

## **APPENDIX B**

### **Hydrogeology Evaluation Data**

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### **HYDROGEOLOGY EVALUATION DATA**

This appendix describes methodology and results of hydrogeological characterization performed at the Property. Section B.1 describes measurement of groundwater elevations in monitoring wells and section B.2 presents hydraulic conductivity values of aquifer zones determined from slug tests.

#### **B.1 Groundwater Level Measurements**

##### ***Manual Groundwater Level Measurements***

Groundwater elevation was measured in selected monitoring wells on and adjacent to the Property. Measurements were taken manually in many wells during short synoptic events to characterize horizontal and vertical flow regimes at a single time. Additionally, various measurements were collected throughout 2019 and 2020. Results from both scenarios are listed in Table 4-2.

Horizontal hydraulic gradients were calculated from wells in the Shallow, Intermediate A, Intermediate B, and Deep zones located from around 200 to 500 feet apart and are shown for selected well pairs in Table B-1. Horizontal gradients range from 0.0 foot per foot (ft/ft) (i.e., flat) to 0.05 ft/ft and indicate generally eastward groundwater flow across the Property. Horizontal gradients are larger in the Shallow and Intermediate zone wells (0.01 to 0.05 ft/ft) than the Deep wells (0.0 to 0.01 ft/ft).

Vertical hydraulic gradients were derived from groundwater elevations in clustered well pairs and are shown for selected well pairs in Table B-2. Vertical gradients vary from -0.003 ft/ft to 0.32 ft/ft and show groundwater flow is generally downward, indicated by positive gradient values. The overall magnitude of horizontal and vertical hydraulic gradients increased between March 2019 and March 2020.

##### ***Long-term Groundwater Level Monitoring***

Pressure transducers were deployed at the bottom of several wells from March 2019 through March 2020 to automatically monitor long-term changes in groundwater elevation. In-Situ Rugged Troll 100 and Rugged Troll 200 non-vented transducers were used to automatically measure water levels every 10 minutes. An In-Situ BaroTroll transducer was deployed to measure changes in atmospheric pressure during the sampling period. The raw water level measurements were processed to remove influence from changes in atmospheric pressure.

The observed water level fluctuations at the Property have been primarily influenced by precipitation and temporary construction dewatering from nearby sites. The steady decline in water levels between March and November 2019 and sudden increases and drop in water levels between December 2019 and January 2020 are attributed to seasonal changes in precipitation. Construction dewatering began at 700 Dexter in approximately April to May 2019 and at Block 38 in February 2020. Construction dewatering at 700 Dexter may have contributed to the general decline in water levels on the north side of Property, but the magnitude is small and cannot be distinguished from seasonal trends. The effect of dewatering from Block 38 is much more obvious as shown by the steep drop in water levels since February 2020.

## **B.2 Slug Testing**

Slug tests were performed in March 2019 and March 2020 in 23 monitoring wells to determine hydraulic conductivity of the water-bearing formations underlying the Property. The tested wells were screened in four zones as summarized below:

- Shallow zone: HMW-1S, HMW-2S, HMW-9S, and HMW-10S
- Intermediate A zone: HMW-2IA, HMW-3IA, HMW-6IA, and HMW-9IA
- Intermediate B zone: HMW-1IB, HMW-2IB, HMW-4IA, HMW-5IB, HMW-6IB, HMW-7IB, HMW-8IB, HMW-9IB, and HMW-11IB
- Deep zone: HMW-1D, HMW-2D, HMW-3D, HMW-6D, HMW-9D, and HMW-10D

A summary of monitoring well construction details from the 17 monitoring wells slug tested in March 2020 is provided in Table B-3.

### ***Field Methods***

Slug tests were performed by suddenly inserting or removing a 5-foot length of 0.1-foot-diameter solid PVC rod (slug) in a well and measuring the change in water levels as they returned to equilibrium. A test conducted by the insertion of the PVC rod into the well is referred to as a falling head test and the following removal of the rod is called a rising head test. Water levels were monitored using In-Situ Inc. Rugged Troll 200 non-vented and Level Troll 500 vented pressure transducers set at the bottom of the well during testing. The instruments automatically recorded depth of water above the instrument at 0.5 to 1 second intervals. Wells were opened at least 30 minutes prior to starting testing to allow water levels to equilibrate, and water levels were monitored after placing the transducers in the well to return to equilibrium conditions prior to testing. After inserting or removing the slug, water levels were allowed to recover to within 10 percent of initial displacement before beginning the following test. Two sets of falling and rising head tests were performed at each well to ensure consistent results. Additional sets of tests were performed in wells with short testing duration, and a single set of tests were performed in certain wells with long testing duration.

