Groundwater Monitoring Report, Third Quarter 2016

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

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

Prepared by:
Stantec Consulting Services Inc.
4100 194th Street SW, Suite 400
Lynnwood, WA 98036
Phone: 425.977.4994

March 2, 2017

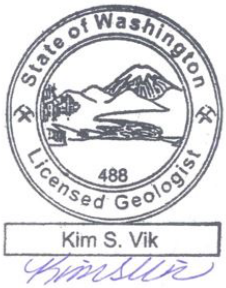
Sign Off Sheet

This document entitled, ***Groundwater Monitoring Report, Third Quarter 2016,*** 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.

This document was prepared under the supervision and direction of the key staff identified below.

Prepared by:

Kim Vik, LG
Project Geologist



Prepared by:

Carol Shestag, PG
Senior Geologist

Reviewed by:

Rebekah Brooks, LG, LHg
Project Manager
Senior Associate, Hydrogeology

Reviewed by:

Marty Minter, PG, RG
Manager, Geology

Table of Contents

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms & Abbreviations

µg/L	micrograms per liter
2Q2016	Second Quarter 2016
3Q2016	Third Quarter 2016
4Q2016	Fourth Quarter 2016
AO	Agreed Order
bgs	below ground surface
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
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
mL/min	milliliters per minute
MPE	multi-phase extraction
MRL	method reporting limit
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
MW	monitoring well
PACE	PACE Engineers, Inc.
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

1.0 INTRODUCTION

This report presents the results of the Third Quarter 2016 (3Q2016) groundwater monitoring event for the interim remedial action at the TOC Holdings Co. (TOC) Facility No. 01-176 located in Mountlake Terrace, Snohomish County, Washington (***Figure 1***). Field activities were performed by HydroCon Environmental, LLC (HydroCon) and data evaluation and report preparation were performed by Stantec Consulting Services Inc. (Stantec), as a subconsultant to HydroCon.

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). 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 (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.

This report presents a description of the 3Q2016 groundwater monitoring activities with an evaluation of the field data and analytical results. The field dates of the 3Q2016 groundwater monitoring events were August 22 to September 2, 2016. Descriptions of the site, adjacent properties, and site background are provided in ***Section 2.0***. The geologic and hydrologic frameworks are described in ***Sections 3.0 and 4.0***, respectively. A summary of the remediation system status 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 depth-to-water/depth-to-product (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 for the three quarterly events are described in ***Section 8.0***, and a summary of the results and a list of conclusions for the quarterly events are 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 and immediately west of 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. An assisted living facility was constructed at the Mountlake Senior Property beginning in February 2015 and continued for approximately one year; a 3-4 story assisted living is now present at this location. 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 in Section 2.3.

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 and located immediately south of the Drake Property. 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 is located immediately south of the Herman Property and 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 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 in the form of 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 (Ecology 2007). Between 1992 and 2015, field 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 light non-aqueous phase liquid (LNAPL) in the Shallow Zone. The DPE system operated from February 1997 to June 2005. The DPE system was decommissioned by the previous consultant, Sound Environmental Strategies (SES), in 2011. SES indicated that their assessment of groundwater results from Shallow Zone wells collected subsequent to the shutoff of the system confirmed that "the system successfully remediated Shallow Zone groundwater beneath the Site" (SES 2013) and that the system would not be useful for future interim remedial actions.

In 2006, groundwater monitoring results collected by 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 2011, TOC entered into an AO with Ecology (Ecology 2011) and in accordance with the AO, a remedial investigation (RI) was initiated at the TOC Site in 2011. Also, 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 in ***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 in ***Figure 3.***

At the time of the 3Q2016 quarterly field event, 103 active monitoring and remediation wells were located on seven properties (the four properties included within the TOC Site boundary [described in ***Section 2.1***] plus the adjacent 242nd Street ROW, and Herman and Shin/Choi properties described in ***Section 2.2***).

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 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 2013, 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 that previously managed the project, but will be supplemented by future investigations and development of 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 monitoring event results in ***Sections 8.0 and 9.0***, 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 Zone Intersect Wells; and 5) Intermediate-Deep Zone Intersect 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 feet below ground surface (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 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 in ***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 of glacial 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 in ***Figure 3***). Explanations for the observed groundwater mounding are likely related to artificial 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 in ***Figure 3*** and described in ***Sections 2.3 and 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, as described in ***Section 5.0***, the remediation systems appear to be containing contaminant transport from migrating further downgradient.

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 artificial 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. The presence of upward vertical gradients between the Deep and Intermediate Zones appear to be effective in inhibiting downward migration of contamination in downgradient areas 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 and there is a downward vertical gradient between the shallow and intermediate zones in this area, 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 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 in ***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 3Q2016 field event, 16 of the 22 remediation wells connected to the MPE remediation systems were actively operating. 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

*Identified Well and Unit 3 only partially operational during 3Q2016. Well MW69 had been completely non-operational since Feb 2016 when the pump was removed from the well and replaced with another pump on September 19, 2016. Wells MW31 and MW93 deliberately disconnected by HydroCon in late August 2016 at beginning of 3Q2016 quarterly event and not re-connected.

Details related to the ongoing operation and maintenance of the MPE remediation systems are provided to Ecology in the quarterly *Remedial Systems Operation and Maintenance (O&M)* and in the *Bimonthly Progress Reports*.

Groundwater Monitoring Scope of Work

The original scope of work defined in the IRAWP (SES 2011) includes 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, four 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, two 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 installed are referred to as the "post-IRAWP wells" and were incorporated into subsequent 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) • MW94 (4" RW) • MW93 (4" RW) • MW100	• MW83
Drake	• MW95 (4" RW) • MW97 (4" RW) • MW99 (4" RW) • MW96 (4" RW) • MW98 (4" RW) • MW101 (4" RW)	*None*
Herman	• MW102 • MW105 • MW108 • MW103 • MW106 • MW109 • MW104 • MW107	*None*

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

The IRAWP states 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) are excluded from the scope work for the annual and quarterly groundwater monitoring events. 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. Additional details describing the annual and quarterly events are provided in the following sections.

5.1 Annual Event Scope of Work

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

1) Measuring DTW/DTP levels for all active wells; and
2) 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 (two properties south of the TOC Site and directly south of the Herman 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 (described in ***Section 6.0***), as well as the four 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. Because product is typically observed at MW71 and MW72 (located on the Shin/Choi Property), and MW102 (located on the Herman Property), samples 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 were provided in the *2016 Annual Groundwater Monitoring Report* (Stantec 2016).

5.2 Quarterly Event Scope of Work

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

1) 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
2) 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:

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

2) Sampling the four wells located on the Shin/Choi Property and select post-IRAWP wells.

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 typically not sampled. Quarterly events take place during the second, third and fourth quarters of each year. The results of the 3Q2016 quarterly event are provided herein.

The table below identifies the 30 active monitoring and remediation wells scheduled for quarterly sampling (per the requirements of the IRAWP [SES 2011]). All of the wells scheduled for quarterly sampling are located in the Intermediate Zone with the exception of MW09 and MW27, which are Shallow-Intermediate Zone Intersect Wells.

Well Locations Sampled Quarterly (per IRAWP)

Sample Location/ Well ID (1)	Property	Sample Location/ Well ID (1)	Property	Sample Location/ Well ID (1)	Property
MW09	TOC	**MW49**	56th Ave ROW	**MW63**	56th Ave ROW
MW10	TOC	**MW50**	56th Ave ROW	**MW65**	Drake
MW15 (4" RW)	TOC	**MW51**	56th Ave ROW	**MW66**	TOC/Farmasonis
MW20	TOC	**MW52**	56th Ave ROW	**MW69 (2" RW)**	Drake
MW27 (2" RW)	TOC	**MW53**	56th Ave ROW	**MW70 (2" RW)**	Drake
MW31 (2" RW)	TOC/Farmasonis	**MW55**	56th Ave ROW	**MW77**	Drake
MW32 (4" RW)	TOC	**MW56**	TOC/Farmasonis	**MW84**	Drake

Sample Location/ Well ID [1]	Property	Sample Location/ Well ID [1]	Property	Sample Location/ Well ID [1]	Property
MW33	TOC	**MW58**	TOC/Farmasonis	**MW85**	Drake
MW45	56th Ave ROW	**MW59**	TOC/Farmasonis	**MW86**	Drake
MW48	56th Ave ROW	**MW60**	56th Ave ROW	**MW89**	Drake

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

During this 3Q2016 event, 11 of the 30 IRAWP-required wells were either dry or contained insufficient water to purge and/or sample. These 11 wells included: MW09, MW10, MW15, MW20, MW27, MW31, MW33, MW45, MW50, MW52, and MW77. To compensate for the 11 dry wells and to obtain additional contaminant distribution data, HydroCon sampled five (5) other wells at the TOC Property during this 3Q2016 event, as follows: MW11 (Intermediate Zone); MW24 (Shallow-Intermediate Zone Intersect); MW29 (Shallow-Intermediate Zone Intersect); MW90 (Intermediate Zone); and MW91 (Intermediate Zone).

For the purpose of obtaining additional information regarding contaminant distribution, and at the request of TOC, select sampling locations identified in the below were added to the scope of work for quarterly groundwater monitoring events.

Additional Wells Sampled Quarterly

Shallow Zone Wells		Intermediate Zone Wells	
Well ID	**Property**	**Well ID** [1]	**Property**
MW54	TOC/Farmasonis	**MW57 (4" RW)**	TOC/Farmasonis
MW67	Drake	**MW73**	Shin/Choi
MW68	Drake	**MW74**	Shin/Choi
MW71*	Shin/Choi	**MW95 (4" RW)**	Drake
MW72*	Shin/Choi	**MW96 (4" RW)**	Drake
MW102*	Herman	**MW98 (4" RW)**	Drake
MW104	Herman	**MW101 (4" RW)**	Drake
MW106	Herman	**MW103**	Herman
		MW105	Herman
		MW107	Herman
		MW108	Herman
		MW109	Herman

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

**Sample is not collected from this location if product (LNAPL) is present.*

6.0 GROUNDWATER MONITORING FIELD METHODOLOGY

Field procedures used to conduct groundwater monitoring are summarized in the following sections.

6.1 DTW/DTP Level Measurements

During the 3Q2016 field event, DTW/DTP levels were measured while the remediation systems were turned off to obtain information on baseline (i.e., non-pumping) groundwater flow patterns. DTW/DTP levels were also measured at all well locations while the remediation systems were operating to evaluate the influence of the remediation system pumping on groundwater flow. System-on measurements were collected at the beginning of the 3Q2016 field event (on August 22, 2016). The systems were then turned off to allow groundwater levels to recharge and to collect the groundwater well samples, and system-off measurements were collected at the end of the 3Q2016 field event (on September 2, 2016).

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 the water probe is too large to fit past the pump tubing. MW75 (located in the 56th Avenue ROW) is only gauged during the annual (first quarter) event and is subject to the Traffic Control Plan (WSDOT 2014).

The DTW/DTP measurements were used to calculate groundwater elevations based on a monitoring well survey performed by PACE Engineers, Inc. (PACE) in April and May 2014. The groundwater elevations were then contoured to identify groundwater flow direction and hydraulic gradients.

DTW/DTP level measurements and resulting groundwater elevations for the 3Q2016 event are discussed in ***Sections 8.1 through 8.3*** and presented in ***Table 1-1*** for system-off conditions and ***Table 1-2*** for system-on conditions.

6.2 Groundwater Sample Collection

During the quarterly groundwater monitoring events, 30 active wells are scheduled for groundwater sampling (per the IRAWP). As described in ***Section 6.2***, HydroCon collected groundwater samples from additional Shallow and Intermediate Zone well locations for the purpose of obtaining supplemental information regarding contaminant distribution.

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 in ***Tables 2-1 through 4-1***.

6.2.1 Groundwater Sampling Methods & Procedures

Groundwater sampling methods used for the quarterly events 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. One set of field parameters (e.g., temperature, pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential) was collected from the remediation wells sampled with a pneumatic pump. 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 and 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.

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.

Samples collected with a peristaltic pump, submersible pump or bailer were collected in accordance with low-flow protocols (EPA 2010). When purging and sampling in accordance with low-flow protocols, HydroCon monitored groundwater field parameters using a YSI™ or Quanta™ water quality field meter equipped with a flow-through cell (except when sampling groundwater using a bailer). Field parameters, including temperature, pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential were monitored and recorded.

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.

6.3 Laboratory Analyses

Groundwater samples were analyzed by Friedman & Bruya, Inc. (located in Seattle, Washington). The data were validated by Stantec and, in some cases, qualifiers were assigned. 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. The types of analyses performed are identified in the table below.

Laboratory Analyses for Groundwater Samples

Analysis Type	Analysis Method	Sample Location / Well ID
Gasoline-Range Petroleum Hydrocarbons (GRPH)	NWTPH-Gx	*Analyses performed for all groundwater samples collected (as shown on Tables 2-1, 3-1 and 4-1).*
Oil-Range Petroleum Hydrocarbons (ORPH)	NWTPH-Dx	*Analyses performed for groundwater samples collected from select locations (as shown on Tables 2-1, 3-1 and 4-1).*
Diesel-Range Petroleum Hydrocarbons (DRPH)	NWTPH-Dx	
Benzene, Toluene, Ethylbenzene, m,p-Xylene, & o-Xylene (BTEX)	EPA Method 8021B or EPA Method 8260C	*Analyses performed for all groundwater samples collected (as shown on Tables 2-1, 3-1 and 4-1).*
Methyl Tertiary-Butyl Ether (MTBE)	EPA Method 8260C	*Analyses performed for groundwater samples collected from select locations (as shown on Tables 2-2 and 3-2).*
1,2-Dicholoroethane/ Ethylene Dichloride (EDC)	EPA Method 8260C	
1,2-Dibromoethane/ Ethylene Dibromide (EDB)	EPA Method 8011M	

Analysis Type	Analysis Method	Sample Location / Well ID
Polycyclic Aromatic Hydrocarbons (PAH)	EPA Method 8270SIM	
Lead (Total & Dissolved)	EPA Method 200.8	

6.4 QA/QC Sampling Methods & Data Quality Review

The scope of work for groundwater monitoring events includes collection and laboratory analyses of groundwater samples for quality assurance/quality control (QA/QC) purposes. QA/QC samples are collected to review the accuracy and precision of field sampling procedures and data supplied by the laboratory. A summary of the QA/QC samples collected for this 3Q2016 event is provided in the following sections. Analytical results for QA/QC samples collected during this event are included in the laboratory reports provided as ***Appendix A***.

6.4.1 Field Blanks

In accordance with the *Groundwater Monitoring Plan* provided as an attachment to the *Annual Groundwater Monitoring Report* (Stantec 2016), field blanks collected during each groundwater monitoring event include equipment/rinsate blanks and water blanks. Equipment/rinsate blanks consist of clean water (i.e. deionized water) that is poured through non-dedicated sampling equipment (submersible pumps) following decontamination on the field days when the non-dedicated equipment is used (normally one per day); these samples are used to assess the thoroughness of the equipment decontamination process. During this event, HydroCon collected 10 field equipment blanks (eight over a 3-day period and one per day on two additional days). Water blanks consist of the clean water used to decontaminate the non-dedicated sampling equipment poured directly into sample containers. During this event, HydroCon collected one water blank to evaluate water quality of the laboratory-provided water used for equipment decontamination. In addition, trip blanks were supplied by the laboratory and accompanied the collected groundwater samples to the laboratory. The purpose of the trip blanks was to evaluate the potential of cross-contamination between the sample containers during transport of the samples from the field to the laboratory. The sample IDs for the field blanks collected during this 3Q2016 event are listed in the table below (with the collection date in parentheses).

Field Blanks Collected During 3Q2016 Event

Sample Type	3Q2016
Water Blank	▪ WB01 (08262016)
Trip Blank	▪ TB-01 (08232016) TB-02 (08262016) ▪ TB-03 (08292016) ▪ TB-04 (08312016)
Equipment/Rinsate Blank	▪ EB-01 (08252016) ▪ EB-02 (08262016) ▪ EB-03 (08262016) ▪ EB-04 (08302016)

	▪ EB-05 (08312016) ▪ EB-07 (08312016) ▪ EB-09 (09022016)	▪ EB-06 (08312016) ▪ EB-08 (09022016) ▪ EB-10 (09022016)

6.4.2 Blind Field Duplicate Samples

Blind field duplicate samples were collected from the locations identified in the table provided below. Duplicate samples are typically collected from two or more wells located on the TOC Site and from one well located on the Herman or Drake 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 whether sample collection methods are reproducible. These samples were collected by the same method used to collect the primary sample. Analytical results are provided in the laboratory reports and presented on ***Tables 2-1 through 4-1***.

Third Quarter 2016

Sample Location/Well ID	Property	Sampling Method	Sample ID	Duplicate Sample ID
MW65	Drake	Submersible Pump	MW65	MLT-05
MW86	Drake	Submersible Pump	MW86	MLT-06

7.0 GROUNDWATER MONITORING RESULTS

Groundwater monitoring results for the 3Q2016 quarterly groundwater monitoring event are organized by monitoring well categories based on groundwater zone and well screen intervals intersecting groundwater zones (see discussion in ***Section 4.0***). As previously mentioned, the five monitoring well categories include:

1. Shallow Zone Wells,
2. Intermediate Zone Wells,
3. Deep Zone Wells,
4. Shallow-Intermediate Zone Intersect Wells, and
5. Intermediate-Deep Zone Intersect Wells.

7.1 DTW/DTP Level Measurements

A summary of information collected during each 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 in ***Table 1-1***. Groundwater elevation results are discussed in ***Section 8.2*** and shown on groundwater elevation contour maps (***Figures 4 through 6***).

A summary of DTW level measurement data and a list of wells where measurable LNAPL was observed for 3Q2016 are provided in the table below. LNAPL measurements are presented in ***Section 8.3***.

System-Off DTW/DTP Level Measurements

	3Q2016
Measurement Date	September 2, 2016
Total Dry Wells [(1)]	24
Total Inaccessible Wells [(2)]	6
Shallowest DTW Level Measurement	13.78 feet bgs (MW12, 56th Avenue ROW, Shallow Zone Well)
Deepest DTW Level Measurement	47.26 feet bgs (MW26, TOC Property, Deep Zone Well)
Shallow Zone Wells with Measurable LNAPL	▪ MW71 (Shin/Choi) ▪ MW72 (Shin/Choi) ▪ MW102 (Herman)

**MW104 (another shallow zone well on Herman Property) exhibited a hydrocarbon odor but no sheen during this 3Q2016 event. Historically, MW104 has contained a sheen, measureable LNAPL, and/or has been dry.* During the 3Q16 event, no sheen was observed and the well was sampled.

[(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). Insufficient water = less than 2 feet of water in the well column.

[(2)] Includes wells that were inaccessible due to a vehicle or construction equipment blocking the wellhead, or in the case of MW78, the well cover could not be removed during either the system-off DTW/DTP measurement event or the groundwater sampling event. *For the 3Q2016 event, the wells that were inaccessible include: MW04, MW69, MW78, MW84, MW87 MW98, and MW101*

As described in ***Section 7.1***, DTW/DTP levels are not measured in 2-inch remediation wells (MW24, 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, DTP/DTW levels are only measured in MW75 during the annual (first quarter) event because it is located in the 56th Avenue West right-of-way and requires traffic control. DTW/DTP levels in several other wells were not measured during each quarterly field event for one of the following reasons:

1. Monitoring Wells: insufficient groundwater or the well was inaccessible (indicated as "dry" on the groundwater elevation contour maps provided as ***Figures 4 through 6***).
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).
3. Wellhead was inaccessible during the field event (indicated as "NM" on the groundwater elevation contour maps).
4. The well was not included in the scope of work for the measurement event or the diameter of the water probe was too large to fit past pump tubing in 2-inch remediation wells (indicated as "NM" on the groundwater elevation contour maps).

7.2 Groundwater Elevations

Groundwater elevations were determined for this 3Q2016 event when the remediation systems were turned off in order to evaluate groundwater flow patterns during baseline (i.e., non-pumping) conditions. As previously mentioned in ***Section 7.1***, groundwater elevations for system-on conditions were also collected during this event from all accessible well locations to evaluate groundwater flow patterns during active remediation conditions. Several wells during this 3Q2016 event only contained water columns of approximately 1.2 feet or less, likely due to the lower rainfall for 1Q and 2Q2016 compared to the historic average. A discussion of observations for this 3Q2016 quarterly event is provided below for each groundwater zone.

7.2.1 Shallow Zone

Consistent with groundwater elevation data collected during previous events, groundwater flow in the Shallow Zone during this 3Q2016 event appears to be predominantly to the south-southeast, as shown in ***Figure 4***. A relatively consistent horizontal hydraulic gradient ranging from approximately 0.03 to 0.06 feet/feet during this 3Q2016 event is present across the Site and adjacent properties to the south with the maximum gradient occurring at the adjacent properties to the south (i.e., Drake and Herman Properties). Steepening of gradients observed during previous events in the southern portion of the TOC Property were not observed during 3Q2016, possibly related to seasonal variability in precipitation and infiltration rates and with the past summer's relatively little rain. As discussed in ***Section 4.1***, steepening of gradients observed during previous events 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.

7.2.2 Intermediate Zone

Similar to the Shallow Zone, groundwater flow in the Intermediate Zone during baseline (system-off/non-pumping) conditions appears to be generally to the south-southeast based on previous groundwater elevations and those measured during this 3Q2016 field event, as shown in ***Figure 5a***. Horizontal hydraulic gradients ranging from approximately 0.015 to 0.33 feet/feet occur 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's southern boundary and is thought to be related to mounding of groundwater in the area of the TOC Property. This mounding could reflect the combined influences of the following: artificial 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.

Groundwater elevations based on DTW data collected while the remediation systems were operating are shown in ***Figure 5b***. Comparison of these data with the system-off data indicate that hydraulic control is effectively being achieved on the TOC Property and the north and central portions of the TOC/Farmasonis Property, but is not as apparent on the southern part of the TOC/Farmasonis Property and the Drake Property. ***Figure 5c and Table 1-3*** show the difference between the system-on and system-off groundwater elevations with positive values showing hydraulic influence and negative values indicating that the system-off elevations are lower than the system-on data and therefore, groundwater elevations are not influenced by the remediation systems.

7.2.3 Deep Zone

Groundwater flow in the Deep Zone appears to be generally to the southeast. The horizontal hydraulic gradient has a relatively flat at approximately 0.008 feet/feet during this 3Q2016 quarterly event (likely because the wells are screened in high permeability material). Groundwater elevations for the monitoring wells located in the Deep Zone are shown in ***Figure 6***.

7.2.4 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. Because 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.

7.2.4.1 Shallow-Intermediate Zone Intersect 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.

7.2.4.2 Intermediate-Deep Zone Intersect 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, including this 3Q2016 event when the height of the water column ranged from 0.00' to 0.07' as measured during this quarter's System-Off and System-On monitoring events. When measured, the groundwater elevations are typically lower than other Intermediate Zone wells due to influence from the Deep Zone.

7.3 LNAPL Measurements

Measurable LNAPL was observed in the three Shallow Zone monitoring wells identified below on the Shin/Choi and Herman Properties during this 3Q2016 quarterly event, consistent with previous events. Compared to last quarter (2Q2016), LNAPL increased in thickness by approximately 1 foot at MW71 and MW72, and decreased by approximately 1.5 feet at MW102. Last quarter (2Q2016), a sheen was detected at MW104 (located on the Herman Property); however, during this 3Q2016 event, only a hydrocarbon odor was noted. The table below provides LNAPL thicknesses measured at the three locations.

Measurable LNAPL in Shallow Zone Wells during Third Quarter 2016 Quarterly Event

Location/Well ID	Property	LNAPL Thickness in feet
MW71	Shin/Choi	3.30
MW72	Shin/Choi	1.93
MW102	Herman	0.79

7.4 Groundwater Quality Results

Analytical results for this 3Q2016 event are provided on ***Tables 2-1 through 4-1***. The types of laboratory analyses performed by Friedman & Bruya for the groundwater samples collected are described in ***Section 7.3,*** and analytical reports for this quarterly event are provided in ***Appendix A***. 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 that exceed the MTCA Method A cleanup levels for each well network are presented in the following sections. A summary of the results for this 3Q2016 event is provided in ***Section 9.1,*** followed by a list of conclusions in ***Section 9.2***.

7.4.1 Shallow Zone

The Shallow Zone well network includes 20 active monitoring wells and one decommissioned well. The scope of work defined in the IRAWP does not require quarterly groundwater sampling of any of the wells in this zone. As previously discussed, HydroCon collected samples from select Shallow Zone wells for the purpose of obtaining additional information regarding contaminant distribution. Additional sampling locations are described in ***Section 6.2***.

The table below identifies sample concentrations that meet or exceed MTCA Method A cleanup levels during the 3Q2016 event. ***Tables 2-1 and 2-2*** summarize the analytical results for the groundwater samples collected from Shallow Zone wells. Distribution maps for GRPH and benzene concentrations in the Shallow Zone are provided as ***Figures 7 and 8*** for this event.

