Third Quarter 2015
Remedial Systems Operations and Maintenance (O&M) Report

TOC Holdings Co. Facility No. 01-176
24205, 24225, 24309 56th Avenue West
Mountlake Terrace, WA

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

December 22, 2015

Prepared by:

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TOC Holdings Co.
2737 West Commodore Way
Seattle, Washington 98199

TOC Holdings Co. Facility No. 01-176
24205, 24225, 24309 56th Avenue West
Mountlake Terrace, WA

Washington State Department of Ecology
Agreed Order No. DE 8661

HydroCon Project No: 01-176

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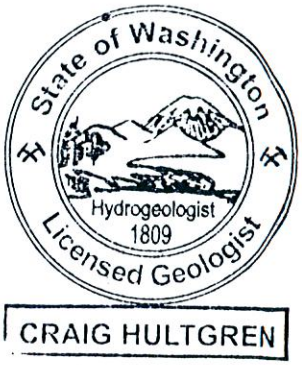

December 22, 2015

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1 INTRODUCTION

This report was prepared by HydroCon Environmental, LLC (HydroCon) on behalf of TOC Holdings Co. (TOC) to document the Third Quarter 2015 (Q3 2015) remedial systems operation and maintenance (O&M) activities performed by HydroCon. Field activities associated with interim remedial actions were conducted from July through September 2015 at Facility No. 01-176 located in Mountlake Terrace, Snohomish County, Washington (Figure 1).

1.1 SCOPE OF WORK

Ongoing interim remedial actions are conducted under Agreed Order (AO) No. DE 8661, between TOC and the Washington State Department of Ecology[1] entered in October 2011 for TOC's Facility No. 01-176. The O&M scope of work is defined in the *Interim Remedial Action Work Plan*[2] (IRAWP). Per the requirements of the IRAWP, the O&M scope of work includes monthly and quarterly monitoring events.

As described in the IRAWP, the TOC Facility No. 01-176 is termed the "Interim Remedial Project Area" (IRPA) and consists of the following four properties located in Mountlake Terrace, Washington (Figure 2):

- TOC Property: 24205 56th Avenue West
- TOC/Farmasonis Property: 24225 56th Avenue West
- Drake Property: 24309 56th Avenue West
- Portions of the 56th Avenue West Right-of-Way (ROW): adjacent to the TOC, TOC/Farmasonis and Drake properties

O&M activities are conducted to monitor the performance of three multi-phase extraction (MPE) remediation systems currently operating at the IRPA. The MPE remediation systems were installed to remediate petroleum hydrocarbon-contaminated groundwater, soil vapor, and free product (where present). Unit 1 is located on the TOC Property; Units 2 and 3 are located on the TOC/Farmasonis Property. Unit 1 is associated with the operation of remediation wells installed on that property; Units 2 and 3 are associated with the operation of wells installed on the TOC/Farmasonis and Drake Properties, respectively.

Details on remediation well identification and locations are provided in the description of remedial systems in Appendix A.

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

[2] *SoundEarth Strategies, Inc. (SES) 2011. Interim Remedial Action Work Plan. TOC Holdings Co. Facility No. 01-176; 24205 56th Avenue West, Mountlake Terrace, WA, Prepared for TOC Holdings Co. July 28.*

1.2 SUMMARY OF Q3 2015 O&M ACTIVITIES

This report includes a description of permit compliance and remedial system performance and optimization efforts. A summary of the remedial system performance and maintenance activities performed from July through September 2015 is provided below.

- O&M consisted of routine, scheduled maintenance activities (as described in the O&M Manual)
- A combined total of 62.5 pounds of vapor-phase hydrocarbons were removed during this reporting period. A cumulative total of approximately 4,433 pounds have been removed since startup in October 2012.
- A combined total volume of 515,805 gallons of groundwater were extracted, treated and discharged during this period. The total volume of water processed since system startup is approximately 3,712,200 gallons.
- Light, nonaqueous-phase liquids (LNAPL) were not observed or recovered from the three MPE systems during this quarter. Also, the oil/water separator (OWS) for each system was inspected, and no LNAPL was visible.

System optimization activities during this reporting period focused on evaluating the mass recovery effectiveness of individual remediation wells connected to each of the three systems. These activities are described in more detail in the following sections.

2 REMEDIAL SYSTEMS MODIFICATIONS

No significant system modifications were performed during this quarter; however, investigators from HydroCon measured baseline operational parameters for each remediation well for each of three remedial systems (Units 1, 2, and 3) for the purpose of optimizing the future performance and efficiency of each system. These activities are further detailed in Section 4.

3 SYSTEM PERFORMANCE

The most recent annual groundwater sampling event conducted in First Quarter 2015[3] showed that benzene, toluene, ethylbenzene, and total xylenes (BTEX) and/or gasoline-range petroleum hydrocarbons (GRPH) concentrations in groundwater have decreased but remain above the Model Toxics Control Act (MTCA) Method A cleanup levels in five of the 75 active wells installed in the Intermediate Zone, or wells that intersect shallow-intermediate and intermediate-deep zone conditions:

- Wells MW27 and MW90**,** located on the TOC Property;
- Well MW57, located on the TOC Farmasonis Property
- Well MW48**,** located in the 56th Avenue West ROW at the boundary of the TOC Farmasonis and Drake Properties, and
- Well MW69, located on the Drake Property.

3.1 TOC PROPERTY (UNIT 1)

The following is a summary of the Third Quarter 2015 system performance for the TOC Property:

- The MPE system operational time for this reporting period was approximately 89 percent. The cumulative operational time over the lifetime of this facility is 71 percent (Table 1-1). System down time was attributable to a planned system shutdown to accommodate quarterly groundwater monitoring.
- The vapor-phase hydrocarbon mass removal associated with the soil vapor extraction (SVE) system was approximately 48.8 pounds, and aqueous-phase hydrocarbon removal associated with the GAC treatment process was approximately 0.04 pounds for this reporting period. The cumulative vapor- and aqueous-phase hydrocarbon removal to date is approximately 3,178 and 15.9 pounds, respectively (Tables 1-1, 1-2 and 1-3).
- The volume of groundwater extracted during this reporting period was 98,522.4 gallons. The cumulative volume of groundwater extracted over the lifetime of this facility is 829,547 gallons (Tables 1-1 and 1-3). The average daily groundwater recovery flow rate during this reporting period was 938.3 gallons. The cumulative average daily groundwater recovery flow rate over the lifetime of this facility is 733.2 gallons (Tables 1-1 and 1-3).
- No LNAPL was recovered from the OWS. Also, the OWS was inspected, and no LNAPL or sheen was visible on the liquid contents.
- The vapor-phase mass removal rate ranged from 0.14 to 1.22 pounds per day during this reporting period (Table 1-2).
- Air flow through the catalytic oxidizer (CATOX) from the SVE blower was bypassed in February 2015 because permit conditions for bypass were achieved. According to the Puget

[3] *Stantec Consulting Services, Inc. (Stantec) 2015a. Groundwater Monitoring Report, 2015 Annual Event. TOC Holdings Co. Facility No. 01-176; 24205 56th Avenue West, Mountlake Terrace, WA 98043.*

Sound Clean Air Agency (PSCAA) Notice of Construction (NOC) permit for each unit (1, 2, and 3), the CATOX may be removed or bypassed and directly vented to the atmosphere if benzene and GRPH concentrations in the untreated air remain below 0.5 and 50 parts per million by volume (ppmv), respectively, for a period of 3 consecutive months (refer to Appendix B for other permit conditions).

The concentrations of GRPH exiting the stack during this quarter ranged in concentration from 14 to 120 milligrams per cubic meter [mg/m^3] which is equivalent to a range of 4.7 to 40.5 ppmv using the estimated molecular weight of 72.5 as representative of the composite molecular weight of gasoline[4]. The conversion to ppmv from mg/m^3 assumes a temperature of 25°C and standard pressure (1 atmosphere) (Table 1-4). The maximum measured value of 120 mg/m^3 (40.5 ppmv) did not exceed the uncontrolled permit threshold of 50 ppmv.

The concentrations of benzene exiting the stack during this quarter were below the laboratory's lower reporting limit of 0.1 mg/m^3, which is equivalent to 0.03 ppmv at 25°C and standard pressure. Laboratory analytical reports are provided in Appendix C.

- All system operations were in compliance with the SWD and PSCAA permit limits (Tables 1-3, 1-4, and 1-5).

3.2 TOC/FARMASONIS PROPERTY (UNIT 2)

The following is a summary of the Third Quarter 2015 system performance for the TOC/Farmasonis Property:

- The MPE system operational time for this reporting period was approximately 89 percent (Table 2-1). The cumulative operational time over the lifetime of this facility is 81 percent. System down time was attributable to a planned system shutdown to accommodate quarterly groundwater monitoring.
- The vapor-phase hydrocarbon mass removal associated with the SVE system was approximately 6.8 pounds, and aqueous-phase hydrocarbon removal associated with the GAC treatment process was 0.035 pounds for this reporting period. The cumulative vapor- and aqueous-phase hydrocarbon removal to date is approximately 1,022.9 pounds and 0.83 pounds, respectively (Tables 2-1, 2-2, and 2-3).
- The volume of groundwater extracted during this reporting period was approximately 84,900 gallons. The cumulative volume of groundwater extracted over the lifetime of this facility is 988,579 gallons (Tables 2-1 and 2-3). The average daily groundwater recovery flow rate during this reporting period was 809 gallons. The cumulative average daily groundwater recovery flow rate over the lifetime of this facility is 873.1 gallons (Tables 2-1 and 2-3).
- No LNAPL was recovered from the OWS. Also, the OWS was inspected, and no LNAPL or sheen was visible on the liquid contents.

[4] *Fremont Analytical. 2015. Personal Communication. Response to email inquiry from Mark Selman. September 23.*

- The vapor-phase mass removal rate was 0.07 pounds per day during this reporting period (Table 2-2).
- Air flow through the CATOX from the SVE blower was bypassed in September 2014 because permit conditions for bypass had been achieved. Effluent concentrations of benzene and GRPH exiting the stack during this quarter were below the laboratory's lower reporting limits of 0.1 and 10 mg/m^3, respectively (Table 2-4). Laboratory analytical reports are provided in Appendix C.
- All system operations were in compliance with the SWD and PSCAA permit limits (Tables 2-3, 2-4, and 2-5).

3.3 DRAKE PROPERTY (UNIT 3)

The following is a summary of the Third Quarter 2015 system performance for the Drake Property:

- The MPE system operational time for this reporting period was approximately 89 percent. The cumulative operational time over the lifetime of this facility is 81 percent (Table 3-1). System down time was attributable to a planned system shutdown to accommodate quarterly groundwater monitoring.
- The vapor-phase hydrocarbon mass removal associated with the SVE system was approximately 6.9 pounds, and aqueous-phase hydrocarbon removal associated with the GAC treatment process was 0.07 pounds for this reporting period. The cumulative vapor- and aqueous-phase hydrocarbon removal to date is approximately 232.5 and 2.1 pounds, respectively (Tables 3-1, 3-2 and 3-3).
- The volume of groundwater extracted during this reporting period was approximately 143,422 gallons. The cumulative volume of groundwater extracted over the lifetime of this facility is 1,894,073 gallons (Tables 3-1 and 3-3). The average daily groundwater recovery flow rate for this reporting period was 1,366 gallons. The cumulative average daily groundwater recovery flow rate over the lifetime of this facility is 1,717 gallons (Tables 3-1 and 3-3).
- No LNAPL was recovered from the OWS. Also, the OWS was inspected, and no LNAPL or sheen was visible on the liquid contents.
- The vapor-phase mass removal rate was 0.07 pounds per day during this reporting period (Table 3-2).
- Air flow through the CATOX from the SVE blower was bypassed in September 2014 because permit conditions for bypass had been achieved. Effluent concentrations of benzene and GRPH exiting the stack during this quarter were below the laboratory's lower reporting limits of 0.1 and 10 mg/m^3, respectively (Table 3-4). Laboratory analytical reports are provided in Appendix C.
- All system operations were in compliance with the SWD and PSCAA permit limits (Tables 3-3, 3-4, and 3-5).

4 SYSTEM OPTIMIZATION & FUTURE RECOMMENDATIONS

The following is a summary of the Third Quarter 2015 system optimization and future recommendations for operation of the MPE systems.

The MPE systems will continue to operate until the terms and conditions of the AO have been satisfied in accordance with Section IX (Satisfaction of Order), or until the work to be performed has been amended in accordance with Section VIII.L (Amendment of Order). Specifically, "the provisions of the [Agreed] Order shall be deemed satisfied upon TOC's receipt of written notification from Ecology that TOC has completed the remedial activity required by the [Agreed] Order, as amended by any modifications, and that TOC has complied with all other provisions of the [Agreed] Order."

Operational activities during this quarter continued to focus on dewatering the formation to optimize the physical recovery of dissolved- and vapor-phase hydrocarbons, and to provide a continual supply of atmospheric oxygen via SVE to sustain aerobic bioremediation of the residual hydrocarbons.

4.1 OPTIMIZATION COMPLETED

As recommended in the Second Quarter 2015 Remedial Systems O&M Report[5], HydroCon began assessing the vapor-phase mass removal performance of individual remediation wells. These evaluations involved measuring air velocity and VOC, lower explosive limit (LEL), oxygen, and carbon dioxide concentrations using real-time monitoring instruments. Baseline air velocities, LEL, VOC, oxygen, and carbon dioxide conditions for each well connected to Units 1, 2, and 3 were measured and recorded during the August and September O&M visits. A preliminary review of this data indicate that certain wells are not providing any measurable mass removal in the vapor-phase. Similarly, the analysis of influent groundwater recovered by some wells indicates that contaminant mass removal in the aqueous phase has decreased to non-detectable levels. Furthermore, recent groundwater monitoring results (Stantec 2015a) revealed that the MPE systems installed on the TOC Farmasonis and Drake properties (Units 2 and 3) have reduced contaminant levels in the Intermediate Zone groundwater in the majority of the wells located on these parcels.

4.2 OPTIMIZATION RECOMMENDED

This section provides recommendations for short- and longer-term system evaluation and optimization.

4.2.1 Remediation Well Evaluation

In the short-term, HydroCon will continue to evaluate the vapor- and aqueous-phase mass removal for individual wells during the Fourth Quarter, as indicated in HydroCon (2015a).

[5] *HydroCon Environmental, LLC. (HydroCon). 2015a. Second Quarter 2015 Remedial Systems O&M Report; TOC Holdings Co. Facility No. 01-176. October 7.*

4.2.2 Enhanced Fluid Recovery

Enhanced fluid recovery (EFR) events are recommended for wells where contaminant levels remain elevated above cleanup levels. The scope of the proposed EFR events was described in detail in the previous quarterly report (HydroCon 2015a). An EFR Work Plan[6] was approved by Ecology[7] on October 5, 2015. These EFR events will be implemented sometime during First Quarter 2016.

4.2.3 Future Optimization Efforts

Data generated by the remedial well evaluations and EFR events will be used to downgrade or eliminate the continued operation of specific remediation wells if it is confirmed that they are no longer providing a discernable remedial benefit. The data will be critically reviewed to determine the operating configuration for each system (i.e., unit) that will produce the optimum mass recovery rates and thus achieve the remedial objectives as quickly as possible. If these optimization efforts do not provide adequate and timely results, other remedial approaches and technologies to complement and/or replace existing technology will be evaluated.

[6] *HydroCon. 2015b. Work Plan for Minor Modifications to Agreed Order DE 8661; TOC Facility No. 01-176, addressed to Ms. Sunny Becker Washington State Department of Ecology; Northwest Regional Office; Toxics Cleanup Program. September 29.*

[7] *Personal Communication. 2015. Email correspondence from Ms. Sunny Becker of Ecology to Craig Hultgren of HydroCon. October 5, 3:24 pm MDT.*

5 LIMITATIONS

This document entitled, *Third Quarter 2015 Remedial Systems Operations & Maintenance Report,* was prepared by HydroCon Environmental, LLC exclusively for and on behalf of TOC Holdings Co. Material contained in this document reflects HydroCon's best judgments regarding the information available at the time of preparation and in accordance with industry-standard practices. Reliance on this document by a third party is the responsibility of the third party; therefore, HydroCon provides no warranty or guarantee related the unauthorized third party use of the information and findings presented herein. Finally, HydroCon accepts no responsibility for damages, if any, claimed by a third party as a result of the unauthorized use of this document.

