
Date Extracted: 02/08/16
Date Analyzed: 02/08/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW69 602085-01	1,600 x	<250	83
MW70 602085-02	<50	<250	78
Method Blank 06-235 MB	<50	<250	84

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW70	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	602085-02
Date Analyzed:	02/08/16	Data File:	602085-02.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	I6-75 mb
Date Analyzed:	02/08/16	Data File:	I6-75 mb rr.045
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW70	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	602085-02
Date Analyzed:	02/08/16	Data File:	602085-02.052
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	I6-73 mb
Date Analyzed:	02/08/16	Data File:	I6-73 mb.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW69	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-01
Date Analyzed:	02/09/16	Data File:	020912.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	106	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.48
Toluene	<1
Ethylbenzene	22
m,p-Xylene	160
o-Xylene	3.1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW70	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-02
Date Analyzed:	02/09/16	Data File:	020913.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	102	63	127
4-Bromofluorobenzene	101	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW95	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-03
Date Analyzed:	02/09/16	Data File:	020914.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	103	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.38
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW98	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-04
Date Analyzed:	02/09/16	Data File:	020915.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	104	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.71
Toluene	<1
Ethylbenzene	2.6
m,p-Xylene	8.6
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-05
Date Analyzed:	02/09/16	Data File:	020916.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	102	63	127
4-Bromofluorobenzene	99	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW101	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	602085-06
Date Analyzed:	02/09/16	Data File:	020917.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	104	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/09/16	Lab ID:	06-0239 mb
Date Analyzed:	02/09/16	Data File:	020906.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	103	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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 Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW69	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	602085-01 1/2
Date Analyzed:	02/09/16	Data File:	020909.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	2.8
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	0.060
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW70	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	602085-02 1/2
Date Analyzed:	02/09/16	Data File:	020910.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	31	160
Benzo(a)anthracene-d12	96	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602085
Date Extracted:	02/08/16	Lab ID:	06-255 mb
Date Analyzed:	02/09/16	Data File:	020905.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085
Date Extracted: 02/16/16
Date Analyzed: 02/16/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
MW70 602085-02	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

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

Laboratory Code: 602100-07 (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	96	69-134

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	109	113	70-130	4

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	83	93	63-142	11

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 602086-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	84	85	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	95	85-115

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602085-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	93	93	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	85-115

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

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

Laboratory Code: 602085-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	92	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	103	69-133
Benzene	ug/L (ppb)	50	<0.35	95	76-125
Toluene	ug/L (ppb)	50	<1	86	76-122
Ethylbenzene	ug/L (ppb)	50	<1	87	69-135
m,p-Xylene	ug/L (ppb)	100	<2	88	69-135
o-Xylene	ug/L (ppb)	50	<1	87	60-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	96	96	64-147	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	104	106	73-132	2
Benzene	ug/L (ppb)	50	96	97	69-134	1
Toluene	ug/L (ppb)	50	86	87	72-122	1
Ethylbenzene	ug/L (ppb)	50	88	89	77-124	1
m,p-Xylene	ug/L (ppb)	100	88	88	83-125	0
o-Xylene	ug/L (ppb)	50	87	87	81-121	0

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602085

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	84	86	67-116	2
Acenaphthylene	ug/L (ppb)	1	86	88	65-119	2
Acenaphthene	ug/L (ppb)	1	88	89	66-118	1
Fluorene	ug/L (ppb)	1	88	88	64-125	0
Phenanthrene	ug/L (ppb)	1	93	94	67-120	1
Anthracene	ug/L (ppb)	1	90	91	65-122	1
Fluoranthene	ug/L (ppb)	1	88	89	65-127	1
Pyrene	ug/L (ppb)	1	91	94	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	92	92	60-118	0
Chrysene	ug/L (ppb)	1	98	95	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	89	89	55-135	0
Benzo(k)fluoranthene	ug/L (ppb)	1	88	92	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	84	87	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	86	84	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	85	80	37-133	6
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	84	34-135	4

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.

602085

SAMPLE CHAIN OF CUSTODY

ME02-05-16

V5/E03/AI2

Send Report To E. Hultgren, R. Hensberger, A. Greiner, R. Brooks, K. Viki

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba/W. Raikovich

PROJECT NAME/NO. TCC Mountlake Terrace (01-176) Drake Property

PO#

REMARKS All dissolved Pb samples were field filtered and preserved

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~~ 8260C	MTBE ~~VOCs~~ by8260	SVOCs by 8270	HFS	EDC by 8260C	EDB by 8011M	NWTPH-Dx	Total Pb by 6020	Dissolved Pb by 6020	PAHs by 8270D SIM	
MW69	01 A-H	02/04/16	1430	Water	~~6~~ 8		✓	✓	✓					✓			✓	
MW70	02 A-L	02/04/16	1200	Water	~~16~~ 12		✓	✓	✓			✓	✓	✓	✓	✓	✓	
MW95	03 A-F	02/04/16	1520	Water	6		✓	✓	✓									
MW98	04	02/04/16	1200	Water	6		✓	✓	✓									
MW99	05	02/04/16	1435	Water	6		✓	✓	✓									
MW101	06	02/04/16	1520	Water	6		✓	✓	✓									Insufficient H2O for TPH-Dx, PAHs, Total & dissolved lead Pb

Samples received at ___ °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/05/16	1440
Received by: [signature]	VINH	FBI	2/05/16	1440
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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February 19, 2016

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 February 5, 2016 from the TOC_01-176, WORFDB8 F&BI 602086 project. There are 41 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, Rebekah Brooks, Kim Vik
HDC0219R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 5, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602086 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602086 -01	MW11
602086 -02	MW20
602086 -03	MW24
602086 -04	MW27
602086 -05	MW28
602086 -06	MW29
602086 -07	MW32
602086 -08	MW36
602086 -09	MW90
602086 -10	MW91
602086 -11	MLT03
602086 -12	MLT04
602086 -13	Trip Blank

All quality control requirements were acceptable.

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086
Date Extracted: 02/09/16
Date Analyzed: 02/09/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW11 602086-01	<100	94
MW20 602086-02	<100	96
MW24 602086-03	<100	96
MW27 602086-04	<100	94
MW28 602086-05	1,300	108
MW29 602086-06	1,900	119
MW32 602086-07	1,200	105
MW36 602086-08	<100	93
MW90 602086-09	530	97
MW91 602086-10	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086
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RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MLT03 602086-11	<100	91
MLT04 602086-12	1,400	109
Trip Blank 602086-13	<100	94
Method Blank 06-221 MB	<100	95

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086
Date Extracted: 02/08/16
Date Analyzed: 02/08/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW20 602086-02 1/1.2	<60	<300	82
MW91 602086-10	<50	<250	80
MLT03 602086-11 1/1.2	<60	<300	84
Method Blank 06-235 MB	<50	<250	84

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW29	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-06
Date Analyzed:	02/08/16	Data File:	602086-06 rr.047
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW32	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-07
Date Analyzed:	02/08/16	Data File:	602086-07.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.26

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW90	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-09
Date Analyzed:	02/08/16	Data File:	602086-09 rr.050
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW91	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-10
Date Analyzed:	02/08/16	Data File:	602086-10.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	I6-75 mb
Date Analyzed:	02/08/16	Data File:	I6-75 mb rr.045
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW29	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-06
Date Analyzed:	02/09/16	Data File:	602086-06.017
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	37.3

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW32	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-07
Date Analyzed:	02/09/16	Data File:	602086-07.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	6.01

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW90	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-09
Date Analyzed:	02/09/16	Data File:	602086-09.019
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW91	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-10
Date Analyzed:	02/09/16	Data File:	602086-10.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	I6-73 mb
Date Analyzed:	02/08/16	Data File:	I6-73 mb.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW20	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-02 1/2
Date Analyzed:	02/09/16	Data File:	020911.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW91	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-10 1/2
Date Analyzed:	02/09/16	Data File:	020912.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	102	31	160
Benzo(a)anthracene-d12	100	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MLT03	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-11 1/2
Date Analyzed:	02/09/16	Data File:	020913.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	06-255 mb
Date Analyzed:	02/09/16	Data File:	020905.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW11	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-01
Date Analyzed:	02/08/16	Data File:	020810.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	104	63	127
4-Bromofluorobenzene	102	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW20	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-02
Date Analyzed:	02/08/16	Data File:	020811.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	105	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW24	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-03
Date Analyzed:	02/08/16	Data File:	020812.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	105	63	127
4-Bromofluorobenzene	103	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:	MW27	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-04
Date Analyzed:	02/08/16	Data File:	020813.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	105	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	1.8
m,p-Xylene	5.3
o-Xylene	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW28	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-05
Date Analyzed:	02/08/16	Data File:	020814.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	107	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	43
o-Xylene	32

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW29	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-06
Date Analyzed:	02/08/16	Data File:	020815.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	106	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	14
m,p-Xylene	80
o-Xylene	8.0

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW32	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-07
Date Analyzed:	02/08/16	Data File:	020816.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	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	1.1
Toluene	21
Ethylbenzene	21
m,p-Xylene	110
o-Xylene	53

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW36	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-08
Date Analyzed:	02/08/16	Data File:	020817.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	103	63	127
4-Bromofluorobenzene	102	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW90	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-09
Date Analyzed:	02/08/16	Data File:	020826.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	105	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	2.1
Ethylbenzene	<1
m,p-Xylene	46
o-Xylene	35

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW91	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-10
Date Analyzed:	02/08/16	Data File:	020818.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	101	63	127
4-Bromofluorobenzene	99	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT03	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-11
Date Analyzed:	02/08/16	Data File:	020819.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	103	63	127
4-Bromofluorobenzene	101	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT04	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-12
Date Analyzed:	02/08/16	Data File:	020825.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	107	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	44
o-Xylene	32

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Trip Blank	Client:	HydroCon
Date Received:	02/05/16	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	602086-13
Date Analyzed:	02/08/16	Data File:	020809.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	104	63	127
4-Bromofluorobenzene	101	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602086
Date Extracted:	02/08/16	Lab ID:	06-0238 mb
Date Analyzed:	02/08/16	Data File:	020805.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

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

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086
Date Extracted: 02/16/16
Date Analyzed: 02/16/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
Trip Blank 602086-13	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

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

Laboratory Code: 602086-03 (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	96	69-134

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	83	93	63-142	11

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602086-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	84	85	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	95	85-115

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 602085-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	93	93	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	85-115

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	84	86	67-116	2
Acenaphthylene	ug/L (ppb)	1	86	88	65-119	2
Acenaphthene	ug/L (ppb)	1	88	89	66-118	1
Fluorene	ug/L (ppb)	1	88	88	64-125	0
Phenanthrene	ug/L (ppb)	1	93	94	67-120	1
Anthracene	ug/L (ppb)	1	90	91	65-122	1
Fluoranthene	ug/L (ppb)	1	88	89	65-127	1
Pyrene	ug/L (ppb)	1	91	94	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	92	92	60-118	0
Chrysene	ug/L (ppb)	1	98	95	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	89	89	55-135	0
Benzo(k)fluoranthene	ug/L (ppb)	1	88	92	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	84	87	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	86	84	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	85	80	37-133	6
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	84	34-135	4

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

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

Laboratory Code: 602086-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	98	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	104	69-133
Benzene	ug/L (ppb)	50	<0.35	100	76-125
Toluene	ug/L (ppb)	50	<1	91	76-122
Ethylbenzene	ug/L (ppb)	50	<1	93	69-135
m,p-Xylene	ug/L (ppb)	100	<2	93	69-135
o-Xylene	ug/L (ppb)	50	<1	91	60-140
Naphthalene	ug/L (ppb)	50	<1	83	44-164

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	98	96	64-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	105	104	73-132	1
Benzene	ug/L (ppb)	50	99	98	69-134	1
Toluene	ug/L (ppb)	50	90	90	72-122	0
Ethylbenzene	ug/L (ppb)	50	92	91	77-124	1
m,p-Xylene	ug/L (ppb)	100	92	91	83-125	1
o-Xylene	ug/L (ppb)	50	90	89	81-121	1
Naphthalene	ug/L (ppb)	50	82	82	64-133	0

Date of Report: 02/19/16
Date Received: 02/05/16
Project: TOC_01-176, WORFDB8 F&BI 602086

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	109	113	70-130	4

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.