3Q2016 Analytical Results for Groundwater Samples Exceeding Cleanup Levels (Shallow Zone Wells)

Analyte	MTCA Method A Cleanup Level (µg/L)	Sample Location/ Well ID	Property	Analytical Results (µg/L)
GRPH	**800 when benzene is present**	MW71 MW72 MW102 MW104*	Shin/Choi Shin/Choi Herman Herman	LNAPL [1] LNAPL [1] LNAPL [1] 34,000
DRPH [a]	**500**	MW104*	Herman	7,800
Benzene	**5**	MW71 MW72 MW102	Shin/Choi Shin/Choi Herman	LNAPL [1] LNAPL [1] LNAPL [1]
Ethyl benzene	**700**	MW104*	Herman	1,500
Naphthalene	**160**	MW104*	Herman	340
EDB	**0.01**	MW104*	Herman	0.053
Acenaphthene [b]	**0.1**	MW104*	Herman	0.16

**Sheen or measureable LNAPL has been detected at MW104 in the past but not during this 3Q2016 event; only a hydrocarbon odor was detected by HydroCon at MW104 during this 3Q2016 event.*

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.

[a] The sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation.

[b] The MTCA Method A cleanup level for benzo(a)pyrene of 0.1 ug/L is listed; per MTCA Method A cleanup levels, benzo(a)pyrene is applied for PAHs (carcinogenic). Acenaphthene is unclassified as to its carcinogenicity due to absence of medical testing data, but a conservative approach is taken for acenaphthene due to presence of other carcinogenic PAHs. There is no MTCA Method A cleanup level or no CLARC action level for acenaphthene.

[1] 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.

7.4.2 Intermediate Zone

At the time of the 3Q2016 event, the Intermediate Zone well network included 62 active wells (18 of which serve as remediation wells) and four decommissioned wells. The scope of work defined in the IRAWP requires quarterly groundwater sampling of 28 of the 62 active wells in this zone. As previously discussed, in addition to sampling the required wells, HydroCon also sampled several other select Intermediate Zone wells for the purpose of obtaining additional information regarding contaminant distribution. Additional sampling locations are described in ***Section 6.2***.

The table below identifies sample concentrations that meet or exceed MTCA Method A cleanup levels during the quarterly event. ***Tables 3-1 and 3-2*** summarize the analytical results for the groundwater samples collected from Intermediate Zone wells. Distribution maps for GRPH and benzene concentrations in the Intermediate Zone are provided as ***Figures 9 and 10*** for this 3Q2016 event.

3Q2016 Analytical Results for Groundwater Samples Exceeding Cleanup Levels (Intermediate Zone)

Analyte	MTCA Method A Cleanup Level (µg/L)	Sample Location/ Well ID [1]	Property	Analytical Results (µg/L)
GRPH	**800 when benzene is present**	MW48 MW57 MW69 (2" RW) MW73 MW86 MW108	56th Ave ROW TOC/Farmasonis Drake Shin/Choi Drake Herman	3,100 1,200J 5,800 97,000 1,500 4,800
DRPH [a]	**500**	MW69 (2" RW) MW73 MW108	Drake Shin/Choi Herman	580 3,400 760
Benzene	**5**	MW48 MW73 MW74	56th Ave ROW Shin/Choi Shin/Choi	12 11,000 140
Toluene	**1,000**	MW73	Shin/Choi	2,100
Ethylbenzene	**700**	MW73	Shin/Choi	2,000
MTBE	**20**	MW73	Shin/Choi	260
EDB	**0.01**	MW73 MW74	Shin/Choi Shin/Choi	0.073 0.012
Total Lead	**15**	MW32	TOC	35.2
Naphthalene	**160**	MW73	Shin/Choi	360

[a] The sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation.

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

[2] Historically, MW74 has been dry or has contained LNAPL. During this 3Q2016, MW74 was nearly dry with an insufficient amount of water for purging; standing water in this well was sampled by HydroCon during this 3Q2016 event.

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. At MW57, the sample was analyzed out-of-hold time.

7.4.3 Deep Zone

The Deep Zone well network includes six active monitoring wells. The scope of work defined in the IRAWP does not require quarterly groundwater sampling of any of the active wells installed in this zone.

7.4.4 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. GRPH and benzene concentrations in wells that intersect multiple groundwater zones are shown on the Intermediate Zone distribution maps provided as ***Figures 9 and 10*** for this 3Q2016 event.

7.4.4.1 Shallow-Intermediate Zone Intersect Wells

The Shallow-Intermediate Zone intersect 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 quarterly groundwater sampling of two (MW09 and MW27) of the 14 active wells in this zone; however, four wells (MW22, MW24, MW28, and MW29) were also selected by HydroCon for the purpose of obtaining additional information regarding contaminant distribution. During this 3Q2016 event, only MW24 and

MW29 were sampled as MW22 and MW28 contained insufficient volumes of water for purging and/or sampling. As shown in ***Table 4-1***, the analytical results of the samples collected did not exceed MTCA Method A cleanup levels for 3Q2016. Because MTBE, EDC, EDB, and PAHs were not analyzed for any of these samples, a groundwater quality results table for common fuel additives is not provided for this zone. Total and dissolved lead were analyzed for MW29 during 3Q2016. Dissolved lead was detected at 2.97 micrograms per Liter (ug/L) (which is below the MTCA Method A cleanup level for lead of 15 ug/L), and total lead was detected at 597 ug/L (which is above the MTCA Method A cleanup for lead of 15 ug/L).

7.4.4.2 Intermediate-Deep Zone Intersect Wells

The scope of work defined in the IRAWP does not require quarterly groundwater monitoring for the one monitoring well (MW16 located within the 242nd Street ROW) that intersects Intermediate and Deep Zone conditions. Groundwater sampling for MW16 is performed during the annual (first quarter) event.

7.5 QA/QC & Data Quality Results

As described in ***Section 6.0***, the scope of work for the quarterly groundwater monitoring events included 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 supplied by the laboratory per EPA guidelines. The data validation resulted in assignment of qualifiers to several sample results. Analytical results for field duplicates and method 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, trip blanks, and equipment/rinsate blanks are provided in the laboratory reports provided as ***Appendix A***.

8.0 SUMMARY OF RESULTS & CONCLUSIONS

A summary of the results and a list of conclusions for this 3Q2016 quarterly groundwater monitoring event are provided in ***Sections 9.1 and 9.2***, respectively.

8.1 Summary of 3Q2016 Results

8.1.1 DTW/DTP Level Measurements

- DTW level measurements ranged from 13.78 feet bgs for MW12 (a Shallow Zone well located within the 56th Avenue ROW) to 47.26 feet bgs for MW26 (a Deep Zone Intersect well located within on the TOC Property).
- Measurable LNAPL was observed in three Shallow Zone monitoring wells (MW71 and MW72 located on the Shin/Choi Property and MW102 located on the Herman Property). A hydrocarbon odor (but not a sheen or measureable product thickness) was detected at MW104 on the Herman Property, a well that historically has contained LNAPL).
- Comparison of system-on and system-off groundwater elevations indicate that the remediation systems on the TOC Property (Unit 1) and the TOC/Farmasonis Property (Unit 2) are providing effective hydraulic control, but to a lesser extent on the Drake Property (Unit 3).

8.1.2 Groundwater Quality

- **Shallow Zone:** Concentrations did not exceed MTCA Method A cleanup levels in groundwater samples collected from the TOC Site. Locations of groundwater samples that exceeded MTCA cleanup levels during 3Q2016 are described below. Samples were not collected from MW71 and MW72 (located on the Shin/Choi Property) due to the presence of product in the wells.
    - As shown in ***Figures 7 and 8,*** GRPH and benzene concentration exceeding MTCA A cleanup levels were observed near the northern boundary of the Herman Property at MW104. Because LNAPL was observed in MW102 on the Herman Property and MW71 and MW72 on the Shin/Choi Property, additional GRPH and benzene plume areas were added to include these three locations.
    - In addition, DRPH. EDB, and two PAHs (naphthalene and acenaphthene) exceeded MTCA A cleanup levels in the groundwater sample collected from MW104.
- **Intermediate Zone:** Concentrations exceeding MTCA Method A cleanup levels were detected in groundwater samples collected from the Intermediate Zone wells as described below.
    - As shown in ***Figures 9 and 10,*** concentrations of GRPH and/or benzene exceeding MTCA cleanup levels were focused in the following areas:
        - MW48 – 56th Avenue ROW: located on the east side of the ROW, adjacent to the property line shared by the TOC/Farmasonis and Drake Properties;
        - MW57 – TOC/Farmasonis Property: located in the southwest corner of the property; adjacent to the property line shared by the TOC/Farmasonis and Drake Properties and near MW48;
        - MW69 and MW84 – Drake Property: located in the southwest portion of the property;

  - MW73 – Shin/Choi Property: located in the southwest portion of the property in the vicinity of the historic excavation area;
  - MW74 – Shin/Choi Property: located in the northern portion of the property adjacent to the Herman Property;
  - MW86 – Drake Property; located in the southern portion of the property close to the border with the adjacent Herman Property; and
  - MW108 – Herman Property; located in the northeast portion of the property close to the border with the adjacent Drake Property.

- Concentrations of other constituents exceeding MTCA cleanup levels were focused in the following areas:
  - MW32 – TOC Property: The concentration of total lead exceeded the cleanup level in the western portion of the property.
  - MW69 – Drake Property: The concentration of DRPH exceeded the cleanup level in the southwest portion of the property.
  - MW73 and MW74 – Shin/Choi Property: Concentrations of DRPH, toluene, ethylbenzene, MTBE, EDB, and one PAH (naphthalene) exceeded cleanup levels in groundwater samples collected from at least one of these wells.
  - MW108 – Herman Property: the concentration of DRPH exceeded the cleanup level in the northeast portion of the property, near the border with the adjacent Drake Property.
- **Deep Zone:** Groundwater samples were not collected from wells located in the Deep Zone during this quarterly event (per the scope of work defined in the IRAWP).
- **Shallow-Intermediate Zone Intersect Wells:** Total lead from Shallow-Intermediate Zone Intersect well MW29 (central portion of the TOC Property) exceeded its MTCA cleanup level during this 3Q2016 event.
- **Intermediate-Deep Zone Intersect Wells:** Groundwater samples were not collected from the well located in the Intermediate-Deep Zone during this quarterly event (per the scope of work defined in the IRAWP).

8.2 Conclusions

A list of conclusions based on the results from this 3Q2016 quarterly event is provided below:

- The overall direction of groundwater flow through the Shallow, Intermediate, and Deep Zones is toward the south-southeast, consistent with data from prior events.
- 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 Stantec 2014, 2015, and 2016 Annual Groundwater Monitoring Reports), 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 appears to be 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 appear to be separate from those on the Shin/Choi Property.

- For the second time since well installation in June 2015, MW108 (located at the northern portion of the Herman Property) contained GRPH at a concentration of 4,800 µg/L, exceeding the MTCA Method A cleanup level. During 2Q2016 when GRPH was first detected, GRPH ranged from 1,600 to 3,200 µg/L. Comparison of the concentrations just north of the Drake-Herman property boundaries indicates significantly lower GRPH concentrations currently and historically than at MW108. Therefore, the impacts at MW108 do not appear to be related to impacts on the TOC Site. The increase in GRPH concentrations at this location could be related to recent exposure of petroleum-impacted soil on the east side of the Herman Property during construction activities on Mountlake Senior Property and subsequent increased infiltration and downward migration to the intermediate zone through the exposed soil.

- Only groundwater from MW29 (a Shallow-Intermediate Zone Intersect well) contained total lead concentrations that exceeded the MTCA Method A cleanup level during this 3Q2016 quarterly event; however, this concentration could be due to turbidity (the dissolved lead concentration was less than the MTCA cleanup level).

- Because impacts to groundwater are no longer observed in Deep Zone and Intermediate-Deep Zone Intersect wells, quarterly groundwater sampling is not required. Groundwater samples are only collected from these zones during the annual (first quarter) event (per the scope of work defined in the IRAWP).

- The current vertical and lateral distributions of petroleum hydrocarbons in the three groundwater zones support the working hypothesis that contamination originating from the former USTs on the TOC Property has been mostly remediated with limited petroleum-impacted groundwater remaining within the Intermediate Zone on the TOC, TOC/Farmasonis and Drake Properties.

9.0 FUTURE GROUNDWATER TASKS

The 3Q2016 groundwater monitoring event was performed from August 22 through September 2, 2016, with the results documented herein. The table below identifies the month during which the single remaining 2016 quarterly and the annual (1Q2017) groundwater monitoring events will take place.

2016 Quarterly Groundwater Monitoring Event Schedule

Quarter	Field Event Dates
4Q2016	November 2016
1Q2017	March 2017 (per Ecology's request)

10.0 REFERENCES

Ecology 2007. Washington State Department of Ecology. *Table 720-1, Method A Cleanup Levels for Ground Water.* Model Toxics Control Act Regulation and Statute. Cleanup Regulation Chapter 173-340 WAC. October 12.

Ecology 2011. Washington State Department of Ecology (Ecology). *Agreed Order No. DE 8661, TOC Facility No. 01-176.* October 28.

Ecology 2014. Washington State Department of Ecology. Comments provided to SES re: *Draft Remedial Investigation (RI) Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043*. January 3 (approximate).

EPA 2010. United States Environmental Protection Agency. *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells*. Updated January 19.

Galster, R.W and W.T. Laprade (Galster and Laprade). 1991. "Geology of Seattle, Washington, United States of America." *Bulletin of the Association of Engineering Geologists.* v 28 (no. 3): p 235–302.

Lenhard and Parker 1990. Lenhard, R. J. and Parker, J. C. E*stimation of Free Hydrocarbon Volume from Fluid Levels in Monitoring Wells.* Groundwater, 28: 57–67. doi: 10.1111/j.1745-6584.1990.tb02229.x. January.

SES 2011. Sound Environmental Services. *Interim Remedial Action Work Plan (IRAWP), TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043*. July 28.

SES 2013. Sound Environmental Services. *Draft Remedial Investigation (RI) Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043*. November 27.

Stantec 2014. Stantec Consulting Services Inc. *2014 Annual Groundwater Monitoring Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043.* September 17.

Stantec 2015. Stantec Consulting Services Inc. *2015 Annual Groundwater Monitoring Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043.* July 31.

Stantec 2016. Stantec Consulting Services Inc. *2016 Annual Groundwater Monitoring Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043.* June 30.

Stantec 2016. Stantec Consulting Services Inc. *2016 Second Quarter 2016 Groundwater Monitoring Report, TOC Holdings Co. Facility No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043.* September 22.

Time Oil Company [sic] (Time Oil Co.) 1975. *Blueprint Drawing No. 1390: Conduits, Piping, Electrical Service, Lighting, Retaining Wall & Lot Drainage, Mountlake Terrace, Wash*. September 8.

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

Tables

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier (a)	Property	Date	Time (24:00)	Reference Elevation (feet) (b)	DTW (feet) (c)	Groundwater Elevation (feet) (d, e)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW01	TOC	10/02/2009	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 10/02/2009**
MW02	TOC	9/2/2016	14:53	358.71	14.65	344.06	0	
MW03	TOC	9/2/2016	14:59	361.85	19.55	342.30	0	considered anomalous (below bottom of well screen)
MW04	56th Ave ROW	9/2/2016	NA	361.96	16.35	NM	NM	Vehicle
MW05	242nd St ROW	9/2/2016	15:05	363.70	14.75	348.95	0	
MW06	TOC	9/2/2016	14:43	358.98	14.70	344.28	0	
MW07	TOC/Farmasonis	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW08	56th Ave ROW	9/2/2016	15:08	360.34	26.09	334.28	0	
MW09	TOC	9/2/2016	14:47	360.32	38.81	323.51	0	
MW10	TOC	9/2/2016	14:52	357.91	37.78	320.13	0	
MW11 (4" RW)	TOC	9/2/2016	15:00	362.34	27.95	334.39	0	
MW12	56th Ave ROW	9/2/2016	15:31	357.65	13.78	343.87	0	
MW13	56th Ave ROW	9/2/2016	15:31	357.34	DRY	DRY	DRY	
MW14	TOC/Farmasonis	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW15	TOC	9/2/2016	NA	357.56	NM	NM	NM	
MW16	242nd St ROW	9/2/2016	15:06	365.18	47.71	317.47	0	
MW17	TOC/Farmasonis	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW18 (4" RW)	TOC	9/2/2016	14:46	357.91	28.45	329.46	0	
MW19	TOC	9/2/2016	14:46	358.86	19.10	339.76	0	
MW20	TOC	9/2/2016	14:53	359.93	37.00	322.93	0	
MW21	TOC	4/16/2012	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 04/16/2012**
MW22	TOC	9/2/2016	14:48	358.52	36.16	322.36	0	
MW23	TOC	9/2/2016	14:39	357.08	39.12	317.96	0	
MW24 (2" RW)	TOC	9/2/2016	NA	361.97	NM	NM	NM	Water probe is too large to fit past 2" pump tubing
MW25	TOC	9/2/2016	14:57	358.70	34.66	324.04	0	
MW26	TOC	9/2/2016	15:03	363.81	47.24	316.57	0	
MW27 (2" RW)	TOC	9/2/2016	NA	362.51	NM	NM	NM	Water probe is too large to fit past 2" pump tubing
MW28	TOC	9/2/2016	14:45	358.41	28.85	329.56	0	
MW29 (2" RW)	TOC	9/2/2016	NA	358.93	NM	NM	NM	Water probe is too large to fit past 2" pump tubing
MW30	TOC/Farmasonis	9/2/2016	14:30	356.46	41.00	315.46	0	
MW31 (2" RW)	TOC/Farmasonis	9/2/2016	NA	357.08	NM	NM	NM	Water probe is too large to fit past 2" pump tubing
MW32 (4" RW)	TOC	9/2/2016	14:55	359.95	26.46	333.49	0	
MW33	TOC	9/2/2016	NA	358.24	NM	NM	NM	
MW34	TOC	9/2/2016	14:41	357.88	15.81	342.07	0	
MW35	TOC	9/2/2016	14:42	358.46	39.62	318.84	0	
MW36	TOC	9/2/2016	14:43	357.98	43.01	314.97	0	
MW37	TOC	9/2/2016	14:44	358.90	32.63	326.27	0	
MW38	TOC	9/2/2016	15:07	364.42	25.02	339.40	0	
MW39	TOC/Farmasonis	9/2/2016	15:35	355.88	41.07	314.81	0	
MW40	TOC/Farmasonis	9/2/2016	15:26	356.32	41.05	315.27	0	
MW41 (2" RW)	TOC/Farmasonis	9/2/2016	NA	356.14	NM	NM	NM	Water probe is too large to fit past 2" pump tubing
MW42	TOC/Farmasonis	9/2/2016	15:24	356.43	39.79	316.64	0	
MW43	56th Ave ROW	9/2/2016	15:12	358.84	37.42	321.42	0	
MW44	56th Ave ROW	9/2/2016	15:17	354.93	DRY	DRY	DRY	
MW45	56th Ave ROW	9/2/2016	15:21	356.49	39.32	317.17	0	
MW46	56th Ave ROW	9/2/2016	15:14	357.00	42.67	314.33	0	
MW47	56th Ave ROW	9/2/2016	15:14	355.47	41.64	313.83	0	
MW48	56th Ave ROW	9/2/2016	15:20	355.41	42.55	312.86	0	
MW49	56th Ave ROW	9/2/2016	15:21	356.44	42.95	313.49	0	
MW50	56th Ave ROW	9/2/2016	15:08	361.99	36.68	325.31	0	
MW51	56th Ave ROW	9/2/2016	16:15	352.66	41.01	311.65	0	
MW52	56th Ave ROW	9/2/2016	15:14	355.61	43.23	312.38	0	
MW53	56th Ave ROW	9/2/2016	15:11	359.85	43.21	316.64	0	
MW54	TOC/Farmasonis	9/2/2016	15:28	357.93	14.55	343.38	0	
MW55	56th Ave ROW	9/2/2016	15:14	356.50	43.43	313.07	0	
MW56	TOC/Farmasonis	9/2/2016	15:30	357.49	43.91	313.58	0	
MW57 (4" RW)	TOC/Farmasonis	9/2/2016	15:23	356.42	43.51	312.91	0	
MW58	TOC/Farmasonis	9/2/2016	15:26	355.40	43.00	312.40	0	
MW59	TOC/Farmasonis	9/2/2016	15:28	356.51	43.00	313.51	0	
MW60	56th Ave ROW	9/2/2016	15:13	358.58	43.31	315.27	0	
MW61	56th Ave ROW	9/2/2016	15:14	357.17	14.00	343.17	0	
MW62	56th Ave ROW	9/2/2016	15:10	360.50	16.63	343.87	0	
MW63	56th Ave ROW	9/2/2016	15:17	355.11	42.64	312.47	0	
MW64	56th Ave ROW	9/2/2016	15:19	355.18	40.34	314.84	0	
MW65	Drake	9/2/2016	15:12	353.08	41.51	311.57	0	
MW66	TOC/Farmasonis	9/2/2016	15:33	355.75	42.25	313.50	0	
MW67	Drake	9/2/2016	16:18	355.73	15.76	339.97	0	
MW68	Drake	9/2/2016	16:19	355.11	15.45	339.66	0	
MW69 (2" RW)	Drake	9/2/2016	NA	353.76	NM	NM	NM	Vehicle

TABLE 1-1
Depth-to-Groundwater Level and Product Thickness Measurements (System Off)
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier (a)	Property	Date	Time (24:00)	Reference Elevation (feet) (b)	DTW (feet) (c)	Groundwater Elevation (feet) (d, e)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW70 (2" RW)	Drake	9/2/2016	NA	354.17	NM	NM	NM	
MW71	Shin/Choi	9/2/2016	15:58	347.92	17.20	333.36	3.3	Product
MW72	Shin/Choi	9/2/2016	15:57	347.38	18.53	330.39	1.93	Product
MW73	Shin/Choi	9/2/2016	15:57	347.33	38.39	308.94	0	
MW74	Shin/Choi	9/2/2016	15:58	347.94	38.36	309.58	0	
MW75	56th Ave ROW	9/2/2016	NA	354.78	NM	NM	NM	Gauged only in Q1 Annual Event
MW76	Drake	9/2/2016	14:27	351.69	39.95	311.74	0	
MW77	Drake	9/2/2016	14:28	349.95	38.65	311.30	0	
MW78	Drake	9/2/2016	NA	349.90	NM	NM	NM	Cannot get well cover off.
MW79	TOC/Farmasonis	9/2/2016	15:37	353.98	17.15	336.83	0	
MW80	TOC/Farmasonis	9/2/2016	15:37	353.83	19.24	334.59	0	
MW81	TOC/Farmasonis	9/2/2016	15:39	355.60	42.50	313.10	0	
MW82	TOC/Farmasonis	9/2/2016	15:37	355.59	29.30	326.29	0	
MW83	TOC/Farmasonis	11/21/2011	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/21/2011 (REPLACED WITH MW100)**
MW84	Drake	9/2/2016	NA	353.75	NM	NM	NM	Vehicle
MW85	Drake	9/2/2016	16:23	351.28	39.94	311.34	0	
MW86	Drake	9/2/2016	16:23	352.72	41.38	311.34	0	
MW87	Drake	9/2/2016	NA	349.72	NM	NM	NM	Under ponded water.
MW88	Drake	9/2/2016	16:27	351.63	22.35	329.28	0	
MW89	Drake	9/2/2016	16:11	353.86	42.15	311.71	0	
MW90 (4" RW)	TOC	9/2/2016	15:01	362.87	35.62	327.25	0	
MW91 (4" RW)	TOC	9/2/2016	15:03	362.67	28.52	334.15	0	
MW92 (4" RW)	TOC/Farmasonis	9/2/2016	15:58	357.91	44.21	313.70	0	
MW93 (4" RW)	TOC/Farmasonis	9/2/2016	15:23	355.97	DRY	DRY	DRY	
MW94 (4" RW)	TOC/Farmasonis	9/2/2016	15:15	357.94	DRY	DRY	DRY	
MW95 (4" RW)	Drake	9/2/2016	16:13	354.67	42.40	312.27	0	
MW96 (4" RW)	Drake	9/2/2016	16:17	356.00	43.91	312.81	0	
MW97 (4" RW)	Drake	9/2/2016	16:20	354.29	42.09	312.20	0	
MW98 (4" RW)	Drake	9/2/2016	NA	354.75	NM	NM	NM	Cap Port too small for Probe.
MW99 (4" RW)	Drake	9/2/2016	16:21	353.58	DRY	DRY	DRY	
MW100	TOC/Farmasonis	9/2/2016	15:39	355.75	25.39	330.36	0	
MW101 (4" RW)	Drake	9/2/2016	NA	352.05	NM	NM	NM	Vehicle
MW102	Herman	9/2/2016	15:40	352.39	16.84	336.18	0.79	Product
MW103	Herman	9/2/2016	16:05	352.21	42.66	309.55	0	
MW104	Herman	9/2/2016	16:05	353.00	15.50	337.50	0	
MW105	Herman	9/2/2016	16:08	353.05	41.65	311.40	0	
MW106	Herman	9/2/2016	16:04	349.24	16.70	332.54	0	
MW107	Herman	9/2/2016	16:04	349.56	39.23	310.33	0	
MW108	Herman	9/2/2016	NA	351.09	39.80	311.29	0	taken at time of sampling
MW109	Herman	9/2/2016	16:10	353.35	40.64	312.71	0	

Notes:

(a) Remediation wells (identified as "RW") are 2 or 4 inches in diameter and are connected to a multi-phase extraction system. Measurements are not collected from 2" RWs because the diameter of the water probe is too large to fit past pump tubing.