FIGURES

0 200 400

SCALE IN FEET
1" = 400'

SOURCE: STANTEC, JBR - 2014

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W E
S

HydroCon
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 9-14-15
DWN: JJT
CHK: MS
APPROVED: MS
PRJ. MGR: CH
PROJECT NO: 01-176

FIGURE 1
SITE LOCATION MAP

TOC HOLDINGS CO, FACILITY NO. 01-176
24205 56TH AVENUE WEST
MOUNTLAKE TERRACE, WA.

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SCALE IN FEET
1" = 100'

SOURCE: STANTEC, JBR - 2014

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W E
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Hydro Con
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 9-14-15
DWN: JJT
CHK: MS
APPROVED: MS
PRJ. MGR: CH
PROJECT NO: 01-176

FIGURE 2
SITE MAP

TOC HOLDINGS CO, FACILITY NO. 01-176
24205 56TH AVENUE WEST
MOUNTLAKE TERRACE, WA.

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TABLES

Table 1-1
Summary of System Performance
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

Reporting Period		Days In Reporting Period	Days In Operation	System Run Time (%)	Volume of Treated Groundwater Discharged (gallons)	Average Daily Groundwater Recovery Rate (gallons per day)	GRPH Aqueous-Phase Removal (lb)	GRPH Vapor-Phase Removal (lb)
Start Date	End Date							
10/02/12	12/05/12	64	29.6	46%	34,569	540.1	3.67	1,353.0
12/05/12	03/04/13	89	35.6	40%	7,655.9	86.0	0.938	50.6
03/04/13	06/05/13	93	29.1	31%	4,915.8	52.9	0.604	7.2
06/05/13	09/04/13	91	69.0	76%	83,540.3	918.0	3.580	265.4
09/04/13	12/03/13	90	90.0	100%	75,825.2	842.5	1.226	1,061.1
12/03/13	01/31/14	59	26.1	44%	1,166.2	19.8	0.033	158.9
01/31/14	03/19/14	47	29.4	63%	29,991.7	638.1	0.872	35.1
03/19/14	06/16/14	89	69.7	78%	101,082.0	1,135.8	3.328	5.4
06/16/14	09/18/14	94	86.6	92%	101,780.0	1,082.8	1.097	51.2
09/18/14	12/09/14	82	68.7	84%	53,355.0	650.7	0.022	132.0
12/09/14	03/11/15	92	62.0	67%	103,289.0	1,122.7	0.470	4.2
03/11/15	06/08/15	89	77.7	87%	133,855.0	1,504.0	0.072	4.9
06/08/15	09/21/15	105	93.9	89%	98,522.4	938.3	0.041	48.8
Cumulative Total or Lifetime Average		**1,084**	**767**	**71%**	**829,547.1**	**733.2**	**15.949**	**3,177.8**

NOTES:

= data for current reporting period

% = percent
GRPH = gasoline-range petroleum hydrocarbons
lb = pounds
SVE = soil vapor extraction

Table 1-2
Vapor Stream - System Performance Monitoring Data
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
10/02/12	5.0	0.2	70	146.8	330	380	1,600	21.12	0.000
10/10/12	70.2	2.9	69	149.2	330	419	2,600	45.24	132.3
10/17/12	237.7	9.9	69	149.2	330	410	3,400	63.04	572.3
10/24/12	406.9	17.0	68	144.4	330	385	2,400	54.11	953.8
11/07/12	638.2	26.6	73	140.7	330	384	1,700	37.16	1311.9
12/05/12	714.2	29.8	67	148.0	330	344	150	12.98	1353.0
01/08/13	1,482.9	61.8	65	153.8	330	342	35	1.49	1400.8
01/17/13	1,533.7	63.9	76	153.0	330	350	--		
02/05/13	1,537.6	64.1	64	148.6	330	342	53	0.96	1403.0
03/04/13	1,569.4	65.4	27	173.0	330	342	<10	0.46	1403.6
04/03/13	1,587.2	66.1	60	157.4	330	342	14	0.25	1403.8
05/08/13	1,595.4	66.5	17	175.2	330	341	22	0.43	1403.9
06/05/13	2,267.7	94.5	36	166.0	330	340	<10	0.25	1410.8
07/02/13	2,789.8	116.2	39	168.0	330	340	26	0.43	1420.1
08/06/13	3,227.4	134.5	47	162.1	330	341	31	0.65	1432.0
08/09/13	3,302.8	137.6	64	157.1	330	345	--		
09/04/13	3,924.4	163.5	66	152.0	330	351	580	8.41	1676.2
10/07/13	4,715.2	196.5	66	153.1	330	356	710	13.71	2128.1
10/14/13	4,888.3	203.7	72	155.4	330	354	--		
10/15/13	4,913.7	204.7	70	154.7	330	355	--		
10/16/13	4,936.9	205.7	66	154.4	330	364	--		
11/06/13	5,434.8	226.5	45	173.7	330	349	240	8.74	2390.2
11/07/13	5,460.5	227.5	45	168.1	330	346	--		
12/03/13	6,084.2	253.5	74	158.2	330	355	740	12.83	2737.3
01/13/14	6,710.4	279.6	0	0.0	--	--	--		
01/31/14	6,711.6	279.7	47	174.0	330	342	37	6.08	2896.2
02/06/14	6,854.2	285.6	47	173.4	330	343	--		
02/07/14	6,877.1	286.5	47	174.9	330	342	110	2.02	2910.1
03/19/14	7,416.7	309.0	48	174.0	330	340	<10	0.94	2931.2
04/18/14	7,919.8	330.0	48	173.1	330	340	<10	0.08	2932.9
05/19/14	8,420.1	350.8	47	172.8	330	345	<10	0.08	2934.5
06/16/14	9,088.9	378.7	50	172.2	330	345	<10	0.08	2936.7
07/09/14	9,571.0	398.8	50	169.8	330	344	<10	0.08	2938.2
08/12/14	10,287.5	428.6	49	167.4	330	339	19	0.18	2943.6
09/18/14	11,168.4	465.4	48	170.1	330	341	140	1.21	2987.9
10/22/14	11,881.3	495.1	48	166.5	330	342	220	2.72	3068.8
11/17/14	12,301.8	512.6	52	175.0	330	341	63	2.17	3106.9
12/09/14	12,817.3	534.1	52	171.5	330	340	15	0.61	3119.9
01/13/15	13,215.2	550.6	54	174.6	330	340	<10	0.16	3122.5

Table 1-2
Vapor Stream - System Performance Monitoring Data
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
02/18/15	13,815.2	575.6	57	40.7	CATOX OFF		<10	0.05	3123.7
03/11/15	14,305.9	596.1	59	50.9	CATOX OFF		<10	0.02	3124.1
04/22/15	15,074.4	628.1	67	165.6	CATOX OFF		<10	0.05	3125.7
05/19/15	15,691.6	653.8	60	163.4	CATOX OFF		<10	0.07	3127.6
06/08/15	16,171.3	673.8	60	163.7	CATOX OFF		<10	0.07	3129.0
07/28/15	17,221.9	717.6	60	163.5	CATOX OFF		14	0.14	3135.2
08/20/15	17,775.8	740.7	58	164.7	CATOX OFF		43	0.42	3144.9
09/21/15	18,425.5	767.7	60	167.9	CATOX OFF		120	1.22	3177.8
PSCAA NOC- 10384 Conditions				**max. 350**	**min. 240**	**max. 620**			

NOTES:

[1]Air flow rates calculated using an averaging flow sensor (Dwyer Model DS). Air flow rates between 2/7/14 and 12/09/14 calculated from data. Air flow rates from 1/12/15 forward calculated from averaging flow sensor.

[2]Influent vapor samples collected from SVE sample port prior to air treatment.

[3]Daily mass removal rate (lb/day) = average concentration (mg/m^3) x average flow rate (scfm) x conversion (8.99x10-5 lb-m^3-min/mg-ft^3-day).

[4]Cumulative mass of benzene removed (lb) = daily removal rate (lb/day) x time in operation (days) + previous cumulative total (lb).

-- = not analyzed, measured, or calculated
GRPH = gasoline-range petroleum hydrocarbons
iow = inches of water
lb = pounds
lb/day = pounds per day
mg/m^3 = milligrams per cubic meter
NOC - Notice of Construction
PSCAA = Puget Sound Clean Air Agency
scfm = standard cubic feet per minute
SVE = soil vapor extraction

HydroCon

Table 1-3
Liquid Stream - System Performance Monitoring Data
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

	Extracted Groundwater			Hydrocarbon Recovery - Aqueous-Phase		
				GRPH Recovery - Aqueous-Phase		
Date	Discharge Flow Totalizer (gallons)	Treated Between Visits (gallons)	Average Daily Flow Rate Between Visits (gallons per day)	Influent GRPH Concentration[1] (µg/L)	GRPH Removed[2][3] (lb)	Cumulative GRPH Removed[3][4] (lb)
10/02/12	636	0	0		--	--
10/10/12	5,761	5,125	641	18,000	0.770	0.77
10/17/12	14,898	9,137	1,305	--		
10/24/12	21,888	6,990	999	--		
11/07/12	31,362	9,473	677	6,100	*2.574*	*3.34*
12/05/12	35,205	3,843	137	14,000	0.322	3.67
01/08/13	38,077	2,872	84	19,000	0.395	4.06
01/17/13	40,712	2,636	293			
02/05/13	41,363	651	34	8,200	0.373	4.43
03/04/13	42,861	1,497	55	19,000	*0.170*	*4.60*
04/03/13	44,190	1,329	44	11,000	*0.166*	*4.77*
05/08/13	46,980	2,790	80	20,000	*0.361*	*5.13*
06/05/13	47,777	797	28	3,200	*0.077*	*5.21*
07/02/13	63,870	16,093	596	17,000	*1.356*	*6.57*
08/06/13	89,988	26,118	746	<100	*1.858*	*8.42*
08/09/13	95,563	5,575	1,858	--	--	
09/04/13	131,317	35,754	1,375	2,400	0.4	8.79
10/07/13	174,445	43,128	1,307	1,100	0.6	9.42
10/14/13	184,152	9,707	1,387	--	--	
10/15/13	184,982	831	831	--	--	
10/16/13	185,955	973	973	--	--	
11/06/13	187,065	1,110	53	3,800	0.3	9.68
11/07/13	188,072	1,007	1,007	--	--	
12/03/13	207,142	19,070	733	240	0.34	10.01
01/13/14	208,154	1,012	25	--	--	
01/31/14	208,308	155	9	6,600	0.03	10.05
02/06/14	214,154	5,846	974	--	--	
02/07/14	214,841	686	686	760	0.20	10.25
03/19/14	238,300	23,460	586	6,100	0.67	10.92
04/18/14	273,331	35,031	1,168	4,300	1.52	12.44
05/19/14	303,504	30,173	973	2,700	0.88	13.32
06/16/14	339,382	35,878	1,281	3,500	0.93	14.25
07/09/14	367,276	27,894	1,213	2,500	0.70	14.94
08/12/14	399,903	32,627	960	180	0.36	15.31
09/18/14	441,162	41,259	1,115	<100	0.03	*15.34*
10/22/14	464,280	23,118	680	<100	*0.010*	*15.35*
11/17/14	478,016	13,736	528	<100	*0.006*	*15.36*
12/09/14	494,517	16,501	750	<100	*0.007*	*15.37*
01/13/15	516,310	21,793	623	1,500	*0.141*	*15.51*
02/18/15	559,454	43,144	1,198	150	*0.297*	*15.80*
03/11/15	597,806	38,352	1,826	<100	*0.032*	*15.84*
04/23/15	658,574	60,768	1,413	<100	*0.025*	*15.86*
05/19/15	702,217	43,643	1,679	<100	*0.018*	*15.88*
06/08/15	731,661	29,444	1,472	180	*0.028*	*15.91*
07/28/15	786,086	54,425	1,089	<100	*0.023*	*15.93*
08/20/15	805,176	19,090	830	<100	*0.008*	*15.94*
09/21/15	830,183	25,007	781	<100	*0.010*	*15.95*
State Waste Discharge Permit ST0007384 Limits			**7,000**			

NOTES:
Sample Analysis conducted by Friedman & Bruya, Inc.
[1]Influent samples collected prior to treatment with liquid-phase granular activated carbon.
[2] Mass removal weight (lb) = gallons recovered x concentration (µg/L)
x conversion factor (8.344E-9 lb-L/µg-gallon).
[3]Nondetectable influent concentrations assumed to be 50% of the laboratory's lower reporting limit
[4]Cumulative mass (lb) = mass removal between sampling visits (lb) + previous cumulative total (lb).
Totalizer data not recorded on 8/20/15; value is estimated based on average daily flow

DEFINITIONS:
-- = not analyzed, measured, or calculated
< = not detected at the concentration indicated
µg/L = micrograms per liter
GRPH = gasoline-range petroleum hydrocarbons
lb = pound

Table 1-4
Vapor Stream Analytical Results
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 1VINF)					Effluent Vapor Samples[2] (Sample ID: 1VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	GRPH DRE[3]
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	%
10/2/2012	1,600	2	10	5.5	26	<10	<0.1	<0.1	<0.1	<0.3	99.7
10/10/2012	2,600	2.3	13	8.7	37	<10	<0.1	0.2	<0.1	<0.3	99.8
10/17/2012	3,400	3	9.4	11	42	<10	<0.1	<0.1	<0.1	<0.3	99.9
10/24/2012	2,400	1.5	7	9.4	39	<10	<0.1	<0.1	<0.1	<0.3	99.8
11/7/2012	1,700	<0.5	7	7.3	37	<10	<0.1	<0.1	<0.1	<0.3	99.7
12/5/2012	150	<0.1	0.23	<0.1	3.5	<10	<0.1	<0.1	<0.1	<0.3	96.7
1/8/2013	35	<0.1	0.19	0.18	0.86	<10	<0.1	0.16	<0.1	<0.3	85.7
2/5/2013	53	<0.1	0.3	0.13	0.78	<10	<0.1	<0.1	<0.1	<0.3	90.6
3/4/2013	<10	<0.1	0.1	0.1	0.69	<10	<0.1	<0.1	<0.1	<0.3	-
4/3/2013	14	<0.1	0.18	0.14	0.9	<10	<0.1	<0.1	<0.1	<0.3	64.3
5/8/2013	22	<0.1	0.23	<0.1	0.35	<10	<0.1	<0.1	<0.1	<0.3	77.3
6/5/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
7/2/2013	26	<0.1	0.24	<0.1	0.48	<10	<0.1	<0.1	<0.1	<0.3	80.8
8/6/2013	31	<0.1	0.21	0.14	0.79	<10	<0.1	<0.1	<0.1	<0.3	83.9
9/4/2013	580	<0.1	5	<0.1	22	<10	<0.1	<0.1	<0.1	<0.3	99.1
10/7/2013	710	<0.1	5.7	<0.1	22	<10	<0.1	<0.1	<0.1	<0.3	99.3
11/6/2013	240	<0.1	1.6	<0.1	6.4	<10	<0.1	<0.1	<0.1	<0.3	97.9
12/3/2013	740	<0.1	6.3	<0.1	19	<10	<0.1	<0.1	<0.1	<0.3	99.3
1/31/2014	37	<0.1	0.4	<0.1	0.75	<10	<0.1	<0.1	<0.1	<0.3	86.5
2/7/2014	110	<0.1	0.77	<0.1	2.2	<10	<0.1	<0.1	<0.1	<0.3	95.5
3/19/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
4/18/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
5/19/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
6/16/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
7/9/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
8/11/2014	19	<0.1	0.12	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	73.7
9/17/2014	140	<0.1	0.23	0.54	1.6	<10	<0.1	<0.1	<0.1	<0.3	96.4
10/22/2014	220	<0.1	3	<0.1	3.3	<10	<0.1	<0.1	<0.1	<0.3	97.7
11/18/2014	63	<0.1	0.57	<0.1	0.72	<10	<0.1	<0.1	<0.1	<0.3	92.1
12/9/2014	15	<0.1	0.29	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	66.7
1/13/2015	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
2/18/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
3/11/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
4/23/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
5/19/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-

Table 1-4
Vapor Stream Analytical Results
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 1VINF)					Effluent Vapor Samples[2] (Sample ID: 1VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range mg/m3	Benzene mg/m3	Toluene mg/m3	Ethylbenzene mg/m3	Xylene Total mg/m3	Gasoline Range mg/m3	Benzene mg/m3	Toluene mg/m3	Ethylbenzene mg/m3	Xylene Total mg/m3	GRPH DRE[3] %
6/8/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
7/28/2015	CATOX OFF - SAMPLED AT STACK					14	<0.1	<0.1	<0.1	<0.3	-
8/20/2015	CATOX OFF - SAMPLED AT STACK					43	<0.1	0.42	0.13	0.34	-
9/21/2015	CATOX OFF - SAMPLED AT STACK					120	<0.1	1.1	0.36	1	-
PSCAA NOC-10384 Restrictions and Conditions						max 148.2[3]	1.6[4]	NS	NS	NS	95%[3][5]

Notes:

Red denotes concentration exceeds PSCAA Conditions

Samples analyzed by Fremont Analytical of Seattle, Washington.