### ***Analysis Methods***

The water level data generated from the tests were analyzed using the commercial software Aquifer<sup>Win32</sup> Version 3 (Environmental Simulations, Inc., 2003). The slug test analysis here uses the Bouwer and Rice method (Bouwer and Rice 1976; Bouwer 1989) to obtain an estimated value of hydraulic conductivity. This method is applicable to confined and unconfined aquifers and was used for all wells tested. The water level displacement data are plotted on a semi-log axis versus time and hydraulic conductivity is determined by manually fitting a straight line to the displacement data.

Wells screened in the Intermediate B and Deep zones are likely to be confined, and selected wells in these zones were also analyzed using the Cooper, Bredehoeft, and Papadopulos method (Cooper et al. 1967). This method applies to confined aquifers and uses type-curve fitting to obtain the aquifer transmissivity and storage coefficient. Data were automatically fit to type curves in the software followed by manual fitting. The analysis using this method provides validation of results using the Bouwer and Rice method

where data had ambiguity with respect to fitting a straight line. The aquifer thickness was assumed to be 10 feet (i.e., the length of well screen) for determining the hydraulic conductivity from transmissivity to account for uncertainty in the aquifer geometry.

### ***Slug Testing Results***

A summary of slug testing results from the 17 wells tested in March 2020 is provided in Table B-4. Hydrographs of selected wells are provided as Figures B-1 through B-9. Selected slug test plots are provided as Figures B-10 through B-37. The results of the falling and rising head tests are consistent for each well, and hydraulic conductivity values from the Bouwer and Rice analysis are in good agreement with values from the Cooper, Bredehoeft, and Papadopoulos analysis. The geometric mean hydraulic conductivities for each of the aquifer zones are as listed below:

- Shallow zone:  $3.5 \times 10^{-4}$  to  $2.1 \times 10^{-3}$  centimeters per second (cm/sec) (1.0 to 5.9 feet per day [ft/day])
- Intermediate A zone:  $1.1 \times 10^{-4}$  to  $2.9 \times 10^{-3}$  cm/sec (0.3 to 8.1 ft/day)
- Intermediate B zone:  $4.1 \times 10^{-5}$  to  $1.6 \times 10^{-3}$  cm/sec (0.1 to 4.5 ft/day)
- Deep zone:  $4.4 \times 10^{-5}$  to  $1.5 \times 10^{-3}$  cm/sec (0.1 to 4.3 ft/day).

These hydraulic conductivity ranges are typical for silty sand (Freeze and Cherry 1979).

### **Attachments**

Table B-1 – Horizontal Hydraulic Gradients in Selected Well Pairs  
Table B-2 – Vertical Hydraulic Gradients in Selected Well Pairs  
Table B-3 – Selected Monitoring Well Construction Summary  
Table B-4 – Summary of Selected Slug Test Results

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Figure B-16 – HMW-5IB Representative Slug Test Results (Bouwer and Rice)  
Figure B-17 – HMW-5IB Representative Slug Test Results (Cooper et al.)  
Figure B-18 – HMW-6IA Representative Slug Test Results  
Figure B-19 – HMW-6IB Representative Slug Test Results (Bouwer and Rice)

Figure B-20 – HMW-6IB Representative Slug Test Results (Cooper et al.)  
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Figure B-22 – HMW-6D Representative Slug Test Results (Cooper et al.)  
Figure B-23 – HMW-7IB Representative Slug Test Results (Bouwer and Rice)  
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Figure B-26 – HMW-8IB Representative Slug Test Results (Cooper et al.)  
Figure B-27 – HMW-9S Representative Slug Test Results  
Figure B-28 – HMW-9IA Representative Slug Test Results  
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Figure B-33 – HMW-10S Representative Slug Test Results  
Figure B-34 – HMW-10D Representative Slug Test Results (Bouwer and Rice)  
Figure B-35 – HMW-10D Representative Slug Test Results (Cooper et al.)  
Figure B-36 – HMW-11IB Representative Slug Test Results (Bouwer and Rice)  
Figure B-37 – HMW-11IB Representative Slug Test Results (Cooper et al.)