(b) 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.

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

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

(e) 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).
Trace = Observed <0.01 feet of LNAPL.
Sheen = Iridescence on surface of groundwater that is indicative of LNAPL.

Acronyms:

DTP = depth-to-product
DTW = depth-to-groundwater
LNAPL = liquid non-aqueous phase liquid
NA = not available
NM = not measured
RW = remediation well

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)
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

Well Identifier (a)	Property	Well type	Date	Time (24:00)	Reference Elevation (feet) (b)	DTW (feet) (c)	Groundwater Elevation (feet) (d, e)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW01	TOC	Abandoned	10/02/2009	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 10/02/2009**
MW02	TOC	Monitoring Well	08/22/2016	14:54	358.71	14.33	344.38	--	
MW03	TOC	Monitoring Well	08/22/2016	15:00	361.85	DRY	DRY	DRY	
MW04	56th Ave ROW	Monitoring Well	08/22/2016	15:11	361.96	16.35	345.61	--	
MW05	242nd St ROW	Monitoring Well	08/22/2016	15:08	363.70	14.74	348.96	--	
MW06	TOC	Monitoring Well	08/22/2016	14:42	358.98	DRY	DRY	DRY	
MW07	TOC/Farmasonis	NA	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW08	56th Ave ROW	Monitoring Well	08/22/2016	17:12	360.34	33.82	326.52	--	
MW09	TOC	Monitoring Well	08/22/2016	14:58	360.32	38.14	322.18	--	
MW10	TOC	Monitoring Well	08/22/2016	14:51	357.91	DRY	DRY	DRY	
MW11 (4" RW)	TOC	4" Remediation Well	08/22/2016	15:01	362.34	31.03	331.31	--	
MW12	56th Ave ROW	Monitoring Well	08/22/2016	15:12	357.65	13.39	344.26	--	
MW13	56th Ave ROW	Monitoring Well	08/22/2016	15:13	357.34	DRY	DRY	DRY	
MW14	TOC/Farmasonis	NA	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW15	TOC	Monitoring Well	08/22/2016	14:34	357.56	DRY	DRY	DRY	
MW16	242nd St ROW	Monitoring Well	08/22/2016	15:10	365.18	47.63	317.55	--	
MW17	TOC/Farmasonis	NA	11/29/2004	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 11/29/2004**
MW18 (4" RW)	TOC	4" Remediation Well	08/22/2016	14:46	357.91	NM	NM	NM	Probe cannot fit past top of pump.
MW19	TOC	Monitoring Well	08/22/2016	14:53	358.86	18.28	340.58	--	
MW20	TOC	Monitoring Well	08/22/2016	14:55	359.93	38.93	321.00	--	
MW21	TOC	NA	4/16/2012	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED 04/16/2012**
MW22	TOC	Monitoring Well	08/22/2016	15:50	358.52	DRY	DRY	DRY	
MW23	TOC	Monitoring Well	08/22/2016	14:32	357.08	39.14	317.94	--	
MW24 (2" RW)	TOC	2" Remediation Well	08/22/2016	13:30	361.97	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW25	TOC	Monitoring Well	08/22/2016	14:57	358.70	DRY	DRY	DRY	
MW26	TOC	Monitoring Well	08/22/2016	15:06	363.81	47.15	316.66	--	
MW27 (2" RW)	TOC	2" Remediation Wel	08/22/2016	NM	362.51	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW28	TOC	Monitoring Well	08/22/2016	14:46	358.41	29.76	328.65	--	
MW29 (2" RW)	TOC	2" Remediation Wel	08/22/2016	NM	358.93	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW30	TOC/Farmasonis	Monitoring Well	08/22/2016	14:30	356.46	40.94	315.52	--	
MW31 (2" RW)	TOC/Farmasonis	2" Remediation Wel	08/22/2016	NM	357.08	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW32 (4" RW)	TOC	4" Remediation Wel	08/22/2016	14:56	359.95	28.85	331.10	--	
MW33	TOC	Monitoring Well	08/22/2016	14:48	358.24	34.30	323.94	--	
MW34	TOC	Monitoring Well	08/22/2016	14:36	357.88	15.83	342.05	--	
MW35	TOC	Monitoring Well	08/22/2016	14:38	358.46	39.81	318.65	--	
MW36	TOC	Monitoring Well	08/22/2016	14:40	357.98	42.83	315.15	--	
MW37	TOC	Monitoring Well	08/22/2016	14:44	358.90	32.40	326.50	--	
MW38	TOC	Monitoring Well	08/22/2016	15:04	364.42	36.14	328.28	--	
MW39	TOC/Farmasonis	Monitoring Well	08/22/2016	15:49	355.88	41.00	314.88	--	
MW40	TOC/Farmasonis	Monitoring Well	08/22/2016	15:28	356.32	40.94	315.38	--	
MW41 (2" RW)	TOC/Farmasonis	2" Remediation Wel	08/22/2016	NM	356.14	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW42	TOC/Farmasonis	Monitoring Well	08/22/2016	15:35	356.43	DRY	DRY	DRY	
MW43	56th Ave ROW	Monitoring Well	08/22/2016	17:14	358.84	37.42	321.42	--	
MW44	56th Ave ROW	Monitoring Well	08/22/2016	17:25	354.93	DRY	DRY	DRY	
MW45	56th Ave ROW	Monitoring Well	08/22/2016	15:39	356.49	39.40	317.09	--	
MW46	56th Ave ROW	Monitoring Well	08/22/2016	17:17	357.00	42.58	314.42	--	
MW47	56th Ave ROW	Monitoring Well	08/22/2016	17:19	355.47	41.65	313.82	--	
MW48	56th Ave ROW	Monitoring Well	08/22/2016	17:29	355.41	42.01	313.40	--	
MW49	56th Ave ROW	Monitoring Well	08/22/2016	15:41	356.44	43.00	313.44	--	
MW50	56th Ave ROW	Monitoring Well	08/22/2016	17:11	361.99	37.04	324.95	--	
MW51	56th Ave ROW	Monitoring Well	08/22/2016	18:26	352.66	40.99	311.67	--	
MW52	56th Ave ROW	Monitoring Well	08/22/2016	17:19	355.61	42.63	312.98	--	
MW53	56th Ave ROW	Monitoring Well	08/22/2016	17:13	359.85	43.18	316.67	--	
MW54	TOC/Farmasonis	Monitoring Well	08/22/2016	15:18	357.93	15.19	342.74	--	
MW55	56th Ave ROW	Monitoring Well	08/22/2016	17:18	356.50	43.40	313.10	--	
MW56	TOC/Farmasonis	Monitoring Well	08/22/2016	17:09	357.49	44.42	313.07	--	
MW57 (4" RW)	TOC/Farmasonis	4" Remediation Well	08/22/2016	15:38	356.42	DRY	DRY	DRY	Probe cannot fit past top of pump.
MW58	TOC/Farmasonis	Monitoring Well	08/22/2016	15:32	355.40	43.02	312.38	--	
MW59	TOC/Farmasonis	Monitoring Well	08/22/2016	15:24	356.51	43.02	313.49	--	
MW60	56th Ave ROW	Monitoring Well	08/22/2016	17:14	358.58	43.75	314.83	--	
MW61	56th Ave ROW	Monitoring Well	08/22/2016	17:16	357.17	13.58	343.59	--	
MW62	56th Ave ROW	Monitoring Well	08/22/2016	17:12	360.50	15.78	344.72	--	
MW63	56th Ave ROW	Monitoring Well	08/22/2016	17:58	355.11	42.83	312.28	--	
MW64	56th Ave ROW	Monitoring Well	08/22/2016	17:28	355.18	40.28	314.90	--	
MW65	Drake	Monitoring Well	08/22/2016	17:52	353.08	41.42	311.66	--	
MW66	TOC/Farmasonis	Monitoring Well	08/22/2016	15:42	355.75	42.40	313.35	--	
MW67	Drake	Monitoring Well	08/22/2016	17:33	355.73	15.30	340.43	--	
MW68	Drake	Monitoring Well	08/22/2016	17:35	355.11	15.05	340.06	--	
MW69 (2" RW)	Drake	2" Remediation Well	08/22/2016	NM	353.76	NM	NM	NM	Vehicle
MW70 (2" RW)	Drake	2" Remediation Well	08/22/2016	NM	354.17	NM	NM	NM	Water probe is too large to fit past 2" pump tubing.
MW71	Shin/Choi	Monitoring Well	08/22/2016	18:06	347.92	16.90	333.61	3.24	3.24' Product
MW72	Shin/Choi	Monitoring Well	08/22/2016	18:18	347.38	18.04	330.73	1.74	1.74' Product

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

Well Identifier (a)	Property	Well type	Date	Time (24:00)	Reference Elevation (feet) (b)	DTW (feet) (c)	Groundwater Elevation (feet) (d, e)	Product (LNAPL) Thickness (feet)	Notes / Observations
MW73	Shin/Choi	Monitoring Well	08/22/2016	18:01	347.33	38.22	309.11	--	
MW74	Shin/Choi	Monitoring Well	08/22/2016	18:10	347.94	38.02	309.92	--	
MW75	56th Ave ROW	Monitoring Well	08/22/2016	NM	354.78	NM	NM	NM	Gauged only in Q1 Annual Event
MW76	Drake	Monitoring Well	08/22/2016	17:49	351.69	40.02	311.67	--	
MW77	Drake	Monitoring Well	08/22/2016	17:46	349.95	48.56	301.39	--	considered anomalous (10' below historic range).
MW78	Drake	Monitoring Well	08/22/2016	NM	349.90	NM	NM	NM	Cannot get well cover off.
MW79	TOC/Farmasonis	Monitoring Well	08/22/2016	15:46	353.98	17.14	336.84	--	
MW80	TOC/Farmasonis	Monitoring Well	08/22/2016	15:45	353.83	18.93	334.90	--	
MW81	TOC/Farmasonis	Monitoring Well	08/22/2016	15:49	355.60	42.57	313.03	--	
MW82	TOC/Farmasonis	Monitoring Well	08/22/2016	15:47	355.59	29.85	325.74	--	
MW83	TOC/Farmasonis	NA	11/21/2011	NA	NA	NA	NA	NA	**WELL DECOMMISSIONED (REPLACED WITH MW100)**
MW84	Drake	Monitoring Well	08/22/2016	NM	353.75	NM	NM	NM	Vehicle
MW85	Drake	Monitoring Well	08/22/2016	17:44	351.28	39.92	311.36	--	
MW86	Drake	Monitoring Well	08/22/2016	17:43	352.72	41.24	311.48	--	
MW87	Drake	Monitoring Well	08/22/2016	15:47	349.72	38.60	311.12	--	
MW88	Drake	Monitoring Well	08/22/2016	17:48	351.63	21.91	329.72	--	
MW89	Drake	Monitoring Well	08/22/2016	17:21	353.86	42.14	311.72	--	
MW90 (4" RW)	TOC	4" Remediation Well	08/22/2016	15:02	362.87	DRY	DRY	DRY	Probe cannot fit past top of pump.
MW91 (4" RW)	TOC	4" Remediation Well	08/22/2016	14:59	362.67	31.70	330.97	--	
MW92 (4" RW)	TOC/Farmasonis	4" Remediation Well	08/22/2016	15:14	357.91	44.64	313.27	--	
MW93 (4" RW)	TOC/Farmasonis	4" Remediation Well	08/22/2016	15:27	355.97	DRY	DRY	DRY	Probe cannot fit past top of pump.
MW94 (4" RW)	TOC/Farmasonis	4" Remediation Well	08/22/2016	15:15	357.94	DRY	DRY	DRY	Probe cannot fit past top of pump.
MW95 (4" RW)	Drake	4" Remediation Well	08/22/2016	17:23	354.67	43.17	311.50	--	
MW96 (4" RW)	Drake	4" Remediation Well	08/22/2016	17:31	356.00	39.81	316.19	--	
MW97 (4" RW)	Drake	4" Remediation Well	08/22/2016	17:57	354.29	40.82	313.47	--	
MW98 (4" RW)	Drake	4" Remediation Well	08/22/2016	NM	354.75	NM	NM	NM	Cap Port too small for Probe.
MW99 (4" RW)	Drake	4" Remediation Well	08/22/2016	17:39	353.58	DRY	DRY	DRY	Probe cannot fit past top of pump.
MW100	TOC/Farmasonis	Monitoring Well	08/22/2016	15:48	355.75	25.24	330.51	--	
MW101 (4" RW)	Drake	4" Remediation Well	08/22/2016	17:40	352.05	43.44	308.61	--	depth to water = depth to top of pump.
MW102	Herman	Monitoring Well	08/22/2016	18:16	352.39	16.82	336.39	1.02	
MW103	Herman	Monitoring Well	08/22/2016	18:15	352.21	42.30	309.91	--	
MW104	Herman	Monitoring Well	08/22/2016	11:09	353.00	14.95	338.05	--	
MW105	Herman	Monitoring Well	08/22/2016	18:21	353.05	41.26	311.79	--	
MW106	Herman	Monitoring Well	08/22/2016	18:13	349.24	16.31	332.93	--	
MW107	Herman	Monitoring Well	08/22/2016	18:14	349.56	39.10	310.46	--	
MW108	Herman	Monitoring Well	08/22/2016	NM	351.09	NM	NM	NM	
MW109	Herman	Monitoring Well	08/22/2016	18:20	353.35	40.62	312.73	--	

Notes:

(a) Remediation wells (identified as "RW") are 2 or 4 inches in diameter and are connected to a multi-phase extraction system.
Measurements are not collected from 2" RWs because the diameter of the water probe is too large to fit past pump tubing.

(b) 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.

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

(d) 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.

(e) 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).
Trace = Observed <0.01 feet of LNAPL.
Sheen = Iridescence on surface of groundwater that is indicative of LNAPL.

Acronyms:

DTP = depth-to-product
DTW = depth-to-groundwater
LNAPL = liquid non-aqueous phase liquid
NA = not available
NM = not measured
RW = remediation well

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 1-3
Comparison of System-Off and System-On Groundwater Elevations
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

	Property	Groundwater Zone	Groundwater Elevation - System-Off (feet)	Groundwater Elevation - System-On (feet)	System Off-System On (feet)	Notes / Observations
MW01	TOC	NA	NA	NA		**WELL DECOMMISSIONED 10/02/2009**
MW02	TOC	Shallow	344.06	344.38	-0.32	
MW03	TOC	Shallow	342.30	DRY	#VALUE!	
MW04	56th Ave ROW	Shallow	NM	345.61	#VALUE!	
MW05	242nd St ROW	Shallow	348.95	348.96	-0.01	
MW06	TOC	Shallow	344.28	DRY	#VALUE!	
MW07	TOC/Farmasonis	NA	NA	NA		**WELL DECOMMISSIONED 11/29/2004**
MW08	56th Ave ROW	Shallow-Intermediate	334.28	326.52	7.76	Datum appears anomalous
MW09	TOC	Shallow-Intermediate	323.51	322.18	1.33	
MW10	TOC	Intermediate	320.13	DRY	#VALUE!	
MW11 (4" RW)	TOC	Intermediate	334.39	331.31	3.08	
MW12	56th Ave ROW	Shallow	343.87	344.26	-0.39	
MW13	56th Ave ROW	Intermediate	DRY	DRY		
MW14	TOC/Farmasonis	NA	NA	NA		**WELL DECOMMISSIONED 11/29/2004**
MW15	TOC	Intermediate	NM	DRY		
MW16	242nd St ROW	Intermediate-Deep	317.47	317.55	-0.08	
MW17	TOC/Farmasonis	NA	NA	NA		**WELL DECOMMISSIONED 11/29/2004**
MW18 (4" RW)	TOC	Shallow-Intermediate	329.46	NM	#VALUE!	
MW19	TOC	Shallow	339.76	340.58	-0.82	
MW20	TOC	Intermediate	322.93	321.00	1.93	
MW21	TOC	NA	NA	NA		**WELL DECOMMISSIONED 04/16/2012**
MW22	TOC	Shallow-Intermediate	322.36	DRY	#VALUE!	
MW23	TOC	Intermediate	317.96	317.94	0.02	
MW24 (2" RW)	TOC	Shallow-Intermediate	NM	NM		
MW25	TOC	Intermediate	324.04	DRY	#VALUE!	
MW26	TOC	Deep	316.57	316.66	-0.09	
MW27 (2" RW)	TOC	Shallow-Intermediate	NM	NM		
MW28	TOC	Shallow-Intermediate	329.56	328.65	0.91	
MW29 (2" RW)	TOC	Shallow-Intermediate	NM	NM		
MW30	TOC/Farmasonis	Deep	315.46	315.52	-0.06	
MW31 (2" RW)	TOC/Farmasonis	Intermediate	NM	NM		
MW32 (4" RW)	TOC	Intermediate	333.49	331.10	2.39	
MW33	TOC	Intermediate	NM	323.94	#VALUE!	
MW34	TOC	Shallow	342.07	342.05	0.02	
MW35	TOC	Intermediate	318.84	318.65	0.19	
MW36	TOC	Intermediate	314.97	315.15	-0.18	
MW37	TOC	Shallow-Intermediate	326.27	326.50	-0.23	
MW38	TOC	Shallow-Intermediate	339.40	328.28	11.12	Datum appears anomalous
MW39	TOC/Farmasonis	Deep	314.81	314.88	-0.07	
MW40	TOC/Farmasonis	Deep	315.27	315.38	-0.11	
MW41 (2" RW)	TOC/Farmasonis	Intermediate	NM	NM		
MW42	TOC/Farmasonis	Intermediate	316.64	DRY	#VALUE!	
MW43	56th Ave ROW	Shallow-Intermediate	321.42	321.42	0.00	
MW44	56th Ave ROW	Intermediate	DRY	DRY		
MW45	56th Ave ROW	Intermediate	317.17	317.09	0.08	

TABLE 1-3
Comparison of System-Off and System-On Groundwater Elevations
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

	Property	Groundwater Zone	Groundwater Elevation - System-Off (feet)	Groundwater Elevation - System-On (feet)	System Off-System On (feet)	Notes / Observations
MW46	56th Ave ROW	Intermediate	314.33	314.42	-0.09	
MW47	56th Ave ROW	Intermediate	313.83	313.82	0.01	
MW48	56th Ave ROW	Intermediate	312.86	313.40	-0.54	
MW49	56th Ave ROW	Intermediate	313.49	313.44	0.05	
MW50	56th Ave ROW	Intermediate	325.31	325.95	-0.64	
MW51	56th Ave ROW	Intermediate	311.65	311.67	-0.02	
MW52	56th Ave ROW	Intermediate	312.38	312.98	-0.60	
MW53	56th Ave ROW	Intermediate	316.64	316.67	-0.03	
MW54	TOC/Farmasonis	Shallow	343.38	342.74	0.64	
MW55	56th Ave ROW	Intermediate	313.07	313.10	-0.03	
MW56	TOC/Farmasonis	Intermediate	313.58	313.07	0.51	
MW57 (4" RW)	TOC/Farmasonis	Intermediate	312.91	DRY	#VALUE!	
MW58	TOC/Farmasonis	Intermediate	312.40	312.38	0.02	
MW59	TOC/Farmasonis	Intermediate	315.51	315.49	0.02	
MW60	56th Ave ROW	Intermediate	315.27	314.83	0.44	
MW61	56th Ave ROW	Shallow	343.17	343.59	-0.42	
MW62	56th Ave ROW	Shallow	343.87	344.72	-0.85	
MW63	56th Ave ROW	Intermediate	312.47	312.28	0.19	
MW64	56th Ave ROW	Deep	314.84	314.90	-0.06	
MW65	Drake	Intermediate	311.57	311.66	-0.09	
MW66	TOC/Farmasonis	Intermediate	313.50	313.35	0.15	
MW67	Drake	Shallow	339.97	340.43	-0.46	
MW68	Drake	Shallow	339.66	340.06	-0.40	
MW69 (2" RW)	Drake	Intermediate	NM	NM		Inaccessible due to vehicle
MW70 (2" RW)	Drake	Intermediate	NM	NM		
MW71	Shin/Choi	Shallow	333.36	333.61	-0.25	Product in well
MW72	Shin/Choi	Shallow	330.39	330.73	-0.34	Product in well
MW73	Shin/Choi	Intermediate	308.94	309.11	-0.17	
MW74	Shin/Choi	Intermediate	308.58	309.92	-1.34	
MW75	56th Ave ROW	Intermediate	NM	NM		Well is only measured during annual (first quarter) event and is subject to Traffic Control Plan (WSDOT 2014).
MW76	Drake	Intermediate	311.74	311.67	0.07	
MW77	Drake	Intermediate	311.30	301.39	9.91	Datum appears anomalous
MW78	Drake	Deep	NM	NM		Cannot get well cover off
MW79	TOC/Farmasonis	Shallow	336.83	336.84	-0.01	
MW80	TOC/Farmasonis	Shallow	334.59	334.90	-0.31	
MW81	TOC/Farmasonis	Intermediate	313.10	313.03	0.07	
MW82	TOC/Farmasonis	Shallow-Intermediate	326.29	325.74	0.55	
MW83	TOC/Farmasonis	NA	NA	NA		**WELL DECOMMISSIONED 11/21/2011 (REPLACED WITH MW100)**
MW84	Drake	Intermediate	NM	NM		Inaccessible due to vehicle
MW85	Drake	Intermediate	311.34	311.36	-0.02	
MW86	Drake	Intermediate	311.34	311.48	-0.14	
MW87	Drake	Intermediate	NM	311.12	#VALUE!	
MW88	Drake	Shallow-Intermediate	329.28	329.72	-0.44	
MW89	Drake	Intermediate	311.71	311.72	-0.01	
MW90 (4" RW)	TOC	Intermediate	327.25	DRY	#VALUE!	
MW91 (4" RW)	TOC	Intermediate	334.15	330.97	3.18	
MW92 (4" RW)	TOC/Farmasonis	Intermediate	313.70	313.27	0.43	
MW93 (4" RW)	TOC/Farmasonis	Intermediate	DRY	DRY		
MW94 (4" RW)	TOC/Farmasonis	Intermediate	DRY	DRY		
MW95 (4" RW)	Drake	Intermediate	312.97	311.50	1.47	

TABLE 1-3
Comparison of System-Off and System-On Groundwater Elevations
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, Washington

	Property	Groundwater Zone	Groundwater Elevation - System-Off (feet)	Groundwater Elevation - System-On (feet)	System Off-System On (feet)	Notes / Observations
MW96 (4" RW)	Drake	Intermediate	312.81	316.19	-3.38	
MW97 (4" RW)	Drake	Intermediate	312.20	313.47	-1.27	
MW98 (4" RW)	Drake	Intermediate	NM	NM		Cap port too small for probe
MW99 (4" RW)	Drake	Intermediate	NM	NM		
MW100	TOC/Farmasonis	Shallow-Intermediate	330.36	330.51	-0.15	
MW101 (4" RW)	Drake	Intermediate	NM	308.61	#VALUE!	Inaccessible due to vehicle
MW102	Herman	Shallow	336.18	336.39	-0.21	Product in well
MW103	Herman	Intermediate	309.55	309.91	-0.36	
MW104	Herman	Shallow	337.50	338.05	-0.55	
MW105	Herman	Intermediate	311.40	311.79	-0.39	
MW106	Herman	Shallow	332.54	332.93	-0.39	
MW107	Herman	Intermediate	310.33	310.46	-0.13	
MW108	Herman	Intermediate	NM	NM		
MW109	Herman	Intermediate	312.71	312.73	-0.02	

Notes:
Yellow highlighted values indicate where the difference between the System-Off and System-On groundwater elevations are positive, indicating hydraulic control by the remediation system in the area.

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).
Trace = Observed <0.01 feet of LNAPL.
Sheen = Iridescence on surface of groundwater that is indicative of LNAPL.

Acronyms:
DTP = depth-to-product
DTW = depth-to-groundwater
LNAPL = liquid non-aqueous phase liquid
NA = not available
NM = not measured
RW = remediation well

TABLE 2-2
Groundwater Quality Results for Common Fuel Additives
Shallow Zone Wells
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier	Property	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)	Dissolved Lead	Total Lead	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**
MW54	TOC/Farmasonis	8/25/2016	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
MW67	Drake	8/31/2016	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	Drake	8/31/2016	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	Shin/Choi	NA	--	--	LNAPL																				
MW72	Shin/Choi	NA	--	--	LNAPL																				
MW102	Herman	NA	--	--	LNAPL																				
MW104	Herman	8/30/2016	MW104	Peristaltic Pump	1U	1U	**0.053**	1U	1U	**0.16**	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	**0.15**	0.06U	**340**	0.06U	0.06U
MW106	Herman	8/29/2016	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	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.

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 cl

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 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] Well was dry but LNAPL is typically observed at this location.

[b] 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 w 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.

NA = Indicates the compound was not analyzed.

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.