[1] Influent vapor samples collected from SVE port on the pressure side of the blower

[2] Effluent vapor samples collected from the sample port on the effluent stack

[3] DRE shall be at least 95% unless the effluent GRPH concentration does not exceed 50 ppmv (or 148.2 mg/m^3 at standard temperature and pressure assuming an average molecular weight for GRPH of 72.5)

[4] The PSCAA NOC threshold concentration for uncontrolled benzene emission is 0.5 ppmv, which is equivalent to 1.6 mg/m^3 at standard temperature and pressure see below for conversion formula

[5] DRE is calculated by [GRPH inf-GRPH eff]/[GRPH inf] x 100. For results below detection limit, 50% of the value of the detection limit is used in the calculation.

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

mg/m^3 = milligrams per cubic meter

CATOX - catalytic oxidizer

DRE = destruction removal efficiency

GRPH = gasoline-range petroleum hydrocarbons

NOC = Notice of Construction

NWTPH = Northwest Total Petroleum Hydrocarbon

ppmv = parts per million by volume

PSCAA = Puget Sound Clean Air Agency

SVE = soil vapor extraction

Formula to convert concentration in mg/m^3 to ppmv =

(24.45 x mg/m^3)/gram molecular weight of substance

where mg/m^3 = concentration of substance in milligrams per cubic meter

formula assumes standard temperature and pressure.

Source: ACGIH. 2015. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).

Table 1-5
Liquid Stream Analytical Results
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 1WINF)					Groundwater Midstream Sample[2] (Sample ID: 1GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 1WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Total BTEX µg/L	Lead µg/L	pH pH
10/10/2012	18,000	25	370	280	4,500	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.59
11/7/2012	6,100	8.4	99	24	1,200	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.61
12/5/2012	14,000	12	250	200	2,700	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	19.4	7.19
1/8/2013	19,000	60	400	520	3,600	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.71
2/5/2013	8,200	11	83	61	1,200	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.86
3/4/2013	19,000	20	200	460	3,900	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.88
4/3/2013	11,000	27	83	<40	2,500	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.68
5/8/2013	20,000	11	450	<10	3,400	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.06
6/5/2013	3,200	4	35	<1	350	<100	<1	<1	<1	<3	<100	<1	<1	<1	3.1	<6	3.33	6.8
7/2/2013	17,000	9.9	290	190	3,200	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.74
8/6/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.89
9/4/2013	2,400	1.1	18	<1	230	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.41
10/7/2013	1,100	1.1	12	<1	86	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.89
11/6/2013	3,800	27	150	26	810	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.94
12/3/2013	240	<1	3.7	<1	19	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	7.05	6.98
1/31/2014	6,600	19	370	<1	1,000	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	-
2/7/2014	760	1	6.6	<1	54	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.71
3/19/2014	6,100	2.9	160	<1	1,100	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	8.49
4/18/2014	4,300	<1	100	<1	650	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.65
5/19/2014	2,700	2.5	62	<1	310	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.9
6/16/2014	3,500	2	86	<1	520	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	1.04	6.59
7/9/2014	2,500	1.7	358	<1	350	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.2
8/12/2014	180	<1	1.5	<1	15	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.29
9/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.25
10/22/2014	<100	<1	1.4	<1	4	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.19
11/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.56
12/9/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	13.3	7.29
1/13/2015	1,500	<1	35	<1	270	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.37
2/18/2015	150	<1	3.3	<1	25	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.25
3/11/2015	<100	<1	<1	<1	8.5	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.15
4/23/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.25
5/19/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.38

Table 1-5
Liquid Stream Analytical Results
Unit 1 - TOC Property
TOC Holdings Co. Facility No. 01-176
24205 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 1WINF)					Groundwater Midstream Sample[2] (Sample ID: 1GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 1WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Total BTEX µg/L	Lead µg/L	pH pH
6/8/2015	180	<1	2.8	<1	28	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	5.64	6.5
7/28/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.3
8/20/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.5
9/21/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.7
										WA Discharge Permit ST0007384 Effluent Limits	1,000	5	NS	NS	NS	100	1,090	6 to 10

Notes:

Red denotes measurement falls outside of the range stipulated in the discharge permit.

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Three GAC vessels are operated in series mode. 1WINF sample is collected prior to first GAC vessel in series

[2] 1GAC1 sample is collected downstream of GAC-1 and upstream of the GAC-2 vessels in series

[3] Effluent sample collected downstream of third GAC vessel in series, which represents the quality of water discharged to the POTW

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

µg/L = micrograms per liter

EPA = U.S. Environmental Protection Agency

GAC = granular activated carbon

NS = no standard

NWTPH = Northwest Total Petroleum Hydrocarbon

POTW = publicly-owned treatment works

Table 2-1
Summary of System Performance
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

Reporting Period			Days In Reporting Period	Days In Operation	System Run Time (%)	Volume of Treated Groundwater Discharged (gallons)	Average Daily Groundwater Recovery Rate (gallons per day)	GRPH Aqueous-Phase Removal (lb)	GRPH Vapor-Phase Removal (lb)
Start Date	End Date								
10/03/12	12/05/12		63	51.7	82%	12,461	197.8	0.01	671.8
12/05/12	03/04/13		89	52.5	59%	5,900	66.3	0.002	12.8
03/04/13	06/05/13		93	67.1	72%	106,670	1,147	0.356	7.4
06/05/13	09/04/13		91	82.2	90%	123,303	1,355	0.157	9.3
09/04/13	12/03/13		90	89.9	100%	89,204	991.2	0.037	163.5
12/03/13	01/13/14		41	41.1	100%	29,087	709	0.012	73.0
01/13/14	03/18/14		64	41.8	65%	29,578	462.2	0.012	49.7
03/18/14	06/16/14		90	85.4	95%	167,292	1,858.8	0.070	9.7
06/16/14	09/18/14		94	90.7	97%	120,848	1,285.6	0.050	6.2
09/18/14	12/09/14		82	53.9	66%	19,301	235.4	0.008	3.3
12/09/14	03/11/15	[1]	92	43.8	48%	39,860	433.3	0.017	7.1
03/11/15	06/08/15	[1]	89	81.1	91%	160,177	1,799.7	0.067	2.4
06/08/15	09/21/15		105	93.9	89%	84,900	808.6	0.035	6.8
Cumulative Total or Lifetime Average			**1,083**	**875**	**81%**	**988,579.7**	**873.1**	**0.830**	**1,022.9**

NOTES:

= data for current reporting period

[1] An air sample was not collected during the March 11, 2015 site visit because the blower was not operational. Removal is estimated based on extrapolation to April vapor sample

% = percent
GRPH = gasoline-range petroleum hydrocarbons
lb = pounds
SVE = soil vapor extraction

Table 2-2
Vapor Stream - System Performance Monitoring Data
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
10/03/12	15.6	0.7	68	149.1	330	350	340	4.56	0.000
10/10/12	73.7	3.1	86	134.1	330	363	1,300	18.71	57.5
10/17/12	242.0	10.1	76	135.8	330	376	1,300	23.66	223.4
10/24/12	410.7	17.1	72	137.2	330	355	1,100	21.47	374.3
10/25/12	434.7	18.1	73	139.2	330	354	--	--	--
11/06/12	722.8	30.1	74	137.8	330	358	--	--	
11/07/12	748.2	31.2	74	138.6	330	352	660	15.00	585.3
12/05/12	1,257.4	52.4	74	124.3	330	338	15	4.08	671.8
12/06/12	1,266.4	52.8	75	135.6	--	--	--	--	
01/08/13	1,989.7	82.9	27	164.7	330	344	15	0.29	680.7
01/09/13	2,012.1	83.8	32	163.5	330	336	--	--	--
01/17/13	2,037.9	84.9	27	166.5	331	336	--	--	--
02/05/13	2,490.2	103.8	33	159.5	330	335	<10	0.18	684.5
02/06/13	2,514.5	104.8	38	157.5	330	335	--	--	--
03/04/13	2,517.2	104.9	31	162.9	330	335	<10	0.11	684.6
03/12/13	2,705.4	112.7	32	161.7	330	335	--	--	--
04/03/13	3,230.7	134.6	33	166.8	330	335	<10	0.11	687.9
05/08/13	3,454.7	143.9	33	164.5	330	338	<10	0.11	688.9
06/05/13	4,127.1	172.0	36	158.9	330	335	<10	0.11	692.0
06/19/13	4,438.7	184.9	34	166.7	330	335	--	--	--
07/02/13	4,746.1	197.8	32	164.2	330	335	<10	0.11	694.8
08/06/13	5,403.6	225.2	10	175.5	330	335	<10	0.11	697.9
08/09/13	5,475.4	228.1	20	168.6	330	335	--	--	--
09/04/13	6,098.7	254.1	20	170.1	330	335	<10	0.12	701.3
10/07/13	6,890.0	287.1	34	163.9	330	336	41	0.65	722.9
10/14/13	7,062.9	294.3	35	165.2	330	336	--	--	--
10/15/13	7,088.0	295.3	74	146.5	330	342	--	--	--
10/16/13	7,111.3	296.3	67	147.6	330	340	--	--	--
11/06/13	7,610.8	317.1	73	150.7	330	338	140	2.27	791.0
11/07/13	7,635.3	318.1	65	148.2	330	338	--	--	--
12/03/13	8,257.0	344.0	65	154.2	330	337	130	2.74	864.8
12/04/13	8,287.9	345.3	66	154.2	330	337	--	--	--
01/13/14	9,242.4	385.1	71	147.8	330	336	66	1.78	937.8
01/23/14	9,485.7	395.2	69	--	--	--	--	--	--
01/31/14	9,675.8	403.2	68	147.3	330	335	--	--	--
02/07/14	9,694.4	403.9	74	144.7	330	335	82	1.51	966.3
03/18/14	10,246.4	--	74	--	330	334	26	0.87	987.5
04/17/14	10,859.0	452.5	68	146.6	330	336	<10	0.23	993.2
05/20/14	11,645.2	485.2	72	146.9	330	338	<10	0.07	995.4

Table 2-2
Vapor Stream - System Performance Monitoring Data
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
06/16/14	12,296.4	512.4	62	152.4	330	338	<10	0.07	997.2
07/10/14	12,799.7	533.3	62	150.2	330	338	<10	0.07	998.6
08/12/14	13,588.2	566.2	61	149.4	330	338	<10	0.07	1000.9
09/18/14	14,474.1	603.1	48	158.3	CATOX OFF		<10	0.07	1003.4
10/22/14	14,721.8	613.4	45	72.7	CATOX OFF		<10	0.05	1004.0
11/17/14	15,242.7	635.1	47	166.6	CATOX OFF		<10	0.05	1005.1
12/09/14	15,767.5	657.0	49	156.5	CATOX OFF		<10	0.07	1006.7
01/13/15	16,495.6	687.3	56	156.0	CATOX OFF		<10	0.07	1008.8
02/18/15	16,818.0	700.8	--	--	BLOWER DOWN		--	--	--
03/11/15	16,818.0	700.8	--	--			--	--	--
04/22/15	17,642.7	735.1	59	149.5	CATOX OFF		<10	0.10	1013.8
05/19/15	18,284.4	761.9	57	159.5	CATOX OFF		<10	0.03	1014.7
06/08/15	18,764.9	781.9	65	158.8	CATOX OFF		<10	0.07	1016.1
07/28/15	19,814.3	825.6	50	163.9	CATOX OFF		<10	0.07	1019.3
08/20/15	20,367.2	848.6	54	161.1	CATOX OFF		<10	0.07	1021.0
09/21/15	21,018.3	875.8	56	161.5	CATOX OFF		<10	0.07	1022.9
PSCAA NOC- 10384 Conditions				**max. 350**	**min. 240**	**max. 620**			

NOTES:

[1]Air flow rates calculated using an averaging flow sensor (Dwyer Model DS). Air flow rates between 2/7/14 and 12/09/14 calculated from data. Air flow rates from 1/12/15 forward calculated from averaging flow sensor.

[2]Influent vapor samples collected from SVE sample port prior to air treatment.

[3]Daily mass removal rate (lb/day) = average concentration (mg/m^3) x average flow rate (scfm) x conversion (8.99x10-5 lb-m^3-min/mg-ft^3-day).

[4]Cumulative mass removed (lb) = daily removal rate (lb/day) x time in operation (days) + previous cumulative total (lb).

-- = not analyzed, measured, or calculated
GRPH = gasoline-range petroleum hydrocarbons
iow = inches of water
lb = pounds
lb/day = pounds per day
mg/m^3 = milligrams per cubic meter
NOC - Notice of Construction
PSCAA = Puget Sound Clean Air Agency
scfm = standard cubic feet per minute
SVE = soil vapor extraction

HydroCon

Table 2-3
Liquid Stream - System Performance Monitoring Data
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

	Extracted Groundwater			Hydrocarbon Recovery - Aqueous-Phase		
				GRPH Recovery - Aqueous-Phase		
Date	Discharge Flow Totalizer (gallons)	Treated Between Visits (gallons)	Average Daily Flow Rate Between Visits (gallons per day)	Influent GRPH Concentration[1] (µg/L)	GRPH Removed[2][3] (lb)	Cumulative GRPH Removed[3][4] (lb)
10/03/12	397.8	0	0	--	--	--
10/10/12	562.6	165	24	<100	0.000	0.000
10/17/12	5,392.6	4,830	690	--	--	--
10/24/12	8,170.9	2,778	397	--	--	--
10/25/12	8,580.4	410	410	--	--	--
11/06/12	10,624.2	2,044	170	--	--	--
11/07/12	10,630.5	6	6	<100	0.004	0.004
12/05/12	12,858.4	2,228	80	<100	0.001	0.005
12/06/12	14,221.5	1,363	1,363	--	--	--
01/08/13	18,643.2	4,422	134	<100	0.002	0.008
01/09/13	18,651.6	8	8	--	--	--
01/17/13	18,753.9	102	13	--	--	--
02/05/13	18,753.9	0	0	<100	0.000	0.008
03/12/13	18,758.0	4	0	--	--	--
03/13/13	18,758.0	0	0	1,100	0.000	0.008
04/03/13	24,667.4	5,909	281	740	0.045	0.053
05/08/13	90,733.6	66,066	1,888	<100	0.218	0.27
06/05/13	125,427.8	34,694	1,239	590	0.093	0.36
06/19/13	131,990.5	6,563	469	--	--	--
07/02/13	172,454.5	40,464	3,113	<100	0.126	0.49
08/06/13	223,496.3	51,042	1,458	<100	0.021	0.51
08/09/13	226,651.9	3,156	1,052	--	--	
09/04/13	248,730.9	22,079	849	<100	0.011	0.52
10/07/13	269,136.3	20,405	618	<100	0.009	0.53
10/14/13	273,636.3	4,500	643	--	--	--
10/15/13	275,837.1	2,201	2,201	--	--	--
10/16/13	277,480.5	1,643	1,643	--	--	--
11/06/13	308,993.4	31,513	1,501	<100	0.017	0.55
11/07/13	310,249.2	1,256	1,256	--	--	--
12/03/13	337,935.2	27,686	1,065	<100	0.012	0.56
12/04/13	339,243.0	1,308	1,308	--	--	--
01/13/14	367,022.0	27,779	694	<100	0.012	0.57
01/31/14	376,637.4	9,615	534	--	--	--
02/07/14	376,875.7	238	34	<100	0.004	0.57
03/18/14	396,600.0	19,724	506	<100	0.008	0.58
04/17/14	424,646.0	28,046	935	<100	0.012	0.59
05/20/14	497,115.0	72,469	2,196	<100	0.030	0.62
06/16/14	563,892.0	66,777	2,473	<100	0.028	0.65
07/09/14	603,616.0	39,724	1,727	<100	0.017	0.67
08/12/14	652,922.0	49,306	1,450	<100	0.021	0.69
09/17/14	684,740.0	31,818	884	<100	0.013	0.70
10/22/14	687,370.0	2,630	75	<100	0.001	0.70
11/17/14	695,157.0	7,787	300	<100	0.003	0.71
12/09/14	704,041.0	8,884	404	<100	0.004	0.71
01/13/15	725,601.0	21,560	616	<100	0.009	0.72
02/18/15	736,017.0	10,416	289	<100	0.004	0.72
03/11/15	743,901.0	7,884	375	<100	0.003	0.73
04/23/15	816,311.0	72,410	1,684	<100	0.030	0.76
05/19/15	867,016.0	50,705	1,950	<100	0.021	0.78
06/08/15	904,078.0	37,062	1,853	<100	0.015	0.79
07/28/15	958,806.5	54,729	1,095	<100	0.023	0.82
08/20/15	975,527.1	16,721	727	<100	0.007	0.82
09/21/15	988,977.5	13,450	420	<100	0.006	0.83
State Waste Discharge Permit ST0007384 Limits			**7,000**			

NOTES:
Sample Analysis conducted by Friedman & Bruya, Inc.