# TABLES

**Table B-1 - Horizontal Hydraulic Gradients in Selected Well Pairs**

Well ID <sup>a</sup>	Distance between Wells (ft)	March 19-26, 2019		January 13, 2020		March 19, 2020	
		Water Elevation (ft)	Gradient <sup>b</sup>	Water Elevation (ft)	Gradient <sup>b</sup>	Water Elevation (ft)	Gradient <sup>b</sup>
HMW-3D HMW-2D	288	17.50 19.25	-0.01	16.78 16.92	0.00	14.54 11.17	0.01
HMW-3D HMW-1D	500	17.50 17.72	0.00	16.78 14.65	0.00	14.54 9.52	0.01
HMW-2D HMW-1D	212	19.25 17.72	0.01	16.92 14.65	0.01	11.17 9.52	0.01
HMW-6D HMW-10D	307	- -	-	- -	-	14.60 11.06	0.01
HMW-10D MW-326	204	- -	-	- -	-	11.06 9.47	0.01
HMW-6D MW-326	510	- -	-	- -	-	11.06 9.47	0.00
HMW-3IA HMW-2IA	289	31.07 28.95	0.01	24.92 22.08	0.01	25.24 20.27	0.02
HMW-3IA MW-119	517	31.07 18.80	0.02	24.92 15.11	0.03	25.24 9.28	0.03
HMW-2IA MW-119	228	28.95 18.80	0.04	22.08 15.11	0.02	20.27 9.28	0.05
HMW-9IA MW-119	447	- -	-	- -	-	24.03 9.28	0.03
HMW-9IA HMW-2IA	219	- -	-	- -	-	24.03 20.27	0.02
HMW-5IB HMW-11B	524	- -	-	- -	-	26.39 9.84	0.03
HMW-6IB HMW-11IB	513	- -	-	- -	-	26.74 9.41	0.03
HMW-2S HMW-1S	445	- -	-	- -	-	22.34 11.24	0.02
HMW-9S HMW-11S	415	- -	-	- -	-	25.29 9.27	0.04

- = Data not available.

a. Well pairs are listed in order from west to east.

b. Gradients (ft/ft) calculated as difference in groundwater elevations divided by distance between well pairs. Elevations relative NAVD 88.

**Table B-2 - Vertical Hydraulic Gradients in Selected Well Pairs**

Well ID	Groundwater Depth Zone <sup>a</sup>	Screen Mid-point Elevation (ft)	Vertical Distance (ft)	March 19-26, 2019		January 13, 2020		March 19, 2020	
				Water Elevation (ft)	Gradient <sup>b</sup>	Water Elevation (ft)	Gradient <sup>b</sup>	Water Elevation (ft)	Gradient <sup>b</sup>
HMW-1S	S	11.12	58.05	19.56	0.03	12.97	-0.03	11.24	0.03
HMW-1D	D	-46.93		17.72		14.65		9.52	
MW-119	IA	-2.34	44.59	18.73	0.02	15.11	0.01	9.28	-0.01
HMW-1D	D	-46.93		17.72		14.65		9.52	
HMW-2S	S	22.59	60.25	25.64	0.08	23.87	0.12	22.34	0.19
HMW-2D	D	-37.66		20.75		16.92		11.17	
HMW-2IA	IA	5.75	43.32	28.95	0.19	22.08	0.12	20.27	0.21
HMW-2D	D	-37.57		20.75		16.92		11.17	
HMW-3IA	IA	15.21	43.63	31.07	0.31	24.92	0.19	25.24	0.25
HMW-3D	D	-28.42		17.5		16.78		14.54	
HMW-6IA	IA	18.97	41.9	-	-	-	-	27.84	0.32
HMW-6D	D	-22.93		-		-		14.60	
HMW-9S	S	28.79	55.16	-	-	-	-	25.29	0.19
HMW-9D	D	-26.37		-		-		14.59	
HMW-10S	S	21.6	54.45	-	-	-	-	24.72	0.25
HMW-10D	D	-32.85		-		-		11.06	
HMW-11S	S	15.06	68.75	-	-	-	-	9.27	-0.003
MW-326	D	-53.69		-		14.57		9.47	
MW-155	S	19.47	50.18	26.85	0.14	21.50	0.11	20.95	0.20
MW-148	IB	-30.71		19.7		15.84		11.11	
MW-154	S	23.22	45.73	30.63	0.11	23.27	0.13	23.95	0.21
MW-147	IB	-22.51		25.49		17.40		14.17	

- = Data not available.

a. "S" represents Shallow, "IA" represents Intermediate A, "IB" represents Intermediate B, and "D" represents Deep.

b. Gradients (ft/ft) calculated as difference in groundwater elevations divided by distance between well pairs.