ACRONYMS:

µg/L = micrograms per liter

MTCA = Model Toxics Control Act

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 = right-of-way adjacent to TOC, TOC/Farmasonis & Drake

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

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

Sample Location/ Well Identifier[1]	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[2]					
					Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)[3]	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)					**1,000/800[4]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NE[5]**	**NE[5]**
MW10	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW11	TOC	8/23/2016	MW11	Pneumatic Pump	**100UJ**	NA	NA	0.35U	1U	1U	3U	2U	1U
MW15	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW20	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW31 (2" RW)	TOC/Farmasonis	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW32 (4" RW)	TOC	8/23/2016	MW32	Pneumatic Pump	**100UJ**	NA	NA	**0.55**	1U	1U	**2.3**	**2.3**	1U
MW33	TOC	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW45	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW48	56th Ave ROW	9/1/2016	MW48	Bailer	**3,100**	NA	NA	**12**	**3**	**33**	**201**	**190**	**11**
MW49	56th Ave ROW	8/26/2016	MW49	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW50	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	56th Ave ROW	8/30/2016	MW51	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW52	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	56th Ave ROW	8/25/2016	MW53	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW55	56th Ave ROW	9/1/2016	MW55	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW56	TOC/Farmasonis	8/26/2016	MW56	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW57 (4" RW)	TOC/Farmasonis	8/24/2016	MW57	Submersible Pump	**1200**	NA	NA	**1.6**	**1.4**	**11**	**69.3**	**63**	**6.3**
MW58	TOC/Farmasonis	8/29/2016	MW58	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW59	TOC/Farmasonis	8/29/2016	MW59	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW60	56th Ave ROW	8/26/2016	MW60	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW63	56th Ave ROW	9/1/2016	MW63	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW65	Drake	9/2/2016	MW65	Submersible Pump	100U	NA	NA	0.35U	1U	1U	3U	2U	1U
MW65	*Drake*	*9/2/2016*	*MLT-05*	*Submersible Pump*	*100U*	NA	NA	*0.35U*	*1U*	*1U*	*3U*	*2U*	*1U*
MW66	TOC/Farmasonis	8/25/2016	MW66	Bailer	100U	250U	50U	0.35U	1U	1U	3U	2U	1U
MW69 (2" RW)	Drake	9/1/2016	MW69	Pneumatic Pump	**5,800**	250U	**580**	**0.46**	1U	**41**	**172.1**	**170**	**2.1**
MW70 (2" RW)	Drake	8/24/2016	MW70	Pneumatic Pump	**100UJ**	290U	50U	0.35U	1U	1U	3U	2U	1U
MW73	Shin/Choi	8/30/2016	MW73	Submersible Pump	**97,000**	250U	**3,400J**	**11,000**	**2,100**	**2,000**	**9,000**	**5,900**	**3,100**
MW74	Shin/Choi	8/30/2016	MW74	Submersible Pump	**590**	425U	**410J**	**140**	**11**	**9**	**13.5**	**11**	**2.5**
MW77	Drake	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW84	Drake	9/1/2016	MW84	Submersible Pump	**970**	250U	50U	0.35U	1U	**2.3**	**9.6**	**9.6**	1U
MW85	Drake	8/31/2016	MW85	Submersible Pump	100U	250U	50U	0.35U	1U	1U	3U	2U	1U
MW86	Drake	8/31/2016	MW86	Submersible Pump	**1,200**	250U	**160J**	**0.36**	1U	1U	3U	2U	1U
MW86	*Drake*	*8/31/2016*	*MLT-06*	*Submersible Pump*	***1,500***	300U	***180J***	***0.39***	*1U*	*1U*	*3U*	*2U*	*1U*
MW89	Drake	9/1/2016	MW89	Submersible Pump	100U	250U	50U	0.35U	1U	1U	3U	2U	1U
MW90	TOC	8/23/2016	MW90	Pneumatic Pump	**100UJ**	NA	NA	0.35U	1U	1U	3U	2U	1U
MW91	TOC	8/23/2016	MW91	Pneumatic Pump	**100UJ**	250U	50U	0.35U	1U	1U	3U	2U	1U
MW95 (4" RW)	Drake	8/24/2016	MW95	Pneumatic Pump	**100UJ**	NA	NA	0.35U	1U	1U	3U	2U	1U
MW96 (4" RW)	Drake	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW98 (4" RW)	Drake	8/24/2016	MW98	Pneumatic Pump	**330**	NA	NA	0.35U	1U	**1.2**	**6.9**	**6.9**	1U
MW101 (4" RW)	Drake	8/24/2016	MW101	Pneumatic Pump	**100UJ**	310U	50U	0.35U	1U	1U	3U	2U	1U
MW103	Herman	8/31/2016	MW103	Bailer	100U	250U	**68J**	0.35U	1U	1U	3U	2U	1U
MW105	Herman	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW107	Herman	8/30/2016	MW107	Submersible Pump	100U	300U	60U	0.35U	1U	1U	3U	2U	1U
MW108	Herman	8/30/2016	MW108	Bailer	**4,800**	250U	**760J**	**1.1**	**1.3**	**39**	**91.4**	**87**	**4.4**
MW109	Herman	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.
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] Remediation wells (identified as "RW") are either 2 or 4 inches in diameter and are connected to a multi-phase extraction system.
[2] If samples were analyzed by two methods, the maximum concentration of the two results is reported.
[3] For groundwater samples with detected concentrations of DRPH, the sample chromatographic pattern does not resemble the diesel extended analysis standard used for quantitation.
[4] Cleanup level is 1,000 µg/L when benzene is not present and 800 µg/L when benzene is present.
[5] 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.
NA = Indicates the compound was not analyzed.
NE = Indicates MTCA Method A Cleanup Level has not been established.

LABORATORY NOTES:

U = Indicates the compound was undetected at the reported concentration.
J = Indicates the sample was analyzed out of hold time.

ACRONYMS:

µg/L = micrograms per liter
MTCA = Model Toxics Control Act
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 Quality Results for Common Fuel Additives
Intermediate Zone Wells
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier[1]	Property	Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																						
					Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[2]																
					Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM																
					Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Dissolved Lead	Total Lead	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	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW11	TOC	8/23/2016	MW11	Pneumatic Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW15	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW20	TOC	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW31 (2" RW)	TOC/Farmasonis	NA	--	--	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW32 (4" RW)	TOC	8/23/2016	MW32	Pneumatic Pump	NA	NA	NA	1U	**35.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW33	TOC	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW45	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW48	56th Ave ROW	9/1/2016	MW48	Bailer	NA	NA	NA	**3.28J**	**4.56**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW49	56th Ave ROW	8/26/2016	MW49	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW50	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW51	56th Ave ROW	8/30/2016	MW51	Submersible Pump	NA	NA	0.01U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW52	56th Ave ROW	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW53	56th Ave ROW	8/25/2016	MW53	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW55	56th Ave ROW	9/1/2016	MW55	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW56	TOC/Farmasonis	8/26/2016	MW56	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW57 (4" RW)	TOC/Farmasonis	8/24/2016	MW57	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW58	TOC/Farmasonis	8/29/2016	MW58	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW59	TOC/Farmasonis	8/29/2016	MW59	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW60	56th Ave ROW	8/26/2016	MW60	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW63	56th Ave ROW	9/1/2016	MW63	Submersible Pump	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	Drake	9/2/2016	MW65	Submersible Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW65	*Drake*	9/2/2016	*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	NA
MW66	TOC/Farmasonis	8/25/2016	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	0.06U
MW69 (2" RW)	Drake	9/1/2016	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	0.06U	0.06U	**2.6**	0.06U	0.06U
MW70 (2" RW)	Drake	8/24/2016	MW70	Pneumatic Pump	1U	0.01U	1U	**1.22**	**1.44**	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	0.06U
MW73	Shin/Choi	8/30/2016	MW73	Submersible Pump	**1.2**	1U	**0.073**	1U	1U	**0.21**	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	**360**	0.06U	0.06U
MW74	Shin/Choi	8/30/2016	MW74	Submersible Pump	**260**	1U	**0.012**	1U	**1.7**	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	**0.33**	0.06U	0.06U
MW77	Drake	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW84	Drake	9/1/2016	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	0.06U	0.06U	0.06U	0.06U	0.06U
MW85	Drake	8/31/2016	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	0.06U	0.06U
MW86	Drake	8/31/2016	MW86	Submersible Pump	1U	0.01U	1U	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	**0.17**	0.06U	0.06U
MW86	*Drake*	*8/31/2016*	*MLT-06*	*Submersible Pump*	*1U*	*0.01U*	*1U*	*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*	***0.15***	*0.06U*	*0.06U*
MW89	Drake	9/1/2016	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	0.06U	0.06U
MW90	TOC	8/23/2016	MW90	Pneumatic Pump	NA	NA	NA	1U	**5.54**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW91	TOC	8/23/2016	MW91	Pneumatic Pump	1U	NA	NA	1U	**12.8**	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	0.06U	0.06U
MW95 (4" RW)	Drake	8/24/2016	MW95	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW96 (4" RW)	Drake	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW98 (4" RW)	Drake	8/24/2016	MW98	Pneumatic Pump	1U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW101 (4" RW)	Drake	8/24/2016	MW101	Pneumatic Pump	1U	0.01U	1U	1U	**1.45**	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	0.06U	0.06U
MW103	Herman	8/31/2016	MW103	Bailer	**19**	0.01U	1U	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	0.06U	0.06U
MW105	Herman	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW107	Herman	8/30/2016	MW107	Submersible Pump	1U	0.01U	1U	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	0.06U	0.06U
MW108	Herman	8/30/2016	MW108	Bailer	1U	0.01U	1U	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	**9.2**	0.06U	0.06U
MW109	Herman	NA	--	--	NA	NA	NA	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.

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

LABORATORY NOTES:

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

TABLE 3-2
Groundwater Quality Results for Common Fuel Additives
Intermediate Zone Wells
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier[1]	Property	Date	Sample Identifier	Sample Method	Analytical Results (µg/L)																				
					Volatile Organic Compounds			Metals		Semivolatile Organic Compounds / Polycyclic Aromatic Hydrocarbons[2]														
					Method SW8260C		Method 8011M	Method 200.8		EPA Method 8270D SIM														
					Methyl t-butyl ether (MTBE)	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Dissolved Lead	Total Lead	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**

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] Remediation wells (identified as "RW") are either 2 or 4 inches in diameter and are connected to a multi-phase extraction system.
[2] 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.
* = 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.
NA = Indicates the compound was not analyzed.
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.

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

ACRONYMS:
µg/L = micrograms per liter
PAH = Polycyclic Aromatic Hydrocarbons
MTCA = Model Toxics Control Act
WAC = Washington Administrative Code

TABLE 4-1
Groundwater Quality Results for Select Constituents
Shallow-Intermediate Zone Intersect Wells
Third Quarter 2016
TOC Facility #01-176; Mountlake Terrace, WA

Sample Location/ Well Identifier[1]	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[2]					
					Gasoline-Range (GRPH)	Motor Oil-Range (ORPH)	Diesel-Range (DRPH)	Benzene	Toluene	Ethylbenzene	Total Xylenes	m, p-Xylene	o-Xylene
MTCA Method A Cleanup Level (µg/L)					**1,000/800[3]**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**NE[4]**	**NE[4]**
MW09	TOC	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW24	TOC	8/23/2016	MW24	Pneumatic Pump	**100UJ**	NA	NA	0.35U	1U	1U	3U	2U	1U
MW29	TOC	8/23/2016	MW29	Pneumatic Pump	**100UJ**	NA	NA	0.35U	1U	1U	3U	2U	1U
MW27 (2" RW)	TOC	NA	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA

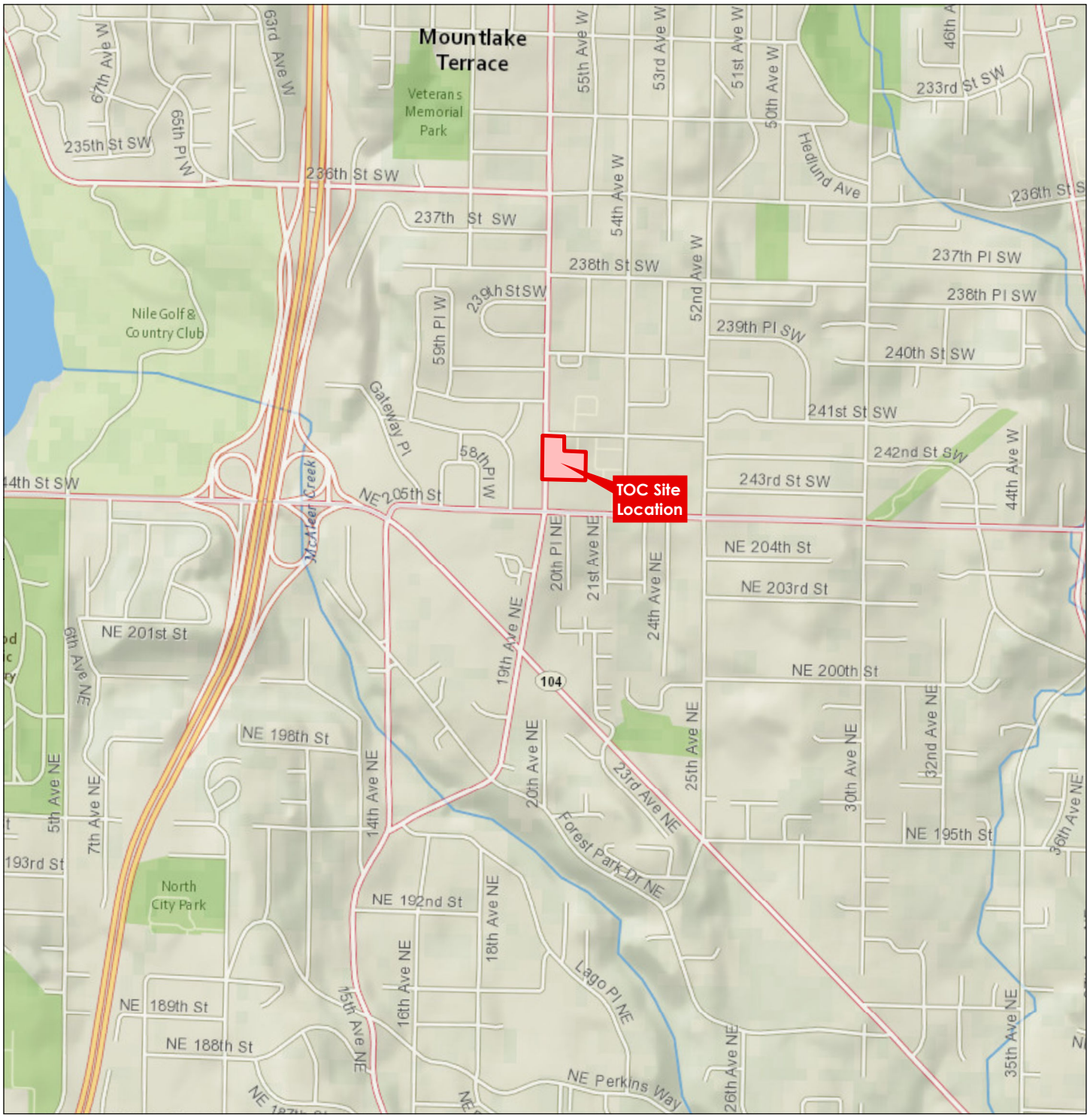
NOTES & DEFINITIONS:
Well screens intersect Shallow and Intermediate Zone conditions.
Groundwater quality results are presented based on exceedance of MTCA Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised October 12, 2007.
Groundwater samples were analyzed by Friedman & Bruya, Inc. The 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] Remediation wells (identified as "RW") are either 2 or 4 inches in diameter and are connected to a multi-phase extraction system.
[2] If samples were analyzed by two methods, the maximum concentration of the two results is reported.
[3] Cleanup level is 1,000 µg/L when benzene is not present and 800 µg/L when benzene is present.
[4] 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.
NA = Indicates the compound was not analyzed.
NE = Indicates MTCA Method A Cleanup Level has not been established.

ACRONYMS:
µg/L = micrograms per liter
MTCA = Model Toxics Control Act
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon - diesel-range organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon - gasoline-range organics
WAC = Washington Administrative Code

LABORATORY NOTES:
U = Indicates the compound was undetected at the reported concentration.

LIST OF PROPERTIES:
TOC = 24205 56th Avenue West, Mountlake Terrace WA

Figures



Map Details
1. Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
2. Service Layer Credits: 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

TOC Site Location

Figure No.
1

Title
Project Location

Client/Project
TOC Holdings Co.

Facility 01-176

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

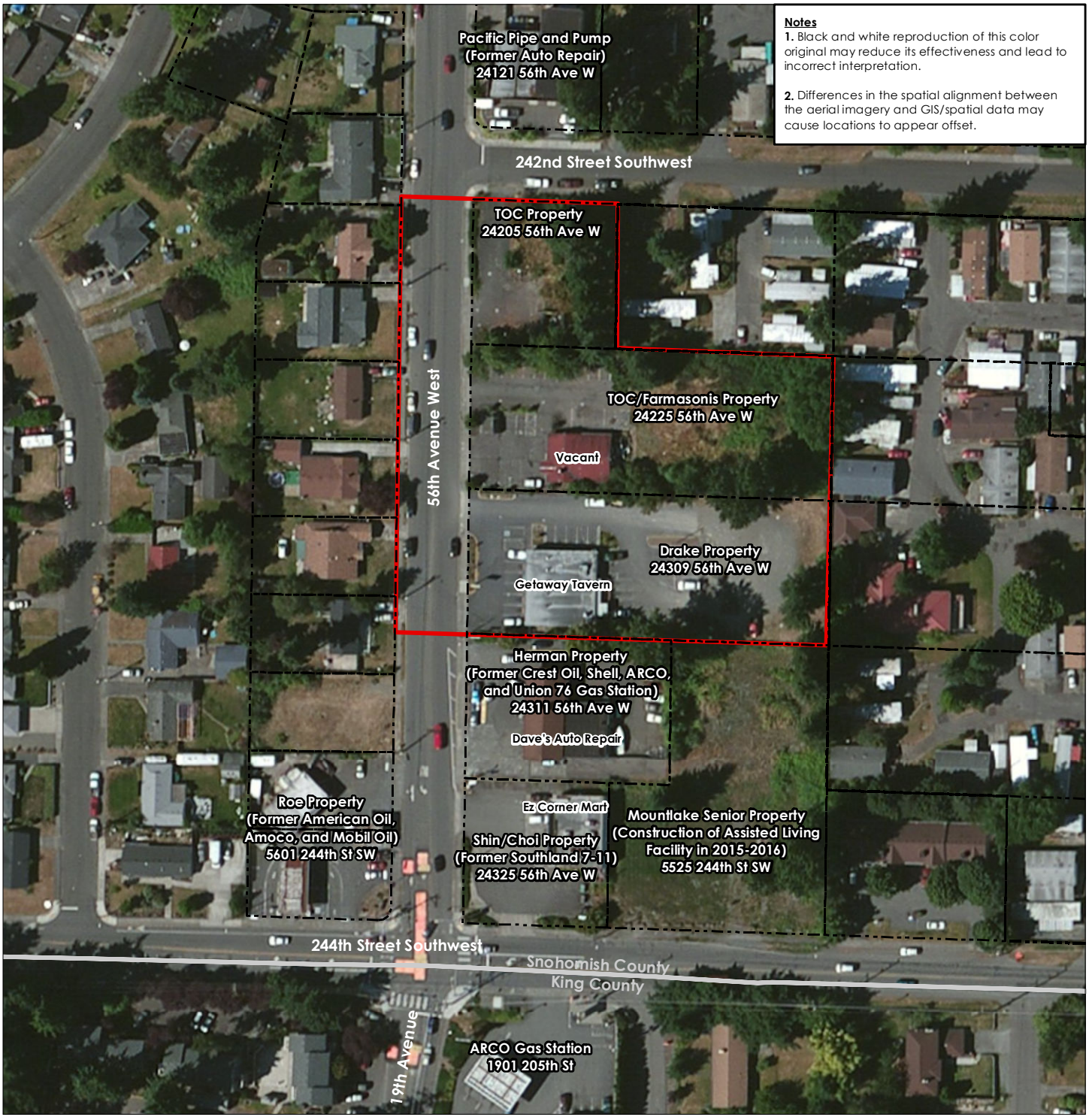
185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

0 600 1,200 Feet
1:14,400 (at original document size of 8.5x11)

N

Stantec

U:\Pre_MEDAD\WA\Clients\Time Oil\TOC-Mountlake Terrace_BA1402800\MXDs\2016_3Q\Fig_2_SiteMap.mxd Revised: 2017-01-17 By: nfaust



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, AeroGRID, IGN, and the GIS User Community
Content may not reflect National Geographic's current map

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

0 60 120 Feet
1:1,440 (at original document size of 8.5x11)

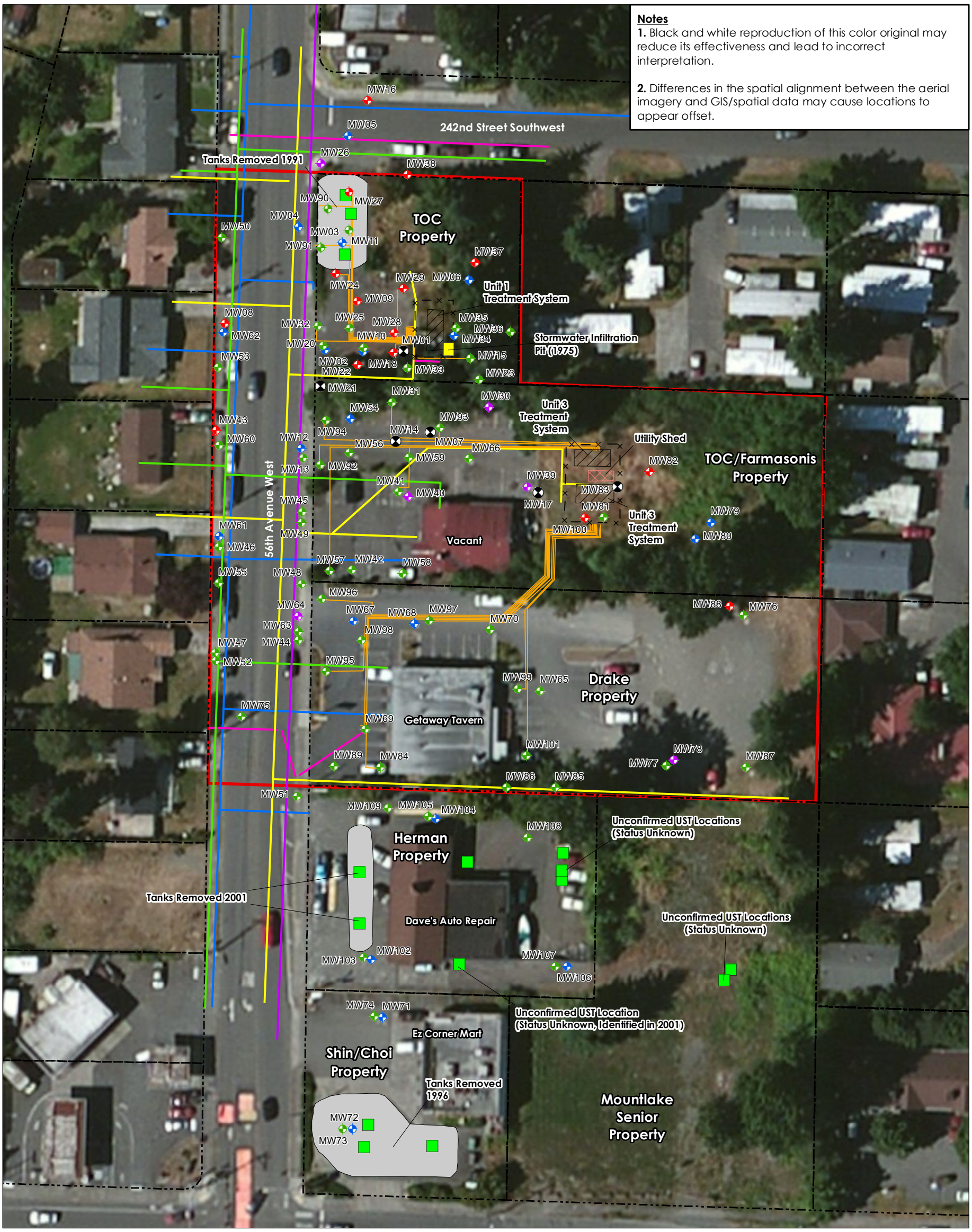
N

Stantec

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, AeroGRID, IGN, 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

- 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

0 60 120 Feet

1:720 (At Original document size of 11x17)

N

Stantec

U:\Pre_MED\ADL\WA\Client\xTime_O\TOC-Mountlake Terrace_BA140280\MXDs\2016_3Q\Fig_4_3Q16_GWE_SZ_map.mxd Revised: 2017-02-03 By: nfaust

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. Measurable product (LNAPL) was observed in MW71, MW72, and MW102.