[1]Influent samples collected prior to treatment with liquid-phase granular activated carbon.

[2] Mass removal weight (lb) = gallons recovered x concentration (µg/L) x conversion factor (8.344E-9 lb-L/µg-gallon).

[3]Nondetectable influent concentrations assumed to be 50% of the laboratory's lower reporting limit.

[4]Cumulative mass (lb) = mass removal between sampling visits (lb) + previous cumulative total (lb).

DEFINITIONS:
-- = not analyzed, measured, or calculated
< = not detected at the concentration indicated
µg/L = micrograms per liter
GRPH = gasoline-range petroleum hydrocarbons
lb = pound

Table 2-4
Vapor Stream Analytical Results
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 2VINF)					Effluent Vapor Samples[2] (Sample ID: 2VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	GRPH DRE[3]
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	%
10/3/2012	340	0.44	1.6	0.96	1.7	<10	<0.1	0.17	<0.1	<0.3	98.5
10/10/2012	1,300	0.77	<0.5	4	9.6	<10	<0.1	0.21	<0.1	<0.3	99.6
10/17/2012	1,300	0.55	<0.5	3.7	7.9	<10	<0.1	<0.1	<0.1	<0.3	99.6
10/24/2012	1,100	0.5	3.1	<0.1	11	<10	<0.1	<0.1	<0.1	<0.3	99.5
11/7/2012	660	<0.1	2.7	<0.1	7.1	<10	<0.1	<0.1	<0.1	<0.3	99.2
12/5/2012	15	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	66.7
1/8/2013	15	<0.1	<0.1	<0.1	<0.3	<10	<0.1	0.1	<0.1	<0.3	66.7
2/5/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
3/4/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
4/3/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
5/8/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
6/5/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
7/2/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
8/6/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
9/4/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
10/7/2013	41	<0.1	0.19	<0.1	-	<10	<0.1	<0.1	<0.1	<0.3	87.8
11/6/2013	140	<0.1	0.52	<0.1	1.4	<10	<0.1	<0.1	<0.1	<0.3	96.4
12/3/2013	130	<0.1	0.44	0.73	1.3	<10	<0.1	<0.1	<0.1	<0.3	96.2
1/13/2014	66	<0.1	0.31	0.38	0.51	<10	<0.1	<0.1	<0.1	<0.3	92.4
2/7/2014	82	<0.1	<0.1	0.73	0.65	<10	<0.1	<0.1	<0.1	<0.3	93.9
3/18/2014	26	<0.1	<0.1	0.2	<0.3	<10	<0.1	<0.1	0.2	<0.3	80.8
4/17/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
5/20/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
6/16/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
7/9/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
8/11/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	--
9/17/2014	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
10/22/2014	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
11/18/2014	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
12/9/2014	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
1/13/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
2/18/2015	BLOWER DOWN - NO SAMPLE					-	-	-	-	-	--
3/11/2015						-	-	-	-	-	--
4/23/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
5/19/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--

Table 2-4
Vapor Stream Analytical Results
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 2VINF)					Effluent Vapor Samples[2] (Sample ID: 2VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	GRPH DRE[3]
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	%
6/8/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	--
7/28/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
8/20/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
9/21/2015	CATOX OFF - SAMPLED AT STACK					<10	<0.1	<0.1	<0.1	<0.3	-
PSCAA NOC-10384 Restrictions and Conditions						max 148.2[3]	1.6[4]	NS	NS	NS	95%[3][5]

Notes:

Red denotes concentration exceeds PSCAA Conditions

Samples analyzed by Fremont Analytical of Seattle, Washington.

[1] Influent vapor samples collected from SVE port on the pressure side of the blower

[2] Effluent vapor samples collected from the sample port on the effluent stack

[3] DRE shall be at least 95% unless the effluent GRPH concentration does not exceed 50 ppmv (or 148.2 mg/m^3 at standard temperature and pressure assuming an average molecular weight for GRPH of 72.5)

[4] The PSCAA NOC threshold concentration for uncontrolled benzene emission is 0.5 ppmv, which is equivalent to 1.6 mg/m^3 at standard temperature and pressure see below for conversion formula

[5] DRE is calculated by [GRPH inf-GRPH eff]/[GRPH inf] x 100. For results below detection limit, 50% of the value of the detection limit is used in the calculation.

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

mg/m^3 = milligrams per cubic meter

CATOX - catalytic oxidizer

DRE = destruction removal efficiency

GRPH = gasoline-range petroleum hydrocarbons

NOC = Notice of Construction

NWTPH = Northwest Total Petroleum Hydrocarbon

ppmv = parts per million by volume

PSCAA = Puget Sound Clean Air Agency

SVE = soil vapor extraction

Formula to convert concentration in mg/m^3 to ppmv =

(24.45 x mg/m^3)/gram molecular weight of substance

where mg/m^3 = concentration of substance in milligrams per cubic meter

formula assumes standard temperature and pressure.

Source: ACGIH. 2015. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).

Table 2-5
Liquid Stream Analytical Results
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 2WINF)					Groundwater Midstream Sample[2] (Sample ID: 2GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 2WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Total BTEX µg/L	Lead µg/L	pH pH
10/10/2012	<100	<1	<1	<1	3.1	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.59
11/7/2012	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.71
12/5/2012	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	76.5	8.05
1/8/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.29
2/5/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.31
3/13/2013	1,100	2.9	<1	<1	27	-	-	-	-	-	<100	<1	<1	<1	<3	<6	-	7.59
4/3/2013	740	<1	<1	<1	7.9	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.08
5/8/2013	<100	<1	<1	<1	5.1	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.51
6/5/2013	590	2	1.8	14	120	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	4.51	6.68
7/2/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.97
8/6/2013	<100	<1	<1	<1	5.2	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.1
9/4/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.96
10/7/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.17
11/6/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.92
12/3/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	1.59	7.04
1/13/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.13
2/7/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.45
3/18/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.86
4/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.87
5/20/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.18
6/16/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	<1	6.91
7/9/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.82
8/12/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.12
9/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.04
10/22/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	5.92
11/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.83
12/9/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	<1	7.29
1/13/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.45
2/18/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.07
3/11/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.26
4/23/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.97
5/19/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.25

Table 2-5
Liquid Stream Analytical Results
Unit 2 - TOC Farmasonis Property
TOC Holdings Co. Facility No. 01-176
24225 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 2WINF)					Groundwater Midstream Sample[2] (Sample ID: 2GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 2WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Gasoline Range µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene Total µg/L	Total BTEX µg/L	Lead µg/L	pH pH
6/8/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	<1	7
7/28/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.5
8/20/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	7
9/21/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	7
										WA Discharge Permit ST0007384 Effluent Limits	1,000	5	NS	NS	NS	100	1,090	6 to 10

Notes:

Red denotes measurement falls outside of the range stipulated in the discharge permit.

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Three GAC vessels are operated in series mode. 2WINF sample is collected prior to first GAC vessel in series

[2] 2GAC1 sample is collected downstream of GAC-1 and upstream of the GAC-2 vessels in series

[3] Effluent sample collected downstream of third GAC vessel in series, which represents the quality of water discharged to the POTW

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

µg/L = micrograms per liter

EPA = U.S. Environmental Protection Agency

GAC = granular activated carbon

NS = no standard

NWTPH = Northwest Total Petroleum Hydrocarbon

POTW = publicly-owned treatment works

POTW = publicly-owned treatment works

Table 3-1
Summary of System Performance
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

Reporting Period									
Start Date	End Date		Days In Reporting Period	Days In Operation	System Run Time (%)	Volume of Treated Groundwater Discharged (gallons)	Average Daily Groundwater Recovery Rate (gallons per day)	GRPH Aqueous-Phase Removal (lb)	GRPH Vapor-Phase Removal (lb)
10/02/12	12/05/12		64	58.6	92%	69,982	1,093	0.03	60.8
12/05/12	03/04/13		89	73.3	82%	30,269	340	0.14	40.0
03/04/13	06/05/13		93	39.6	43%	74,016	796	0.49	4.1
06/05/13	09/04/13		91	58.1	64%	68,179	749	0.73	7.0
09/04/13	12/03/13		90	75.8	84%	211,043	2,345	0.09	9.4
12/03/13	01/13/14		41	41.0	100%	40,410	986	0.02	5.2
01/13/14	03/18/14		64	58.0	91%	132,724	2,074	0.06	68.3
03/18/14	06/16/14		90	71.3	79%	206,572	2,295	0.09	6.7
06/16/14	09/18/14		94	85.2	91%	225,458	2,398	0.11	7.0
09/18/14	12/09/14		82	70.8	86%	203,925	2,487	0.09	5.9
12/09/14	03/11/15		92	70.6	77%	266,301	2,895	0.11	5.7
03/11/15	06/08/15		89	79.5	89%	221,773	2,492	0.09	5.7
06/08/15	09/21/15		105	93.9	89%	143,422	1,366	0.07	6.9
Cumulative Total or Lifetime Average			**1,084**	**876**	**81%**	**1,894,073**	**1,717**	**2.11**	**232.5**

NOTES:

= data for current reporting period

% = percent
GRPH = gasoline-range petroleum hydrocarbons
lb = pounds
SVE = soil vapor extraction

Table 3-2
Vapor Stream - System Performance Monitoring Data
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
10/03/12	11.2	0.5	70	143.8	330	340	13	0.17	0.000
10/10/12	75.7	3.2	73	140.4	330	338	12	0.24	0.75
10/17/12	243.7	10.2	74	141.7	330	337	<10	0.14	1.7
10/24/12	411.9	17.2	74	139.9	330	338	<10	0.09	2.4
11/07/12	750.3	31.3	76	139.1	330	338	<10	0.10	3.7
12/05/12	1,417.6	59.1	76	141.9	330	340	160	2.05	60.8
01/08/13	2,231.8	93.0	83	137.3	330	337	<10	1.07	97.0
02/05/13	2,731.0	113.8	70	144.2	330	337	<10	0.09	99.0
03/04/13	3,177.5	132.4	71	144.6	330	338	<10	0.10	100.8
04/03/13	3,894.4	162.3	64	152.4	330	338	<10	0.10	103.8
05/15/13	4,059.7	169.2	27	173.5	330	301	<10	0.11	104.5
06/05/13	4,126.8	172.0	27	172.9	330	338	<10	0.12	104.8
07/02/13	4,400.3	183.3	17	171.7	330	338	<10	0.12	106.2
08/06/13	5,055.3	210.6	10	182.6	330	338	<10	0.12	109.4
09/04/13	5,520.0	230.0	13	181.6	330	338	<10	0.12	111.8
10/07/13	6,311.3	263.0	13	183.7	330	337	<10	0.12	115.9
11/06/13	7,031.9	293.0	18	185.6	330	338	<10	0.12	119.6
12/03/13	7,339.5	305.8	20	186.4	330	338	<10	0.13	121.2
01/13/14	8,323.6	346.8	24	186.6	330	337	<10	0.13	126.4
02/07/14	8,796.0	366.5	20	188.9	330	340	98	1.70	159.8
03/18/14	9,715.1	404.8	24	187	330	338	<10	0.91	194.7
04/18/14	10,370.2	432.1	27	183.5	330	340	<10	0.12	197.7
05/19/14	10,942.5	455.9	22	184.9	330	342	<10	0.08	199.7
06/16/14	11,425.1	476.0	26	181.8	330	342	<10	0.08	201.4
07/09/14	11,846.3	493.6	24	182.7	330	341	<10	0.08	202.8
08/13/14	12,607.6	525.3	26	181.7	330	337	<10	0.08	205.4
09/18/14	13,470.3	561.3	17	185.0	CATOX OFF		<10	0.08	208.4
10/22/14	14,047.2	585.3	18	185.2	CATOX OFF		<10	0.08	210.4
11/17/14	14,646.6	610.3	19	189.1	CATOX OFF		<10	0.08	212.5
12/09/14	15,168.6	632.0	19	185.6	CATOX OFF		<10	0.08	214.3
01/12/15	15,889.0	662.0	8	197.3	CATOX OFF		<10	0.09	216.9
02/18/15	16,369.4	682.1	64	160.8	CATOX OFF		<10	0.08	218.5
03/11/15	16,862.8	702.6	70	157.8	CATOX OFF		<10	0.07	220.0
04/22/15	17,667.5	736.1	67	160.9	CATOX OFF		<10	0.07	222.4

Table 3-2
Vapor Stream - System Performance Monitoring Data
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

Date	Run Time		SVE Parameters		Catalytic Oxidizer		GRPH Removal		
	SVE Hours	Total Time in Operation	SVE-Prefilter Vacuum	Air Flow Rate[1]	Catalyst Entrance Temp.	Catalyst Exit Temp.	Influent Concentration[2]	Daily Mass Removal Rate[3]	Cumulative Mass Recovered[4]
	(hours)	(days)	(iow)	(scfm)	(°C)	(°C)	(mg/m^3)	(lb/day)	(lb)
05/19/15	18,290.8	762.1	61	160.1	CATOX OFF		<10	0.07	224.2
06/08/15	18,770.7	782.1	60	159.2	CATOX OFF		<10	0.07	225.7
07/28/15	19,821.2	825.9	52	164.2	CATOX OFF		<10	0.07	228.9
08/20/15	20,372.9	848.9	58	161.3	CATOX OFF		<10	0.07	230.5
09/21/15	21,024.8	876.0	56	164.7	CATOX OFF		<10	0.07	232.5
PSCAA NOC- 10384 Conditions				**max. 350**	**min. 240**	**max. 620**			

NOTES:

[1]Air flow rates calculated using an averaging flow sensor (Dwyer Model DS). Air flow rates between 2/7/14 and 12/09/14 calculated from data. Air flow rates from 1/12/15 forward calculated from averaging flow sensor.

[2]Influent vapor samples collected from SVE sample port prior to air treatment.

[3]Daily mass removal rate (lb/day) = average concentration (mg/m^3) x average flow rate (scfm) x conversion (8.99x10-5 lb-m^3-min/mg-ft^3-day).