~~[illegible]~~ 2086

SAMPLE CHAIN OF CUSTODY

ME 2/5/16

V5, E03, AI3

Send Report To C. Hultgren, R. Hornsberger, A. Greiner, R. Brooks, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Holdings-Mountlake Terrace (01-176) TOC Property

PO#

REMARKS Dissolved Pb samples were field filtered and preserved.

X - per RH 2/5/16

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	MTBE ~~VOCs~~ by 8260C	SVOCs by 8270	HFS	NWTPH - Dx	PAHs by 8270D SIM	Total Pb by 200.8	Dissolved Pb by 200.8			Notes
mw11	01 A-F	02/02/16	1455	water	6		✓	✓										
mw20	02	02/05/16	1315	water	8		✓	✓	✓			✓	✓					
mw24	03	02/03/16	1305	water	6		✓	✓										
mw27	04	02/03/16	1310	water	6		✓	✓										
mw28	05	02/05/16	1310	water	6		✓	✓										
mw29	06	02/03/16	1340	water	8		✓	✓						✓	✓			
mw32	07	02/02/16	1335	water	8		✓	✓						✓	✓			
mw36	08	02/03/16	1400	water	6		✓	✓										
mw90	09	02/02/16	1415	water	8		✓	✓						✓	✓			
mw91	10	02/02/16	1410	water	10		✓	✓	X			✓	✓	✓	✓			

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/05/16	1440
Received by:	[signature]	VINH	FBI	2/05/16	1440
Relinquished by:					
Received by:			Samples received at	1 °C	

602086

SAMPLE CHAIN OF CUSTODY ME 2/5/16

VS, E03, AI3

Send Report To C. Hultgren, R. Hensberger, A. Greiner R. Brooks, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite ~~200~~ B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (*signature*) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) TOC Property

PO#

REMARKS Trip blank supplied by laboratory

X - per RM - 02/05/16

Page # 2 of 2

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	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	MTBE ~~VOCs~~ by 8260C	SVOCs by 8270	HFS	NWTPH-Dx	PAHs by 8270D SIM	EDC by 8260C	EDB by 8011m			Notes
MLT03	01 A-F	02/05/16	1330	water	8		✓	✓	X			✓	✓					
MLT04	02	02/05/16	1325	water	6		✓	✓										
Trip Blank	03	02/02/16	1000	water	6		✓	✓	✓					✓	✓			

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/05/16	1440
Received by: [signature]	VINH	FBI	2/05/16	1440
Relinquished by:				
Received by:				

Samples received at) °C

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 19, 2016

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

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on February 11, 2016 from the TOC_01-176, WORFDB8 F&BI 602188 project. There are 8 pages included in this report.

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, Rebekah Brooks, Kim Vik
HDC0219R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 11, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602188 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602188 -01	MW02
602188 -02	MW03 (MS/MSD)
602188 -03	MW06
602188 -04	MW09
602188 -05	MW10
602188 -06	MW19
602188 -07	MW22
602188 -08	MW25
602188 -09	MW26
602188 -10	MW34
602188 -11	MW37
602188 -12	MW38
602188 -13	MLT01
602188 -14	MLT02

Per your request, samples MW26 and MW38 were issued in this report. The results of the remaining samples were issued in a separate report.

All quality control requirements were acceptable.

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602188
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW26 602188-09	<100	92
MW38 602188-12	<100	95
Method Blank 06-226 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW26	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-09
Date Analyzed:	02/12/16	Data File:	021221.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	107	63	127
4-Bromofluorobenzene	104	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:	MW38	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	602188-12
Date Analyzed:	02/12/16	Data File:	021224.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	107	63	127
4-Bromofluorobenzene	104	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602188
Date Extracted:	02/12/16	Lab ID:	06-0246 mb
Date Analyzed:	02/12/16	Data File:	021211.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	105	63	127
4-Bromofluorobenzene	101	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: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602188

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

Laboratory Code: 602188-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	108	110	53-117	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/19/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602188

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

Laboratory Code: 602188-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	<0.35	97	93	76-125	4
Toluene	ug/L (ppb)	50	<1	85	82	76-122	4
Ethylbenzene	ug/L (ppb)	50	<1	87	83	69-135	5
m,p-Xylene	ug/L (ppb)	100	<2	87	84	69-135	4
o-Xylene	ug/L (ppb)	50	<1	86	83	60-140	4

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	95	101	69-134	6
Toluene	ug/L (ppb)	50	84	89	72-122	6
Ethylbenzene	ug/L (ppb)	50	85	91	77-124	7
m,p-Xylene	ug/L (ppb)	100	85	91	83-125	7
o-Xylene	ug/L (ppb)	50	85	90	81-121	6

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.

602188

SAMPLE CHAIN OF CUSTODY

ME 02-11-16

V5

Page # 1 of 2

Send Report To C. Hultgren, R. Honsberger, A. Gremer, R. Brooks, K. Yik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.307.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba / W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) TOC Property

PO#

REMARKS

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW02	01 A-F	02/08/16	1530	Water	6		✓	✓										
MW03 (MS/MSD)	02 A-R	02/08/16	1542	Water	18		✓	✓										
MW06	03 A-F	02/08/16	1451	Water	6		✓	✓										
MW09	04	02/09/16	1346	Water	6		✓	✓										
MW10	05	02/09/16	1155	Water	6		✓	✓										
MW19	06	02/09/16	1546	Water	6		✓	✓										
MW22	07	02/10/16	1301	Water	6		✓	✓										
MW25	08	02/09/16	1429	Water	6		✓	✓										
MW26	09	02/09/16	1538	Water	6		✓	✓										
MW34	10	02/10/16	1603	Water	6		✓	✓										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/11/16	1400
Received by: [signature]	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

FORMS\COC\COC.DOC

602188

SAMPLE CHAIN OF CUSTODY

ME 02-11-16

V5

Send Report To C. Hultgren, R. Hansberger, A. Greiner, R. Brooks, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) TOC Property

PO#

REMARKS

Page # 2 of 2

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW37	11 A-E	02/10/16	1518	water	6		✓	✓										
MW38	12 A-F	02/10/16	1436	water	6		✓	✓										
MLT01	13	02/08/16	1550	water	6		✓	✓										
MLT02	14	02/09/16	1400	water	6		✓	✓										

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

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SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/11/16	1400
Received by: [signature]	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 18, 2016

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 February 11, 2016 from the TOC_01-176, WORFDB8 F&BI 602189 project. There are 17 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, Rebekah Brooks, Kim Vik
HDC0218R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 11, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602189 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602189 -01	MW30
602189 -02	MW39
602189 -03	MW58
602189 -04	MW66
602189 -05	MW82
602189 -06	Trip Blank

All quality control requirements were acceptable.

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW30 602189-01	<100	92
MW39 602189-02	<100	75
MW58 602189-03	<100	85
MW66 602189-04	<100	85
MW82 602189-05	<100	88
Trip Blank 602189-06	<100	90
Method Blank 06-226 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189
Date Extracted: 02/15/16
Date Analyzed: 02/15/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW66 602189-04	<50	<250	79
Method Blank 06-287 MB	<50	<250	75

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW30	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-01
Date Analyzed:	02/11/16	Data File:	021122.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	104	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:	MW39	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-02
Date Analyzed:	02/11/16	Data File:	021123.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	104	63	127
4-Bromofluorobenzene	101	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:	MW58	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-03
Date Analyzed:	02/11/16	Data File:	021124.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	104	63	127
4-Bromofluorobenzene	101	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:	MW66	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-04
Date Analyzed:	02/11/16	Data File:	021125.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	104	63	127
4-Bromofluorobenzene	99	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW82	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-05
Date Analyzed:	02/11/16	Data File:	021126.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	104	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:	Trip Blank	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	602189-06
Date Analyzed:	02/11/16	Data File:	021121.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	103	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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/11/16	Lab ID:	06-0244 mb
Date Analyzed:	02/11/16	Data File:	021105.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	104	63	127
4-Bromofluorobenzene	100	60	133

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW66	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/15/16	Lab ID:	602189-04 1/2
Date Analyzed:	02/15/16	Data File:	021515.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602189
Date Extracted:	02/15/16	Lab ID:	06-289 mb
Date Analyzed:	02/15/16	Data File:	021505.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	94	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189

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

Laboratory Code: (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	108	110	53-117	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	69-134

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189

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

Laboratory Code: 602160-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	99	74-127
Benzene	ug/L (ppb)	50	<0.35	99	76-125
Toluene	ug/L (ppb)	50	<1	87	76-122
Ethylbenzene	ug/L (ppb)	50	<1	89	69-135
m,p-Xylene	ug/L (ppb)	100	<2	89	69-135
o-Xylene	ug/L (ppb)	50	<1	89	60-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	97	98	64-147	1
Benzene	ug/L (ppb)	50	98	98	69-134	0
Toluene	ug/L (ppb)	50	87	86	72-122	1
Ethylbenzene	ug/L (ppb)	50	88	89	77-124	1
m,p-Xylene	ug/L (ppb)	100	88	89	83-125	1
o-Xylene	ug/L (ppb)	50	88	88	81-121	0

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	87	86	63-142	1

Date of Report: 02/18/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602189

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	82	86	67-116	5
Acenaphthylene	ug/L (ppb)	1	82	85	65-119	4
Acenaphthene	ug/L (ppb)	1	84	88	66-118	5
Fluorene	ug/L (ppb)	1	82	84	64-125	2
Phenanthrene	ug/L (ppb)	1	86	89	67-120	3
Anthracene	ug/L (ppb)	1	83	86	65-122	4
Fluoranthene	ug/L (ppb)	1	84	83	65-127	1
Pyrene	ug/L (ppb)	1	84	91	62-130	8
Benz(a)anthracene	ug/L (ppb)	1	85	87	60-118	2
Chrysene	ug/L (ppb)	1	89	91	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	85	83	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	85	86	62-125	1
Benzo(a)pyrene	ug/L (ppb)	1	79	81	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	76	77	36-142	1
Dibenz(a,h)anthracene	ug/L (ppb)	1	76	76	37-133	0
Benzo(g,h,i)perylene	ug/L (ppb)	1	75	77	34-135	3

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.