***=** Measurements at MW03, MW19, and MW80 appear anomolous and not used for contouring.

MW05 348.95
MW04 NM
MW03 342.30*
MW06 344.28
MW62 343.87
MW02 344.06
MW19 339.78*
MW34 342.07
MW54 343.38
MW12 343.87
MW61 343.17
MW67 339.97
MW68 339.66
MW104 337.50
MW102 336.18
MW106 332.54
MW71 333.36
MW72 330.39
MW79 336.83
MW80 334.59*

TOC Property
TOC/Farmasonis Property
Drake Property
Herman Property
Mountlake Senior Property
Shin/Choi Property

348 347 346 345 344 343 342 341 340 339 338 337 336 335 334 333 332 331

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, AeroGRID, IGN, 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 — 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), September 2, 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

U:\Pe_MEDADV.WA\Clients\Time_Of\TOC-Mountlake Terrace_BA1402800\MXDs\2016_3Q\Fig_5a_3Q16_GWE_IZ_map.mxd Revised: 2017-01-20 By: nfaust

Definitions
Dry = Insufficient groundwater in monitoring well for DTW measurement or the top of pump was encountered prior to the groundwater level in remediation wells.
NM = Not Measured
DTW = Depth to Water

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. Wells symbols displayed in red indicate well screens intersect two groundwater zones. These wells were not used for contouring.

4. MW24, 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 water probe is too large to fit past the pump tubing.

5. The DTW level in MW75 is only measured during the annual (first quarter) event and is subject to the Traffic Control Plan (WSDOT 2014).

***=** At MW87, system-on data used for contouring as well not accessible for system-off measurements.

****=** At MW108, DTW measured at the time of sampling on 8/30/2016 was used because well not accessible due to a locked gate during the DTW measurement event.

^= Water level at MW42 may represent water in the end cap and data not used for

MW16 317.47
MW38 339.40
MW27 NM
MW90 327.26
MW50 325.31
MW11 334.39
MW91 334.15
MW24 NM
MW29 NM
MW37 326.27
MW09 323.51
MW25 324.04
MW28 329.56
MW35 318.84
MW36 314.97
MW32 333.49
MW10 320.13
MW08 334.28
MW33 NM
MW20 322.93
MW18 329.46
MW15 NM
MW53 316.64
MW22 322.36
MW31 NM
MW23 317.96
MW94 DRY
MW43 321.42
MW93 DRY
MW60 315.27
MW13 DRY
MW56 313.58
MW59 313.51
MW66 313.50
MW82 326.29
MW92 313.70
MW41 NM
MW45 317.17
MW46 314.33
MW49 313.49
MW57 312.91
MW42 316.64^
MW58 312.40
MW100 330.36
MW81 313.10
MW55 313.07
MW48 312.86
MW96 312.81
MW97 312.20
MW70 NM
MW88 329.28
MW76 311.74
MW63 312.47
MW98 NM
MW47 313.83
MW44 DRY
MW95 312.27
MW99 DRY
MW52 312.38
MW75 NM
MW69 NM
MW65 311.57
MW101 NM
MW89 311.71
MW84 NM
MW77 311.30
MW87 311.12*
MW86 311.34
MW85 311.34
MW51 311.65
MW105 311.40
MW109 312.71
MW108 311.29**
MW107 310.33
MW103 309.55
MW74 309.58
MW73 308.94

325
330
320
315
320
315
310
310

TOC Property
TOC/Farmasonis Property
Drake Property
Herman Property
Mountlake Senior Property
Shin/Choi Property

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, AeroGRID, IGN, 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.
5a

Title
Groundwater Elevation Contours, Intermediate Zone (System Off), September 2, 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

U:\Pre_MEDA\DWA\Clients\Time_Oil\TOC-Mountlake Terrace, BA140280\MXDs\2016_3Q\Fig_5b_3Q16_GWE_IZ_SysOn_map.mxd Revised: 2017-02-03 By: nfaust

Definitions
Dry = Insufficient groundwater in monitoring well for DTW or the top of pump was encountered prior to the groundwater level in remediation wells.
NM = Not Measured
DTW = Depth to Water

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.

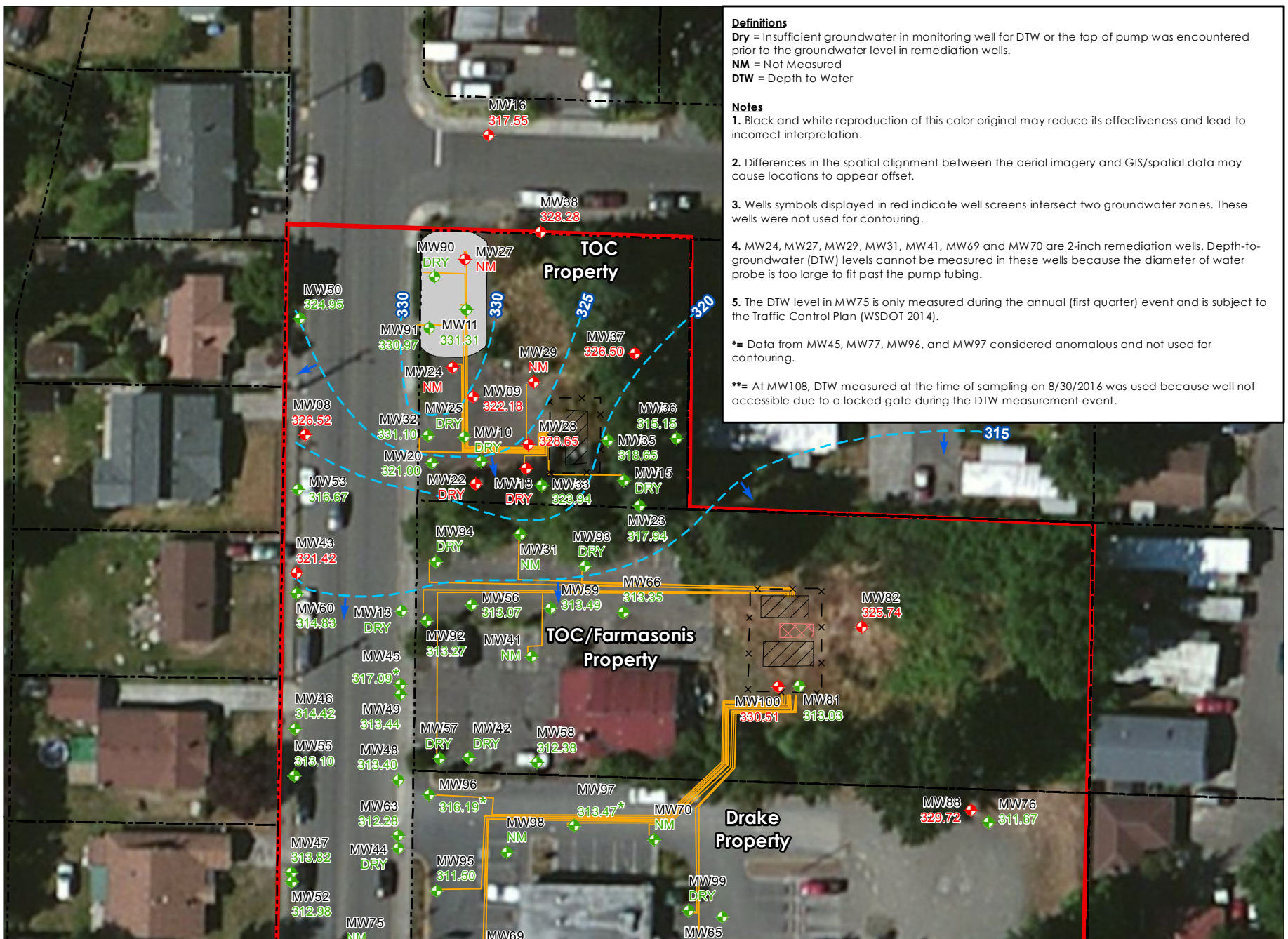
3. Wells symbols displayed in red indicate well screens intersect two groundwater zones. These wells were not used for contouring.

4. MW24, 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 water probe is too large to fit past the pump tubing.

5. The DTW level in MW75 is only measured during the annual (first quarter) event and is subject to the Traffic Control Plan (WSDOT 2014).

***=** Data from MW45, MW77, MW96, and MW97 considered anomalous and not used for contouring.

****=** At MW108, DTW measured at the time of sampling on 8/30/2016 was used because well not accessible due to a locked gate during the DTW measurement event.



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, AeroGRID, IGN, 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.
5b

Title
Groundwater Elevation Contours, Intermediate Zone (System On), August 22, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

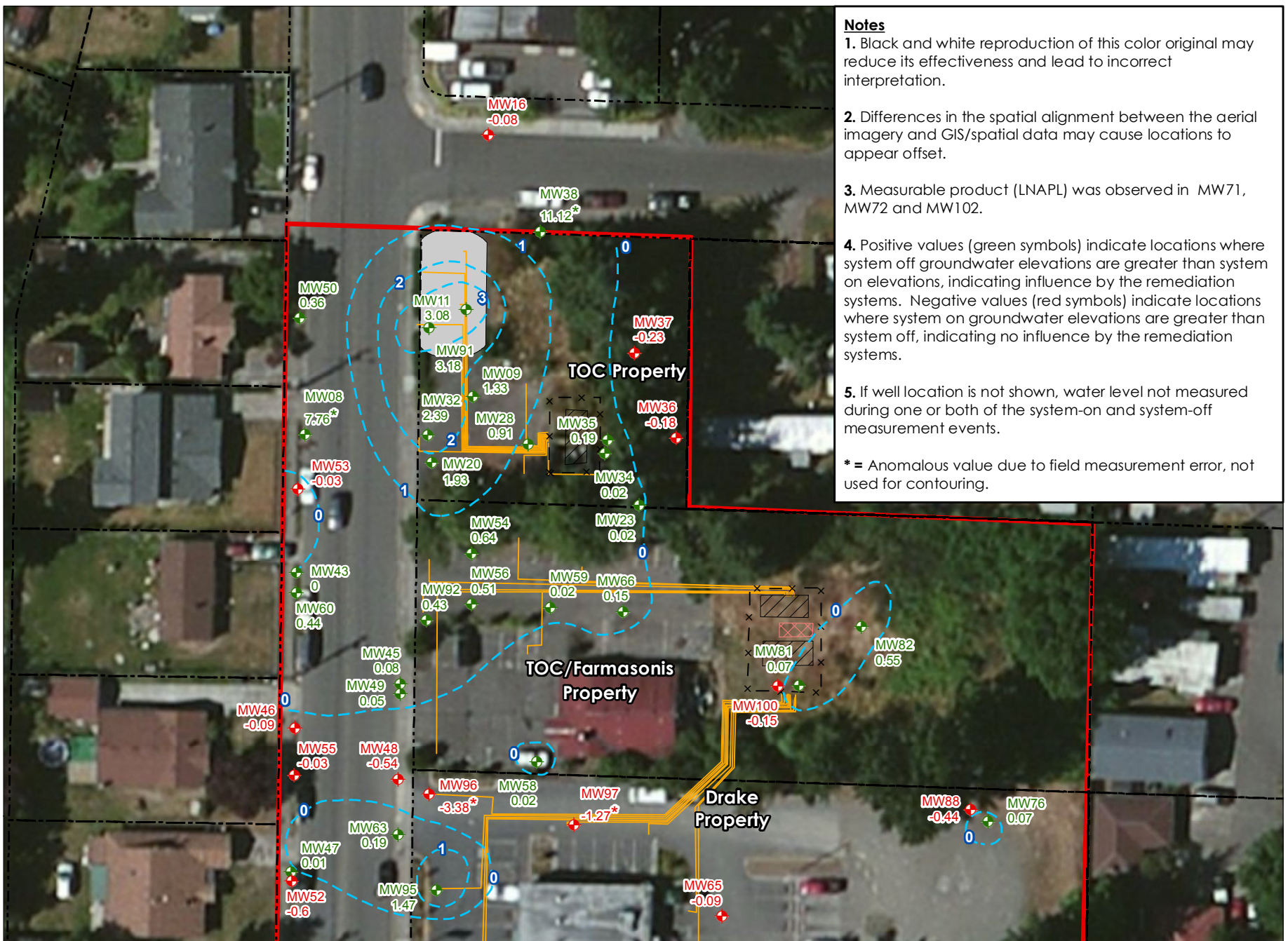
Project Location
24205-24309 56th Avenue West
Mountlake Terrace, Washington

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



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. Measurable product (LNAPL) was observed in MW71, MW72 and MW102.

4. Positive values (green symbols) indicate locations where system off groundwater elevations are greater than system on elevations, indicating influence by the remediation systems. Negative values (red symbols) indicate locations where system on groundwater elevations are greater than system off, indicating no influence by the remediation systems.

5. If well location is not shown, water level not measured during one or both of the system-on and system-off measurement events.

*** =** Anomalous value due to field measurement error, 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, AeroGRID, IGN, 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

- Intermediate Groundwater Zone Monitoring Well Location & Negative Groundwater Elevation Comparison (System Off - System On, feet)
- Intermediate Groundwater Zone Monitoring Well Location & Positive Groundwater Elevation Comparison (System Off - System On, feet)
- System On/Off Comparison Contour (System Off - System On, feet)
- Remediation System Piping
- Parcel Boundary
- Site Boundary
- Estimated Historic Soil Excavation
- Remediation System Compound
- Compound Fence
- Equipment Shed

Figure No.
5c

Title
Comparison of System-On and System-Off Groundwater Elevations September 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

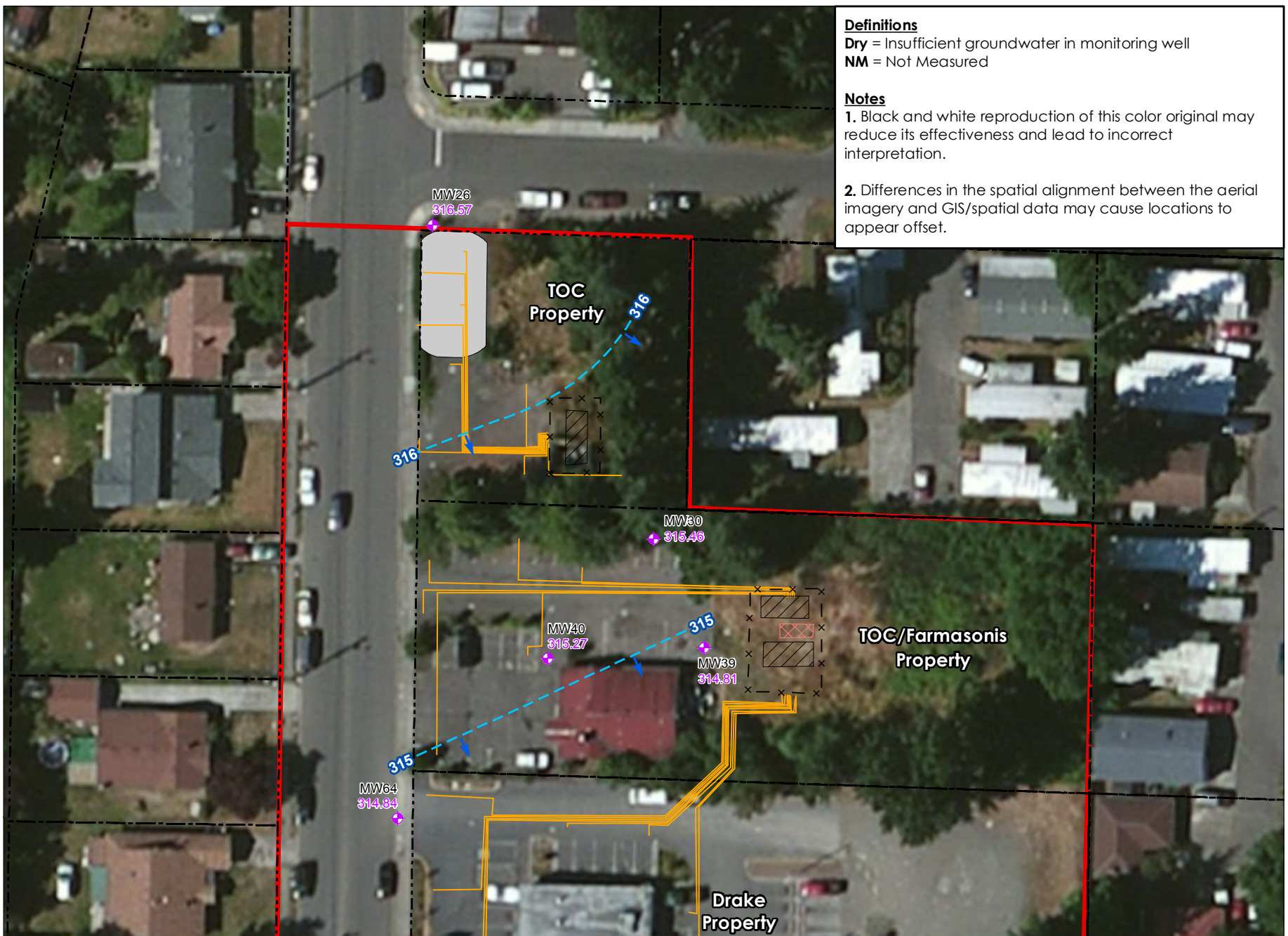
Stantec

U:\Re...MEDADV.WA\Clients\Time_Q\N\TOC-Mountlake Terrace_BA140\2800\MXDs\2016_3Q\Fig_6_3Q16_GWE_DZ_map.mxd Revised: 2016-12-07 By: nfaust

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, AeroGRID, IGN, 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.
6

Title
Groundwater Elevation Contours, Deep Zone (System Off), September 2, 2016

Client/Project
TOC Holdings Co.
Facility 01-176

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

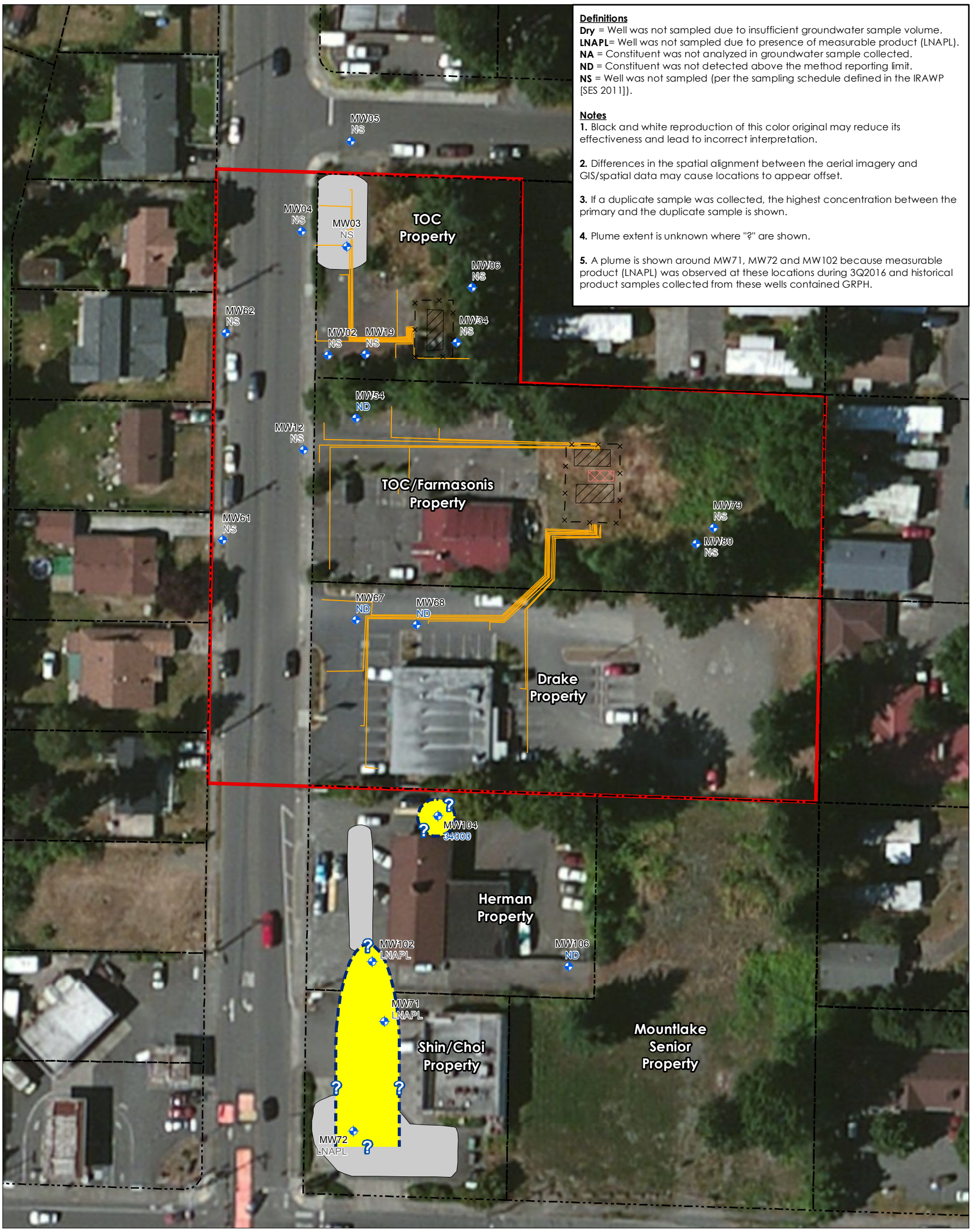
185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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

N

Stantec

U:\Pe...\MED\ADV\WA\Client\Vime...GIN\TOC-Mountlake Terrace_BA140280O\MXDs\2016_3Q\Fig_7_3Q16_GRPH_SZ_map.mxd Revised: 2016-12-06 By: nfaust



Definitions
Dry = Well was not sampled due to insufficient groundwater sample volume.
LNAPL= Well was not sampled due to presence of measurable product (LNAPL).
NA = Constituent was not analyzed in groundwater sample collected.
ND = Constituent was not detected above the method reporting limit.
NS = Well was not sampled (per the sampling schedule defined in the IRAWP [SES 2011]).

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 3Q2016 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, AeroGRID, IGN, 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.
7

Title
GRPH Concentrations Shallow Zone, Third Quarter 2016

Client/Project
TOC Holdings Co.
Facility 01-176

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

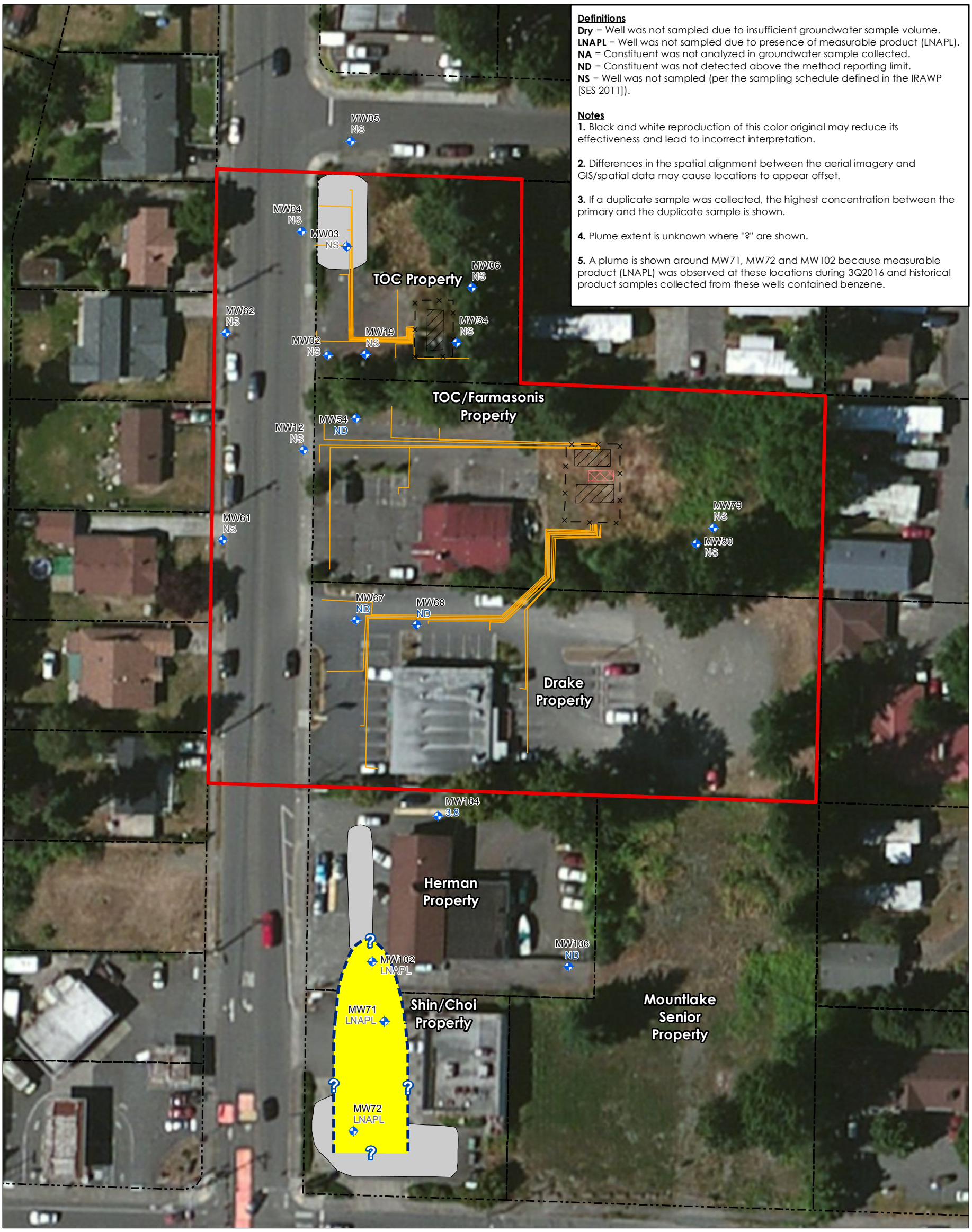
185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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

N

Stantec

U:\Pre_MEDA\DV\WA\Clients\Time_Oil\TOC-Mountlake Terrace_BA1402800\MXDs\2016_3Q\Fig_8_3Q16_Benzene_SZ_map.mxd Revised: 2016-12-06 By: nfaust



Definitions
Dry = Well was not sampled due to insufficient groundwater sample volume.
LNAPL = Well was not sampled due to presence of measurable product (LNAPL).
NA = Constituent was not analyzed in groundwater sample collected.
ND = Constituent was not detected above the method reporting limit.
NS = Well was not sampled (per the sampling schedule defined in the IRAWP [SES 2011]).