[4]Cumulative mass removed (lb) = daily removal rate (lb/day) x time in operation (days) + previous cumulative total (lb).

-- = not analyzed, measured, or calculated
GRPH = gasoline-range petroleum hydrocarbons
iow = inches of water
lb = pounds
lb/day = pounds per day
mg/m^3 = milligrams per cubic meter
NOC - Notice of Construction
PSCAA = Puget Sound Clean Air Agency
scfm = standard cubic feet per minute
SVE = soil vapor extraction

HydroCon

Table 3-3
Liquid Stream - System Performance Monitoring Data
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

	Extracted Groundwater			Hydrocarbon Recovery - Aqueous-Phase		
				GRPH Recovery - Aqueous-Phase		
Date	Discharge Flow Totalizer (gallons)	Treated Between Visits (gallons)	Average Daily Flow Rate Between Visits (gallons per day)	Influent GRPH Concentration[1] (µg/L)	GRPH Removed[2][3] (lb)	Cumulative GRPH Removed[3][4] (lb)
10/02/12	1,178.0	0	0	--	--	--
10/10/12	5,075.9	3,898	487	<100	0.001	0.001
11/07/12	38,565.1	2,266	2,266	<100	0.014	0.014
12/05/12	71,160.2	32,595	1,164	<100	0.014	0.028
01/08/13	71,627.1	467	14	<100	0.000	0.028
02/06/13	84,429.4	12,802	441	160	0.011	0.039
03/04/13	101,429.0	17,000	654	1,700	0.132	0.171
04/03/13	119,013.8	17,585	586	<100	0.128	0.299
05/08/13	157,058.4	38,045	1,087	1,500	0.246	0.55
06/05/13	175,444.9	18,387	657	<100	0.119	0.66
07/02/13	175,445.7	1	0	--	--	--
08/06/13	181,799.7	6,354	182	2,500	0.068	0.73
09/04/13	243,623.6	61,824	2,132	<100	0.658	1.39
10/07/13	333,942.9	90,319	2,737	<100	0.038	1.43
11/06/13	420,282.1	62,248	2,829	<100	0.036	1.46
12/03/13	454,666.4	31,301	1,204	<100	0.014	1.48
01/13/14	495,076.1	36,896	922	<100	0.017	1.49
02/07/14	523,790.1	17,262	2,466	<100	0.012	1.51
03/18/14	627,800.0	104,010	2,667	<100	0.043	1.55
04/18/14	722,961.0	95,161	3,070	<100	0.040	1.59
05/19/14	791,030.0	68,069	2,196	<100	0.028	1.62
06/16/14	834,372.0	43,342	1,548	<100	0.018	1.64
07/10/14	887,218.0	52,846	2,202	130	0.040	1.68
08/13/14	964,443.0	77,225	2,271	<100	0.032	1.71
09/18/14	1,059,830.0	95,387	2,650	<100	0.040	1.75
10/22/14	1,142,560.0	82,730	2,433	<100	0.035	1.78
11/17/14	1,205,945.0	63,385	2,438	<100	0.026	1.81
12/09/14	1,263,755.0	57,810	2,628	<100	0.024	1.83
01/13/15	1,351,575.0	87,820	2,509	<100	0.037	1.87
02/18/15	1,463,712.0	112,137	3,115	<100	0.047	1.92
03/11/15	1,530,056.0	66,344	3,159	<100	0.028	1.94
04/23/15	1,631,881.0	101,825	2,368	<100	0.042	1.99
05/19/15	1,705,576.0	73,695	2,834	<100	0.031	2.02
06/08/15	1,751,829.0	46,253	2,313	<100	0.019	2.04
07/28/15	1,819,655.2	67,826	1,357	100	0.042	2.08
08/20/15	1,852,901.2	33,246	1,445	<100	0.014	2.09
09/21/15	1,895,250.5	42,349	1,323	<100	0.018	2.11
State Waste Discharge Permit ST0007384 Limits			**7,000**			

NOTES:

Sample Analysis conducted by Friedman & Bruya, Inc.

[1]Influent samples collected prior to treatment with liquid-phase granular activated carbon.

[2] Mass removal weight (lb) = gallons recovered x concentration (µg/L)
x conversion factor (8.344E-9 lb-L/µg-gallon).

[3]Nondetectable influent concentrations assumed to be 50% of the laboratory's lower reporting limit.

[4]Cumulative mass (lb) = mass removal between sampling visits (lb) + previous cumulative total (lb).

DEFINITIONS:

-- = not analyzed, measured, or calculated
< = not detected at the concentration indicated
µg/L = micrograms per liter
GRPH = gasoline-range petroleum hydrocarbons
lb = pound

Table 3-4
Vapor Stream Analytical Results
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 3VINF)					Effluent Vapor Samples[2] (Sample ID: 3VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	GRPH DRE[3]
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	%
10/2/2012	13	<0.1	0.13	0.12	0.35	<10	<0.1	<0.1	<0.1	<0.3	61.5
10/10/2012	12	<0.1	0.1	<0.1	<0.3	<10	<0.1	0.18	<0.1	<0.3	58.3
10/17/2012	<10	<0.1	0.17	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
10/24/2012	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
11/7/2012	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
12/5/2012	160	<0.1	<0.1	1.5	0.99	<10	<0.1	<0.1	<0.1	<0.3	**96.9**
1/8/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	0.12	<0.1	<0.3	-
2/5/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
3/4/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
4/3/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
5/15/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
6/5/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
7/2/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
8/6/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
9/4/2013	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
10/7/2013	<10	<0.1	0.19	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
11/6/2013	<10	<0.1	0.52	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
12/3/2013	<10	<0.1	0.44	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
1/13/2014	<10	<0.1	0.31	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
2/7/2014	98	<0.1	<0.1	0.34	0.65	<10	<0.1	<0.1	<0.1	<0.3	94.9
3/18/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	0.2	<0.3	-
4/18/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
5/19/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
6/16/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
7/9/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
8/11/2014	<10	<0.1	<0.1	<0.1	<0.3	<10	<0.1	<0.1	<0.1	<0.3	-
9/17/2014	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
10/22/2014	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
11/18/2014	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
12/9/2014	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
1/13/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
2/18/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
3/11/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
4/23/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
5/19/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-

Table 3-4
Vapor Stream Analytical Results
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

	Influent Vapor Samples[1] (Sample ID: 3VINF)					Effluent Vapor Samples[2] (Sample ID: 3VEFF)					
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	GRPH DRE[3]
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	%
6/8/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
7/28/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
8/20/2015	-	-	-	-	-	<10	<0.1	<0.1	<0.1	<0.3	-
9/21/2015						<10	<0.1	<0.1	<0.1	<0.3	
PSCAA NOC-10384 Restrictions and Conditions						max 148.2[3]	1.6[4]	NS	NS	NS	95%[3][5]

Notes:

Red denotes concentration exceeds PSCAA Conditions

Samples analyzed by Fremont Analytical of Seattle, Washington.

[1] Influent vapor samples collected from SVE port on the pressure side of the blower

[2] Effluent vapor samples collected from the sample port on the effluent stack

[3] DRE shall be at least 95% unless the effluent GRPH concentration does not exceed 50 ppmv (or 148.2 mg/m^3 at standard temperature and pressure assuming an average molecular weight for GRPH of 72.5)

[4] The PSCAA NOC threshold concentration for uncontrolled benzene emission is 0.5 ppmv, which is equivalent to 1.6 mg/m^3 at standard temperature and pressure see below for conversion formula

[5] DRE is calculated by [GRPH inf-GRPH eff]/[GRPH inf] x 100. For results below detection limit, 50% of the value of the detection limit is used in the calculation.

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

mg/m^3 = milligrams per cubic meter

CATOX - catalytic oxidizer

DRE = destruction removal efficiency

GRPH = gasoline-range petroleum hydrocarbons

NOC = Notice of Construction

NWTPH = Northwest Total Petroleum Hydrocarbon

ppmv = parts per million by volume

PSCAA = Puget Sound Clean Air Agency

SVE = soil vapor extraction

Formula to convert concentration in mg/m^3 to ppmv =

(24.45 x mg/m^3)/gram molecular weight of substance

where mg/m^3 = concentration of substance in milligrams per cubic meter

formula assumes standard temperature and pressure.

Source: ACGIH. 2015. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs).

Table 3-5
Liquid Stream Analytical Results
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 3WINF)					Groundwater Midstream Sample[2] (Sample ID: 3GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 3WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Total BTEX	Lead	pH
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pH
10/10/2012	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.87
11/7/2012	<100	1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.83
12/5/2012	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	4.1	7.84
1/8/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.06
2/5/2013	160	<1	<1	1.8	5.8	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.02
3/4/2013	1,700	2.9	1.4	24	160	-	-	-	-	-	<100	<1	<1	<1	<3	<6	-	7.64
4/3/2013	<100	<1	<1	<1	3.7	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.89
5/8/2013	1,500	<1	<1	16	120	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.41
6/5/2013	<100	2	1.8	<1	4	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	2.99	7.05
7/2/2013	-	-	-	-	-	-	-	-	-	-	<100	<1	<1	<1	<3	<6	-	6.35
8/6/2013	2,500	1	2.3	40	260	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	8.07
9/4/2013	<100	<1	<1	<1	3.6	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.03
10/7/2013	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.09
11/6/2013	<100	<1	<1	<1	5.7	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.94
12/3/2013	<100	<1	<1	<1	5.7	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	1.9	7.35
1/13/2014	<100	<1	<1	<1	<3	<100	<3	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	-
2/7/2014	<100	<1	<1	<1	3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.36
3/18/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	8.38
4/18/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.4
5/19/2014	<100	<1	<1	<1	5.6	<100	<1	<1	<1	-	<100	<1	<1	<1	<3	<6	-	7.25
6/16/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	1.05	5.94
7/9/2014	130	<1	<1	<1	3.8	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.67
8/13/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.59
9/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.1
10/22/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	5.97
11/17/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.66
12/9/2014	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	1.09	6.89
1/13/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.25
2/18/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.46
3/11/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.36
4/23/2015	<100	<1	<1	<1	4.3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	6.8
5/19/2015	<100	<1	<1	<1	4.5	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	-	7.19

Table 3-5
Liquid Stream Analytical Results
Unit 3 - Drake Property
TOC Holdings Co. Facility No. 01-176
24309 56th Avenue West
Mountlake Terrace, WA

	Groundwater Influent Sample[1] (Sample ID: 3WINF)					Groundwater Midstream Sample[2] (Sample ID: 3GAC1)					Groundwater Effluent to POTW Discharge Sample[3] (Sample ID: 3WEFF)							
	NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B				NWTPH-Gx	SW8021B					EPA 200.8	Field
Sample Date	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Gasoline Range	Benzene	Toluene	Ethylbenzene	Xylene Total	Total BTEX	Lead	pH
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pH
6/8/2015	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<100	<1	<1	<1	<3	<6	<1	7
7/28/2015	100	<1	<1	<1	5	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.7
8/20/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	6.9
9/21/2015	<100	<1	<1	<1	<3	-	-	-	-	-	<100	<1	<1	<1	<3	-	-	7
										WA Discharge Permit ST0007384 Effluent Limits	1,000	5	NS	NS	NS	100	1,090	6 to 10

Notes:

Red denotes measurement falls outside of the range stipulated in the discharge permit.

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Three GAC vessels are operated in series mode. 3WINF sample is collected prior to first GAC vessel in series

[2] 3GAC1 sample is collected downstream of GAC-1 and upstream of the GAC-2 vessels in series

[3] Effluent sample collected downstream of third GAC vessel in series, which represents the quality of water discharged to the POTW

- = not measured; not analyzed; or not applicable

< = not detected at a concentration exceeding the laboratory MRL shown

µg/L = micrograms per liter

EPA = U.S. Environmental Protection Agency

GAC = granular activated carbon

NS = no standard

NWTPH = Northwest Total Petroleum Hydrocarbon

POTW = publicly-owned treatment works

APPENDIX A

Remedial Systems Descriptions

APPENDIX A –REMEDIAL SYSTEMS DESCRIPTIONS

The following sections provide remedial systems background, and configurations, respectively.

A.1 BACKGROUND

TOC (formerly Time Oil Co.) operated a retail gasoline station on the TOC Property between 1968 and 1990. One 8,000-gallon and two 6,000-gallon underground storage tanks were removed from the TOC Property in 1991. The TOC Property is currently vacant. In 1996, a dual-phase extraction (DPE) remediation system was installed at the TOC Property to remediate Shallow Zone groundwater impacted by petroleum hydrocarbons and remove LNAPL. The DPE system operated from February 1997 to June 2005 and was later removed following confirmation that the system effectively remediated Shallow Zone groundwater. In 2006, groundwater monitoring results confirmed gasoline-related contamination extending directly downgradient of the TOC Property to the south and west.[8]

Between 1992 and 2013, site investigations were conducted to determine the extent of petroleum contamination which led to the installation of 107 monitoring and remediation wells on the TOC Site and three adjacent properties (a portion of the 242nd Street Southwest ROW and the downgradient Herman and Shin/Choi properties). Six wells have been decommissioned. Two additional wells were installed on the Herman property in July 2015. Currently, there are 103 active monitoring and/or remediation wells installed in three groundwater zones (defined as Shallow, Intermediate and Deep) on the TOC Site and three adjacent properties. Of the 103 active monitoring and remediation wells, 20 are installed in the Shallow Zone, 62 are installed in the Intermediate Zone, 6 are in the Deep Zone, and 15 have well screens intersecting multiple groundwater zones (either shallow-intermediate or intermediate-deep). The three groundwater zones are further discussed in SES 2013 and Stantec 2015a.

In accordance with the AO, SES initiated a remedial investigation (RI) at the TOC Site and determined that remediation by the former DPE system in the Shallow Zone on that property had been effective. The DPE system was removed and three MPE systems were installed in the Intermediate Zone between November 2011 and August 2012. The three MPE systems (Units 1, 2 and 3) began operating in October 2012. MPE is an in situ remedial technology that simultaneously extracts multiple fluid phases from remediation wells. The phases include soil vapor, dissolved (i.e., groundwater), and LNAPL or free product.

A.2 SYSTEM CONFIGURATIONS

Each MPE system is housed in a self-contained, aboveground equipment enclosure surrounded by chain link fence with locked gate. The MPE system for the TOC Property (Unit 1) is located on the TOC Property. The MPE systems for the TOC/Farmasonis Property (Unit

[8] *SES 2013. Draft Remedial Investigation Report, TOC Holdings Co. No. 01-176, 24205 56th Avenue West, Mountlake Terrace, Washington 98043. November 27.*

2) and Drake Property (Unit 3) are co-located within a single fenced enclosure on the TOC/Farmasonis Property. The three MPE systems are basically identical, with the exception of their orientation, mirror-image layouts, and the number of remediation wells serving each MPE system. A total of 22 remediation wells serve the three MPE systems: eight wells on the TOC Property, six wells on the TOC/Farmasonis Property, and eight wells on the Drake Property (Figure A-1).

Wells MW15 (installed on the TOC Property) and MW84 (installed on the Drake Property) were initially connected to Units 1 and 3 as remediation wells, but currently serve only as monitoring wells. The pump in MW15 was removed by Stantec on December 16, 2014 due to the consistent presence of biological buildup in the well. The pump in MW84 was removed by SES on September 17, 2013. Documentation of the purpose for removing the pump from MW84 is not available in the historical files.

The table below identifies the currently active remediation wells connected to each system and their locations.

Wells Serving MPE Remediation Systems

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

The individual MPE equipment enclosures were custom fabricated in accordance with the Washington State Department of Labor and Industry requirements for factory-assembled structures. Each of the remediation wells is equipped with a down-well pneumatic pump to extract petroleum- impacted groundwater (dissolved-phase petroleum hydrocarbons) and recoverable LNAPL. In addition, each MPE system is equipped with a SVE blower. The SVE blowers are intended to extract soil vapors (vapor-phase petroleum hydrocarbons) from the remediation wells and surrounding soil. Buried piping is utilized to convey recovered fluids (groundwater and LNAPL) and vapor from the remediation wells to the MPE system enclosures for treatment. The piping and instrumentation diagram presented on Figure A-2 illustrates the typical process flow and major mechanical equipment associated with each MPE system.