602189

SAMPLE CHAIN OF CUSTODY

ME 02-11-16 C03 /V4

Page # 1 of 1

Send Report To C.Hultgren, R.Hansberger, A.Greiner, R.Brooks K.VIK

Company Hydrocon Environmental

Address 510 Allen St. Ste B

City, State, ZIP Kelso, WA 98626

Phone # 360-703-6079 Fax # 360-703-6089

SAMPLERS (signature) L.Namba / W.Rajkovich

PROJECT NAME/NO. ~~TOC Mountlake Terrace~~ (01-176) TOC Farmasoni's

PO#

REMARKS per AG 2/11/16 ME
Lab Supplied Trip Blank

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS	PAHs by 8270D	MTBE					Notes
MW30	01 A-F	2/10/16	1528	water	6		✓	✓										* per AG
MW39	02	2/10/16	1427	water	6		✓	✓										2/11/16
MW58	03	2/11/16	1230	water	6		✓	✓										ME
MW66	04 A-H	2/08/16	1310	water	8	✓	✓	✓				✓	*					
MW82	05 A-F	2/08/16	1450	water	6		✓	✓										
Trip Blank	06	02/02/16	1000	water	6		✓	✓										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	2/11/16	1400
Received by: [signature]	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 23, 2016

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 February 11, 2016 from the TOC_01-176, WORFDB8 F&BI 602190 project. There are 19 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, Rebekah Brooks, Kim Vik
HDC0223R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 11, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602190 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602190 -01	MW04
602190 -02	MW08
602190 -03	MW46
602190 -04	MW48
602190 -05	MW50
602190 -06	MW52

All quality control requirements were acceptable.

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW04 602190-01	<100	96
MW08 602190-02	<100	96
MW46 602190-03	<100	95
MW48 602190-04 1/10	1,800	98
MW50 602190-05	<100	95
MW52 602190-06	<100	95
Method Blank 06-228 MB	<100	94

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW48	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/18/16	Lab ID:	602190-04
Date Analyzed:	02/19/16	Data File:	602190-04.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	5.89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/18/16	Lab ID:	I6-97 mb
Date Analyzed:	02/18/16	Data File:	I6-97 mb.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW48	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-04
Date Analyzed:	02/12/16	Data File:	602190-04.070
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	13.7

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	I6-82 mb
Date Analyzed:	02/12/16	Data File:	I6-82 mb.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-01
Date Analyzed:	02/12/16	Data File:	021226.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	106	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW08	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-02
Date Analyzed:	02/12/16	Data File:	021227.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	107	63	127
4-Bromofluorobenzene	103	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW46	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-03
Date Analyzed:	02/12/16	Data File:	021228.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	105	63	127
4-Bromofluorobenzene	102	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:	MW48	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/15/16	Lab ID:	602190-04
Date Analyzed:	02/15/16	Data File:	021520.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	111	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	8.5
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW50	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-05
Date Analyzed:	02/12/16	Data File:	021229.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	106	63	127
4-Bromofluorobenzene	102	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:	MW52	Client:	HydroCon
Date Received:	02/11/16	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	602190-06
Date Analyzed:	02/12/16	Data File:	021230.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	105	63	127
4-Bromofluorobenzene	102	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:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602190
Date Extracted:	02/12/16	Lab ID:	06-0246 mb
Date Analyzed:	02/12/16	Data File:	021211.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	105	63	127
4-Bromofluorobenzene	101	60	133

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

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190

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

Laboratory Code: 602190-05 (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	103	69-134

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602266-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	101	89	70-130	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	104	85-115

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602156-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	95	95	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	107	85-115

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190

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

Laboratory Code: 602188-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	<0.35	97	93	76-125	4
Toluene	ug/L (ppb)	50	<1	85	82	76-122	4
Ethylbenzene	ug/L (ppb)	50	<1	87	83	69-135	5
m,p-Xylene	ug/L (ppb)	100	<2	87	84	69-135	4
o-Xylene	ug/L (ppb)	50	<1	86	83	60-140	4

Date of Report: 02/23/16
Date Received: 02/11/16
Project: TOC_01-176, WORFDB8 F&BI 602190

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

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	95	101	69-134	6
Toluene	ug/L (ppb)	50	84	89	72-122	6
Ethylbenzene	ug/L (ppb)	50	85	91	77-124	7
m,p-Xylene	ug/L (ppb)	100	85	91	83-125	7
o-Xylene	ug/L (ppb)	50	85	90	81-121	6

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.

602190

SAMPLE CHAIN OF CUSTODY

ME 02-11-16 V4 / AI2

Page # 1 of 1

Send Report To C. Hallgren, R. Heisberger, A. Greiner, R. Brooks, K. Vik

Company Hydrocon Environmental

Address 510 Allen St. Ste B

City, State, ZIP Kelso, WA 98626

Phone # 360 703 6079 Fax # 360 703 6086

SAMPLERS (signature) L. Namba / W. Rajkovich

PROJECT NAME/NO. TOC Mountlak Terrace (01-176) ~~Row~~ 56th Ave Row per AG 2/11/16

PO#

REMARKS All dissolved Pb samples were field filtered and preserved

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS	Total Pb 200.8	Diss Pb 200.8	PAHs by 8270D SIM				Notes
MW04	01A-F	2/11/16	1132	water	6		✓	✓										
MW08	02 I	2/11/16	1200	water	6		✓	✓										
MW46	03A-E	2/10/16	1240	water	5		✓	✓										Total & Dissolved Pb NOT collected insuf. water
MW48	04A-H	2/08/16	1325	water	8		✓	✓				✓	✓					
MW50	05A-F	2/08/16	1140	water	6		✓	✓										
MW52	06A-F	2/08/16	1425	water	6		✓	✓										
~~MW66~~		~~2/08/16~~	~~1310~~	~~water~~	8	✓	✓	✓						✓				wrong chain.

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/11/16	1400
Received by: [signature]	James Bruya	F&B	2/11	1400
Relinquished by:				
Received by:		Samples received at 3 °C		

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 23, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602261 project. There are 7 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, Rebekah Brooks, Kim Vik
HDC0223R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602261 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602261 -01	MW05

All quality control requirements were acceptable.

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602261
Date Extracted: 02/17/16
Date Analyzed: 02/17/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW05 602261-01	<100	95
Method Blank 06-280 MB	<100	97

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602261
Date Extracted:	02/16/16	Lab ID:	602261-01
Date Analyzed:	02/16/16	Data File:	021626.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	102	76	126

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:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602261
Date Extracted:	02/16/16	Lab ID:	06-0251 mb
Date Analyzed:	02/16/16	Data File:	021605.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602261

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

Laboratory Code: 602261-01 (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	100	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602261

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

Laboratory Code: 602242-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	99	78-108
Toluene	ug/L (ppb)	50	<1	93	73-117
Ethylbenzene	ug/L (ppb)	50	<1	97	71-120
m,p-Xylene	ug/L (ppb)	100	<2	98	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129

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	99	95	81-108	4
Toluene	ug/L (ppb)	50	92	89	83-108	3
Ethylbenzene	ug/L (ppb)	50	97	94	83-111	3
m,p-Xylene	ug/L (ppb)	100	97	94	84-112	3
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

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.

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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.

NP ~~6022~~ 602261 ME 02/16/16 V2

SAMPLE CHAIN OF CUSTODY

Send Report To C. Hultgren, R. Honsberger, R. Brooks, A. Grainer, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) ROW-242nd Property

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260	VOCs by8260	SVOCs by 8270	HFS							Notes
MW05	01 A-F	02/11/16	1445	Water	6		✓	✓										

Samples received at 2 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	11/16/16	1115
Received by: [signature]	Matt Laughton	FBInc	2/16/16	1115
Relinquished by:				
Received by:				

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 23, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602262 project. There are 8 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, Rebekah Brooks, Kim Vik
HDC0223R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602262 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602262 -01	MW40
602262 -02	MW59

All quality control requirements were acceptable.

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602262
Date Extracted: 02/17/16
Date Analyzed: 02/17/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW40 602262-01	<100	95
MW59 602262-02	<100	97
Method Blank 06-280 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW40	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602262
Date Extracted:	02/16/16	Lab ID:	602262-01
Date Analyzed:	02/16/16	Data File:	021627.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	102	76	126

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:	MW59	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602262
Date Extracted:	02/16/16	Lab ID:	602262-02
Date Analyzed:	02/16/16	Data File:	021628.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	103	76	126

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:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602262
Date Extracted:	02/16/16	Lab ID:	06-0251 mb
Date Analyzed:	02/16/16	Data File:	021605.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602262

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

Laboratory Code: 602261-01 (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	100	69-134

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602262

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

Laboratory Code: 602242-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	99	78-108
Toluene	ug/L (ppb)	50	<1	93	73-117
Ethylbenzene	ug/L (ppb)	50	<1	97	71-120
m,p-Xylene	ug/L (ppb)	100	<2	98	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129

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	99	95	81-108	4
Toluene	ug/L (ppb)	50	92	89	83-108	3
Ethylbenzene	ug/L (ppb)	50	97	94	83-111	3
m,p-Xylene	ug/L (ppb)	100	97	94	84-112	3
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

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.

602262

SAMPLE CHAIN OF CUSTODY

ME 02/16/16 V2

~~Send~~ Report To C. Hultgren, R. Honsberger, R. Brooks, A. Greiner, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

Page # 1 of 1

PROJECT NAME/NO. TOC mountlake Terrace (01-176) Farmisonis/Romio Property

PO#

REMARKS

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS							Notes
MW40	01 A-F	02/11/16	1500	Water	6		✓	✓										
MW59	02 A-F	02/11/16	1645	Water	6		✓	✓										
																		Samples received at 2 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/16/16	1115
Received by: [signature]	Matt Langworth	F&B Inc	2/16/16	1115
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 23, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602263 project. There are 14 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, Rebekah Brooks, Kim Vik
HDC0223R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602263 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602263 -01	MW12
602263 -02	MW51
602263 -03	MW53
602263 -04	MW55
602263 -05	MW60
602263 -06	MW61
602263 -07	MW62
602263 -08	Equip. Rinsate 03

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602263
Date Extracted: 02/17/16
Date Analyzed: 02/17/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW12 602263-01	<100	95
MW51 602263-02	<100	94
MW53 602263-03	<100	93
MW55 602263-04	<100	95
MW60 602263-05	<100	93
MW61 602263-06	<100	95
MW62 602263-07	<100	93
Equip. Rinsate 03 602263-08	<100	95
Method Blank 06-280 MB	<100	97

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW12	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-01
Date Analyzed:	02/16/16	Data File:	021634.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	103	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW51	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-02
Date Analyzed:	02/16/16	Data File:	021635.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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:	MW53	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-03
Date Analyzed:	02/16/16	Data File:	021636.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	102	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW55	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-04
Date Analyzed:	02/16/16	Data File:	021637.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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:	MW60	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-05
Date Analyzed:	02/16/16	Data File:	021638.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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:	MW61	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-06
Date Analyzed:	02/16/16	Data File:	021639.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	103	76	126

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:	MW62	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-07
Date Analyzed:	02/16/16	Data File:	021640.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Equip. Rinsate 03	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	602263-08
Date Analyzed:	02/16/16	Data File:	021641.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602263
Date Extracted:	02/16/16	Lab ID:	06-0253 mb
Date Analyzed:	02/16/16	Data File:	021623.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602263

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

Laboratory Code: 602261-01 (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	100	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602263

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

Laboratory Code: 602260-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	96	78-108
Toluene	ug/L (ppb)	50	<1	90	73-117
Ethylbenzene	ug/L (ppb)	50	<1	96	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	98	64-129

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	94	94	81-108	0
Toluene	ug/L (ppb)	50	92	91	83-108	1
Ethylbenzene	ug/L (ppb)	50	97	96	83-111	1
m,p-Xylene	ug/L (ppb)	100	98	97	84-112	1
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

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.