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 3Q2016 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, AeroGRID, IGN, 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.
8

Title
Benzene Concentrations Shallow Zone, Third Quarter 2016

Client/Project
TOC Holdings Co.
Facility 01-176

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

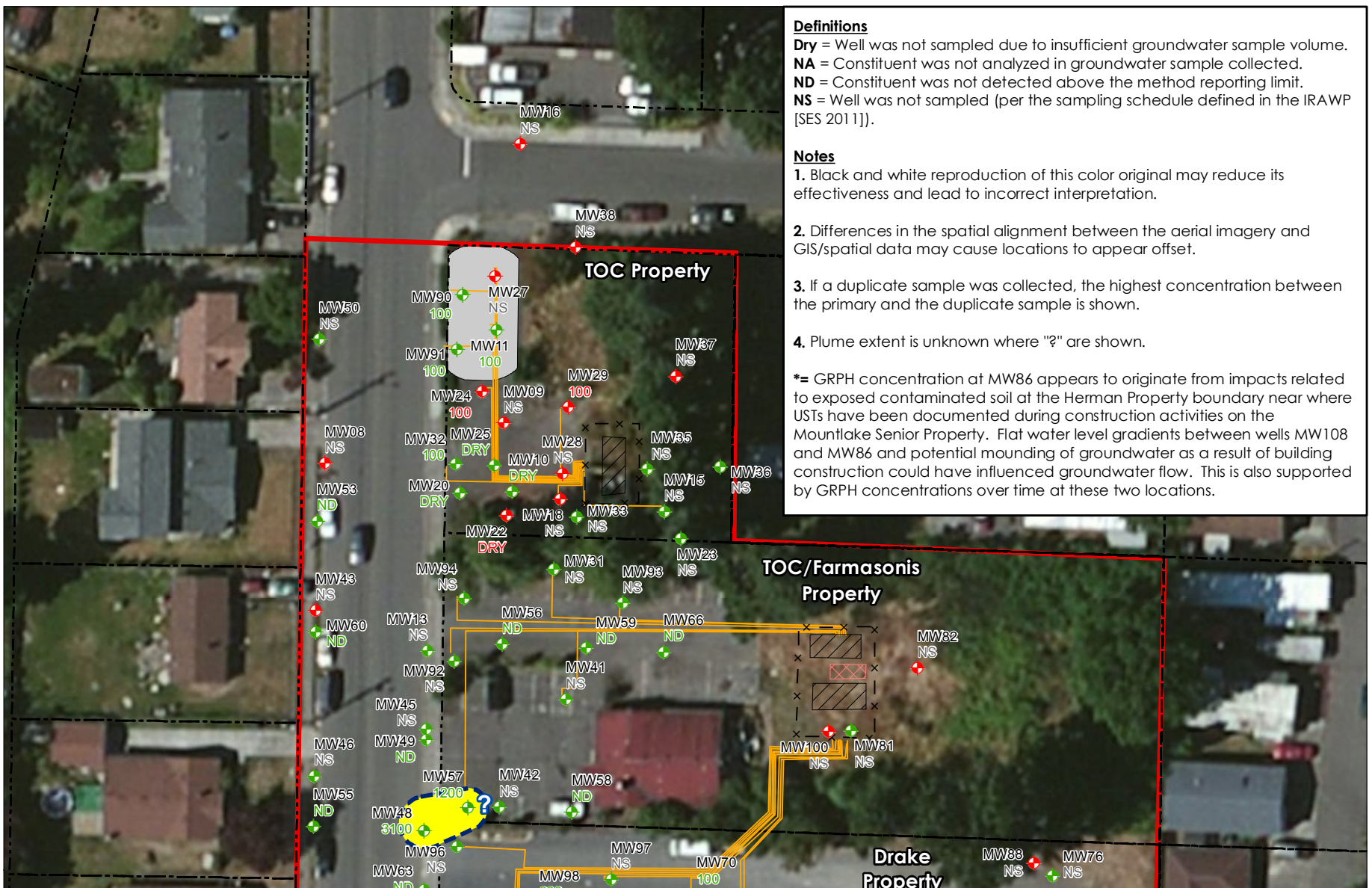
185703259
Prepared by NF
Technical Review by RB
Independent Review by MM

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

N

Stantec

U:\Pre_MED\ADV\WA\Client\Time_Oil\TOC-MountlakeTerrace_BA\402800\MXDs\2016_3Q\Fig_9_3Q16_GRPH_IZ_map.mxd Revised: 2017-01-18 By: nfaust



Definitions

Dry = Well was not sampled due to insufficient groundwater sample volume.
NA = Constituent was not analyzed in groundwater sample collected.
ND = Constituent was not detected above the method reporting limit.
NS = Well was not sampled (per the sampling schedule defined in the IRAWP [SES 2011]).

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.

***=** GRPH concentration at MW86 appears to originate from impacts related to exposed contaminated soil at the Herman Property boundary near where USTs have been documented during construction activities on the Mountlake Senior Property. Flat water level gradients between wells MW108 and MW86 and potential mounding of groundwater as a result of building construction could have influenced groundwater flow. This is also supported by GRPH concentrations over time at these two locations.

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, AeroGRID, IGN, 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 — 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.
9

Title
GRPH Concentrations Intermediate Zone, Third Quarter 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

Dry = Well was not sampled due to insufficient groundwater sample volume.
NA = Constituent was not analyzed in groundwater sample collected.
ND = Constituent was not detected above the method reporting limit.
NS = Well was not sampled (per the sampling schedule defined in the IRAWP [SES 2011]).

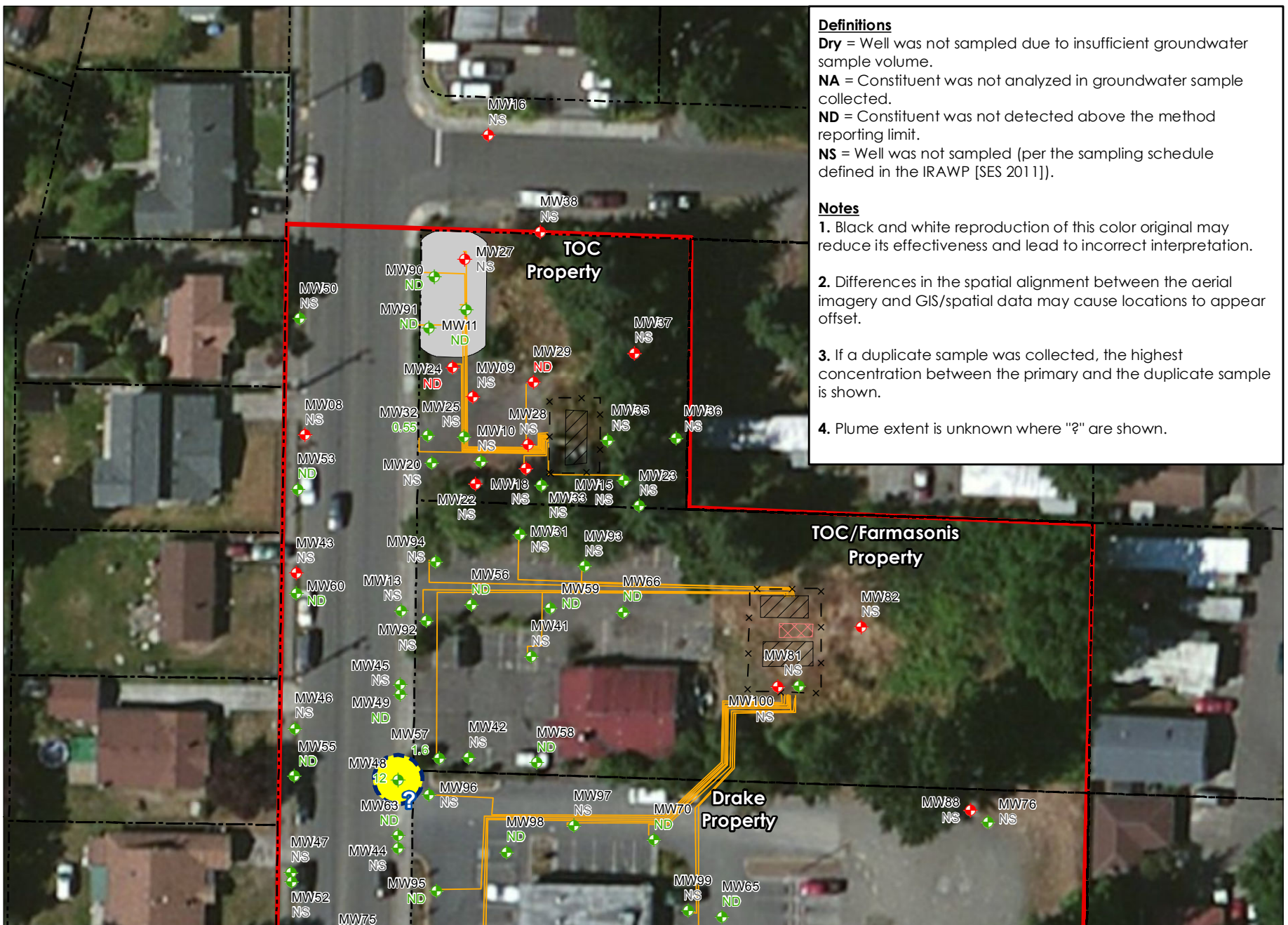
Notes

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, AeroGRID, IGN, 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 — 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.
10

Title
Benzene Concentrations Intermediate Zone, Third Quarter 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

Appendices

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

September 21, 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 August 26, 2016 from the TOC_01-176, WORFDB8 F&BI 608503 project. There are 45 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
HDC0921R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 26, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 608503 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
608503 -01	MW11
608503 -02	MW24
608503 -03	MW29
608503 -04	MW32
608503 -05	MW57
608503 -06	MW70
608503 -07	MW90
608503 -08	MW91
608503 -09	MW95
608503 -10	MW98
608503 -11	TB-01
608503 -12	MW101

Samples were analyzed for NWTPH-Gx outside of holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503
Date Extracted: 09/09/16
Date Analyzed: 09/09/16

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 ht 608503-01	<100	93
MW24 ht 608503-02	<100	94
MW29 ht 608503-03	<100	95
MW32 ht 608503-04	<100	96
MW57 ht 608503-05	1,200	104
MW70 ht 608503-06	<100	96
MW90 ht 608503-07	<100	95
MW91 ht 608503-08	<100	96
MW95 ht 608503-09	<100	95
MW98 ht 608503-10	330	98

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503
Date Extracted: 09/09/16
Date Analyzed: 09/09/16

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)
TB-01 ht 608503-11	<100	90
MW101 ht 608503-12	<100	96
Method Blank 06-1862 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW11	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-01
Date Analyzed:	08/30/16	Data File:	082930.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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:	MW24	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-02
Date Analyzed:	08/30/16	Data File:	082931.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	107	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:	MW29	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-03
Date Analyzed:	08/30/16	Data File:	082932.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	96	63	127
4-Bromofluorobenzene	106	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:	MW32	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-04
Date Analyzed:	08/30/16	Data File:	082933.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	0.55
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	2.3
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW57	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-05
Date Analyzed:	08/30/16	Data File:	082934.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	1.6
Toluene	1.4
Ethylbenzene	11
m,p-Xylene	63
o-Xylene	6.3

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW70	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-06
Date Analyzed:	08/30/16	Data File:	082935.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	107	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:	MW90	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-07
Date Analyzed:	08/30/16	Data File:	082936.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	107	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:	MW91	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-08
Date Analyzed:	08/30/16	Data File:	082937.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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:	MW95	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-09
Date Analyzed:	08/30/16	Data File:	082938.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	106	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:	MW98	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-10
Date Analyzed:	08/30/16	Data File:	082939.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	1.2
m,p-Xylene	6.9
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	TB-01	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-11
Date Analyzed:	08/30/16	Data File:	082940.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	96	63	127
4-Bromofluorobenzene	107	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:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-12
Date Analyzed:	08/30/16	Data File:	082941.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	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 608503
Date Extracted:	08/29/16	Lab ID:	06-1721 mb
Date Analyzed:	08/29/16	Data File:	082922.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	96	63	127
4-Bromofluorobenzene	106	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: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503
Date Extracted: 08/29/16
Date Analyzed: 08/29/16

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)
MW70 608503-06 1/1.2	<50	<290	98
MW91 608503-08	<50	<250	91
MW101 608503-12 1/1.2	<50	<310	98
Method Blank 06-1781 MB	<50	<250	88

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW29	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-03
Date Analyzed:	09/06/16	Data File:	608503-03.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	2.97

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW32	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-04
Date Analyzed:	09/06/16	Data File:	608503-04.094
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW70	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-06
Date Analyzed:	09/06/16	Data File:	608503-06.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.22

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW90	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-07
Date Analyzed:	09/06/16	Data File:	608503-07.097
Matrix:	Water	Instrument:	ICPMS2
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:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-08
Date Analyzed:	09/06/16	Data File:	608503-08.098
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW101	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-12
Date Analyzed:	09/06/16	Data File:	608503-12.100
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	I6-587 mb
Date Analyzed:	09/06/16	Data File:	I6-587 mb.072
Matrix:	Water	Instrument:	ICPMS2
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:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-03
Date Analyzed:	09/07/16	Data File:	608503-03.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	597

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW32	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-04
Date Analyzed:	09/07/16	Data File:	608503-04.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	35.2

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW70	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-06
Date Analyzed:	09/07/16	Data File:	608503-06.051
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.44

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW90	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-07
Date Analyzed:	09/07/16	Data File:	608503-07.053
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	5.54

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW91	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-08
Date Analyzed:	09/07/16	Data File:	608503-08.054
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	12.8

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW101	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	608503-12
Date Analyzed:	09/07/16	Data File:	608503-12.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.45

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	09/06/16	Lab ID:	I6-588 mb
Date Analyzed:	09/07/16	Data File:	I6-588 mb.025
Matrix:	Water	Instrument:	ICPMS2
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:	MW70	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-06 1/2
Date Analyzed:	08/30/16	Data File:	083012.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	116	31	160
Benzo(a)anthracene-d12	109	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:	MW91	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-08 1/2
Date Analyzed:	08/30/16	Data File:	083013.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	115	31	160
Benzo(a)anthracene-d12	112	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:	MW101	Client:	HydroCon
Date Received:	08/26/16	Project:	TOC_01-176, WORFDB8 F&BI 608503
Date Extracted:	08/29/16	Lab ID:	608503-12 1/2
Date Analyzed:	08/30/16	Data File:	083014.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	113	31	160
Benzo(a)anthracene-d12	106	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 608503
Date Extracted:	08/29/16	Lab ID:	06-1782 mb
Date Analyzed:	08/30/16	Data File:	083006.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	31	160
Benzo(a)anthracene-d12	107	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: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503
Date Extracted: 09/06/16
Date Analyzed: 09/06/16

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 608503-06	<0.01
TB-01 608503-11	<0.01
MW101 608503-12	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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

Laboratory Code: 608503-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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

Laboratory Code: 608503-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	91	69-133
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	97	76-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	94	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	91	92	64-147	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	91	91	73-132	0
Benzene	ug/L (ppb)	50	91	91	69-134	0
Toluene	ug/L (ppb)	50	97	97	72-122	0
Ethylbenzene	ug/L (ppb)	50	96	97	77-124	1
m,p-Xylene	ug/L (ppb)	100	98	98	83-125	0
o-Xylene	ug/L (ppb)	50	95	95	81-121	0

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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	81	85	63-142	5

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 609022-02 (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	83	82	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608503-03 (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	597	144 b	124 b	70-130	15 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	102	85-115

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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	83	87	67-116	5
Acenaphthylene	ug/L (ppb)	1	87	91	65-119	4
Acenaphthene	ug/L (ppb)	1	86	89	66-118	3
Fluorene	ug/L (ppb)	1	89	92	64-125	3
Phenanthrene	ug/L (ppb)	1	86	90	67-120	5
Anthracene	ug/L (ppb)	1	86	89	65-122	3
Fluoranthene	ug/L (ppb)	1	87	89	65-127	2
Pyrene	ug/L (ppb)	1	88	95	62-130	8
Benz(a)anthracene	ug/L (ppb)	1	88	90	60-118	2
Chrysene	ug/L (ppb)	1	82	85	66-125	4
Benzo(b)fluoranthene	ug/L (ppb)	1	87	91	55-135	4
Benzo(k)fluoranthene	ug/L (ppb)	1	86	89	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	86	88	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	81	75	36-142	8
Dibenz(a,h)anthracene	ug/L (ppb)	1	82	76	37-133	8
Benzo(g,h,i)perylene	ug/L (ppb)	1	76	71	34-135	7

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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

Laboratory Code: 608503-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	91	69-133
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	97	76-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	94	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	91	92	64-147	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	91	91	73-132	0
Benzene	ug/L (ppb)	50	91	91	69-134	0
Toluene	ug/L (ppb)	50	97	97	72-122	0
Ethylbenzene	ug/L (ppb)	50	96	97	77-124	1
m,p-Xylene	ug/L (ppb)	100	98	98	83-125	0
o-Xylene	ug/L (ppb)	50	95	95	81-121	0

Date of Report: 09/21/16
Date Received: 08/26/16
Project: TOC_01-176, WORFDB8 F&BI 608503

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	104	105	70-130	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.

608503

HydroCon

Page # 1 of 2 ME 08/26/16 VS/AIS/RDU

Sampler's Name:	L. Hamba/W. Rajkovich
Project Name:	TOC Holdings Company
Facility Number:	01-176 Montlake Terrace
Facility Address:	System Wells
PO Number:	
EDD Requested:	EIM DataConcourse

Requested Turn Around Time

[x] Standard 10 business days

[ ] Rush

Rush Charges Authorized by:

Sample Disposal: (30 days) Return Will Call

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

Additional Comments: Trip Blank provided by laboratory. All soil samples and trip blanks delivered in same cooler. Dissolved Pb samples were field filtered and preserved

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	TPH-Gx	8260C BTEX	8260C MTBE	8260C EDC	8011M EDB	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF			Site Name
							ANALYSES REQUESTED											
1	MW11	01 A-F	08/23/16	1315	W	6	X	X										TOC
2	MW24	02 A-F	08/23/16	1526	W	6	X	X										TOC
3	~~MW27~~				~~W~~		~~X~~	~~X~~										dry TOC
4	MW29	03 A-H	08/23/16 @	1435	W	8	X	X						X	X			TOC
5	~~MW31~~				~~W~~		~~X~~	~~X~~						~~X~~	~~X~~			dry TOC-Farmasonis
6	MW32	04 A-H	08/23/16	1323	W	8	X	X						X	X			TOC
7	MW57	05 A-F	08/24/16	1405	W	6	X	X	X									TOC-Farmasonis
8	MW70	06 A-L	08/24/16	1555	W	MS/MSD 12	X	X	X	X	X	X	X	X	X			Drake
9	MW90	07 A-H	08/23/16	1227	W	8	X	X						X	X			TOC
10	MW91	08 A-I	08/23/16	1333	W	Extra 10	X	X	X			X	X	X	X			TOC
11	MW95	09 A-F	08/24/16	1532	W	6	X	X	X									Drake

Samples received at 4 °C

	Signature	Print Name	Time	Date
Relinquished by:		Larry Hamba	0857	26 August 2016
Received by:		Nhan Phan	0857	26 August 2016
Relinquished by:				
Received by:				

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

6085O3

Hydro Con

Page # 2 of 2

MG 08/26/16 V5/AES/ AOY

Sampler's Name:	L. Namba / W. Rajkovich
Project Name:	TOC Holdings Company
Facility Number:	01-176 Montlake Terrace
Facility Address:	System Wells
PO Number:	
EDD Requested:	EIM DataConcourse

Requested Turn Around Time

[x] Standard 10 business days

[ ] Rush _____

Rush Charges Authorized by: _____

Sample Disposal: (30 days) Return Will Call

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

Additional Comments: Trip Blank provided by laboratory. All VOA samples and TB01 packed in same cooler. Dissolved Pb samples field filtered and preserved.

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	TPH-Gx	8260C BTEX	8260C MTBE	8260C EDC	8011M EDB	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF			Site Name
							ANALYSES REQUESTED											
1	~~MW96~~				~~W~~		~~X~~	~~X~~	~~X~~									Dry Drake
2	MW98	10 A-F	08/24/16	1508	W	6	X	X	X									Drake
3	TB-01	11 A-H	08/23/16	0800	W	8	X	X	X	X	X							
4	MW101	12 A-L	08/24/16	1512	W	~~12~~ 10 NAP	+	+	+	+	+	+	+	+	+			+ per LN 8/26/16 MS.
5																		
6																		
7																		
8																		
9																		
10																		Samples received at 4 °C
11																		

	Signature	Print Name	Time	Date
Relinquished by:		Larry Namba	0857	26 August 2016
Received by:		Nhan Phan	0857	26 August 2016
Relinquished by:				
Received by:				

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

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

September 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 August 30, 2016 from the TOC_01-176, WORFDB8 F&BI 608555 project. There are 25 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
HDC0915R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 30, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 608555 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
608555 -01	MW53
608555 -02	WB01
608555 -03	EB-01

The 8270D SIM benzo(b)fluoranthene and benzo(a)pyrene matrix spike and matrix spike duplicate failed the acceptance criteria. In addition, the relative percent difference failed the acceptance criteria for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The laboratory control sample and laboratory control sample passed the acceptance criteria, therefore the results are likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555
Date Extracted: 08/30/16
Date Analyzed: 08/30/16

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)
MW53 608555-01	<100	96
WB01 608555-02	<100	95
EB-01 608555-03	<100	94
Method Blank 06-1771 MB	<100	86

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555
Date Extracted: 09/01/16
Date Analyzed: 09/01/16

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)
WB01 608555-02 1/1.1	<55	<280	106
Method Blank 06-1821 MB	<50	<250	100

Analysis For Total Metals By EPA Method 200.8

Client ID:	WB01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/07/16	Lab ID:	608555-02
Date Analyzed:	09/07/16	Data File:	608555-02.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB-01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/07/16	Lab ID:	608555-03
Date Analyzed:	09/07/16	Data File:	608555-03.117
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/07/16	Lab ID:	I6-595 mb
Date Analyzed:	09/07/16	Data File:	I6-595 mb.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	WB01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/07/16	Lab ID:	608555-02
Date Analyzed:	09/07/16	Data File:	608555-02.070
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.36

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/07/16	Lab ID:	I6-587 mb2
Date Analyzed:	09/07/16	Data File:	I6-587 mb2.065
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW53	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	06/30/16	Lab ID:	608555-01
Date Analyzed:	08/30/16	Data File:	083041.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	96	63	127
4-Bromofluorobenzene	106	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 608555
Date Extracted:	08/30/16	Lab ID:	06-1724 mb
Date Analyzed:	08/30/16	Data File:	083015.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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:	WB01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	06/30/16	Lab ID:	608555-02
Date Analyzed:	08/30/16	Data File:	083042.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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:	EB-01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	06/30/16	Lab ID:	608555-03
Date Analyzed:	08/31/16	Data File:	083043.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	96	63	127
4-Bromofluorobenzene	107	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 608555
Date Extracted:	08/30/16	Lab ID:	06-1724 mb
Date Analyzed:	08/30/16	Data File:	083015.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555
Date Extracted: 09/06/16
Date Analyzed: 09/06/16

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
WB01 608555-02	<0.01
EB-01 608555-03	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	WB01	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608555
Date Extracted:	09/01/16	Lab ID:	608555-02 1/2
Date Analyzed:	09/02/16	Data File:	090206.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	127	31	160
Benzo(a)anthracene-d12	130	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 608555
Date Extracted:	09/01/16	Lab ID:	06-1822 mb
Date Analyzed:	09/02/16	Data File:	090205.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	122	31	160
Benzo(a)anthracene-d12	120	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: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

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

Laboratory Code: 608555-01 (Duplicate)

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

Laboratory Code: 608556-02 (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	94	95	50-150	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	70-119

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 608556-02 (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)	2,500	<50	126	132	64-141	5

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	96	99	61-133	3

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608555-02 (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	97	100	70-130	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 609022-02 (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	83	82	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

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

Laboratory Code: 608538-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	96	76-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	95	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	88	88	69-134	0
Toluene	ug/L (ppb)	50	95	93	72-122	2
Ethylbenzene	ug/L (ppb)	50	94	93	77-124	1
m,p-Xylene	ug/L (ppb)	100	96	94	83-125	2
o-Xylene	ug/L (ppb)	50	93	91	81-121	2

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

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

Laboratory Code: 608538-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	92	69-133
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Toluene	ug/L (ppb)	50	<1	96	76-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	95	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	89	88	64-147	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	90	88	73-132	2
Benzene	ug/L (ppb)	50	88	88	69-134	0
Toluene	ug/L (ppb)	50	95	93	72-122	2
Ethylbenzene	ug/L (ppb)	50	94	93	77-124	1
m,p-Xylene	ug/L (ppb)	100	96	94	83-125	2
o-Xylene	ug/L (ppb)	50	93	91	81-121	2

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

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	104	105	70-130	1

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608555

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 608556-02 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)	2	<0.06	82	80	10-172	2
Acenaphthylene	ug/L (ppb)	2	<0.06	82	82	38-137	0
Acenaphthene	ug/L (ppb)	2	<0.06	83	84	20-150	1
Fluorene	ug/L (ppb)	2	<0.06	87	87	10-181	0
Phenanthrene	ug/L (ppb)	2	<0.06	86	87	58-109	1
Anthracene	ug/L (ppb)	2	<0.06	85	85	47-114	0
Fluoranthene	ug/L (ppb)	2	<0.06	87	87	10-171	0
Pyrene	ug/L (ppb)	2	<0.06	86	84	63-107	2
Benz(a)anthracene	ug/L (ppb)	2	<0.06	87	83	60-93	5
Chrysene	ug/L (ppb)	2	<0.06	85	82	60-102	4
Benzo(b)fluoranthene	ug/L (ppb)	2	<0.06	54 vo	49 vo	62-91	10
Benzo(k)fluoranthene	ug/L (ppb)	2	<0.06	60	52	51-98	14
Benzo(a)pyrene	ug/L (ppb)	2	<0.06	55 vo	48 vo	60-86	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2	<0.06	19	15	10-98	24 vo
Dibenz(a,h)anthracene	ug/L (ppb)	2	<0.06	21	15	10-97	33 vo
Benzo(g,h,i)perylene	ug/L (ppb)	2	<0.06	22	16	10-102	32 vo

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	80	82	67-116	2
Acenaphthylene	ug/L (ppb)	1	82	85	65-119	4
Acenaphthene	ug/L (ppb)	1	83	86	66-118	4
Fluorene	ug/L (ppb)	1	87	89	64-125	2
Phenanthrene	ug/L (ppb)	1	86	88	67-120	2
Anthracene	ug/L (ppb)	1	85	87	65-122	2
Fluoranthene	ug/L (ppb)	1	87	90	65-127	3
Pyrene	ug/L (ppb)	1	84	85	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	85	87	60-118	2
Chrysene	ug/L (ppb)	1	84	85	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	81	85	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	80	82	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	75	75	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	71	73	37-133	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	71	73	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.