Extracted groundwater is conveyed to each MPE system for phase separation, treatment, and permitted discharge to the sanitary sewer in accordance with Ecology State Waste Discharge Permit No. ST0007384. The extracted groundwater is processed through an OWS, which is designed to process up to 10 gallons per minute (gpm). The effluent from the OWS is pumped through three 55-gallon granular activated carbon (GAC) canisters to remove dissolved phase volatile organic compounds (VOCs) prior to being discharged to the sanitary sewer. When present, LNAPL recovered with the OWS is temporarily stored in a 55-gallon product drum prior to disposal or recycling at an offsite facility.

The SVE blowers create the vacuum necessary to extract soil vapors from the remediation wells. The extracted soil vapors are processed through an air/water separator (AWS) and previously through a CATOX. The AWS removes particulate and liquids from the air stream to prevent damage to the SVE blower and ancillary equipment. Previously, the vapors were thermally treated by the CATOX prior to being discharged to the atmosphere, in accordance with the Puget Sound Clean Air Agency (PSCCA) Notice of Construction (NOC) No. 10384.

LEGEND

- B27 — SOIL BORING (NO WELL INSTALLED)
- MW68 — GROUNDWATER MONITORING WELL (SHALLOW SCREEN)
- MW89 — GROUNDWATER MONITORING WELL (UPPER INTERMEDIATE SCREEN)
- MW77 — GROUNDWATER MONITORING WELL (INTERMEDIATE SCREEN)
- MW78 — GROUNDWATER MONITORING WELL (DEEP SCREEN)
- MW17 — DECOMMISSIONED GROUNDWATER MONITORING WELL
- SG-1 — SOIL GAS SAMPLE
- D-1 — EXCAVATION SOIL SAMPLE
- CURRENT OR FORMER UST
- PP — POWER/LIGHT POST OR SIGN
- EDGE OF EASEMENT
- TOC PROPERTY BOUNDARY
- PARCEL BOUNDARY
- E — UNDERGROUND ELECTRICAL LINE
- FO — FIBER OPTIC
- GAS — NATURAL GAS
- SI — STORM INFILTRATION PIPE
- SD — STORM DRAIN
- SS — SANITARY SEWER
- W — WATER
- OP — OVERHEAD POWER
- FORMER SITE FEATURE
- TREATMENT SYSTEM PROCESS LINES
- C.O. — SANITARY SEWER CLEAN OUT
- UST — UNDERGROUND STORAGE TANK
- CATCH BASIN
- SANITARY SEWER MANHOLE
- SURVEY BENCHMARK
- FORMER INFILTRATION PIT (1975)

YOUNG MOBILE HOME PARK

YOUNG MOBILE HOME PARK

STATE PLANE
N=287719.89
E=1277926.24
PROJECT
N=287739.95
E=1277918.20

STATE PLANE
N=287352.81
E=1278102.02
PROJECT
N=287375.29
E=1278098.94

FORMER WOOD SHED

PROPERTY BOUNDARY PRIOR TO 1985 (SHORT PLAT 106)

PROPERTY BOUNDARY SINCE 1985 (SHORT PLAT 106)

POWER TRANSFORMER

GRASS FIELD

GRASS FIELD

GRASS FIELD

UST (####)

UST (REISDORFF 1985)

TOC/FARMASONIS PROPERTY
24225 56TH AVENUE WEST

DRAKE PROPERTY
24309 56TH AVENUE WEST

MOUNTLAKE SENIOR
5525 244TH STREET SOUTHWEST
(CONSTRUCTION PENDING)

FORMER CONCRETE PAD

GRAVEL PARKING

TOC/FARMASONIS AND DRAKE PROPERTIES TREATMENT SYSTEM COMPOUND

EDGE OF ASPHALT PAVEMENT

EDGE OF ASPHALT PAVEMENT

EDGE OF ASPHALT PAVEMENT

HERMAN PROPERTY
24311 56TH AVENUE WEST

USTS (REISDORFF, 1985)

FORMER OIL AND DIESEL LOADING RAMP

(HEATING OIL) ABOVEGROUND STORAGE TANK

UST ABANDONED IN PLACE

WASTE OIL UST

PRIVATE EASEMENT AND FIRE LANE

TOC HOLDING CO. PROPERTY
24205 56TH AVENUE WEST

ROMIO'S PIZZA & PASTA

GETAWAY TAVERN

DAVE'S AUTO SERVICE (FORMER GAS STATION)

ABANDONED PUMP ISLAND

FORMER PUMP ISLAND

EZ CORNER MART (FORMER GAS STATION)

FORMER PRODUCT LINES

SHIN/CHOI PROPERTY
24325 56TH AVENUE WEST

1996 UST EXCAVATION

1998 PUMP I EXCAVATION

FORMER PUMP ISLAND

TOC PROPERTY TREATMENT SYSTEM COMPOUND

CONCRETE CURB

FORMER GAS STATION BUILDING (DEMOLISHED 2008)

ASPHALT PAVED PARKING

ASPHALT-PAVED PARKING

ASPHALT-PAVED PARKING

FORMER 6,000 AND 8,000 GALLON USTS

1991 UST EXCAVATION

WATER METER

FORMER 8,000-GALLON USTs

ABANDONED PUMP ISLAND

2001 UST EXCAVATION (K&S)

POWER EASEMENT

242ND STREET SOUTHWEST

SIDEWALK

RAKNES PROPERTY
24121 56TH AVENUE WEST

56TH AVENUE WEST

STORM MANHOLE

238TH ST SW
FOUND PUNCH IN 1 3/4" BRASS DISK IN CONCRETE MONUMENT DOWN 0.35' IN CASE.

240TH ST SW
FOUND PUNCH MARK IN 1 3/4" BRASS DISK ON CONC MON IN CASE, DN. 0.5'
STATE PLANE
N=288416.87
E=1277786.41
PROJECT
N=288434.96
E=1277768.92

244TH ST SW
FOUND DIVOT IN 3"X3" CONC MON IN CASE. DN. 1.5'
STATE PLANE
N=287093.00
E=1277767.07
PROJECT
N=287110.95
E=1277767.54

R E S I D E N T I A L P A R C E L S
24108 THROUGH 24302 56TH AVENUE WEST

DATUM/BASIS OF BEARINGS
HELD A BEARING OF N00°03'34"E ALONG THE MONUMENTED CENTERLINE OF 56TH AVE W BETWEEN 244TH ST SW AND 240TH ST SW PER PLAT OF LAKE FOREST CREST V.10 / P.107

BASIS OF POSITION: CITY OF MONTLAKE TERRACE CONTROL POINT DESIGNATION MTLK127.

ORIGINATING BENCHMARK:
TOP OF MAG NAIL IN CURB AT NORTHWEST CORNER OF SITE PER SITE PLAN BY CPS ENGINEERING PROVIDED TO AXIS BY CLIENT

COORDINATE SYSTEM: NAD 1983 STATEPLANE WASHINGTON NORTH FIPS 4601 (US FEET)

VERTICAL DATUM: NAVD '88

ELEVATION: 363.62'

REFERENCES:

AXIS SURVEY & MAPPING, 2013
LANDAU ASSOCIATES, INC., 2005
CITY OF MOUNTLAKE TERRACE, 2005
K&S ENVIRONMENTAL, 2001
REISDORFF, THOMAS D., 1985
SNOHOMISH COUNTY P.U.D. No.1, 2012
TIME OIL COMPANY (SIC), 1975
AERIAL PHOTOGRAPHS, SNOHOMISH COUNTY, 1974

N E S W

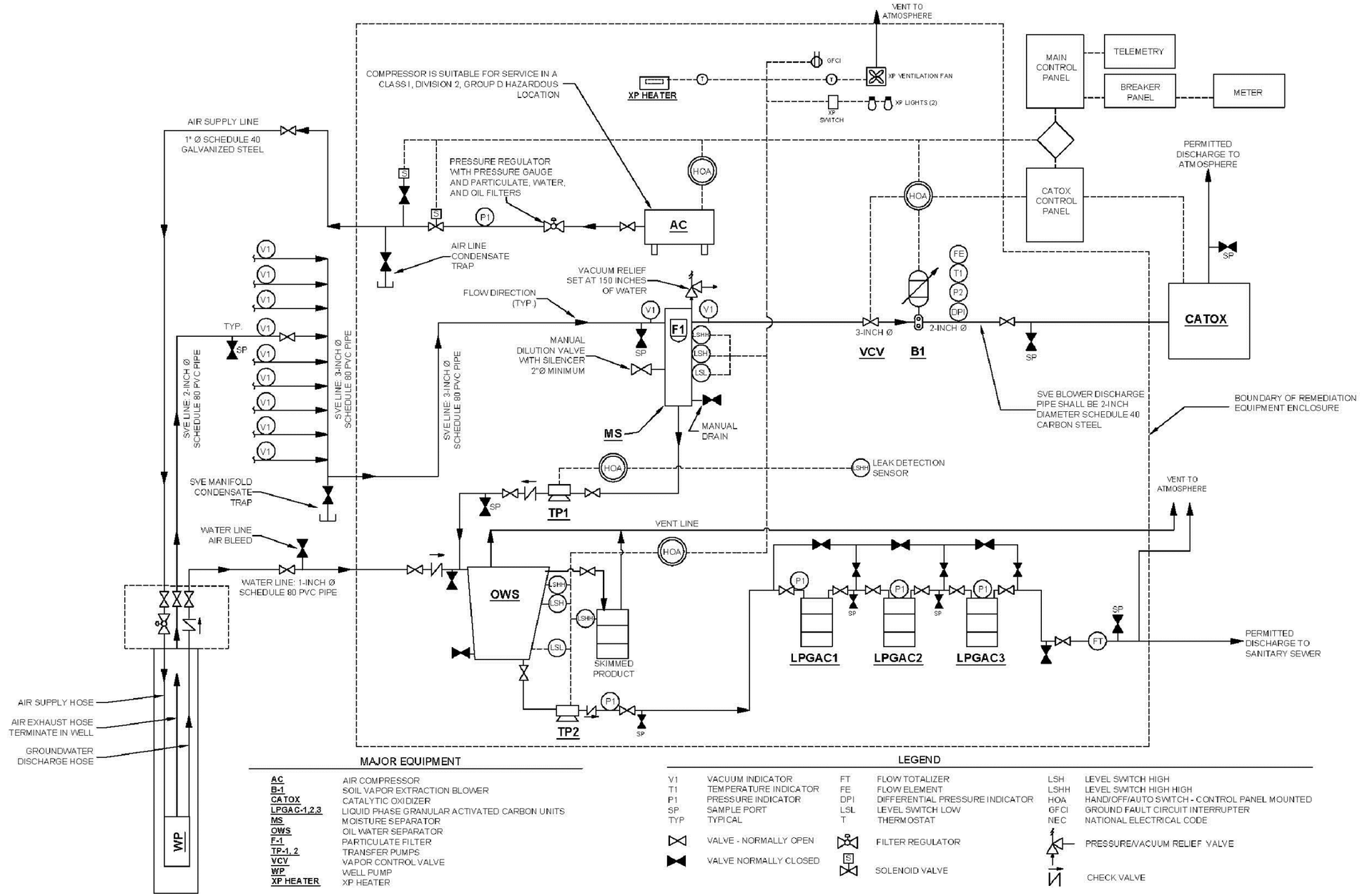
0 50 100
SCALE IN FEET
1" = 50'

Hydro Con
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 9-14-15
DWN: JJT
CHK: MS
APPROVED: MS
PRJ. MGR: CH
PROJECT NO: 01-176

FIGURE A-1
REMEDIATION SYSTEMS AND SITE DETAILS MAP
TOC HOLDINGS CO. FACILITY NO. 01-176
24205 56TH AVENUE WEST
MOUNTLAKE TERRACE, WA.

C:\Users\Josh\Desktop\Autocad Backup\Hydrocon-Autocad\01-176 MLT2015\01-176_BM-091515.dwg 2.17.2014



MAJOR EQUIPMENT

AC	AIR COMPRESSOR
B-1	SOIL VAPOR EXTRACTION BLOWER
CATOX	CATALYTIC OXIDIZER
LPGAC-1,2,3	LIQUID PHASE GRANULAR ACTIVATED CARBON UNITS
MS	MOISTURE SEPARATOR
OWS	OIL WATER SEPARATOR
F-1	PARTICULATE FILTER
TP-1, 2	TRANSFER PUMPS
VCV	VAPOR CONTROL VALVE
WP	WELL PUMP
XP HEATER	XP HEATER

LEGEND

V1	VACUUM INDICATOR	FT	FLOW TOTALIZER	LSH	LEVEL SWITCH HIGH
T1	TEMPERATURE INDICATOR	FE	FLOW ELEMENT	LSHH	LEVEL SWITCH HIGH HIGH
P1	PRESSURE INDICATOR	DPI	DIFFERENTIAL PRESSURE INDICATOR	HOA	HAND/OFF/AUTO SWITCH - CONTROL PANEL MOUNTED
SP	SAMPLE PORT	LSL	LEVEL SWITCH LOW	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
TYP	TYPICAL	T	THERMOSTAT	NEC	NATIONAL ELECTRICAL CODE

VALVE - NORMALLY OPEN
VALVE NORMALLY CLOSED
FILTER REGULATOR
SOLENOID VALVE
PRESSURE/VACUUM RELIEF VALVE
CHECK VALVE

SOURCE:
SOUND EARTH STRATEGIES, 2013

NOT TO SCALE

Hydro Con
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 9-14-15
DWN: JJT
CHK: MS
APPROVED: MS
PRJ. MGR: CH
PROJECT NO: 01-176

FIGURE A-2
PIPING AND INSTRUMENTATION DIAGRAM

TOC HOLDINGS CO. FACILITY NO. 01-176
24205 56TH AVENUE WEST
MOUNTLAKE TERRACE, WA.

APPENDIX B

TOC Facility No. 01-176 Permits

APPENDIX B – TOC FACILITY NO. 01-176 PERMITS

State, regional, and local permit requirements apply to the interim remedial action. Pursuant to the Revised Code of Washington 70.105D.090(1), TOC's interim remedial actions under the AO are exempt from the procedural requirements of any laws requiring or authorizing local government permits or approvals; however, TOC must comply with the substantive requirements of such permits or approvals.

Local requirements for clearing, grading, and erosion control activities were addressed through review under the State Environmental Policy Act (SEPA), which included a public comment period through September 26, 2011. State and regional permit requirements beyond the jurisdiction of the AO are discussed below in Sections B.1 (State Waste Discharge Permit), B.2 [Puget Sound Clean Air Agency (PSCAA) Order of Approval), and B.3 (Special Use Permit [SUP]).

B.1 STATE WASTE DISCHARGE PERMIT

State Waste Discharge Permit ST0007384 (SWD Permit) authorizes and regulates operation of and discharges from the three MPE systems on the TOC Site, effective July 2, 2012 through June 19, 2017.

Ecology's Water Quality Program administers the wastewater discharge permit, wastewater compliance sampling, record-keeping, and submittal schedule. Discharge Monitoring Reports (DMRs) are submitted to Ecology monthly. The DMR is a summary report which presents the monitoring data obtained during the monthly reporting period. A summary of the maximum daily effluent limits established by the permit are summarized below:

- The maximum daily volumes of water to be discharged to Monitoring Points 001 and 002 shall be 7,000 and 14,000 gallons per day (gallons/day), respectively.
- pH shall be between 6 and 10 standard units.
- Benzene concentrations shall not exceed 5 micrograms per liter (µg/L).
- Benzene, toluene, ethylbenzene and total xylene (BTEX) cumulative concentration shall not exceed 100 µg/L.
- Total petroleum hydrocarbons, gasoline range (GRPH) shall not exceed 1,000 µg/L.
- Total lead shall not exceed 1,090 µg/L.