602263

SAMPLE CHAIN OF CUSTODY ME 02/16/15 V5

Page # 1 of 1

~~Send~~ Report To C. Hultgren, K. Hornsberger, R. Brooks, A. Greiner, K. Vide

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6068 86

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) ~~Right of Way Property~~

PO#

REMARKS 56th Ave ROW 2/16/16 ME

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS							Notes
mw12	01 A-F	02/15/16	1531	Water	6		✓	✓										
mw51	02	02/15/16	1420	Water	6		✓	✓										
mw53	03	02/15/16	1258	Water	6		✓	✓										
mw55	04	02/15/16	1546	Water	6		✓	✓										
mw60	05	02/15/16	1641	Water	6		✓	✓										
mw61	06	02/15/16	1600	Water	6		✓	✓										
mw62	07	02/11/16	1414	Water	6		✓	✓										
Equip. Rinsate 03	08	02/16/16	0930	Water	6		✓	✓										

Samples received at 2 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Larry Nl	Larry Namba	Hydrocon Environmental	02/16/16	1115
Received by:	Matt Langston	FBI nc	2/16/16	1115
Relinquished by:				
Received by:				

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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fbi@isomedia.com
www.friedmanandbruya.com

February 23, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602264 project. There are 14 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, Rebekah Brooks, Kim Vik
HDC0223R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602264 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602264 -01	MW77
602264 -02	MW78
602264 -03	MW87

All quality control requirements were acceptable.

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264
Date Extracted: 02/17/16
Date Analyzed: 02/17/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW77 602264-01	<100	95
MW78 602264-02	<100	93
MW87 602264-03	<100	95
Method Blank 06-280 MB	<100	97

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264
Date Extracted: 02/18/16
Date Analyzed: 02/18/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW77 602264-01	<50	<250	62
Method Blank 06-316 MB	<50	<250	68

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW77	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/18/16	Lab ID:	602264-01 1/2
Date Analyzed:	02/18/16	Data File:	021814.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	160
Benzo(a)anthracene-d12	88	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/18/16	Lab ID:	06-315 mb
Date Analyzed:	02/18/16	Data File:	021813.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW77	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/16/16	Lab ID:	602264-01
Date Analyzed:	02/16/16	Data File:	021630.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.36
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:	MW78	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/16/16	Lab ID:	602264-02
Date Analyzed:	02/16/16	Data File:	021631.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	103	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	MW87	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/16/16	Lab ID:	602264-03
Date Analyzed:	02/16/16	Data File:	021632.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.42
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:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602264
Date Extracted:	02/16/16	Lab ID:	06-0251 mb
Date Analyzed:	02/16/16	Data File:	021605.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264

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

Laboratory Code: 602261-01 (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	100	69-134

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	91	96	63-142	5

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	85	85	67-116	0
Acenaphthylene	ug/L (ppb)	1	88	86	65-119	2
Acenaphthene	ug/L (ppb)	1	87	85	66-118	2
Fluorene	ug/L (ppb)	1	86	85	64-125	1
Phenanthrene	ug/L (ppb)	1	88	87	67-120	1
Anthracene	ug/L (ppb)	1	86	85	65-122	1
Fluoranthene	ug/L (ppb)	1	85	86	65-127	1
Pyrene	ug/L (ppb)	1	96	94	62-130	2
Benz(a)anthracene	ug/L (ppb)	1	89	93	60-118	4
Chrysene	ug/L (ppb)	1	92	94	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	90	89	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	83	87	62-125	5
Benzo(a)pyrene	ug/L (ppb)	1	83	84	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	76	80	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	73	78	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	72	78	34-135	8

Date of Report: 02/23/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602264

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

Laboratory Code: 602242-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	99	68-125
Benzene	ug/L (ppb)	50	<0.35	99	78-108
Toluene	ug/L (ppb)	50	<1	93	73-117
Ethylbenzene	ug/L (ppb)	50	<1	97	71-120
m,p-Xylene	ug/L (ppb)	100	<2	98	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	97	70-122	5
Benzene	ug/L (ppb)	50	99	95	81-108	4
Toluene	ug/L (ppb)	50	92	89	83-108	3
Ethylbenzene	ug/L (ppb)	50	97	94	83-111	3
m,p-Xylene	ug/L (ppb)	100	97	94	84-112	3
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

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.

602264

SAMPLE CHAIN OF CUSTODY

ME 02/16/16 C05/V2

Page # 1 of 1

Send Report To L. Hultgren, R. Horsberger, A. Greiner, R. Brooks, K. Vik

Company Hydrocon Environmental

Address 510 Allen street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) Drake Property

PO#

REMARKS

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	~~VOCs~~ MTBE by 8260	SVOCs by 8270	HFS	PAHs by 8270D SIM						Notes
MW77	01 A-H	02/13/16	1633	Water	~~6~~ 8	✓	✓	✓	✓			✓						
MW78	02 A-F	02/13/16	1705	Water	6		✓	✓	✓									
MW87	03	02/13/16	1725 ~~1730~~	water	6		✓	✓	✓									
																		Samples received at 2 °C

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/16/16	1115
Received by:	[signature]	Matt Langston	FBI	2/16/16	1115
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 1, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602265 project. There are 33 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, Rebekah Brooks, Kim Vik
HDC0301R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602265 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602265 -01	MW73
602265 -02	MW74
602265 -03	Trip Blank 03
602265 -04	Water Blank 01
602265 -05	Equip Rinsate 01

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265
Date Extracted: 02/17/16
Date Analyzed: 02/17/16 and 02/18/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW73 602265-01 1/100	60,000	95
MW74 602265-02 1/10	3,800	97
Trip Blank 03 602265-03	<100	96
Water Blank 01 602265-04	<100	95
Equip Rinsate 01 602265-05	<100	94
Method Blank 06-280 MB	<100	97

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265
Date Extracted: 02/18/16
Date Analyzed: 02/18/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW73 602265-01	3,600 x	<250	95
MW74 602265-02	230 x	<250	75
Water Blank 01 602265-04 1/1.2	<60	<300	75
Method Blank 06-316 MB	<50	<250	68

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-01
Date Analyzed:	02/19/16	Data File:	602265-01.022
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW74	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-02
Date Analyzed:	02/19/16	Data File:	602265-02.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Water Blank 01	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-04
Date Analyzed:	02/19/16	Data File:	602265-04.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	I6-97 mb rex
Date Analyzed:	02/18/16	Data File:	I6-97 mb rex.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/17/16	Lab ID:	602265-01
Date Analyzed:	02/17/16	Data File:	602265-01.062
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Water Blank 01	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/17/16	Lab ID:	602265-04
Date Analyzed:	02/17/16	Data File:	602265-04.066
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW74	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/17/16	Lab ID:	602265-02
Date Analyzed:	02/17/16	Data File:	602265-02.063
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.27

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/17/16	Lab ID:	I6-95 mb
Date Analyzed:	02/17/16	Data File:	I6-95 mb.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-01 1/2
Date Analyzed:	02/18/16	Data File:	021815.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	150 ve
Acenaphthylene	<0.06
Acenaphthene	0.12
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-01 1/200
Date Analyzed:	02/22/16	Data File:	022204.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	0 d	31	160
Benzo(a)anthracene-d12	136 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	320
Acenaphthylene	<6
Acenaphthene	<6
Fluorene	<6
Phenanthrene	<6
Anthracene	<6
Fluoranthene	<6
Pyrene	<6
Benz(a)anthracene	<6
Chrysene	<6
Benzo(a)pyrene	<6
Benzo(b)fluoranthene	<6
Benzo(k)fluoranthene	<6
Indeno(1,2,3-cd)pyrene	<6
Dibenz(a,h)anthracene	<6
Benzo(g,h,i)perylene	<6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-02 1/2
Date Analyzed:	02/18/16	Data File:	021816.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.25
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Water Blank 01	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	602265-04 1/2
Date Analyzed:	02/18/16	Data File:	021817.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	93	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/18/16	Lab ID:	06-315 mb
Date Analyzed:	02/18/16	Data File:	021813.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-01
Date Analyzed:	02/17/16	Data File:	021650.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	104	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	31
1,2-Dichloroethane (EDC)	<1
Benzene	1,300 ve
Toluene	890 ve
Ethylbenzene	570 ve
m,p-Xylene	1,700 ve
o-Xylene	1,400 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-01 1/100
Date Analyzed:	02/18/16	Data File:	021815.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
Benzene	12,000
Toluene	1,500
Ethylbenzene	1,600
m,p-Xylene	4,300
o-Xylene	2,500

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-02
Date Analyzed:	02/17/16	Data File:	021722.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	103	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	540 ve
1,2-Dichloroethane (EDC)	<1
Benzene	660 ve
Toluene	5.1
Ethylbenzene	1.6
m,p-Xylene	3.2
o-Xylene	2.2

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-02 1/10
Date Analyzed:	02/17/16	Data File:	021721.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	540
1,2-Dichloroethane (EDC)	<10
Benzene	1,500
Toluene	<10
Ethylbenzene	<10
m,p-Xylene	<20
o-Xylene	<10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Trip Blank 03	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-03
Date Analyzed:	02/16/16	Data File:	021624.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	103	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Water Blank 01	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-04
Date Analyzed:	02/16/16	Data File:	021625.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Equip Rinsate 01	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	602265-05
Date Analyzed:	02/16/16	Data File:	021629.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602265
Date Extracted:	02/16/16	Lab ID:	06-0251 mb
Date Analyzed:	02/16/16	Data File:	021605.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265
Date Extracted: 02/25/16
Date Analyzed: 02/25/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
MW73 602265-01	0.09
MW74 602265-02	<0.01
Trip Blank 03 602265-03	<0.01
Water Blank 01 602265-04	<0.01
Equip Rinsate 01 602265-05	<0.01
Method Blank	<0.01

EDB **1,2-Dibromoethane**

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

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

Laboratory Code: 602261-01 (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	100	69-134

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	91	96	63-142	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 602266-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	101	89	70-130	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	104	85-115

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602265-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	1.27	93	91	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	112	85-115

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	85	85	67-116	0
Acenaphthylene	ug/L (ppb)	1	88	86	65-119	2
Acenaphthene	ug/L (ppb)	1	87	85	66-118	2
Fluorene	ug/L (ppb)	1	86	85	64-125	1
Phenanthrene	ug/L (ppb)	1	88	87	67-120	1
Anthracene	ug/L (ppb)	1	86	85	65-122	1
Fluoranthene	ug/L (ppb)	1	85	86	65-127	1
Pyrene	ug/L (ppb)	1	96	94	62-130	2
Benz(a)anthracene	ug/L (ppb)	1	89	93	60-118	4
Chrysene	ug/L (ppb)	1	92	94	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	90	89	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	83	87	62-125	5
Benzo(a)pyrene	ug/L (ppb)	1	83	84	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	76	80	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	73	78	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	72	78	34-135	8

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

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

Laboratory Code: 602242-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	99	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	5.7	96	70-119
Benzene	ug/L (ppb)	50	<0.35	99	78-108
Toluene	ug/L (ppb)	50	<1	93	73-117
Ethylbenzene	ug/L (ppb)	50	<1	97	71-120
m,p-Xylene	ug/L (ppb)	100	<2	98	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	97	70-122	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	95	92	79-109	3
Benzene	ug/L (ppb)	50	99	95	81-108	4
Toluene	ug/L (ppb)	50	92	89	83-108	3
Ethylbenzene	ug/L (ppb)	50	97	94	83-111	3
m,p-Xylene	ug/L (ppb)	100	97	94	84-112	3
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602265

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	119	114	70-130	4

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.