608555

MB 08-30-16

Page # 1 of 2

V2/No4/Air

HydroCon

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

Sampler's Name: L. Namba / W. Rajkovich
Project Name: TOC Holdings Company
Facility Number: 01-176 Montlake Terrace
Facility Address: TOC Property
PO Number:
EDD Requested: EIM DataConcourse

Requested Turn Around Time
[x] Standard 10 business days
[ ] Rush
Rush Charges Authorized by:
Sample Disposal: (30 days) Return Will Call

Additional Comments: WB01 applies to all site properties. DI water provided by laboratory. Dissolved Pb samples were field filtered and preserved.

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	TPH-Gx	8260C BTEX	8260C MTBE	TPH-Dx	8270SIM PAHs						Samples received at 3 °C Notes
1	~~MW09~~				W		X	X									0.76' water
2	~~MLT-02~~				W		X	X									0.76' water
3	~~MW10~~				W		X	X									Dry
4	~~MW15~~				W		X	X									System Well-Pump Pulled Dry
5	~~MW20~~				W		X	X	X	X	X						1.17' water - insufficient for Pump
6	~~MLT-03~~				W		X	X	X	X	X						1.17' water - insufficient for Pump
7	~~MW22~~				W		X	X									Dry
8	~~MW25~~				W		X	X									Submersible Pump Dry
9	~~MW28~~				W		X	X									0.24' water
10	~~MLT-04~~				W		X	X									0.24' water
11	~~MW33~~				W		X	X									0.30' water

ANALYSES REQUESTED

	Signature	Print Name	Time	Date
Relinquished by:		Larry Namba	0953	30 August 2016
Received by:		Nhan Pham	0953	30 August 2016
Relinquished by:				
Received by:				

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

608555

ME 08-30-16

Page # 2 of 2

V2/A04 A12

Hydro Con

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

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

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

Additional Comments: WB01 applies to all site properties. Dissolved Pb samples were field filtered and preserved. DI water provided by laboratory.

	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	~~MW50~~				W		X	X										8.38' water
2	MW53	01 A-F	08/25/16	1507	W	6	X	X										Submersible Pump
3	~~EB~~				W		X	X	X	X	X	X	X	X	X			One EB per day of sampling when submersible pump used
4	~~TB~~				W		X	X	X	X	X							
5	WB01	02 A-L	08/26/16	1530	W	12	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6	EB-01	03 A-F	8/25/16	1725	W	6	✓	✓	✓	✓	✓	⊘	⊘	✓	⊘			*added at lab - per LN EDD 8/30/16
7																		8/30/16 MG
8																		
9																		
10																		Samples received at 3 °C
11																		

X insufficient sample M2 8/30/16

	Signature	Print Name	Time	Date
Relinquished by:		Larry Namba	0953	30 August 2016
Received by:		Nhan Phan	0953	30 August 2016
Relinquished by:				
Received by:				

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

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

September 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 August 30, 2016 from the TOC_01-176, WORFDB8 F&BI 608556 project. There are 22 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
HDC0915R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 30, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 608556 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
608556 -01	MW49
608556 -02	MW54
608556 -03	MW56
608556 -04	MW58
608556 -05	MW59
608556 -06	MW60
608556 -07	MW66
608556 -08	EB-02
608556 -09	TB-02
608556 -10	EB-03

The 8270D SIM benzo(b)fluoranthene and benzo(a)pyrene matrix spike and matrix spike duplicate failed the acceptance criteria. In addition, the relative percent difference failed the acceptance criteria for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The laboratory control sample and laboratory control sample passed the acceptance criteria, therefore the results are likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556
Date Extracted: 08/30/16
Date Analyzed: 08/30/16

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)
MW49 608556-01	<100	96
MW54 608556-02	<100	89
MW56 608556-03	<100	94
MW58 608556-04	<100	91
MW59 608556-05	<100	93
MW60 608556-06	<100	87
MW66 608556-07	<100	97
EB-02 608556-08	<100	94
TB-02 608556-09	<100	96
EB-03 608556-10	<100	95
Method Blank 06-1771 MB	<100	86

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556
Date Extracted: 09/01/16
Date Analyzed: 09/01/16

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 608556-02 1/1.2	<60	<300	104
MW66 608556-07	<50	<250	112
Method Blank 06-1821 MB	<50	<250	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW49	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-01
Date Analyzed:	08/31/16	Data File:	083128.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	107	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:	MW54	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-02
Date Analyzed:	08/31/16	Data File:	083129.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	108	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:	MW56	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-03
Date Analyzed:	08/31/16	Data File:	083130.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	108	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:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-04
Date Analyzed:	08/31/16	Data File:	083131.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	108	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:	MW59	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-05
Date Analyzed:	08/31/16	Data File:	083132.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	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:	MW60	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-06
Date Analyzed:	08/31/16	Data File:	083133.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	97	63	127
4-Bromofluorobenzene	105	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:	MW66	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-07
Date Analyzed:	08/31/16	Data File:	083134.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	107	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:	EB-02	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-08
Date Analyzed:	08/31/16	Data File:	083135.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	96	63	127
4-Bromofluorobenzene	106	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:	TB-02	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-09
Date Analyzed:	08/31/16	Data File:	083136.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	107	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:	EB-03	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	08/31/16	Lab ID:	608556-10
Date Analyzed:	08/31/16	Data File:	083137.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	98	63	127
4-Bromofluorobenzene	107	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 608556
Date Extracted:	08/31/16	Lab ID:	06-1795 mb
Date Analyzed:	08/31/16	Data File:	083119.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	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 Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW54	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	09/01/16	Lab ID:	608556-02 1/2
Date Analyzed:	09/02/16	Data File:	090207.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	130	31	160
Benzo(a)anthracene-d12	119	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(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Benzo(a)pyrene	<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:	MW66	Client:	HydroCon
Date Received:	08/30/16	Project:	TOC_01-176, WORFDB8 F&BI 608556
Date Extracted:	09/01/16	Lab ID:	608556-07 1/2
Date Analyzed:	09/02/16	Data File:	090210.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	130	31	160
Benzo(a)anthracene-d12	128	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(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Benzo(a)pyrene	<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 608556
Date Extracted:	09/01/16	Lab ID:	06-1822 mb
Date Analyzed:	09/02/16	Data File:	090205.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	122	31	160
Benzo(a)anthracene-d12	120	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(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Benzo(a)pyrene	<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: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556

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

Laboratory Code: 608555-01 (Duplicate)

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

Laboratory Code: 608556-02 (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	94	95	50-150	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	70-119

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 608556-02 (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)	2,500	<50	126	132	64-141	5

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	96	99	61-133	3

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556

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

Laboratory Code: 608556-02 (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	95	92	74-127	3
Benzene	ug/L (ppb)	50	<0.35	92	89	76-125	3
Toluene	ug/L (ppb)	50	<1	97	94	76-122	3
Ethylbenzene	ug/L (ppb)	50	<1	95	92	69-135	3
m,p-Xylene	ug/L (ppb)	100	<2	97	94	69-135	3
o-Xylene	ug/L (ppb)	50	<1	94	91	60-140	3

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	94	92	64-147	2
Benzene	ug/L (ppb)	50	93	90	69-134	3
Toluene	ug/L (ppb)	50	97	95	72-122	2
Ethylbenzene	ug/L (ppb)	50	96	94	77-124	2
m,p-Xylene	ug/L (ppb)	100	98	95	83-125	3
o-Xylene	ug/L (ppb)	50	95	92	81-121	3

Date of Report: 09/15/16
Date Received: 08/30/16
Project: TOC_01-176, WORFDB8 F&BI 608556

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 608556-02 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)	2	<0.06	82	80	10-172	2
Acenaphthylene	ug/L (ppb)	2	<0.06	82	82	38-137	0
Acenaphthene	ug/L (ppb)	2	<0.06	83	84	20-150	1
Fluorene	ug/L (ppb)	2	<0.06	87	87	10-181	0
Phenanthrene	ug/L (ppb)	2	<0.06	86	87	58-109	1
Anthracene	ug/L (ppb)	2	<0.06	85	85	47-114	0
Fluoranthene	ug/L (ppb)	2	<0.06	87	87	10-171	0
Pyrene	ug/L (ppb)	2	<0.06	86	84	63-107	2
Benz(a)anthracene	ug/L (ppb)	2	<0.06	87	83	60-93	5
Chrysene	ug/L (ppb)	2	<0.06	85	82	60-102	4
Benzo(b)fluoranthene	ug/L (ppb)	2	<0.06	54 vo	49 vo	62-91	10
Benzo(k)fluoranthene	ug/L (ppb)	2	<0.06	60	52	51-98	14
Benzo(a)pyrene	ug/L (ppb)	2	<0.06	55 vo	48 vo	60-86	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2	<0.06	19	15	10-98	24 vo
Dibenz(a,h)anthracene	ug/L (ppb)	2	<0.06	21	15	10-97	33 vo
Benzo(g,h,i)perylene	ug/L (ppb)	2	<0.06	22	16	10-102	32 vo

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	80	82	67-116	2
Acenaphthylene	ug/L (ppb)	1	82	85	65-119	4
Acenaphthene	ug/L (ppb)	1	83	86	66-118	4
Fluorene	ug/L (ppb)	1	87	89	64-125	2
Phenanthrene	ug/L (ppb)	1	86	88	67-120	2
Anthracene	ug/L (ppb)	1	85	87	65-122	2
Fluoranthene	ug/L (ppb)	1	87	90	65-127	3
Pyrene	ug/L (ppb)	1	84	85	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	85	87	60-118	2
Chrysene	ug/L (ppb)	1	84	85	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	81	85	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	80	82	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	75	75	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	71	73	37-133	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	71	73	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.

608556

ME 08/30/16 Page # 1 of 1 46/A05

Hydro Con

Sampler's Name:	L. Namba / W. Rajkovich
Project Name:	TOC Holdings Company
Facility Number:	01-176 Montlake Terrace
Facility Address:	TOC/FARMASONIS
PO Number:	
EDD Requested:	EIM DataConcourse

Requested Turn Around Time

[x] Standard 10 business days

[ ] Rush _____

Rush Charges Authorized by: _____

Sample Disposal: (30 days) Return Will Call

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

Additional Comments: Trip Blank supplied by laboratory, Allies to both Romio and TOC property VOA samples. Equipment blanks collected using DI water provided by the laboratory

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	TPH-Gx	8260C BTEX	8260C MTBE	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF	8260C EDC	8011M EDB			Notes
							ANALYSES REQUESTED											
1	~~MW45~~				~~W~~		~~X~~	~~X~~				~~X~~	~~X~~					0.30' water
2	MW49	01 A-F	08/26/2016	1228	W	6	X	X										Submersible Pump
3	MW54 (MS/MSD)	02 A-X	08/25/16	1540	W	24	X	X	X	X	X							MS/MSD
4	MW56	03 A-F	08/26/16	1412	W	6	X	X										Submersible Pump
5	MW58	04	08/29/16	1652	W	6	X	X										Submersible Pump
6	MW59	05	08/29/16	1550	W	6	X	X										Submersible Pump
7	MW60	06	08/26/16	1110	W	6	X	X										Submersible Pump
8	MW66	07 A-H	08/25/16	1639	W	(6) 8	X	X	X	X	X							
9	EB-02	08 A-F	08/26/16	1305	W	6	X	X	X	~~X~~	~~X~~	~~X~~	~~X~~					One EB per day of sampling when submersible pump used
10	TB-02	09	08/26/16	0800	W	6	X	X	X					~~X~~	~~X~~			Applies to TOC/Romio Prop.
11	EB03	10	08/26/16	1515	W	6	✓	✓										Bladder Pump

	Signature	Print Name	Time	Date
Relinquished by:		Larry Namba	0953	30 August 2016
Received by:		Nhan Phan	0953	30 August 2016
Relinquished by:				
Received by:				

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

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

September 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 September 1, 2016 from the TOC_01-176, WORFDB8 F&BI 609021 project. There are 10 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
HDC0915R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 1, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 609021 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
609021 -01	EB-04

All quality control requirements were acceptable.

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609021
Date Extracted: 09/02/16
Date Analyzed: 09/02/16

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)
EB-04 609021-01	<100	95
Method Blank 06-1809 MB	<100	98

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB-04	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609021
Date Extracted:	09/06/16	Lab ID:	609021-01
Date Analyzed:	09/07/16	Data File:	609021-01.031
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609021
Date Extracted:	09/06/16	Lab ID:	I6-588 mb
Date Analyzed:	09/07/16	Data File:	I6-588 mb.025
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB-04	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609021
Date Extracted:	09/02/16	Lab ID:	609021-01
Date Analyzed:	09/02/16	Data File:	090219.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	105	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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 609021
Date Extracted:	09/02/16	Lab ID:	06-1801 mb
Date Analyzed:	09/02/16	Data File:	090210.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609021

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

Laboratory Code: 609026-01 (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	103	69-134

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609021

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608503-03 (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	597	144 b	124 b	70-130	15 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	102	85-115

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609021

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

Laboratory Code: 609022-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	1.2	115	74-127
Benzene	ug/L (ppb)	50	1,800	0 b	76-125
Toluene	ug/L (ppb)	50	1,200	93 b	76-122
Ethylbenzene	ug/L (ppb)	50	810	67 b	69-135
m,p-Xylene	ug/L (ppb)	100	2,600	114 b	69-135
o-Xylene	ug/L (ppb)	50	1,900	174 b	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	88	90	64-147	2
Benzene	ug/L (ppb)	50	86	89	69-134	3
Toluene	ug/L (ppb)	50	91	94	72-122	3
Ethylbenzene	ug/L (ppb)	50	90	93	77-124	3
m,p-Xylene	ug/L (ppb)	100	92	94	83-125	2
o-Xylene	ug/L (ppb)	50	89	91	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.

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.

609021

Page # 1 of 1 ME 9/1/16 V1

HydroCon

Sampler's Name:	L. Namba / W. Rajkovich
Project Name:	TOC Holdings Company
Facility Number:	01-176 Montlake Terrace
Facility Address:	TOC/FARMASONIS
PO Number:	
EDD Requested:	EIM DataConcourse

Requested Turn Around Time

[x] Standard 10 business days

[ ] Rush

Rush Charges Authorized by:

Sample Disposal: 30 days Return Will Call

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

Additional Comments:

	Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	TPH-Gx	8260C BTEX	8260C MTBE	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF	8260C EDC	8011M EDB			Notes
							ANALYSES REQUESTED											* insufficient Sample per MG 9/1/16 MG
1	MW45				W		X	X				X	X					
2	MW49				W		X	X										Submersible Pump
3	MW54				W		X	X	X	X	X							MS/MSD
4	MW56				W		X	X										Submersible Pump
5	MW58				W		X	X										Submersible Pump
6	MW59				W		X	X										Submersible Pump
7	MW60				W		X	X										Submersible Pump
8	MW66				W		X	X	X	X	X							
9	EB-01	01 A F	8/30/16	1215	W	6	X	X	X	~~X~~	~~X~~	X	~~X~~					One EB per day of sampling when submersible pump used
10	TB-01		8/29/16	0800	W		X	X	X					X	X			
11																		Samples received at 4 °C

	Signature	Print Name	Time	Date
Relinquished by:		Larry Namba	0935	01 September 2016
Received by:		Nhan Phan	0935	01 September 2016
Relinquished by:				
Received by:				

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

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

September 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 September 1, 2016 from the TOC_01-176, WORFDB8 F&BI 609022 project. There are 28 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
HDC0915R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 1, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 609022 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
609022 -01	MW73
609022 -02	MW74
609022 -03	TB-03

The 8270D SIM benzo(b)fluoranthene and benzo(a)pyrene matrix spike and matrix spike duplicate failed the acceptance criteria. In addition, the relative percent difference failed the acceptance criteria for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The laboratory control sample and laboratory control sample passed the acceptance criteria, therefore the results are likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022
Date Extracted: 09/01/16
Date Analyzed: 09/02/16 and 09/08/16

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 50-150)
MW73 609022-01 1/100	97,000	100
MW74 609022-02	590	101
TB-03 609022-03	<100	94
Method Blank 06-1808 MB	<100	95

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022
Date Extracted: 09/01/16
Date Analyzed: 09/02/16

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)
MW73 609022-01	3,400 x	<250	ip
MW74 609022-02 1/1.7	410 x	<425	79
Method Blank 06-1821 MB	<50	<250	100

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW73	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	609022-01
Date Analyzed:	09/07/16	Data File:	609022-01.032
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW74	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	609022-02
Date Analyzed:	09/07/16	Data File:	609022-02.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.70

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	I6-588 mb
Date Analyzed:	09/07/16	Data File:	I6-588 mb.025
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW73	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	609022-01
Date Analyzed:	09/06/16	Data File:	609022-01.074
Matrix:	Water	Instrument:	ICPMS2
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	609022-02
Date Analyzed:	09/06/16	Data File:	609022-02.082
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/06/16	Lab ID:	I6-587 mb
Date Analyzed:	09/06/16	Data File:	I6-587 mb.072
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/02/16	Lab ID:	609022-01
Date Analyzed:	09/02/16	Data File:	090220.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	108	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	1.2
1,2-Dichloroethane (EDC)	<1
Benzene	1,800 ve
Toluene	1,200 ve
Ethylbenzene	810 ve
m,p-Xylene	2,600 ve
o-Xylene	1,900 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/02/16	Lab ID:	609022-01 1/100
Date Analyzed:	09/06/16	Data File:	090619.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
Benzene	11,000
Toluene	2,100
Ethylbenzene	2,000
m,p-Xylene	5,900
o-Xylene	3,100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/02/16	Lab ID:	609022-02
Date Analyzed:	09/06/16	Data File:	090621.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	260 ve
1,2-Dichloroethane (EDC)	<1
Benzene	140
Toluene	11
Ethylbenzene	9.0
m,p-Xylene	11
o-Xylene	2.5

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/02/16	Lab ID:	609022-02 1/10
Date Analyzed:	09/06/16	Data File:	090618.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	260
1,2-Dichloroethane (EDC)	<10
Benzene	140
Toluene	11
Ethylbenzene	<10
m,p-Xylene	<20
o-Xylene	<10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	TB-03	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/02/16	Lab ID:	609022-03
Date Analyzed:	09/06/16	Data File:	090616.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	97	63	127
4-Bromofluorobenzene	104	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 609022
Date Extracted:	09/02/16	Lab ID:	06-1801 mb
Date Analyzed:	09/02/16	Data File:	090210.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022
Date Extracted: 09/06/16
Date Analyzed: 09/06/16

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 609022-01	0.073
MW74 609022-02	0.012
TB-03 609022-03	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW73	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/01/16	Lab ID:	609022-01 1/2
Date Analyzed:	09/02/16	Data File:	090211.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	78	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	270 ve
Acenaphthylene	<0.06
Acenaphthene	0.21
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/01/16	Lab ID:	609022-01 1/200
Date Analyzed:	09/06/16	Data File:	090605.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	72 d	31	160
Benzo(a)anthracene-d12	102 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	360
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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW74	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609022
Date Extracted:	09/01/16	Lab ID:	609022-02 1/2
Date Analyzed:	09/02/16	Data File:	090212.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	0.33
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 609022
Date Extracted:	09/01/16	Lab ID:	06-1822 mb
Date Analyzed:	09/02/16	Data File:	090205.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	122	31	160
Benzo(a)anthracene-d12	120	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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

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

Laboratory Code: 609023-02 (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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 608556-02 (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)	2,500	<50	126	132	64-141	5

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	96	99	61-133	3

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608503-03 (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	597	144 b	124 b	70-130	15 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	102	85-115

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 609022-02 (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	83	82	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

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

Laboratory Code: 609022-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	1.2	115	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	126	69-133
Benzene	ug/L (ppb)	50	1,800	0 b	76-125
Toluene	ug/L (ppb)	50	1,200	93 b	76-122
Ethylbenzene	ug/L (ppb)	50	810	67 b	69-135
m,p-Xylene	ug/L (ppb)	100	2,600	114 b	69-135
o-Xylene	ug/L (ppb)	50	1,900	174 b	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	88	90	64-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	88	90	73-132	2
Benzene	ug/L (ppb)	50	86	89	69-134	3
Toluene	ug/L (ppb)	50	91	94	72-122	3
Ethylbenzene	ug/L (ppb)	50	90	93	77-124	3
m,p-Xylene	ug/L (ppb)	100	92	94	83-125	2
o-Xylene	ug/L (ppb)	50	89	91	81-121	2

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

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	104	105	70-130	1

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609022

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 608556-02 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)	2	<0.06	82	80	10-172	2
Acenaphthylene	ug/L (ppb)	2	<0.06	82	82	38-137	0
Acenaphthene	ug/L (ppb)	2	<0.06	83	84	20-150	1
Fluorene	ug/L (ppb)	2	<0.06	87	87	10-181	0
Phenanthrene	ug/L (ppb)	2	<0.06	86	87	58-109	1
Anthracene	ug/L (ppb)	2	<0.06	85	85	47-114	0
Fluoranthene	ug/L (ppb)	2	<0.06	87	87	10-171	0
Pyrene	ug/L (ppb)	2	<0.06	86	84	63-107	2
Benz(a)anthracene	ug/L (ppb)	2	<0.06	87	83	60-93	5
Chrysene	ug/L (ppb)	2	<0.06	85	82	60-102	4
Benzo(b)fluoranthene	ug/L (ppb)	2	<0.06	54 vo	49 vo	62-91	10
Benzo(k)fluoranthene	ug/L (ppb)	2	<0.06	60	52	51-98	14
Benzo(a)pyrene	ug/L (ppb)	2	<0.06	55 vo	48 vo	60-86	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2	<0.06	19	15	10-98	24 vo
Dibenz(a,h)anthracene	ug/L (ppb)	2	<0.06	21	15	10-97	33 vo
Benzo(g,h,i)perylene	ug/L (ppb)	2	<0.06	22	16	10-102	32 vo

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	80	82	67-116	2
Acenaphthylene	ug/L (ppb)	1	82	85	65-119	4
Acenaphthene	ug/L (ppb)	1	83	86	66-118	4
Fluorene	ug/L (ppb)	1	87	89	64-125	2
Phenanthrene	ug/L (ppb)	1	86	88	67-120	2
Anthracene	ug/L (ppb)	1	85	87	65-122	2
Fluoranthene	ug/L (ppb)	1	87	90	65-127	3
Pyrene	ug/L (ppb)	1	84	85	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	85	87	60-118	2
Chrysene	ug/L (ppb)	1	84	85	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	81	85	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	80	82	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	75	75	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	71	73	37-133	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	71	73	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.