The SWD Permit identifies two monitoring points (001 and 002) where compliance with the maximum daily effluent limits must be attained: the discharge from Unit 1 is monitored at monitoring point 001; the combined discharge from Units 2 and 3 is monitored at point 002. Treated groundwater from both monitoring points discharges to the City of Edmonds, Washington Wastewater Treatment Plant. Effluent from each of the three MPE systems is sampled on a monthly basis at points adjacent to each MPE system (Figure B-1). The minimum, maximum and average effluent concentrations are reported in the monthly DMR submitted to Ecology.

B.2 PSCAA ORDER OF APPROVAL

The PSCAA issued an Order of Approval for NOC 10384 on May 13, 2012, which established the conditions and restrictions for the operation of the CATOX units. The key conditions and restrictions are summarized below:

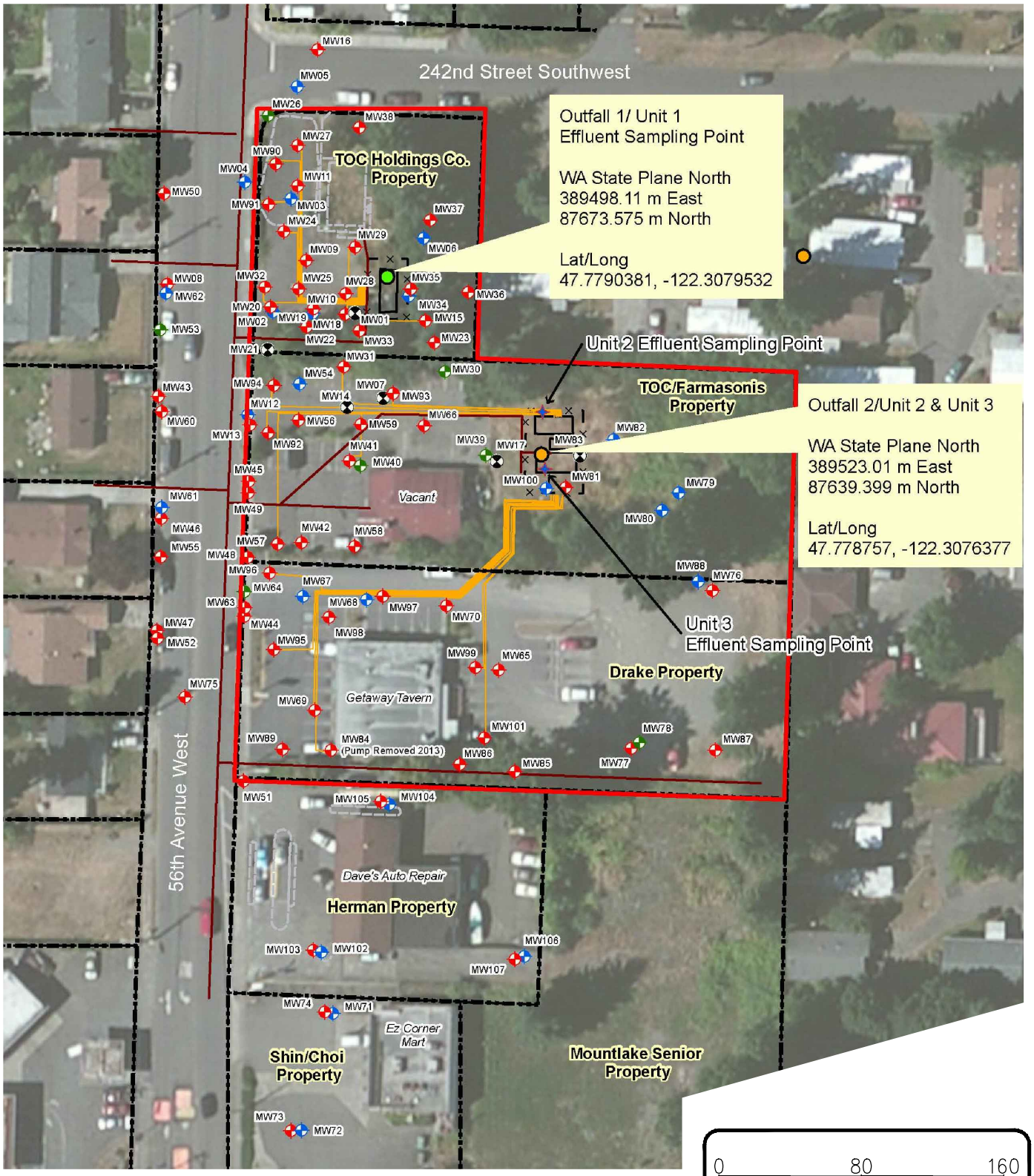
- Emissions from each of the three SVE blowers shall be routed through their associated CATOX.
- The flow through each CATOX shall not exceed 350 standard cubic feet per minute. The flow rate shall be monitored monthly.
- The temperature of the vapor entering the catalytic bed shall be at least 240 degrees Celsius (464 degrees Fahrenheit), and the temperature of the vapor exiting the oxidizer bed shall not exceed 620 degrees Celsius (1148 degrees Fahrenheit).
- The destruction and removal efficiency of the GRPH flowing into and out of the CATOX shall be 95 percent unless the concentration of GRPH in the vapor exiting the CATOX does not exceed 50 parts per million volume (ppmv).
- The CATOX units may be removed and SVE emissions can be vented directly to the atmosphere through a stack provided the benzene and GRPH concentrations remain below 0.5 and 50 ppmv, respectively, for a period of 3 consecutive months. [For this reason, the systems were modified to bypass the CATOX during Fourth Quarter 2014 (Units 2 and 3) and First Quarter 2015 (Unit 1)].
- The CATOX shall be reactivated if concentrations of benzene or GRPH exceed 0.5 or 50 ppmv, respectively. Samples are collected on a monthly basis to monitor the concentrations of benzene and GRPH from the stacks.

B.3 SPECIAL USE PERMIT

The SUP executed between TOC and the City of Mountlake Terrace (City) addresses interim remedial activities that extend into City rights-of-way (ROWs). Specifically, the SUP:

Allows the discharge of treated wastewater to the City sanitary sewer network for conveyance to the City of Edmonds publicly owned treatment works under the State Waste Discharge Permit, and

Retroactively administers the installation, maintenance, sampling, repair and/or decommissioning of monitoring wells that are located within City ROWs.



SOURCE: STANTEC - 2014

HydroCon
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 9-14-15
DWN: JJT
CHK: MS
APPROVED: MS
PRJ. MGR: CH
PROJECT NO: 01-176

FIGURE B-1
STATE WASTE DISCHARGE PERMIT ST0007384
OUTFALL SAMPLING LOCATIONS
TOC HOLDINGS CO, FACILITY NO. 01-176
24205 56TH AVENUE WEST
MOUNTLAKE TERRACE, WA.

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APPENDIX C

Analytical Laboratory Reports

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

August 4, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507422 project. There are 4 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, Mark Selman
HDC0804R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507422 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507422 -01	1VEFF

All quality control requirements were acceptable.

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507422
Date Extracted: 07/30/15
Date Analyzed: 07/30/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
1VEFF 507422-01	<0.1	<0.1	<0.1	<0.3	14	98
Method Blank 05-1360 MB	<0.1	<0.1	<0.1	<0.3	<10	96

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507422

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507422-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	14	13	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	98	70-130
Toluene	mg/m^3	5.0	100	70-130
Ethylbenzene	mg/m^3	5.0	106	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	114	70-130

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.

507422

SAMPLE CHAIN OF CUSTODY

ME 07/28/15

Page # 1 of 1

Send Report To Craig Hultgren

Company Hydrocon

Address 510 Allen St Suite B

City, State, ZIP Kelso WA 98626

Phone # 360-703-0089 Fax # 360-703-6068

SAMPLERS (signature)

PROJECT NAME/NO. TBC 01-176 unit 9

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
INFF	01 AB	7-28-15	1200	Water	2		X	X										

Received at 20 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A Hultgren	Hydrocon	7-28-15	1300
Received by:	Nhan Phan	FCBT	7/28/15	1310
Relinquished by:				
Received by:				

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

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

July 30, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507419 project. There are 4 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
HDC0730R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507419 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507419 -01	1WINF
507419 -02	1WEFF
507419 -03	Trip Blank-20150728

All quality control requirements were acceptable.

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507419
Date Extracted: 07/28/15
Date Analyzed: 07/28/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
1WINF 507419-01	<1	<1	<1	<3	<100	84
1WEFF 507419-02	<1	<1	<1	<3	<100	84
Trip Blank-20150728 507419-03	<1	<1	<1	<3	<100	86
Method Blank 05-1357 MB	<1	<1	<1	<3	<100	78

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507419

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507408-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	1.5	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	3.3	nm
Gasoline	ug/L (ppb)	<100	110	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	99	72-122
Ethylbenzene	ug/L (ppb)	50	103	73-126
Xylenes	ug/L (ppb)	150	101	74-118
Gasoline	ug/L (ppb)	1,000	93	69-134

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

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

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

ME 07/28/15 V1

5074 G

Send Repo[redacted] Hultgren
Company Hydrocon
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone # 360 703-6079 Fax # 360.703-6068

SAMPLERS (signature)	
PROJECT NAME/NO. TOC 0-176 unit #1	PO#
REMARKS	

Page # 1 of 1

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
1WINF	01 A	7-28-15	1110	water	3		X	X										
1WEFF	02	|	1115	water	3		X	X										
TripBlank-20150728	03 A	|	—	water	2		X	X										
																		Samples received at 5 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Robert A. Hunsberger	Hydrocon	7-28-15	1310
Received by: [signature]	Nhan Phan	FeBI	7/28/15	1310
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 4, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507423 project. There are 4 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, Mark Selman
HDC0804R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507423 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507423 -01	2VEFF

All quality control requirements were acceptable.

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507423
Date Extracted: 07/30/15
Date Analyzed: 07/30/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
2VEFF 507423-01	<0.1	<0.1	<0.1	<0.3	<10	98
Method Blank 05-1360 MB	<0.1	<0.1	<0.1	<0.3	<10	96

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507423

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507422-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	14	13	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	98	70-130
Toluene	mg/m^3	5.0	100	70-130
Ethylbenzene	mg/m^3	5.0	106	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	114	70-130

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.

507423

SAMPLE CHAIN OF CUSTODY

ME 07/28/15

Page # 1 of 1

Send Report To Craig Hultgren

Company Hydrocon

Address 510 Allen St Suite 8

City, State, ZIP Kelso WA 98626

Phone # 360-703-6079 Fax # 360-703-6068

SAMPLERS (signature)

PROJECT NAME/NO. TOC 01-176 unit A2

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

						ANALYSES REQUESTED											
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
2VEFF	01 AB	7-28-15	1035	Vapor	2		X	X									

Samples received at 20 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	Hydrocon	7-28-15	1310
Received by:	Khan Pham	FEBI	7/28/15	1310
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 30, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507420 project. There are 4 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
HDC0730R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507420 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507420 -01	2WINF
507420 -02	2WEFF

All quality control requirements were acceptable.

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507420
Date Extracted: 07/28/15
Date Analyzed: 07/28/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
2WINF 507420-01	<1	<1	<1	<3	<100	85
2WEFF 507420-02	<1	<1	<1	<3	<100	85
Method Blank 05-1357 MB	<1	<1	<1	<3	<100	78

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507420

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507408-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	1.5	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	3.3	nm
Gasoline	ug/L (ppb)	<100	110	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	99	72-122
Ethylbenzene	ug/L (ppb)	50	103	73-126
Xylenes	ug/L (ppb)	150	101	74-118
Gasoline	ug/L (ppb)	1,000	93	69-134

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

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

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

507420 ME 07/28/15 V1

Page # 1 of 1

Send Report To Craig Hultgren

Company Hydrocon

Address 830 Allen St Suite B

City, State, ZIP Kelso WA 98626

Phone # 360 703-6079 Fax # 360-703-6068

SAMPLERS (signature)

PROJECT NAME/NO. TOC 01476 unit #2

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
2winf	01A	7-28-15	1100	water	3		X	X										
2wEFF	02A	"	1105	"	3		Y	Y										
																		Samples received at 5 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robt D. Hultgren	Hydrocon	7-28-15	1310
Received by:	Khan Pham	FBI	7/28/15	1310
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 4, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507424 project. There are 4 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, Mark Selman
HDC0804R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507424 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507424 -01	3VEFF

All quality control requirements were acceptable.

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507424
Date Extracted: 07/30/15
Date Analyzed: 07/30/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
3VEFF 507424-01	<0.1	<0.1	<0.1	<0.3	<10	88
Method Blank 05-1360 MB	<0.1	<0.1	<0.1	<0.3	<10	96

Date of Report: 08/04/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507424

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507422-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	14	13	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	98	70-130
Toluene	mg/m^3	5.0	100	70-130
Ethylbenzene	mg/m^3	5.0	106	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	114	70-130

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.

507424 ME 07/28/15

[redacted]

SAMPLE CHAIN OF CUSTODY

[redacted] Page # 1 of 1

Send Report To: Craig Hultgren
Company: Hydrocon
Address: 510 Allen St Suite B
City, State, ZIP: Kelso WA 98626
Phone #: 360-703-6079 Fax #: 360-703-6068

SAMPLERS (signature)	
PROJECT NAME/NO. Tec 01-176 unit #3	PO#
REMARKS	

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by ______

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
3VEFF	01 A-B	7-28-15	1030	Vapor	2		X	X										

Samples received at 20 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Robert A. Hunsberger	Hydrocon	7-28-15	1360
Received by: [signature]	Nhan Phan	FeBI	7/28/15	1310
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 30, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 28, 2015 from the TOC_01-176, WORFDB8 F&BI 507421 project. There are 4 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
HDC0730R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 507421 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
507421 -01	3WINF
507421 -02	3WEFF

All quality control requirements were acceptable.

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507421
Date Extracted: 07/28/15
Date Analyzed: 07/28/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
3WINF 507421-01	<1	<1	<1	5.0	100	84
3WEFF 507421-02	<1	<1	<1	<3	<100	85
Method Blank 05-1357 MB	<1	<1	<1	<3	<100	78

Date of Report: 07/30/15
Date Received: 07/28/15
Project: TOC_01-176, WORFDB8 F&BI 507421

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 507408-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	1.5	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	3.3	nm
Gasoline	ug/L (ppb)	<100	110	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	99	72-122
Ethylbenzene	ug/L (ppb)	50	103	73-126
Xylenes	ug/L (ppb)	150	101	74-118
Gasoline	ug/L (ppb)	1,000	93	69-134

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.

507421

SAMPLE CHAIN OF CUSTODY

ME 07/28/15

V1

Page # 1 of 1

Send Report To ~~Craig~~ Hultgren

Company Hydrocon

Address 510 Allen St Suite B

City, State, ZIP Kelso WA 98626

Phone # 360-703-6079 Fax # 360-703-6068

SAMPLERS (signature)

PROJECT NAME/NO. BC 01-176 Lot #3

PO#

REMARKS

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
3wINF	01A-C	7-28-15	1055	water	3		X	X										
3wEFF	02A-C	1	1050	water	3		X	X										
																	Samples received at 6 °C	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A Hultgren	Hydrocon	7-28-15	1310
Received by:	Dhara Phan	FEBT	7/28/15	1310
Relinquished by:				
Received by:				

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

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

August 27, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508359 project. There are 4 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
HDC0827R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508359 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508359 -01	1VEFF

All quality control requirements were acceptable.

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508359
Date Extracted: 08/21/15
Date Analyzed: 08/21/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
1VEFF 508359-01	<0.1	0.42	0.13	0.34	43	103
Method Blank 05-1632 MB2	<0.1	<0.1	<0.1	<0.3	<10	103

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508359

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508307-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	0.13	0.14	6
Ethylbenzene	mg/m^3	<0.1	0.10	nm
Xylenes	mg/m^3	0.33	0.37	10
Gasoline	mg/m^3	20	18	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	96	70-130
Toluene	mg/m^3	5.0	99	70-130
Ethylbenzene	mg/m^3	5.0	104	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	126	70-130

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.