SAMPLE CHAIN OF CUSTODY

602265

ME 02/16/16 ~~[redacted]~~ V5/ AI3

Send Report To C. Hultgren, R. Hansberger, R. Brooks A. Greiner, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (*signature*) L. Namba, W. Rajkovich

Page # 1 of 1

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) Shin/ehei Property

PO#

REMARKS Dissolved Pb samples were field filtered and preserved

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	MTBE & EDC VOCs by 8260C	SVOCs by 8270	HFS	EDB by 8011 M	PAHs by 8270 SIM	Total Pb by 200.8	Dissolved Pb by 200.8			Notes
MW73	01 A-L	2/12/16	1343	Water	12	✓	✓	✓	✓			✓	✓	✓	✓			
MW74	02 A-L	2/12/16	1454	Water	12	✓	✓	✓	✓			✓	✓	✓	✓			
Trip Blank 03	03 A-H	02/16/16	0900	Water	8		✓	✓	✓			✓						
Water Blank 01	04 A-L	02/16/16	1030	Water	12	✓	✓	✓	✓			✓	✓	✓	✓			
Equip Rinsate 01	05 A-F	2/12/16	1015	water	6		*	*	*			*						* added per AG 2/16/16 mq
																		Samples received at 2 °C

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/16/16	1115
Received by:	[signature]	Matt Langston	FBI Inc	2/16/16	1115
Relinquished by:					
Received by:					

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.

3012 16th Avenue West
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fbi@isomedia.com
www.friedmanandbruya.com

March 1, 2016

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 February 16, 2016 from the TOC_01-176, WORFDB8 F&BI 602266 project. There are 52 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, Kim Vik, Rebekah Brooks
HDC0301R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602266 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602266 -01	MW103
602266 -02	MW104
602266 -03	MW105
602266 -04	MW106
602266 -05	MW107
602266 -06	MW108
602266 -07	MLT07
602266 -08	Equipment Rinsate 02

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266
Date Extracted: 02/17/16
Date Analyzed: 02/17/16 and 02/18/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW103 602266-01	<100	94
MW104 602266-02 1/100	15,000	96
MW105 602266-03	<100	94
MW106 602266-04	<100	94
MW107 602266-05	<100	95
MW108 602266-06	<100	97
MLT07 602266-07 1/100	14,000	95
Equipment Rinsate 02 602266-08	<100	94
Method Blank 06-281 MB	<100	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266
Date Extracted: 02/18/16
Date Analyzed: 02/18/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW103 602266-01	<50	<250	74
MW104 602266-02 1/1.5	4,600 x	<380	84
MW105 602266-03 1/1.3	<65	<330	67
MW106 602266-04	<50	<250	74
MW107 602266-05	<50	<250	71
MW108 602266-06	<50	<250	70
MLT07 602266-07 1/1.2	3,500 x	<300	79
Equipment Rinsate 02 602266-08 1/1.4	<70	<350	85
Method Blank 06-316 MB	<50	<250	68

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW103	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-01
Date Analyzed:	02/18/16	Data File:	602266-01.042
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-02
Date Analyzed:	02/18/16	Data File:	602266-02.046
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW105	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-03
Date Analyzed:	02/18/16	Data File:	602266-03.047
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW106	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-04
Date Analyzed:	02/18/16	Data File:	602266-04.048
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW107	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-05
Date Analyzed:	02/18/16	Data File:	602266-05.059
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW108	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-06
Date Analyzed:	02/18/16	Data File:	602266-06.060
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-07
Date Analyzed:	02/18/16	Data File:	602266-07.061
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Equipment Rinsate 02	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-08
Date Analyzed:	02/18/16	Data File:	602266-08.062
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	I6-97 mb rex
Date Analyzed:	02/18/16	Data File:	I6-97 mb rex.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW103	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-01
Date Analyzed:	02/18/16	Data File:	602266-01.027
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-02
Date Analyzed:	02/18/16	Data File:	602266-02.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW105	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-03
Date Analyzed:	02/29/16	Data File:	602266-03.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	6.22

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW106	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-04
Date Analyzed:	02/18/16	Data File:	602266-04.032
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW107	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-05
Date Analyzed:	02/18/16	Data File:	602266-05.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW108	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-06
Date Analyzed:	02/18/16	Data File:	602266-06.034
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-07
Date Analyzed:	02/18/16	Data File:	602266-07.035
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Equipment Rinsate 02	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	602266-08
Date Analyzed:	02/18/16	Data File:	602266-08.036
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/17/16	Lab ID:	I6-94 mb
Date Analyzed:	02/17/16	Data File:	I6-94 mb.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW103	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-01 1/2
Date Analyzed:	02/18/16	Data File:	021818.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	76	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-02 1/2
Date Analyzed:	02/18/16	Data File:	021819.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	76	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	84 ve
Acenaphthylene	<0.06
Acenaphthene	0.075
Fluorene	0.067
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-02 1/20
Date Analyzed:	02/22/16	Data File:	022205.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92 d	31	160
Benzo(a)anthracene-d12	67 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	110
Acenaphthylene	<0.6
Acenaphthene	<0.6
Fluorene	<0.6
Phenanthrene	<0.6
Anthracene	<0.6
Fluoranthene	<0.6
Pyrene	<0.6
Benz(a)anthracene	<0.6
Chrysene	<0.6
Benzo(a)pyrene	<0.6
Benzo(b)fluoranthene	<0.6
Benzo(k)fluoranthene	<0.6
Indeno(1,2,3-cd)pyrene	<0.6
Dibenz(a,h)anthracene	<0.6
Benzo(g,h,i)perylene	<0.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW105	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-03 1/2
Date Analyzed:	02/18/16	Data File:	021820.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW106	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-04 1/2
Date Analyzed:	02/18/16	Data File:	021821.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW107	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-05 1/2
Date Analyzed:	02/19/16	Data File:	021910.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	83	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.061
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW108	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-06 1/2
Date Analyzed:	02/19/16	Data File:	021911.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	83	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-07 1/2
Date Analyzed:	02/19/16	Data File:	021912.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	160
Benzo(a)anthracene-d12	74	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	84 ve
Acenaphthylene	<0.06
Acenaphthene	0.074
Fluorene	0.069
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-07 1/20
Date Analyzed:	02/22/16	Data File:	022206.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85 d	31	160
Benzo(a)anthracene-d12	67 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	110
Acenaphthylene	<0.6
Acenaphthene	<0.6
Fluorene	<0.6
Phenanthrene	<0.6
Anthracene	<0.6
Fluoranthene	<0.6
Pyrene	<0.6
Benz(a)anthracene	<0.6
Chrysene	<0.6
Benzo(a)pyrene	<0.6
Benzo(b)fluoranthene	<0.6
Benzo(k)fluoranthene	<0.6
Indeno(1,2,3-cd)pyrene	<0.6
Dibenz(a,h)anthracene	<0.6
Benzo(g,h,i)perylene	<0.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Equipment Rinsate 02	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	602266-08 1/2
Date Analyzed:	02/19/16	Data File:	021913.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	93	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/18/16	Lab ID:	06-315 mb
Date Analyzed:	02/18/16	Data File:	021813.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW103	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-01
Date Analyzed:	02/17/16	Data File:	021642.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-02
Date Analyzed:	02/17/16	Data File:	021648.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	0.66
Toluene	210 ve
Ethylbenzene	390 ve
m,p-Xylene	1,300 ve
o-Xylene	700 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-02 1/10
Date Analyzed:	02/18/16	Data File:	021823.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<10
1,2-Dichloroethane (EDC)	<10
Benzene	<3.5
Toluene	210
Ethylbenzene	460
m,p-Xylene	2,300
o-Xylene	740

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW105	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-03
Date Analyzed:	02/17/16	Data File:	021643.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	104	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW106	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-04
Date Analyzed:	02/17/16	Data File:	021644.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW107	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-05
Date Analyzed:	02/17/16	Data File:	021645.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	0.62
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW108	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-06
Date Analyzed:	02/17/16	Data File:	021647.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-07
Date Analyzed:	02/17/16	Data File:	021649.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	103	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	0.87
Toluene	220 ve
Ethylbenzene	390 ve
m,p-Xylene	1,300 ve
o-Xylene	650 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT07	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-07 1/10
Date Analyzed:	02/17/16	Data File:	021724.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<10
1,2-Dichloroethane (EDC)	<10
Benzene	<3.5
Toluene	230
Ethylbenzene	510
m,p-Xylene	2,500
o-Xylene	800

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Equipment Rinsate 02	Client:	HydroCon
Date Received:	02/16/16	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	602266-08
Date Analyzed:	02/17/16	Data File:	021646.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602266
Date Extracted:	02/16/16	Lab ID:	06-0253 mb
Date Analyzed:	02/16/16	Data File:	021623.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266
Date Extracted: 02/25/16
Date Analyzed: 02/25/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED
Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
MW103 602266-01	<0.01
MW104 602266-02	<0.01
MW105 602266-03	<0.01
MW106 602266-04	<0.01
MW107 602266-05	<0.01
MW108 602266-06	<0.01
MLT07 602266-07	<0.01
Equipment Rinsate 02 602266-08	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

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

Laboratory Code: 602280-01 (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	102	69-134

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	91	96	63-142	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602266-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	101	89	70-130	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	104	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602213-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	99	97	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	112	85-115

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	85	85	67-116	0
Acenaphthylene	ug/L (ppb)	1	88	86	65-119	2
Acenaphthene	ug/L (ppb)	1	87	85	66-118	2
Fluorene	ug/L (ppb)	1	86	85	64-125	1
Phenanthrene	ug/L (ppb)	1	88	87	67-120	1
Anthracene	ug/L (ppb)	1	86	85	65-122	1
Fluoranthene	ug/L (ppb)	1	85	86	65-127	1
Pyrene	ug/L (ppb)	1	96	94	62-130	2
Benz(a)anthracene	ug/L (ppb)	1	89	93	60-118	4
Chrysene	ug/L (ppb)	1	92	94	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	90	89	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	83	87	62-125	5
Benzo(a)pyrene	ug/L (ppb)	1	83	84	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	76	80	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	73	78	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	72	78	34-135	8

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

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

Laboratory Code: 602260-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	91	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	90	70-119
Benzene	ug/L (ppb)	50	<0.35	96	78-108
Toluene	ug/L (ppb)	50	<1	90	73-117
Ethylbenzene	ug/L (ppb)	50	<1	96	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	98	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	96	95	70-122	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	91	89	79-109	2
Benzene	ug/L (ppb)	50	94	94	81-108	0
Toluene	ug/L (ppb)	50	92	91	83-108	1
Ethylbenzene	ug/L (ppb)	50	97	96	83-111	1
m,p-Xylene	ug/L (ppb)	100	98	97	84-112	1
o-Xylene	ug/L (ppb)	50	98	96	81-117	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/01/16
Date Received: 02/16/16
Project: TOC_01-176, WORFDB8 F&BI 602266

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	119	114	70-130	4

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.