609022

ME 09/01/16

Page # 1 of 1

AG4/V4/AI3

Hydro Con

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

Requested Turn Around Time

[x] Standard 10 business days

[ ] Rush _____

Rush Charges Authorized by: _____

Sample Disposal: 30 days Return Will Call

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

Additional Comments: Trip blank applies to VOA samples from the Romia, Herman, and shin/choi sites Trip blanks supplied by laboratory Dissolved Pb samples were field filtered and preserved.

	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	~~MW71~~				W		X	X	X	X	X	X	X	X	X			Caution possible product Product
2	~~MW72~~				W		X	X	X	X	X	X	X	X	X			Caution possible product Product
3	MW73	01 A-L	08/30/16	1650	W	12	X	X	X	X	X	X	X	X	X			
4	MW74	02 A-L	08/30/16	1640	W	12	X	X	X	X	X	X	X	X	X			
5	TB-03	03 A-H	08/29/16	0800	W	8	X	X	X	X	X							
6																		
7																		
8																		
9																		
10																		Samples received at 4 °C
11																		

	Signature	Print Name	Time	Date
Relinquished by:		Larry Hamba	0935	01 September 2016
Received by:		Nhan Phan	0935	01 September 2016
Relinquished by:				
Received by:				

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

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

September 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 September 1, 2016 from the TOC_01-176, WORFDB8 F&BI 609023 project. There are 47 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
HDC0915R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 1, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 609023 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
609023 -01	MW51
609023 -02	MW103
609023 -03	MW104
609023 -04	MW106
609023 -05	MW107
609023 -06	MW108
609023 -07	EB-06
609023 -08	EB-05

The 8270D SIM benzo(b)fluoranthene and benzo(a)pyrene matrix spike and matrix spike duplicate failed the acceptance criteria. In addition, the relative percent difference failed the acceptance criteria for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The laboratory control sample and laboratory control sample passed the acceptance criteria, therefore the results are likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023
Date Extracted: 09/01/16
Date Analyzed: 09/02/16

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)
MW51 609023-01	<100	92
MW103 609023-02	<100	95
MW104 609023-03 1/100	34,000	88
MW106 609023-04	<100	94
MW107 609023-05	<100	95
MW108 609023-06	4,800	96
EB-06 609023-07	<100	93
EB-05 609023-08	<100	89
Method Blank 06-1808 MB	<100	95

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023
Date Extracted: 09/01/16 and 09/08/16
Date Analyzed: 09/02/16 and 09/08/16

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 47-140)
MW103 609023-02	68 x	<250	98
MW104 609023-03	7,800 x	310 x	92
MW106 609023-04	250 x	<250	86
MW107 609023-05	<60	<300	86
MW108 609023-06	760 x	<250	81
EB-06 609023-07	<60	<300	79
EB-05 609023-08	<50	<250	87
Method Blank 06-1821 MB	<50	<250	100

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW103	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-02
Date Analyzed:	09/07/16	Data File:	609023-02.057
Matrix:	Water	Instrument:	ICPMS2
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-03
Date Analyzed:	09/07/16	Data File:	609023-03.058
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW106	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-04
Date Analyzed:	09/07/16	Data File:	609023-04.059
Matrix:	Water	Instrument:	ICPMS2
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-05
Date Analyzed:	09/07/16	Data File:	609023-05.060
Matrix:	Water	Instrument:	ICPMS2
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-06
Date Analyzed:	09/07/16	Data File:	609023-06.062
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB-06	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-07
Date Analyzed:	09/07/16	Data File:	609023-07.063
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB-05	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-08
Date Analyzed:	09/07/16	Data File:	609023-08.064
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	I6-588 mb
Date Analyzed:	09/07/16	Data File:	I6-588 mb.025
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW103	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-02
Date Analyzed:	09/06/16	Data File:	609023-02.075
Matrix:	Water	Instrument:	ICPMS2
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-03
Date Analyzed:	09/06/16	Data File:	609023-03.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW106	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-04
Date Analyzed:	09/06/16	Data File:	609023-04.080
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW107	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-05
Date Analyzed:	09/06/16	Data File:	609023-05.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW108	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-06
Date Analyzed:	09/06/16	Data File:	609023-06.086
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	EB-06	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-07
Date Analyzed:	09/06/16	Data File:	609023-07.090
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	EB-05	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-08
Date Analyzed:	09/06/16	Data File:	609023-08.092
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	I6-587 mb
Date Analyzed:	09/06/16	Data File:	I6-587 mb.072
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW51	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-01
Date Analyzed:	09/02/16	Data File:	090211.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	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:	MW103	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-02
Date Analyzed:	09/02/16	Data File:	090212.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	19
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:	MW104	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-03
Date Analyzed:	09/02/16	Data File:	090213.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	91	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	3.8
Toluene	650 ve
Ethylbenzene	710 ve
m,p-Xylene	2,400 ve
o-Xylene	1,100 ve

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW104	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-03 1/100
Date Analyzed:	09/06/16	Data File:	090620.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<100
Benzene	<35
Toluene	690
Ethylbenzene	1,500
m,p-Xylene	5,100
o-Xylene	1,400

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW106	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/06/16	Lab ID:	609023-04
Date Analyzed:	09/06/16	Data File:	090617.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	98	63	127
4-Bromofluorobenzene	106	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:	MW107	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-05
Date Analyzed:	09/02/16	Data File:	090215.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	107	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:	MW108	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-06
Date Analyzed:	09/02/16	Data File:	090216.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	110	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	1.1
Toluene	1.3
Ethylbenzene	39
m,p-Xylene	87
o-Xylene	4.4

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB-06	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-07
Date Analyzed:	09/02/16	Data File:	090217.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	108	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:	EB-05	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/02/16	Lab ID:	609023-08
Date Analyzed:	09/02/16	Data File:	090218.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	104	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 609023
Date Extracted:	09/02/16	Lab ID:	06-1801 mb
Date Analyzed:	09/02/16	Data File:	090210.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	105	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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023
Date Extracted: 09/06/16
Date Analyzed: 09/06/16 and 09/07/16

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
MW51 609023-01	<0.01
MW103 609023-02	<0.01
MW104 609023-03	0.053
MW106 609023-04	<0.01
MW107 609023-05	<0.01
MW108 609023-06	<0.01
EB-06 609023-07	<0.01
EB-05 609023-08	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW103	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-02 1/2
Date Analyzed:	09/02/16	Data File:	090213.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	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW104	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-03 1/2
Date Analyzed:	09/02/16	Data File:	090214.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	86	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	230 ve
Acenaphthylene	<0.06
Acenaphthene	0.16
Fluorene	0.15
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:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-03 1/200
Date Analyzed:	09/06/16	Data File:	090604.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	57 d	31	160
Benzo(a)anthracene-d12	113 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	340
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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW106	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-04 1/2
Date Analyzed:	09/02/16	Data File:	090215.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	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW107	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-05 1/2
Date Analyzed:	09/02/16	Data File:	090216.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	85	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:	MW108	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-06 1/2
Date Analyzed:	09/02/16	Data File:	090217.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	160
Benzo(a)anthracene-d12	82	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	9.2
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:	EB-06	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-07 1/2
Date Analyzed:	09/02/16	Data File:	090218.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	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB-05	Client:	HydroCon
Date Received:	09/01/16	Project:	TOC_01-176, WORFDB8 F&BI 609023
Date Extracted:	09/01/16	Lab ID:	609023-08 1/2
Date Analyzed:	09/02/16	Data File:	090219.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	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

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 609023
Date Extracted:	09/01/16	Lab ID:	06-1822 mb
Date Analyzed:	09/02/16	Data File:	090205.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	122	31	160
Benzo(a)anthracene-d12	120	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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

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

Laboratory Code: 609023-02 (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: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 608556-02 (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)	2,500	<50	126	132	64-141	5

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	96	99	61-133	3

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608503-03 (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	597	144 b	124 b	70-130	15 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	102	85-115

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 609022-02 (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	83	82	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

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

Laboratory Code: 609022-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	1.2	115	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	126	69-133
Benzene	ug/L (ppb)	50	1,800	0 b	76-125
Toluene	ug/L (ppb)	50	1,200	93 b	76-122
Ethylbenzene	ug/L (ppb)	50	810	67 b	69-135
m,p-Xylene	ug/L (ppb)	100	2,600	114 b	69-135
o-Xylene	ug/L (ppb)	50	1,900	174 b	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	88	90	64-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	88	90	73-132	2
Benzene	ug/L (ppb)	50	86	89	69-134	3
Toluene	ug/L (ppb)	50	91	94	72-122	3
Ethylbenzene	ug/L (ppb)	50	90	93	77-124	3
m,p-Xylene	ug/L (ppb)	100	92	94	83-125	2
o-Xylene	ug/L (ppb)	50	89	91	81-121	2

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

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	104	105	70-130	1

Date of Report: 09/15/16
Date Received: 09/01/16
Project: TOC_01-176, WORFDB8 F&BI 609023

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 608556-02 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)	2	<0.06	82	80	10-172	2
Acenaphthylene	ug/L (ppb)	2	<0.06	82	82	38-137	0
Acenaphthene	ug/L (ppb)	2	<0.06	83	84	20-150	1
Fluorene	ug/L (ppb)	2	<0.06	87	87	10-181	0
Phenanthrene	ug/L (ppb)	2	<0.06	86	87	58-109	1
Anthracene	ug/L (ppb)	2	<0.06	85	85	47-114	0
Fluoranthene	ug/L (ppb)	2	<0.06	87	87	10-171	0
Pyrene	ug/L (ppb)	2	<0.06	86	84	63-107	2
Benz(a)anthracene	ug/L (ppb)	2	<0.06	87	83	60-93	5
Chrysene	ug/L (ppb)	2	<0.06	85	82	60-102	4
Benzo(b)fluoranthene	ug/L (ppb)	2	<0.06	54 vo	49 vo	62-91	10
Benzo(k)fluoranthene	ug/L (ppb)	2	<0.06	60	52	51-98	14
Benzo(a)pyrene	ug/L (ppb)	2	<0.06	55 vo	48 vo	60-86	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2	<0.06	19	15	10-98	24 vo
Dibenz(a,h)anthracene	ug/L (ppb)	2	<0.06	21	15	10-97	33 vo
Benzo(g,h,i)perylene	ug/L (ppb)	2	<0.06	22	16	10-102	32 vo

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	80	82	67-116	2
Acenaphthylene	ug/L (ppb)	1	82	85	65-119	4
Acenaphthene	ug/L (ppb)	1	83	86	66-118	4
Fluorene	ug/L (ppb)	1	87	89	64-125	2
Phenanthrene	ug/L (ppb)	1	86	88	67-120	2
Anthracene	ug/L (ppb)	1	85	87	65-122	2
Fluoranthene	ug/L (ppb)	1	87	90	65-127	3
Pyrene	ug/L (ppb)	1	84	85	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	85	87	60-118	2
Chrysene	ug/L (ppb)	1	84	85	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	81	85	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	80	82	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	75	75	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	71	73	37-133	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	71	73	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.

609023

ME 09-01-16

Page # 1 of 1

V6/AE3/AO3

Hydro Con

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

Sampler's Name: L.Namba/W.Rajkovich
Project Name: TOC Holdings Company
Facility Number: 01-176 Montlake Terrace
Facility Address: HERMAN
PO Number:
EDD Requested: EIM DataConcourse

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	TPH-Gx	8260C BTEX	8260C MTBE	8260C EDC	8011M EDB	TPH-Dx	8270SIM PAHs	200.8 Pb, Total	200.8 Pb, Diss FF			Notes
							ANALYSES REQUESTED											
1	MW51	01 A F	08/30/16	1615	W	6	X	X										
2	~~MW102~~				W		X	X	X	X	X	X	X	X	X			Caution possible product Product
3	MW103	02 A-L	08/31/16	1200	W	12	X	X	X	X	X	X	X	X	X			
4	MW104	03 A-L	08/29/16 (ND)	1658	W	12	X	X	X	X	X	X	X	X	X			Caution possible product
5	~~MW105~~				W		X	X	X	X	X	X	X	X	X			Insufficient water
6	MW106	04 A-L	08/29/16 (ND)	1547	W	12	X	X	X	X	X	X	X	X	X			
7	MW107	05 A-L	08/30/16	1449	W	12	X	X	X	X	X	X	X	X	X			Submersible Pump
8	MW108	06 A-L	08/30/16	1545	W	12	X	X	X	X	X	X	X	X	X			
9	~~MW109~~				W		X	X	X	X	X	X	X	X	X			Insufficient water
10	EB-06	07 A-L	08/31/16	1045 1035	W	12	X	X	X	X	X	X	X	X	X			One EB per day of sampling when submersible pump used
11	~~TB~~-EB05	08 A-L	08/31/16	1035	W	12	X	X	X	X	X	✓	✓	✓	✓			

	Signature	Print Name	Time	Date
Relinquished by:		Lena Namba	0935	01 September 2016
Received by:		Nhan Phan	0935	01 September 2016
Relinquished by:				
Received by:				

Samples received at 4 °C

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

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

September 16, 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 September 6, 2016 from the TOC_01-176, WORFDB8 F&BI 609072 project. There are 54 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
HDC0916R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 6, 2016 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 609072 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
609072 -01	MW48
609072 -02	MW55
609072 -03	MW63
609072 -04	MW65
609072 -05	MLT-05
609072 -06	MW67
609072 -07	MW68
609072 -08	MW69
609072 -09	MW84
609072 -10	MW85
609072 -11	MW86
609072 -12	MLT-06
609072 -13	MW89
609072 -14	EB-07
609072 -15	TB-04
609072 -16	EB08
609072 -17	EB09
609072 -18	EB10

All quality control requirements were acceptable.

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072
Date Extracted: 09/07/16
Date Analyzed: 09/07/16

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 609072-01 1/10	3,100	95
MW55 609072-02	<100	88
MW63 609072-03	<100	75
MW65 609072-04	<100	90
MLT-05 609072-05	<100	92
MW67 609072-06	<100	90
MW68 609072-07	<100	90
MW69 609072-08	5,800	90
MW84 609072-09	970	94
MW85 609072-10	<100	90
MW86 609072-11	1,200	101

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072
Date Extracted: 09/07/16
Date Analyzed: 09/07/16

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)
MLT-06 609072-12	1,500	100
MW89 609072-13	<100	91
EB-07 609072-14	<100	93
TB-04 609072-15	<100	91
EB08 609072-16	<100	88
EB09 609072-17	<100	89
EB10 609072-18	<100	92
Method Blank 06-1813 MB	<100	98

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072
Date Extracted: 09/06/16
Date Analyzed: 09/06/16

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 609072-08	580 x	<250	107
MW84 609072-09	<50	<250	96
MW85 609072-10	<50	<250	89
MW86 609072-11	160 x	<250	100
MLT-06 609072-12 1/1.2	180 x	<300	101
MW89 609072-13	<50	<250	86
EB-07 609072-14 1/1.2	<60	<300	86
EB08 609072-16	<50	<250	103
EB09 609072-17 1/1.2	<60	<300	90
Method Blank 06-1831 MB	<50	<250	96

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW48	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	609072-01
Date Analyzed:	09/12/16	Data File:	609072-01.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	3.28

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW86	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	609072-11
Date Analyzed:	09/12/16	Data File:	609072-11.078
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MLT-06	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	609072-12
Date Analyzed:	09/12/16	Data File:	609072-12.080
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	EB-07	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	609072-14
Date Analyzed:	09/12/16	Data File:	609072-14.081
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	EB08	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	609072-16
Date Analyzed:	09/12/16	Data File:	609072-16.082
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/12/16	Lab ID:	I6-602 mb
Date Analyzed:	09/12/16	Data File:	I6-602 mb.073
Matrix:	Water	Instrument:	ICPMS2
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:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/08/16	Lab ID:	609072-01
Date Analyzed:	09/08/16	Data File:	609072-01.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	4.56

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW86	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/08/16	Lab ID:	609072-11
Date Analyzed:	09/08/16	Data File:	609072-11.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MLT-06	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/08/16	Lab ID:	609072-12
Date Analyzed:	09/08/16	Data File:	609072-12.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB-07	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/08/16	Lab ID:	609072-14
Date Analyzed:	09/08/16	Data File:	609072-14.125
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	EB08	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/08/16	Lab ID:	609072-16
Date Analyzed:	09/08/16	Data File:	609072-16.126
Matrix:	Water	Instrument:	ICPMS2
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:	NA	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/09/16	Lab ID:	I6-595 mb2
Date Analyzed:	09/09/16	Data File:	I6-595 mb2.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW48	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-01
Date Analyzed:	09/07/16	Data File:	090652.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	98	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Benzene	12
Toluene	3.0
Ethylbenzene	33
m,p-Xylene	190
o-Xylene	11

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW55	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-02
Date Analyzed:	09/06/16	Data File:	090635.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	107	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:	MW63	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-03
Date Analyzed:	09/06/16	Data File:	090636.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	97	63	127
4-Bromofluorobenzene	106	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:	MW65	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-04
Date Analyzed:	09/06/16	Data File:	090637.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	97	63	127
4-Bromofluorobenzene	104	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:	MLT-05	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-05
Date Analyzed:	09/06/16	Data File:	090638.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	106	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:	MW67	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-06
Date Analyzed:	09/06/16	Data File:	090639.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	98	63	127
4-Bromofluorobenzene	105	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:	MW68	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-07
Date Analyzed:	09/06/16	Data File:	090640.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	97	63	127
4-Bromofluorobenzene	107	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:	MW69	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-08
Date Analyzed:	09/06/16	Data File:	090641.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	98	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	0.46
Toluene	<1
Ethylbenzene	41
m,p-Xylene	170
o-Xylene	2.1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW84	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-09
Date Analyzed:	09/06/16	Data File:	090642.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	98	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	2.3
m,p-Xylene	9.6
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW85	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-10
Date Analyzed:	09/06/16	Data File:	090643.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	104	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:	MW86	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-11
Date Analyzed:	09/07/16	Data File:	090644.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	99	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	0.36
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MLT-06	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-12
Date Analyzed:	09/07/16	Data File:	090645.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<1
Benzene	0.39
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:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-13
Date Analyzed:	09/07/16	Data File:	090646.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	104	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:	EB-07	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-14
Date Analyzed:	09/07/16	Data File:	090647.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	104	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:	TB-04	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-15
Date Analyzed:	09/07/16	Data File:	090648.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	106	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:	EB08	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-16
Date Analyzed:	09/07/16	Data File:	090649.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	105	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:	EB09	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-17
Date Analyzed:	09/07/16	Data File:	090650.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	97	63	127
4-Bromofluorobenzene	105	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:	EB10	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-18
Date Analyzed:	09/07/16	Data File:	090651.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	97	63	127
4-Bromofluorobenzene	105	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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	06-1804 mb
Date Analyzed:	09/06/16	Data File:	090615.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	106	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: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072
Date Extracted: 09/12/16
Date Analyzed: 09/12/16

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 609072-11	<0.01
MLT-06 609072-12	<0.01
EB-07 609072-14	<0.01
TB-04 609072-15	<0.01
EB08 609072-16	<0.01
Method Blank	<0.01

EDB 1,2-Dibromoethane

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW69	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-08 1/2
Date Analyzed:	09/07/16	Data File:	090706.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	87	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	2.6
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:	MW84	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-09 1/2
Date Analyzed:	09/07/16	Data File:	090707.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	87	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:	MW85	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-10 1/2
Date Analyzed:	09/07/16	Data File:	090708.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW86	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-11 1/2
Date Analyzed:	09/07/16	Data File:	090709.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	0.17
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:	MLT-06	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-12 1/2
Date Analyzed:	09/07/16	Data File:	090710.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	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.15
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:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-13 1/2
Date Analyzed:	09/07/16	Data File:	090711.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	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:	EB-07	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-14 1/2
Date Analyzed:	09/07/16	Data File:	090712.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	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:	EB08	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-16 1/2
Date Analyzed:	09/07/16	Data File:	090713.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	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:	EB09	Client:	HydroCon
Date Received:	09/06/16	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	609072-17 1/2
Date Analyzed:	09/07/16	Data File:	090714.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	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:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-176, WORFDB8 F&BI 609072
Date Extracted:	09/06/16	Lab ID:	06-1833 mb
Date Analyzed:	09/07/16	Data File:	090705.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	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

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

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

Laboratory Code: 609090-09 (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	99	69-134

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

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	95	87	63-142	9

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 609072-01 (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	3.28	92	94	70-130	2

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: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 608555-02 (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	97	100	70-130	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	99	85-115

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

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

Laboratory Code: 609072-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	74-127
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	93	69-133
Benzene	ug/L (ppb)	50	12	92 b	76-125
Toluene	ug/L (ppb)	50	3.0	95	76-122
Ethylbenzene	ug/L (ppb)	50	33	93 b	69-135
m,p-Xylene	ug/L (ppb)	100	190	91 b	69-135
o-Xylene	ug/L (ppb)	50	11	89 b	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	93	96	64-147	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	92	91	73-132	1
Benzene	ug/L (ppb)	50	92	92	69-134	0
Toluene	ug/L (ppb)	50	95	95	72-122	0
Ethylbenzene	ug/L (ppb)	50	94	94	77-124	0
m,p-Xylene	ug/L (ppb)	100	96	95	83-125	1
o-Xylene	ug/L (ppb)	50	93	92	81-121	1

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

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	115	118	70-130	3

Date of Report: 09/16/16
Date Received: 09/06/16
Project: TOC_01-176, WORFDB8 F&BI 609072

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	86	88	67-116	2
Acenaphthylene	ug/L (ppb)	1	87	87	65-119	0
Acenaphthene	ug/L (ppb)	1	88	88	66-118	0
Fluorene	ug/L (ppb)	1	90	92	64-125	2
Phenanthrene	ug/L (ppb)	1	89	90	67-120	1
Anthracene	ug/L (ppb)	1	87	88	65-122	1
Fluoranthene	ug/L (ppb)	1	88	89	65-127	1
Pyrene	ug/L (ppb)	1	83	86	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	86	88	60-118	2
Chrysene	ug/L (ppb)	1	84	88	66-125	5
Benzo(b)fluoranthene	ug/L (ppb)	1	82	89	55-135	8
Benzo(k)fluoranthene	ug/L (ppb)	1	86	89	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	84	85	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	87	78	36-142	11
Dibenz(a,h)anthracene	ug/L (ppb)	1	85	76	37-133	11
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	78	34-135	11

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.

609072

ME 09/06/16

V5/A15/B03

Hydro Con

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

Sampler's Name: L. Namba / W. Rakovich
Project Name: TOC Holdings Company
Facility Number: 01-176 Montlake Terrace
Facility Address: DRAKE
PO Number:
EDD Requested: EIM DataConcourse

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	MW48	01 A-H	09/01/16	1542	W	8	X	X						X	X			
2	~~MW62~~				~~W~~		~~X~~	~~X~~										0.17 water
3	MW55	02 A-F	09/01/16	1618	W	6	X	X										Submersible Pump
4	MW63	03	09/01/16	1430	W	6	X	X										Submersible Pump
5	MW65	04	09/02/16	1154	W	6	X	X	X									Submersible Pump
6	MLT-05	05	09/02/16	1215	W	6	X	X	X									Submersible Pump
7	MW67	06	08/31/16	1505	W	6	X	X	X									
8	MW68	07	08/31/16	1549	W	6	X	X	X									
9	MW69	08 A-H	09/01/16	1328	W	8	X	X	X			X	X					System Well-Pump Pulled, Submersible Pump
10	~~MW77~~				~~W~~		~~X~~	~~X~~	~~X~~			~~X~~	~~X~~					Dry
11	MW84	09 A-H	09/01/16	1336	W	8	X	X	X			X	X					Submersible Pump

	Signature	Print Name	Time	Date
Relinquished by:		Warren Rakovich	0840	9-6-16
Received by:		Ethan Dhein	0845	9-6-16
Relinquished by:				
Received by:				

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

Samples received at 3 °C

609072

MG 09/06/16

Page # 2 of 2

V5/AI5/BO

Hydro Con

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

Sampler's Name: L. Namba/W. Rajkovich
Project Name: TOC Holdings Company
Facility Number: 01-176 Montlake Terrace
Facility Address: DRAKE
PO Number:
EDD Requested: EIM DataConcourse

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	MW85	10 A-H	08/31/16	1618	W	8	X	X	X			X	X					Submersible Pump
2	MW86	11 A-L	08/31/16	1430	W	12	X	X	X	X	X	X	X	X	X			Submersible Pump
3	MTL-06	12 A-L	08/31/16	1545	W	12	X	X	X	X	X	X	X	X	X			Submersible Pump
4	MW89	13 A-H	09/01/16	1444	W	8	X	X	X			X	X					Submersible Pump
5	~~MW101~~				~~W~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			System Well ~~Pump Pulled~~
6	EB-07	14 A-L	08/31/16	1700	W	12	X	X	X	X	X	X	X	X	X			One EB per day of sampling when submersible pump used
7	TB-04	15 A-H	08/31/16	0900	W	8	X	X	X	X	X							
8	EB08	16 A-J	09/02/16	1100	W	12	✓	✓	✓	✓	✓	✓	✓	✓	✓			
9	EB09	17 A-H	09/02/16	1130	W	8	✓	✓	✓			✓	✓					
10	EB10	18 A-F	09/02/16	1230	W	6	✓	✓	✓									
11															Samples received:		3	

	Signature	Print Name	Time	Date
Relinquished by:		Warren Rajkovich	0840	9-6-16
Received by:			0840	9-6-16
Relinquished by:				
Received by:				

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