508859

SAMPLE CHAIN OF CUSTODY ME 08-20-15

Send Report To Craig Hultgren
Company Hydrocon
Address 510 Allen St Suite B
City, State, ZIP Kelso, WA 98626
Phone # 360-703-6079 Fax # 360-703-6068

SAMPLERS (signature)
PROJECT NAME/NO. Toc 01-176
PO#
REMARKS

Page # 1 of 1

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
INEFF	01AB	8-20-15	1115	vapor	2		X	X									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robt A. Hydbeger	Hydrocon	8-20-15	1320
Received by:	Nhan Phan	FEBI	8/20/15	1320
Relinquished by:				
Received by:		Samples received at		4 °C

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

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 27, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508362 project. There are 4 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
HDC0827R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508362 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508362 -01	1WINF
508362 -02	1WEFF

All quality control requirements were acceptable.

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508362
Date Extracted: 08/24/15
Date Analyzed: 08/24/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
1WINF 508362-01	<1	<1	<1	<3	<100	93
1WEFF 508362-02	<1	<1	<1	<3	<100	94
Method Blank 05-1642 MB	<1	<1	<1	<3	<100	94

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508362

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508362-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	97	65-118
Toluene	ug/L (ppb)	50	96	72-122
Ethylbenzene	ug/L (ppb)	50	100	73-126
Xylenes	ug/L (ppb)	150	97	74-118
Gasoline	ug/L (ppb)	1,000	82	69-134

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.

508362

SAMPLE CHAIN OF CUSTODY

ME 08-20-15 V2

Page # 1 of 1

Send Report To Craig Haltgren

Company Hydrocon

Address 510 Allen Street Suite B

City, State, ZIP Kelso WA 98626

Phone # 360 703-6079 Fax # 360 703-6068

SAMPLERS (signature)

PROJECT NAME/NO. TOC 01176

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
1WINF	01A	8-20-15	1120	water	3		X	X										
1W EFF	02A	8-20-15	1125	water	3		X	X										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hansberger	Hydrocon	8-20-15	1320
Received by:	Nhan Phan	FEBT	8/20/15	1320
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 27, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508358 project. There are 4 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
HDC0827R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508358 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508358 -01	2VEFF

All quality control requirements were acceptable.

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508358
Date Extracted: 08/21/15
Date Analyzed: 08/21/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
2VEFF 508358-01	<0.1	<0.1	<0.1	<0.3	<10	104
Method Blank 05-1632 MB2	<0.1	<0.1	<0.1	<0.3	<10	103

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508358

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508307-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	0.13	0.14	6
Ethylbenzene	mg/m^3	<0.1	0.10	nm
Xylenes	mg/m^3	0.33	0.37	10
Gasoline	mg/m^3	20	18	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	96	70-130
Toluene	mg/m^3	5.0	99	70-130
Ethylbenzene	mg/m^3	5.0	104	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	126	70-130

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.

508358

SAMPLE CHAIN OF CUSTODY

ME 08-20-15

Send Report To Craig Haltgren

Company Hydrocon

Address 510 Allen St. Suite B

City, State, ZIP Kelso WA 98626

Phone # 360-703-6079 Fax # 360-703-6068

SAMPLERS (signature)

PROJECT NAME/NO. Tor 01-176

PO#

REMARKS

Page # 1 of 1

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH

Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
2VEFF	01AB	8-20-15	1040	Vapor	2		X	X										

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Robert A. Hansberger	Hydrocon	8-20-15	1320
Received by:		Nhan Phan	FEBI	8/20/15	1320
Relinquished by:					
Received by:			Samples received at 4 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 25, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508361 project. There are 4 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
HDC0825R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508361 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508361 -01	2WINF
508361 -02	2WEFF

All quality control requirements were acceptable.

Date of Report: 08/25/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508361
Date Extracted: 08/21/15
Date Analyzed: 08/21/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
2WINF 508361-01	<1	<1	<1	<3	<100	98
2WEFF 508361-02	<1	<1	<1	<3	<100	96
Method Blank 05-1637 MB2	<1	<1	<1	<3	<100	93

Date of Report: 08/25/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508361

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508369-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	101	65-118
Toluene	ug/L (ppb)	50	101	72-122
Ethylbenzene	ug/L (ppb)	50	101	73-126
Xylenes	ug/L (ppb)	150	102	74-118
Gasoline	ug/L (ppb)	1,000	83	69-134

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.

508361

SAMPLE CHAIN OF CUSTODY ME 08-20-15 V2

Page # 1 of 1

Send Report To Craig Huttgren

Company Hydrocon

Address 510 Allen St Suite B

City, State, ZIP Kelso WA 98626

Phone # 360 703-6079 Fax # 360-703-6088

SAMPLERS (signature) [signature]

PROJECT NAME/NO. TX 01-176

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

						ANALYSES REQUESTED											
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
2WINF	01 A-C	8-20-15	1045	water	3		X	X									
2WEFF	02 A-C	8-20-15	1050	water	3		X	X									

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Robt A. Hardberger	Hydrocon	8-20-15	1320
Received by: [signature]	Nhan Pham	FEBI	8/20/15	1320
Relinquished by:				
Received by:			Samples received at	4 °C

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 27, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508357 project. There are 4 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
HDC0827R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508357 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508357 -01	3VEFF

All quality control requirements were acceptable.

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508357
Date Extracted: 08/21/15
Date Analyzed: 08/21/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
3VEFF 508357-01	<0.1	<0.1	<0.1	<0.3	<10	103
Method Blank 05-1632 MB2	<0.1	<0.1	<0.1	<0.3	<10	103

Date of Report: 08/27/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508357

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508307-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	0.13	0.14	6
Ethylbenzene	mg/m^3	<0.1	0.10	nm
Xylenes	mg/m^3	0.33	0.37	10
Gasoline	mg/m^3	20	18	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	96	70-130
Toluene	mg/m^3	5.0	99	70-130
Ethylbenzene	mg/m^3	5.0	104	70-130
Xylenes	mg/m^3	15	101	70-130
Gasoline	mg/m^3	100	126	70-130

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.

508857

SAMPLE CHAIN OF CUSTODY

ME 08-20-15

Page # 1 of 1

Send Report To Craig Hultgren

Company Hydracon

Address 510 Allen St. Ste B

City, State, ZIP Kelso, WA 98626

Phone # 360 703-6079 Fax # 360 703-6068

SAMPLERS (signature)

PROJECT NAME/NO.: TOC MLT 01-176

PO#:

REMARKS:

TURNAROUND TIME
- ☒ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
						ANALYSES REQUESTED												
3VEFF	01AB	8/20/15	1015	Air	2		X	X										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	Hydracon	8-20-15	1320
Received by:	Nhan Phan	FEBI	8/20/15	1320
Relinquished by:				
Received by:		Samples received at	4	°C

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 25, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on August 20, 2015 from the TOC_01-176, WORFDB8 F&BI 508360 project. There are 4 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
HDC0825R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 508360 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
508360 -01	3WINF
508360 -02	3WEFF

All quality control requirements were acceptable.

Date of Report: 08/25/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508360
Date Extracted: 08/21/15
Date Analyzed: 08/21/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
3WINF 508360-01	<1	<1	<1	<3	<100	94
3WEFF 508360-02	<1	<1	<1	<3	<100	96
Method Blank 05-1637 MB2	<1	<1	<1	<3	<100	93

Date of Report: 08/25/15
Date Received: 08/20/15
Project: TOC_01-176, WORFDB8 F&BI 508360

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 508369-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	101	65-118
Toluene	ug/L (ppb)	50	101	72-122
Ethylbenzene	ug/L (ppb)	50	101	73-126
Xylenes	ug/L (ppb)	150	102	74-118
Gasoline	ug/L (ppb)	1,000	83	69-134

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.

508360

SAMPLE CHAIN OF CUSTODY

HE 08-20-15 V2

Page # 1 of 1

Send Report To Craig Haltgren

Company Hydrocon

Address 510 Allen St. Suite B3

City, State, ZIP Kirkland WA 98033

Phone # 360 703-6079 Fax # 360 703-6069

SAMPLERS (signature)

PROJECT NAME/NO. Boe 01-176

PO#

REMARKS

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
3W INF	01 A-C	8-20-15	1005	water	3		X	X										
3W EPF	02 A-C	8-20-15	1010	water	3		X	X										

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A Hunsberger	Hydrocon	8-20-15	1320
Received by:	Nhan Pham	FEBI	8/20/15	1320
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 28, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509347 project. There are 4 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
HDC0928R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509347 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509347 -01	1VEFF

All quality control requirements were acceptable.

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509347
Date Extracted: 09/24/15
Date Analyzed: 09/24/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
1VEFF 509347-01	<0.1	1.1	0.36	1.0	120	101
Method Blank 05-1927 MB	<0.1	<0.1	<0.1	<0.3	<10	99

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509347

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509348-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	<10	<10	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	82	70-130
Toluene	mg/m^3	5.0	84	70-130
Ethylbenzene	mg/m^3	5.0	89	70-130
Xylenes	mg/m^3	15	86	70-130
Gasoline	mg/m^3	100	113	70-130

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.

509347

SAMPLE CHAIN OF CUSTODY

ME 09/21/15

Page # 1 of 1

Report To Craig Hultgren
Company HydroCon
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: TOC 01-176

PO #:

REMARKS:

INVOICE TO:

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
IVEFF	01 AB	9-21-15	0925	water	2		X	X								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	HydroCon	9-21-15	1245
Received by:	Nhan Pham	FEBI	9-21-15	1245
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 22 °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 29, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509349 project. There are 4 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
HDC0929R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509349 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509349 -01	1WINF
509349 -02	1WEFF

All quality control requirements were acceptable.

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509349
Date Extracted: 09/23/15
Date Analyzed: 09/23/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
1WINF 509349-01	<1	<1	<1	<3	<100	100
1WEFF 509349-02	<1	<1	<1	<3	<100	102
Method Blank 05-1925 MB	<1	<1	<1	<3	<100	100

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509349

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509346-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	93	72-119
Toluene	ug/L (ppb)	50	93	71-113
Ethylbenzene	ug/L (ppb)	50	93	72-114
Xylenes	ug/L (ppb)	150	81	72-113
Gasoline	ug/L (ppb)	1,000	98	70-119

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.

509349

SAMPLE CHAIN OF CUSTODY

ME 09-21-15

Page 1 of 1 V1

Report To Craig Hultgren
Company Hydro Cam
Address 510 Allen St Suite B
City, State, ZIP Kirkland WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: Tax 01-176

PO #:

REMARKS:

INVOICE TO:

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
IWINF	01 A-C	9-21-15	0930	Water	3		X	X								
IWEFF	02 V	1	0935	Water	3		X	X								

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	Hydrocam	9-21-15	1245
Received by:	Nhan Phan	FedEx	9-21-15	1245
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 5 °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 28, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509348 project. There are 4 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
HDC0928R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509348 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509348 -01	2VEFF

All quality control requirements were acceptable.

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509348
Date Extracted: 09/24/15
Date Analyzed: 09/24/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
2VEFF 509348-01	<0.1	<0.1	<0.1	<0.3	<10	100
Method Blank 05-1927 MB	<0.1	<0.1	<0.1	<0.3	<10	99

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509348

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509348-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	<10	<10	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	82	70-130
Toluene	mg/m^3	5.0	84	70-130
Ethylbenzene	mg/m^3	5.0	89	70-130
Xylenes	mg/m^3	15	86	70-130
Gasoline	mg/m^3	100	113	70-130

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.

509348

SAMPLE CHAIN OF CUSTODY

ME 09/21/15

Page # 1 of 1

Report To Craig Hultgren
Company Hydro Cam
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: Toc 01-176

PO #:

REMARKS:

INVOICE TO:

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
2VEFF	01 AB	9-21-15	1000	VOA	2		X	X								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hardaway	Hydro	9-21-15	1245
Received by:	Nhan Phan	FCBI	9-21-15	1245
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 22 °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 29, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509350 project. There are 4 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
HDC0929R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509350 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509350 -01	2WINF
509350 -02	2WEFF

All quality control requirements were acceptable.

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509350
Date Extracted: 09/23/15
Date Analyzed: 09/23/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
2WINF 509350-01	<1	<1	<1	<3	<100	94
2WEFF 509350-02	<1	<1	<1	<3	<100	102
Method Blank 05-1925 MB	<1	<1	<1	<3	<100	100

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509350

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509346-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	93	72-119
Toluene	ug/L (ppb)	50	93	71-113
Ethylbenzene	ug/L (ppb)	50	93	72-114
Xylenes	ug/L (ppb)	150	81	72-113
Gasoline	ug/L (ppb)	1,000	98	70-119

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.

509350

SAMPLE CHAIN OF CUSTODY

ME 09-21-15 V1

Page # 1 of 1

Report To Craig Hultgren
Company Hydro Cam
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: Tax 01-176

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
2WINF	01A-C	9-21-15	1050	water	3		Y	Y								
2WEFF	02A-C	1	1055	1	3		Y	Y								

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	Hydro Cam	9-21-15	1245
Received by:	Nhan Phan	FEBI	9-21-15	1245
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 5 °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 28, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509352 project. There are 4 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
HDC0928R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509352 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509352 -01	3VEFF

All quality control requirements were acceptable.

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509352
Date Extracted: 09/24/15
Date Analyzed: 09/24/15

RESULTS FROM THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported as mg/m^3

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
3VEFF 509352-01	<0.1	<0.1	<0.1	<0.3	<10	101
Method Blank 05-1927 MB	<0.1	<0.1	<0.1	<0.3	<10	99

Date of Report: 09/28/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509352

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF VAPOR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509348-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	mg/m^3	<0.1	<0.1	nm
Toluene	mg/m^3	<0.1	<0.1	nm
Ethylbenzene	mg/m^3	<0.1	<0.1	nm
Xylenes	mg/m^3	<0.3	<0.3	nm
Gasoline	mg/m^3	<10	<10	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/m^3	5.0	82	70-130
Toluene	mg/m^3	5.0	84	70-130
Ethylbenzene	mg/m^3	5.0	89	70-130
Xylenes	mg/m^3	15	86	70-130
Gasoline	mg/m^3	100	113	70-130

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.

509352

SAMPLE CHAIN OF CUSTODY

MF 09/21/15

Page 1 of 1

Report To Craig Hultgren
Company Hydro Cam
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: TOC 01-176

PO #:

REMARKS:

INVOICE TO:

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
3V EFF	01 A B	9-21-15	1025	Vpw	2		Y	X								

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hausberger	Hydro Cam	9-21-15	1245
Received by:	Nhan Phan	FEBI	9/21/15	1245
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 22 °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 29, 2015

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

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on September 21, 2015 from the TOC_01-176, WORFDB8 F&BI 509351 project. There are 4 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
HDC0929R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-176, WORFDB8 F&BI 509351 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
509351 -01	3WINF
509351 -02	3WEFF

All quality control requirements were acceptable.

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509351
Date Extracted: 09/23/15
Date Analyzed: 09/23/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
3WINF 509351-01	<1	<1	<1	<3	<100	103
3WEFF 509351-02	<1	<1	<1	<3	<100	104
Method Blank 05-1925 MB	<1	<1	<1	<3	<100	100

Date of Report: 09/29/15
Date Received: 09/21/15
Project: TOC_01-176, WORFDB8 F&BI 509351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 509346-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	93	72-119
Toluene	ug/L (ppb)	50	93	71-113
Ethylbenzene	ug/L (ppb)	50	93	72-114
Xylenes	ug/L (ppb)	150	81	72-113
Gasoline	ug/L (ppb)	1,000	98	70-119

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.

509351

SAMPLE CHAIN OF CUSTODY

ME 09-21-15 VI

Page # 1 of 1

Report To Craig Hultgren
Company Hydro Cam
Address 510 Allen St Suite B
City, State, ZIP Kelso WA 98626
Phone 360-703-6079 Email 360-703-6086

SAMPLERS (signature)

PROJECT NAME: Tax 01-176

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- ☑ Standard (10 Business Days)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	HFS					Notes
3W INF	01 A-C	9-21-15	1030	water	3		X	X								
3W EFF	02 A-C	"	1035	"	3		X	X								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Robert A. Hultgren	Hydro Cam	9-21-15	1245
Received by:	Khan Phan	FEBI	9-21-15	1245
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 5 °C