Negative values indicated upward gradient, positive value indicates downward gradient

Elevations are in NAVD88 datum in feet.

**Table B-3 - Selected Monitoring Well Construction Summary**

Well ID	Boring Depth (ft)	Well Depth (ft)	Screen Interval Depth (ft)	Depth to Sediment (ft) <sup>a</sup>	Depth to Water (ft) <sup>a</sup>	Saturated Thickness (ft)	Screened Interval Soil Description
HMW-2IA	45	44.8	34.8 - 44.8	44.86	27.59	17.27	(SM) silty SAND with gravel and (SP-SM) poorly graded SAND with silt
HMW-2D	90	90	80 - 90	88.49	36.4	52.09	(SP) silty SAND
HMW-3IA	45	45	34.8 - 44.8	44.84	29.74	15.1	(SM) silty SAND with gravel
HMW-3D	90	90	80 - 90	90.15	24.29	47.86	(SP-SM) poorly graded SAND with silt
HMW-5IB	70	60	49.7 - 59.7	62.95	34.57	28.44	(SM) silty SAND with gravel
HMW-6IA	50	47.8	37.5 - 47.5	50.64	33.55	17.09	(ML) sandy SILT and (SM) silty SAND
HMW-6IB	70	60.3	50 - 60	63.85	34.92	28.93	(SM) silty SAND with gravel
HMW-6D	90	90	79.7 - 89.7	95.11	46.9	48.21	(SM) silty SAND
HMW-7IB	70	60	49.7 - 59.7	63.5	35.54	27.96	(SM) silty SAND with gravel
HMW-8IB	70	60.8	50.5 - 60.5	62.08	36.63	25.24	(ML) sandy SILT with gravel and (SM) silty SAND with gravel
HMW-9S	40	35	25 - 35	38.92	33.27	5.65	(SM) silty SAND with gravel
HMW-9IA	50	47	36.7 - 46.7	50.79	34.03	16.76	(SM) silty SAND with gravel
HMW-9IB	70	67.3	57 - 67	70.25	36.53	33.72	(SM) silty SAND with gravel
HMW-9D	90	90	79.7 - 89.7	94.66	43.66	51	(SM) silty SAND with gravel
HMW-10S	40	35	24.7 - 34.7	38.1	26.58	11.52	(SM) silty SAND with gravel
HMW-10D	90	89.3	79 - 89	92.85	40.32	52.53	(GM) silty GRAVEL with sand
HMW-11IB	70	55.2	44.87 - 54.87	58.19	33.84	24.35	(SP) poorly graded SAND and (GM) sandy GRAVEL with silt