602266

SAMPLE CHAIN OF CUSTODY

ME 02/16/16 C04/B14/V5

Send Report To C. Hultgen, R. Hunsberger, R. Brooks, A. Greiner, K. Vik

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) Herman Property

PO#

REMARKS Dissolved Pb samples were field filtered and preserved.

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	TPH-Diesel	TPH-Gasoline	BTEX by 8260C ~~8021B~~	MTBE/EDC VOCs by 8260C	SVOCs by 8270	HFS	EDC by 8011M	PAHs by 8270 SIM	Total Pb by 200.8	Dissolved Pb by 200.8			Notes
MW103	01 A-L	2/15/16	1245	Water	12	✓	✓	✓	✓			✓	✓	✓	✓			* per AG
MW104	02	2/12/16	1352	water	12	✓	✓	✓	✓			✓	✓	✓	✓			2/17/16
MW105	03	2/12/16	1515	water	12	✓	✓	✓	✓			✓	✓	✓	✓			ME
MW106	04	2/13/16	1427	Water	12	✓	✓	✓	✓			✓	✓	✓	✓			
MW107	05	2/13/16	1316	water	12	✓	✓	✓	✓			✓	✓	✓	✓			
MW108	06	2/15/16	1330	water	12	✓	✓	✓	✓			✓	✓	✓	✓			
MLT047 (e per AG 2/16/16 ME)	07	2/12/16	1407	water	12	✓	✓	✓	✓			✓	✓	✓	✓			
Equipment Rinsate 02	08	02/15/16		Water	NA ~~8~~ 12	*	✓	✓	✓			✓	*	*	*			

Samples received at 2 °C

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/16/16	1115
Received by:	[signature]	Matt Engstrom	F&BI	2/16/16	1115
Relinquished by:					
Received by:					

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 2, 2016

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 February 19, 2016 from the TOC_01-176, WORFDB8 F&BI 602335 project. There are 23 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, Rebekah Brooks, Kim Vik
HDC0302R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602335 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602335 -01	MW54
602335 -02	MW79
602335 -03	MW80
602335 -04	MW81
602335 -05	MW100
602335 -06	MW56

The 8270D benzo(b)fluoranthene in matrix spike sample as well as relative percent difference for dibenz(a,h)anthracene exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria for these analytes, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

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ENVIRONMENTAL CHEMISTS

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW54 602335-01	<100	94
MW79 602335-02	<100	98
MW80 602335-03	<100	96
MW81 602335-04	<100	97
MW100 602335-05	<100	96
MW56 602335-06	<100	97
Method Blank 06-310 MB	<100	98

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ENVIRONMENTAL CHEMISTS

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW54 602335-01	<50	<250	100
Method Blank 06-347 MB	<50	<250	105

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW100	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-05
Date Analyzed:	02/23/16	Data File:	602335-05.035
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	I6-109 mb
Date Analyzed:	02/23/16	Data File:	I6-109 mb.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW100	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-05
Date Analyzed:	02/23/16	Data File:	602335-05.031
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	I6-103 mb2
Date Analyzed:	02/23/16	Data File:	I6-103 mb2.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW54	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-01 1/2
Date Analyzed:	02/24/16	Data File:	022406.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

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ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	06-346 mb
Date Analyzed:	02/24/16	Data File:	022405.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW54	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-01
Date Analyzed:	02/23/16	Data File:	022326.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW79	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-02
Date Analyzed:	02/23/16	Data File:	022327.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW80	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-03
Date Analyzed:	02/23/16	Data File:	022328.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW81	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-04
Date Analyzed:	02/23/16	Data File:	022329.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW100	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-05
Date Analyzed:	02/23/16	Data File:	022330.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW56	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	602335-06
Date Analyzed:	02/23/16	Data File:	022331.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/23/16	Lab ID:	06-0333 mb
Date Analyzed:	02/23/16	Data File:	022310.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

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

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	101	105	53-117	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	99	69-134

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	5,000	<250	123	102	64-141	19

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	111	61-133	13

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602335-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	95	96	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	85-115

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602309-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	97	102	70-130	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	114	85-115

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 602335-01 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	<0.06	88	89	10-172	1
Acenaphthylene	ug/L (ppb)	1	<0.06	89	91	38-137	2
Acenaphthene	ug/L (ppb)	1	<0.06	89	89	20-150	0
Fluorene	ug/L (ppb)	1	<0.06	89	90	10-181	1
Phenanthrene	ug/L (ppb)	1	<0.06	90	91	58-109	1
Anthracene	ug/L (ppb)	1	<0.06	90	93	47-114	3
Fluoranthene	ug/L (ppb)	1	<0.06	91	92	10-171	1
Pyrene	ug/L (ppb)	1	<0.06	89	94	63-107	5
Benz(a)anthracene	ug/L (ppb)	1	<0.06	86	92	60-93	7
Chrysene	ug/L (ppb)	1	<0.06	86	92	60-102	7
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.06	60 vo	68	62-91	12
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.06	62	68	51-98	9
Benzo(a)pyrene	ug/L (ppb)	1	<0.06	60	68	60-86	12
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.06	18	22	10-98	20
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.06	16	20	10-97	22 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.06	18	22	10-102	20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	89	90	67-116	1
Acenaphthylene	ug/L (ppb)	1	92	91	65-119	1
Acenaphthene	ug/L (ppb)	1	91	90	66-118	1
Fluorene	ug/L (ppb)	1	93	92	64-125	1
Phenanthrene	ug/L (ppb)	1	92	91	67-120	1
Anthracene	ug/L (ppb)	1	94	93	65-122	1
Fluoranthene	ug/L (ppb)	1	98	98	65-127	0
Pyrene	ug/L (ppb)	1	86	89	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	97	96	60-118	1
Chrysene	ug/L (ppb)	1	95	95	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	96	95	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	98	96	62-125	2
Benzo(a)pyrene	ug/L (ppb)	1	98	98	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	92	90	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	86	73	37-133	16
Benzo(g,h,i)perylene	ug/L (ppb)	1	88	81	34-135	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602335

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

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	95	68-125	2
Benzene	ug/L (ppb)	50	<0.35	95	96	78-108	1
Toluene	ug/L (ppb)	50	<1	91	92	73-117	1
Ethylbenzene	ug/L (ppb)	50	<1	96	97	71-120	1
m,p-Xylene	ug/L (ppb)	100	<2	96	97	63-128	1
o-Xylene	ug/L (ppb)	50	<1	98	98	64-129	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	90	85	70-122	6
Benzene	ug/L (ppb)	50	86	85	81-108	1
Toluene	ug/L (ppb)	50	86	86	83-108	0
Ethylbenzene	ug/L (ppb)	50	96	96	83-111	0
m,p-Xylene	ug/L (ppb)	100	97	96	84-112	1
o-Xylene	ug/L (ppb)	50	99	97	81-117	2

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.

602335

SAMPLE CHAIN OF CUSTODY

ME 02/19/16 V5/C05/AT2

Page # 1 of 1

Send Report To C. Hultgren, R. Hensberger, R. Brooks, R. Vik, A. Greiner

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba/W. Rajkovich

PROJECT NAME/NO. TCC Mountlake Terrace (01-176) Romio/Farmiscnus Property

PO#

REMARKS Dissolved Pb samples were filtered and preserved in the field.

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	~~VOCs~~ MTBE by8260	SVOCs by 8270	HFS	Total Pb by 200.8	Dissolved Pb by 200.8	PAH by 8270D SIM				Notes
MW54 (MS/MSD)	01 A-X	02/16/16	1337	water	24	✓	✓	✓	✓					✓				
MW79	02 A-F	02/16/16	1610	Water	6		✓	✓										
MW80	03	02/16/16	1639	Water	6		✓	✓										
MW81	04	02/18/16	1245	water	6		✓	✓										
MW100	05 A-H	02/16/16	1513	water	8		✓	✓				✓	✓					
MW56	06 A-F	02/19/16	1350	Water	6		✓	✓										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/19/16	1440
Received by: [signature]	Eric Young	F&B	2/19/16	1440
Relinquished by:				
Received by:		Samples received at 2 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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Michael Erdahl, B.S.
Arina Podnozova, B.S.
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March 2, 2016

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 February 19, 2016 from the TOC_01-176, WORFDB8 F&BI 602337 project. There are 11 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, Rebekah Brooks, Kim Vik
HDC0302R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602337 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602337 -01	MW43
602337 -02	MW64
602337 -03	MW63
602337 -04	MW49
602337 -05	MW75

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602337
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW43 602337-01	<100	98
MW64 602337-02	<100	93
MW63 602337-03	<100	93
MW49 602337-04	<100	89
MW75 602337-05	<100	94
Method Blank 06-309 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW43	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	602337-01
Date Analyzed:	02/24/16	Data File:	022412.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	102	76	126

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:	MW64	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	602337-02
Date Analyzed:	02/24/16	Data File:	022413.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW63	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	602337-03
Date Analyzed:	02/24/16	Data File:	022414.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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:	MW49	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	602337-04
Date Analyzed:	02/24/16	Data File:	022415.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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:	MW75	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	602337-05
Date Analyzed:	02/24/16	Data File:	022416.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8
Date Extracted:	02/24/16	Lab ID:	06-0334 mb
Date Analyzed:	02/24/16	Data File:	022410.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	104	91	108
4-Bromofluorobenzene	100	76	126

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: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602337

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

Laboratory Code: 602329-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	280	280	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	102	69-134

Date of Report: 03/02/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602337

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

Laboratory Code: 602337-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	93	78-108
Toluene	ug/L (ppb)	50	<1	90	73-117
Ethylbenzene	ug/L (ppb)	50	<1	95	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	97	64-129

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	96	95	81-108	1
Toluene	ug/L (ppb)	50	92	91	83-108	1
Ethylbenzene	ug/L (ppb)	50	97	97	83-111	0
m,p-Xylene	ug/L (ppb)	100	98	96	84-112	2
o-Xylene	ug/L (ppb)	50	99	98	81-117	1

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.