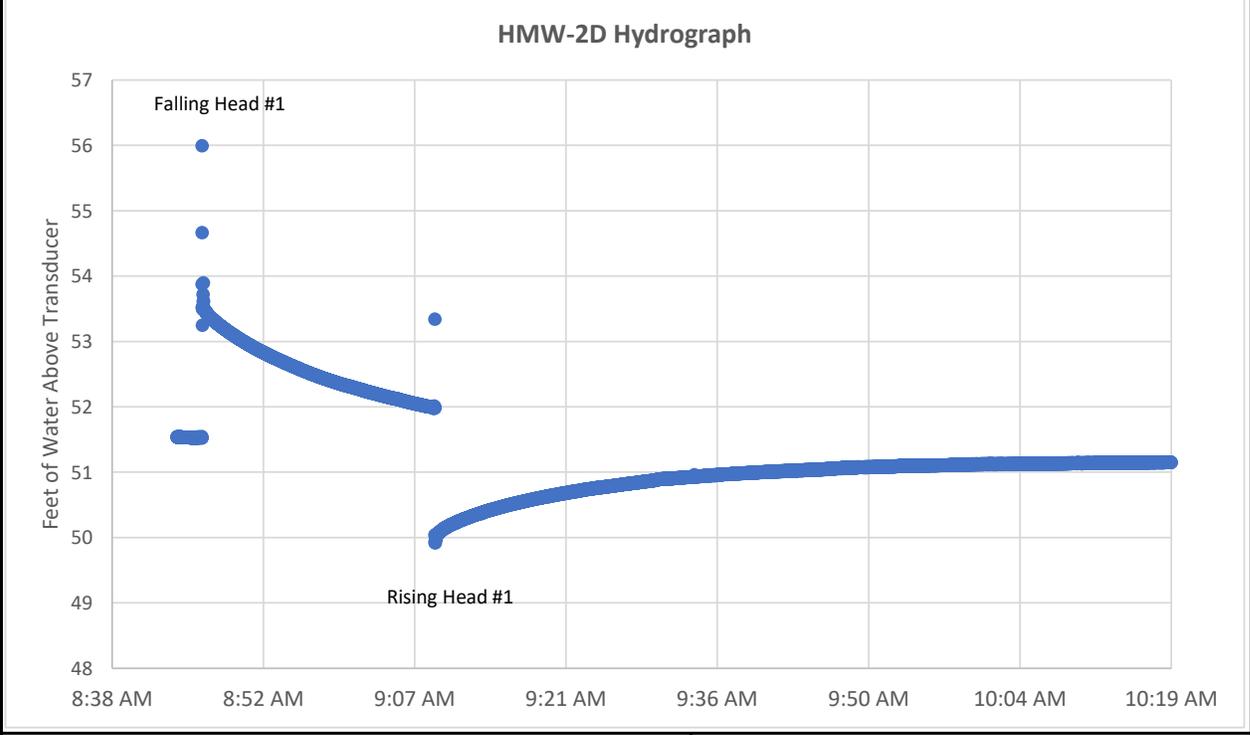
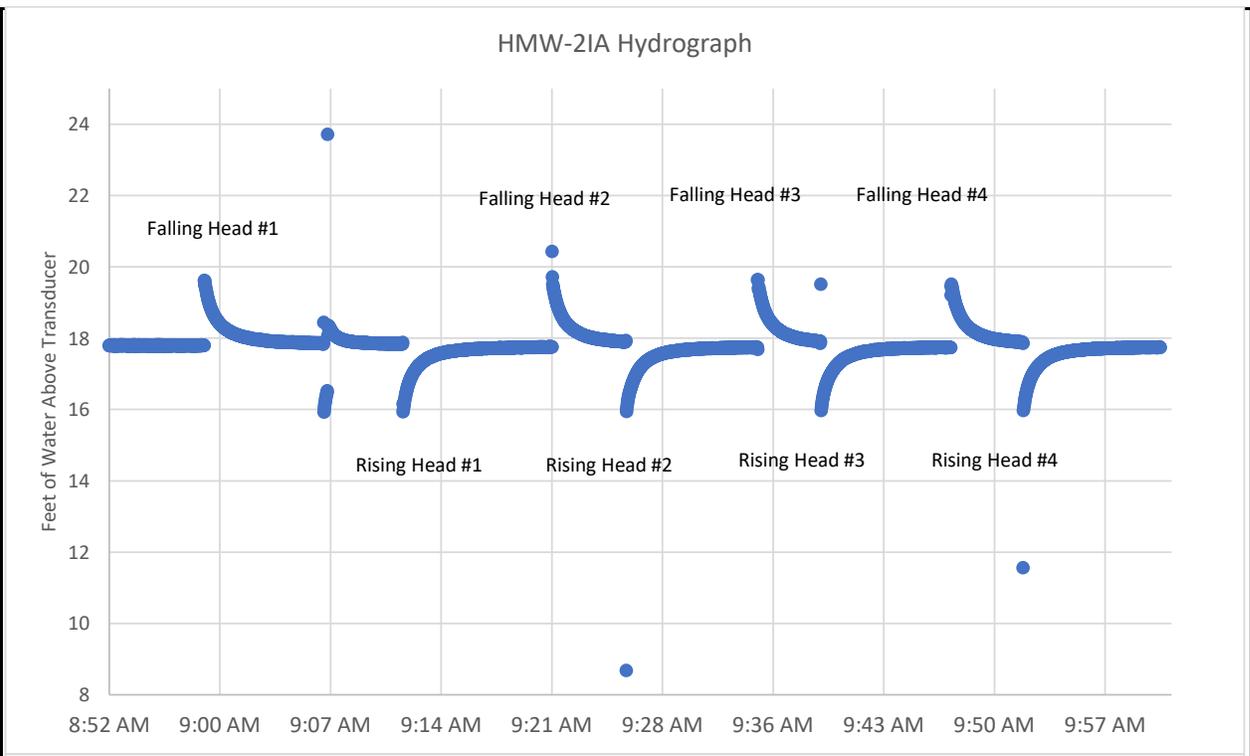
a. Depth to sediment and depth to water was measured below top of casing on March 23-27, 2020.