602337

SAMPLE CHAIN OF COUSTODY

ME 02/19/16 V2

Page # 1 of 1

Send Report To E. Hultgren, R. Brooks, R. Hansberger, K. Vik, A. Greiner

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) ~~Right of Way Property~~

PO#

REMARKS 56th Av ROW per AG 2/22/16 ME

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	VOCs by8260	SVOCs by 8270	HFS							Notes
MW43	01 A-F	2/17/16	1615	water	6		✓	✓										
MW64	02	2/16/16	1536	water	6		✓	✓										
MW63	03	2/16/16	1500	water	6		✓	✓										
MW49	04	2/16/16	1359	water	6		✓	✓										
MW75	05	2/18/16	1149	water	6		✓	✓										Labels 1145

Samples received at 2 °C

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/19/16	1440
Received by:	[signature]	Eric Young	F&B	2/19/16	1440
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 3, 2016

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 February 19, 2016 from the TOC_01-176, WORFDB8 F&BI 602338 project. There are 32 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, Rebekah Brooks, Kim Vik
HDC0303R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602338 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602338 -01	WB02
602338 -02	Trip Blank 04
602338 -03	WB03
602338 -04	Equip. Rinsate 04
602338 -05	WB04
602338 -06	Equip. Rinsate 05
602338 -07	WB05
602338 -08	WB06

The 8270D benzo(b)fluoranthene in matrix spike sample as well as relative percent difference for dibenz(a,h)anthracene exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria for these analytes, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
WB02 602338-01	<100	95
Trip Blank 04 602338-02	<100	95
WB03 602338-03	<100	95
Equip. Rinsate 04 602338-04	<100	94
WB04 602338-05	<100	94
Equip. Rinsate 05 602338-06	<100	95
WB05 602338-07	<100	95
WB06 602338-08	<100	94
Method Blank 06-309 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
WB03 602338-03 1/1.2	<60	<300	113
Equip. Rinsate 04 602338-04 1/1.2	<60	<300	116
WB04 602338-05 1/1.2	<60	<300	109
Equip. Rinsate 05 602338-06 1/1.2	<60	<300	113
Method Blank 06-347 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Equip. Rinsate 04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-04
Date Analyzed:	02/23/16	Data File:	602338-04.038
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	WB05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-07
Date Analyzed:	02/23/16	Data File:	602338-07.039
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	I6-109 mb
Date Analyzed:	02/23/16	Data File:	I6-109 mb.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Equip. Rinsate 04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-04
Date Analyzed:	02/23/16	Data File:	602338-04.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	WB05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-07
Date Analyzed:	02/23/16	Data File:	602338-07.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	I6-103 mb2
Date Analyzed:	02/23/16	Data File:	I6-103 mb2.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	WB03	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-03 1/2
Date Analyzed:	02/24/16	Data File:	022409.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Equip. Rinsate 04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-04 1/2
Date Analyzed:	02/24/16	Data File:	022410.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	160
Benzo(a)anthracene-d12	93	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	WB04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-05 1/2
Date Analyzed:	02/24/16	Data File:	022411.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Equip. Rinsate 05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	602338-06 1/2
Date Analyzed:	02/24/16	Data File:	022412.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/23/16	Lab ID:	06-346 mb
Date Analyzed:	02/24/16	Data File:	022405.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WB02	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-01
Date Analyzed:	02/22/16	Data File:	022228.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Trip Blank 04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-02
Date Analyzed:	02/22/16	Data File:	022229.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	100	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WB03	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-03
Date Analyzed:	02/22/16	Data File:	022230.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	Equip. Rinsate 04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-04
Date Analyzed:	02/22/16	Data File:	022234.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WB04	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-05
Date Analyzed:	02/22/16	Data File:	022231.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	103	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Equip. Rinsate 05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-06
Date Analyzed:	02/22/16	Data File:	022235.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	WB05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-07
Date Analyzed:	02/22/16	Data File:	022232.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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:	WB06	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	602338-08
Date Analyzed:	02/22/16	Data File:	022233.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602338
Date Extracted:	02/22/16	Lab ID:	06-0328 mb
Date Analyzed:	02/22/16	Data File:	022208.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338
Date Extracted: 02/25/16
Date Analyzed: 02/25/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED
Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
Trip Blank 04 602338-02	<0.01
Equip. Rinsate 04 602338-04	<0.01
WB05 602338-07	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

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

Laboratory Code: 602329-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	280	280	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	102	69-134

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	5,000	<250	123	102	64-141	19

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	111	61-133	13

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602335-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	95	96	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602309-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	97	102	70-130	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	114	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 602335-01 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	<0.06	88	89	10-172	1
Acenaphthylene	ug/L (ppb)	1	<0.06	89	91	38-137	2
Acenaphthene	ug/L (ppb)	1	<0.06	89	89	20-150	0
Fluorene	ug/L (ppb)	1	<0.06	89	90	10-181	1
Phenanthrene	ug/L (ppb)	1	<0.06	90	91	58-109	1
Anthracene	ug/L (ppb)	1	<0.06	90	93	47-114	3
Fluoranthene	ug/L (ppb)	1	<0.06	91	92	10-171	1
Pyrene	ug/L (ppb)	1	<0.06	89	94	63-107	5
Benz(a)anthracene	ug/L (ppb)	1	<0.06	86	92	60-93	7
Chrysene	ug/L (ppb)	1	<0.06	86	92	60-102	7
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.06	60 vo	68	62-91	12
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.06	62	68	51-98	9
Benzo(a)pyrene	ug/L (ppb)	1	<0.06	60	68	60-86	12
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.06	18	22	10-98	20
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.06	16	20	10-97	22 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.06	18	22	10-102	20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	89	90	67-116	1
Acenaphthylene	ug/L (ppb)	1	92	91	65-119	1
Acenaphthene	ug/L (ppb)	1	91	90	66-118	1
Fluorene	ug/L (ppb)	1	93	92	64-125	1
Phenanthrene	ug/L (ppb)	1	92	91	67-120	1
Anthracene	ug/L (ppb)	1	94	93	65-122	1
Fluoranthene	ug/L (ppb)	1	98	98	65-127	0
Pyrene	ug/L (ppb)	1	86	89	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	97	96	60-118	1
Chrysene	ug/L (ppb)	1	95	95	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	96	95	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	98	96	62-125	2
Benzo(a)pyrene	ug/L (ppb)	1	98	98	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	92	90	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	86	73	37-133	16
Benzo(g,h,i)perylene	ug/L (ppb)	1	88	81	34-135	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

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

Laboratory Code: 602344-46 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	98	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	93	70-119
Benzene	ug/L (ppb)	50	<0.35	95	78-108
Toluene	ug/L (ppb)	50	<1	90	73-117
Ethylbenzene	ug/L (ppb)	50	<1	95	71-120
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	98	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	98	98	70-122	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	94	93	79-109	1
Benzene	ug/L (ppb)	50	96	95	81-108	1
Toluene	ug/L (ppb)	50	92	91	83-108	1
Ethylbenzene	ug/L (ppb)	50	97	95	83-111	2
m,p-Xylene	ug/L (ppb)	100	98	96	84-112	2
o-Xylene	ug/L (ppb)	50	98	97	81-117	1

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602338

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	119	114	70-130	4

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.

602338

SAMPLE CHAIN OF CUSTODY

ME 02/19/16

CWS/V4/AF6

Page # 1 of 1

Send Report To C. Hultgren, R. Brooks, R. Hensberger, K. Vik, A. Greiner

Company Hydrocon Environmental

Address 510 Allen ~~Street~~ Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176)

Quality Control Samples

PO#

REMARKS Dissolved lead samples were filtered and preserved in the field. Trip blank laboratory supplied.

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	TPH-Diesel	TPH-Gasoline	BTEX by 8260C ~~8021B~~	MTBE ~~VOCs~~ by8260	SVOCs by 8270	HFS	EDC by 8260C	EDB by 8011M	PAHs by 8270D SIM	Total Pb by 200.8	Dissolved Pb by 200.8		Notes
WB02	01 A-F	02/17/16	1030	Water	6		✓	✓										
Trip Blank ~~03~~ 04	02 A-H	02/16/16	1000	Water	8		✓	✓	✓			✓	✓					
WB03 per [illegible] 2/22/16 ms	03	02/17/16	1645	Water	8	✓	✓	✓	✓					✓				
Equip. Rinsate 04	04 A-L	02/17/16	1655	Water	12	✓	✓	✓	✓			✓	✓	✓	✓	✓		
WB04	05 A-H	02/18/16	1015	Water	8	✓	✓	✓	✓					✓				
Equip Rinsate 05	06	02/18/16	1000	Water	8	✓	✓	✓	✓					✓				
WB05	07 A-J	02/18/16	1630	water	10		✓	✓	✓			✓	✓		✓	✓		
WB06	08 A-F	02/19/16	0950	water	6		✓	✓	✓									

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Larry Namba	Hydrocon Environmental	02/19/16	1440
Received by: [signature]	Eric Young	FB	2/19/16	1440
Relinquished by:				
Received by:		Samples received at 2 °C		

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 3, 2016

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 February 19, 2016 from the TOC_01-176, WORFDB8 F&BI 602339 project. There are 36 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, Rebekah Brooks, Kim Vik
HDC0303R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 19, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 602339 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602339 -01	MW65
602339 -02	MW67
602339 -03	MW68
602339 -04	MW76
602339 -05	MW84
602339 -06	MW85
602339 -07	MW86
602339 -08	MW88
602339 -09	MW89
602339 -10	MLT05
602339 -11	MLT06