**Table B-4 - Summary of Selected Slug Test Results**

Well ID	Test Type	Test Number	Bouwer and Rice		Cooper, Bredehoeft, Papadopolous <sup>a</sup>				
			K (ft/day)	K (cm/sec)	K (ft/day)	K (cm/sec)	T (ft <sup>2</sup> /day)	Storage Coefficient	
HMW-21A	Falling Head	Test 1	2.3	8.0E-04					
	Rising Head	Test 1	2.2	7.7E-04					
	Falling Head	Test 2	2.3	8.2E-04					
	Rising Head	Test 2	2.1	7.3E-04					
	Falling Head	Test 3	2.2	7.8E-04					
	Rising Head	Test 3	2.0	7.1E-04					
	Falling Head	Test 4	2.2	7.7E-04					
	Rising Head	Test 4	2.3	8.1E-04					
		Mean:	2.2	7.7E-04					
HMW-2D	Falling Head	Test 1	0.2	6.2E-05	0.3	9.5E-05	2.7	6.8E-07	
	Rising Head	Test 1	0.2	6.7E-05	0.02	7.6E-06	0.2	4.4E-02	
			Mean:	0.2	6.4E-05	Mean:	0.1	2.7E-05	0.8
HMW-31A	Falling Head	Test 1	0.3	1.0E-04					
	Rising Head	Test 1	0.3	1.1E-04					
	Falling Head	Test 2	0.2	8.0E-05					
	Rising Head	Test 2	0.4	1.4E-04					
		Mean:	0.3	1.1E-04					
HMW-3D	Falling Head	Test 1	0.1	3.6E-05	0.2	7.7E-05	2.2	1.0E-12	
	Rising Head	Test 1	0.2	5.5E-05	0.01	4.2E-06	0.1	1.0E-05	
			Mean:	0.1	4.4E-05	Mean:	0.1	1.8E-05	0.5
HMW-51B	Falling Head	Test 1	0.2	8.6E-05	0.5	1.8E-04	5.2	1.0E-10	
	Rising Head	Test 1	0.3	1.1E-04	0.1	3.8E-05	1.1	1.0E-10	
	Falling Head	Test 2	0.3	9.8E-05	0.5	1.6E-04	4.6	4.5E-09	
	Rising Head	Test 2	0.2	7.6E-05	0.2	8.1E-05	2.3	1.0E-04	
			Mean:	0.3	9.1E-05	Mean:	0.3	9.8E-05	2.8
HMW-61A	Falling Head	Test 1	20.1	7.1E-03					
	Rising Head	Test 1	3.8	1.3E-03					
	Falling Head	Test 2	11.1	3.9E-03					
	Rising Head	Test 2	5.2	1.8E-03					
	Falling Head	Test 3	13.0	4.6E-03					
	Rising Head	Test 3	5.0	1.8E-03					
		Mean:	8.1	2.9E-03					
HMW-61B	Falling Head	Test 1	1.1	3.7E-04	1.2	4.1E-04	11.7	3.3E-03	
	Rising Head	Test 1	1.1	4.0E-04	0.8	2.9E-04	8.1	3.6E-02	
	Falling Head	Test 2	1.4	4.9E-04	0.6	2.0E-04	5.8	1.0E-01	
	Rising Head	Test 2	0.9	3.1E-04	0.9	3.2E-04	9.1	1.0E-02	
	Falling Head	Test 3	1.0	3.5E-04	0.9	3.3E-04	9.4	3.6E-02	
	Rising Head	Test 3	0.8	2.9E-04	0.8	2.9E-04	8.2	4.6E-02	
		Mean:	1.0	3.6E-04	Mean:	0.9	3.0E-04	8.5	2.4E-02
HMW-6D	Falling Head	Test 1	0.8	2.8E-04	1.0	3.5E-04	9.9	6.5E-04	
	Rising Head	Test 1	0.9	3.0E-04	0.8	2.7E-04	7.7	3.5E-03	
	Falling Head	Test 2	0.8	2.9E-04	0.9	3.3E-04	9.2	4.0E-04	
	Rising Head	Test 2	0.9	3.3E-04	0.6	2.2E-04	6.3	8.5E-04	
	Falling Head	Test 3	0.9	3.1E-04	0.7	2.5E-04	7.0	3.8E-03	
	Rising Head	Test 3	0.8	2.9E-04	0.6	2.3E-04	6.5	6.6E-03	
	Falling Head	Test 4	0.8	2.8E-04	0.5	1.9E-04	5.5	1.0E-02	
	Rising Head	Test 4	0.8	2.7E-04	0.6	2.1E-04	5.9	1.0E-02	
		Mean:	0.8	2.9E-04	Mean:	0.7	2.5E-04	7.1	2.6E-03

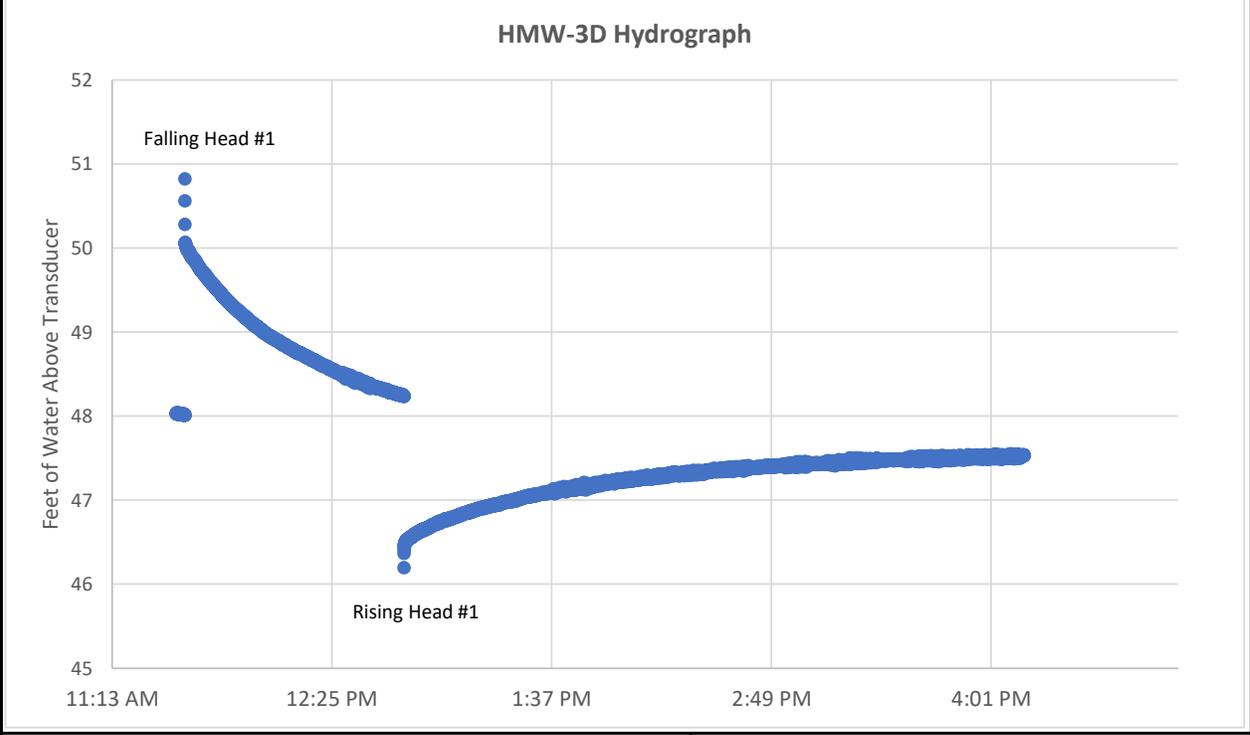
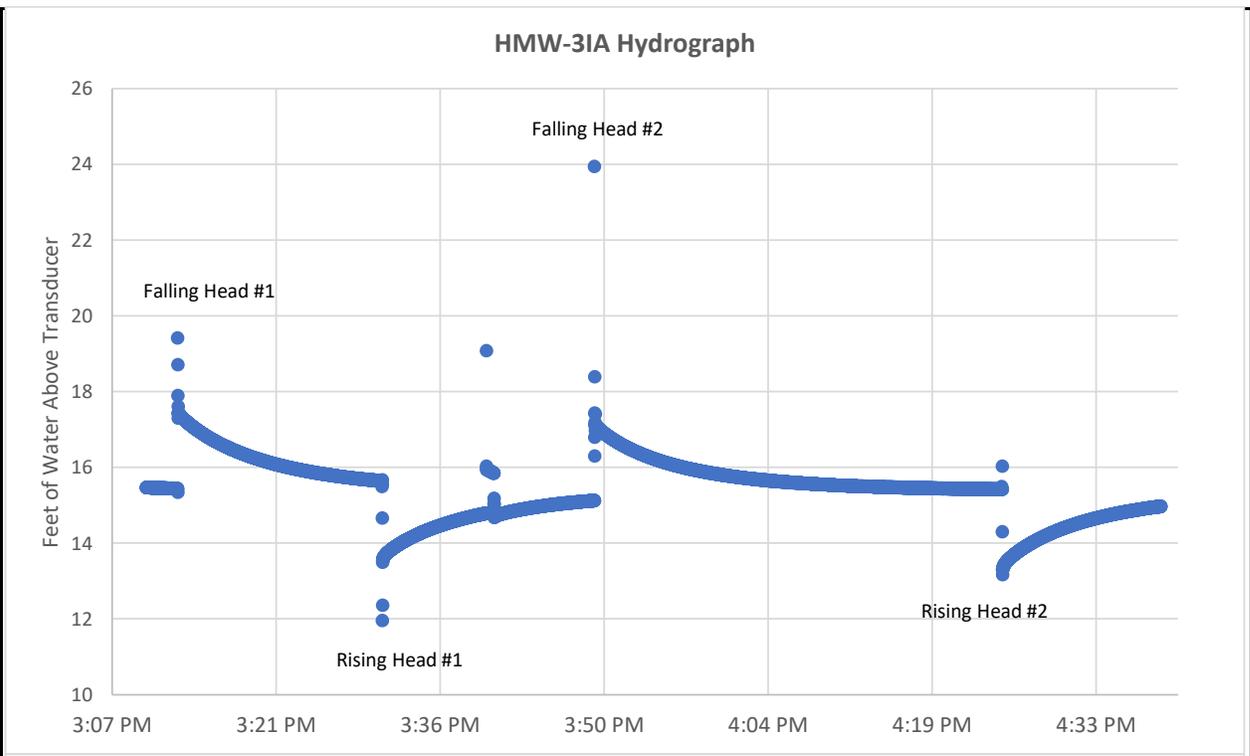
## FIGURES