The 8270D benzo(b)fluoranthene in matrix spike sample as well as relative percent difference for dibenz(a,h)anthracene exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria for these analytes, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339
Date Extracted: 02/22/16
Date Analyzed: 02/22/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW65 602339-01	<100	96
MW67 602339-02	<100	97
MW68 602339-03	<100	97
MW76 602339-04	<100	94
MW84 602339-05	300	103
MW85 602339-06	<100	97
MW86 602339-07	<100	95
MW88 602339-08	<100	97
MW89 602339-09	<100	96
MLT05 602339-10	<100	97
MLT06 602339-11	<100	96
Method Blank 06-306 MB	<100	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339
Date Extracted: 02/23/16
Date Analyzed: 02/23/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW84 602339-05 1/1.2	79 x	<300	113
MW85 602339-06 1/1.2	65 x	<300	113
MW86 602339-07	<50	<250	114
MW89 602339-09	<50	<250	108
MLT06 602339-11	<50	<250	104
Method Blank 06-347 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW84	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-05 1/2
Date Analyzed:	02/24/16	Data File:	022413.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	79	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.84
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW85	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-06 1/2
Date Analyzed:	02/24/16	Data File:	022414.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	79	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW86	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-07 1/2
Date Analyzed:	02/24/16	Data File:	022415.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	78	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW89	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-09 1/2
Date Analyzed:	02/24/16	Data File:	022416.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	80	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MLT06	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-11 1/2
Date Analyzed:	02/24/16	Data File:	022417.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	160
Benzo(a)anthracene-d12	78	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	06-346 mb
Date Analyzed:	02/24/16	Data File:	022405.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW86	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-07
Date Analyzed:	02/23/16	Data File:	602339-07.040
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MLT06	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-11
Date Analyzed:	02/23/16	Data File:	602339-11.041
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	I6-109 mb
Date Analyzed:	02/23/16	Data File:	I6-109 mb.033
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW86	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-07
Date Analyzed:	02/23/16	Data File:	602339-07.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MLT06	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-11
Date Analyzed:	02/23/16	Data File:	602339-11.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	I6-103 mb2
Date Analyzed:	02/23/16	Data File:	I6-103 mb2.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW65	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-01
Date Analyzed:	02/23/16	Data File:	022332.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	102	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW67	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-02
Date Analyzed:	02/23/16	Data File:	022333.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW68	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-03
Date Analyzed:	02/23/16	Data File:	022334.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	MW76	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-04
Date Analyzed:	02/23/16	Data File:	022335.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW84	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-05
Date Analyzed:	02/23/16	Data File:	022336.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	1.4
m,p-Xylene	4.9
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW85	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-06
Date Analyzed:	02/23/16	Data File:	022337.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	102	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW86	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-07
Date Analyzed:	02/23/16	Data File:	022338.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW88	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-08
Date Analyzed:	02/23/16	Data File:	022339.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW89	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-09
Date Analyzed:	02/23/16	Data File:	022340.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<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:	MLT05	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-10
Date Analyzed:	02/23/16	Data File:	022341.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	101	76	126

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT06	Client:	HydroCon
Date Received:	02/19/16	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	602339-11
Date Analyzed:	02/24/16	Data File:	022342.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 602339
Date Extracted:	02/23/16	Lab ID:	06-0333 mb
Date Analyzed:	02/23/16	Data File:	022310.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
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: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339
Date Extracted: 02/25/16
Date Analyzed: 02/25/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Results Reported as µg/L (ppb)

Sample ID Laboratory ID	EDB
MW86 602339-07	<0.01
MLT06 602339-11	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

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

Laboratory Code: 602352-09 (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	102	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	5,000	<250	123	102	64-141	19

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	111	61-133	13

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 602335-01 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	<0.06	88	89	10-172	1
Acenaphthylene	ug/L (ppb)	1	<0.06	89	91	38-137	2
Acenaphthene	ug/L (ppb)	1	<0.06	89	89	20-150	0
Fluorene	ug/L (ppb)	1	<0.06	89	90	10-181	1
Phenanthrene	ug/L (ppb)	1	<0.06	90	91	58-109	1
Anthracene	ug/L (ppb)	1	<0.06	90	93	47-114	3
Fluoranthene	ug/L (ppb)	1	<0.06	91	92	10-171	1
Pyrene	ug/L (ppb)	1	<0.06	89	94	63-107	5
Benz(a)anthracene	ug/L (ppb)	1	<0.06	86	92	60-93	7
Chrysene	ug/L (ppb)	1	<0.06	86	92	60-102	7
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.06	60 vo	68	62-91	12
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.06	62	68	51-98	9
Benzo(a)pyrene	ug/L (ppb)	1	<0.06	60	68	60-86	12
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.06	18	22	10-98	20
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.06	16	20	10-97	22 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.06	18	22	10-102	20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	89	90	67-116	1
Acenaphthylene	ug/L (ppb)	1	92	91	65-119	1
Acenaphthene	ug/L (ppb)	1	91	90	66-118	1
Fluorene	ug/L (ppb)	1	93	92	64-125	1
Phenanthrene	ug/L (ppb)	1	92	91	67-120	1
Anthracene	ug/L (ppb)	1	94	93	65-122	1
Fluoranthene	ug/L (ppb)	1	98	98	65-127	0
Pyrene	ug/L (ppb)	1	86	89	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	97	96	60-118	1
Chrysene	ug/L (ppb)	1	95	95	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	96	95	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	98	96	62-125	2
Benzo(a)pyrene	ug/L (ppb)	1	98	98	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	92	90	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	86	73	37-133	16
Benzo(g,h,i)perylene	ug/L (ppb)	1	88	81	34-135	8

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 602335-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	95	96	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 602309-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	97	102	70-130	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	114	85-115

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

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

Laboratory Code: 602335-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	95	68-125	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	94	96	70-119	2
Benzene	ug/L (ppb)	50	<0.35	95	96	78-108	1
Toluene	ug/L (ppb)	50	<1	91	92	73-117	1
Ethylbenzene	ug/L (ppb)	50	<1	96	97	71-120	1
m,p-Xylene	ug/L (ppb)	100	<2	96	97	63-128	1
o-Xylene	ug/L (ppb)	50	<1	98	98	64-129	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	90	85	70-122	6
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	87	87	79-109	0
Benzene	ug/L (ppb)	50	86	85	81-108	1
Toluene	ug/L (ppb)	50	86	86	83-108	0
Ethylbenzene	ug/L (ppb)	50	96	96	83-111	0
m,p-Xylene	ug/L (ppb)	100	97	96	84-112	1
o-Xylene	ug/L (ppb)	50	99	97	81-117	2

Date of Report: 03/03/16
Date Received: 02/19/16
Project: TOC_01-176, WORFDB8 F&BI 602339

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES FOR
1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	119	114	70-130	4

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.

602339

SAMPLE CHAIN OF CUSTODY

ME 02/19/16 US/CO5/AI2

Page # 1 of 2

Send Report To C. Hultgren, K. Brooks, R. Hensberger, K. Vik, A. Greiner

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) L. Namba, W. Rajkovich

PROJECT NAME/NO. TOC Mountlake Terrace (01-176) Drake Property

PO#

REMARKS Dissolved lead samples were filtered and preserved in the field

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260	~~VOCs~~ MTBE by 8260C	SVOCs by 8270	HFS	PAHs by 8270D SIM	Total Pb by 200.8	Dissolved Pb by 200.8	EDC by 8260C	EDB by 8011M		Notes
MW65	01A-F	2/18/16	1345	water	6		✓	✓	✓									
MW67	02	2/18/16	1124	water	6		✓	✓	✓									
MW68	03	2/18/16	1216	water	6		✓	✓	✓									
MW76	04	2/17/16	1609	water	6		✓	✓	✓									
MW84	05A-H	2/17/16	1446	water	8	✓	✓	✓	✓			✓						
MW85	06	2/17/16	1316	water	8	✓	✓	✓	✓			✓						
MW86	07A-L	2/17/16	1224	water	12	✓	✓	✓	✓			✓	✓	✓	✓	✓		
MW88	08A-F	2/17/16	1633	water	6		✓	✓	✓									
MW89	09A-H	2/17/16	1420	water	8	✓	✓	✓	✓			✓						
MLT05	10A-F	2/18/16	1400	water	6		✓	✓	✓									

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/19/16	1440
Received by:	[signature]	Eric Young	F&B	2/19/16	1440
Relinquished by:					
Received by:					

Samples received at 2 °C

FORMS\COC\COC.DOC

602339

SAMPLE CHAIN OF CUSTODY

ME 02/19/16 US/CGS/ AI2

Send Report To C. Hultgren, R. Brooks, R. Hansberger, K. Vik, A. Greiner

Company Hydrocon Environmental

Address 510 Allen Street, Suite B

City, State, ZIP Kelso, WA 98626

Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (*signature*) L. Namba, W. Raikov

Page # 2 of 2

PROJECT NAME/NO. TCC Mountlake Terrace (01-176) Drake Property

PO#

REMARKS Dissolved lead samples were filtered and preserved in the field

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	TPH-Diesel	TPH-Gasoline	BTEX by ~~8021B~~ 8260C	~~VOCs~~ MTBE by 8260	SVOCs by 8270	HFS	PAHs by 8270D SIM	Total Pb by 200.8	Dissolved Pb by 200.8	EDC by 8260C	EDB by 8011 M		Notes
MLT06	11A-L	2/17/16	1300	water	12	✓	✓	✓	✓			✓	✓	✓	✓	✓		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
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	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Larry Namba	Hydrocon Environmental	02/19/16	1440
Received by:	[signature]	Eric Young	FAB	2/19/16	1440
Relinquished by:					
Received by:			Samples received at 2 °C		

FORMS\COC\COC.DOC

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 11, 2016

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 9, 2016 from the TOC_01-176, WORFDB8 F&BI 603171 project. There are 7 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
HDC0311R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 9, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 603171 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
603171 -01	MW48

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/16
Date Received: 03/09/16
Project: TOC_01-176, WORFDB8 F&BI 603171
Date Extracted: 03/09/16
Date Analyzed: 03/09/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW48 603171-01	980	103
Method Blank 06-426 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW48	Client:	HydroCon
Date Received:	03/09/16	Project:	TOC_01-176, WORFDB8 F&BI 603171
Date Extracted:	03/09/16	Lab ID:	603171-01
Date Analyzed:	03/09/16	Data File:	030923.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	95	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	6.9
m,p-Xylene	51
o-Xylene	11

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_01-176, WORFDB8 F&BI 603171
Date Extracted:	03/09/16	Lab ID:	06-0445 mb
Date Analyzed:	03/09/16	Data File:	030912.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	100	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

Date of Report: 03/11/16
Date Received: 03/09/16
Project: TOC_01-176, WORFDB8 F&BI 603171

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

Laboratory Code: 603139-03 (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	96	69-134

Date of Report: 03/11/16
Date Received: 03/09/16
Project: TOC_01-176, WORFDB8 F&BI 603171

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

Laboratory Code: 603140-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	93	76-125
Toluene	ug/L (ppb)	50	<1	89	76-122
Ethylbenzene	ug/L (ppb)	50	<1	90	69-135
m,p-Xylene	ug/L (ppb)	100	<2	92	69-135
o-Xylene	ug/L (ppb)	50	<1	93	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	93	92	69-134	1
Toluene	ug/L (ppb)	50	89	90	72-122	1
Ethylbenzene	ug/L (ppb)	50	92	92	77-124	0
m,p-Xylene	ug/L (ppb)	100	93	93	83-125	0
o-Xylene	ug/L (ppb)	50	95	97	81-121	2

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.

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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.

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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.

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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.

603171

SAMPLE CHAIN OF CUSTODY

ME 3/9/16 V1

Send Report To Craig Hultgren, Rob Hornberger
Company Hydrocon Environmental
Address 510 Allen St Ste B
City, State, ZIP Kelso, WA 98626
Phone # 360-703-6079 Fax # 360-703-6086

SAMPLERS (*signature*)

PROJECT NAME/NO.	PO#
TCC Woodlake Terrace CT 17K	

REMARKS 24hr Rush

Page # 1 of 1

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH 24 hr

Rush charges authorized by R Hornberger

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW4E	01 A-F	3/9/16	1200	water	6		X	X										
																		Samples received at 6 °C

ANALYSES REQUESTED

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Larry Namba	Hydrocon Environmental	3/9/16	1518
Received by:	Nhan Phan	FeBI	3/9/16	1518
Relinquished by:				
Received by:				

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