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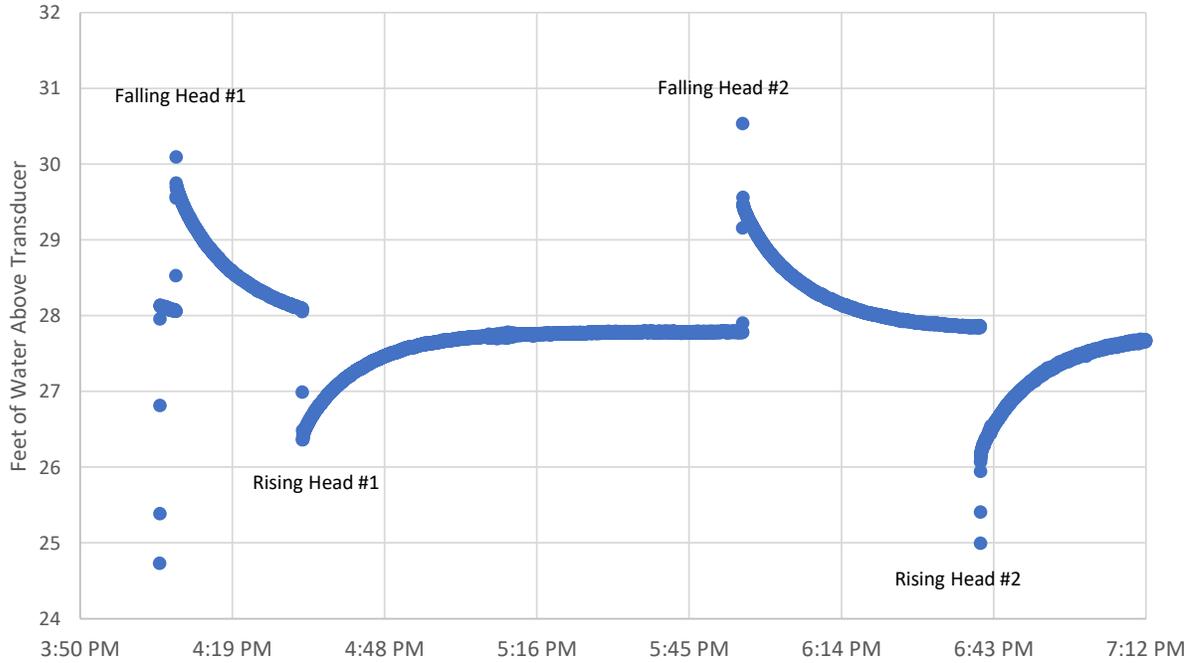
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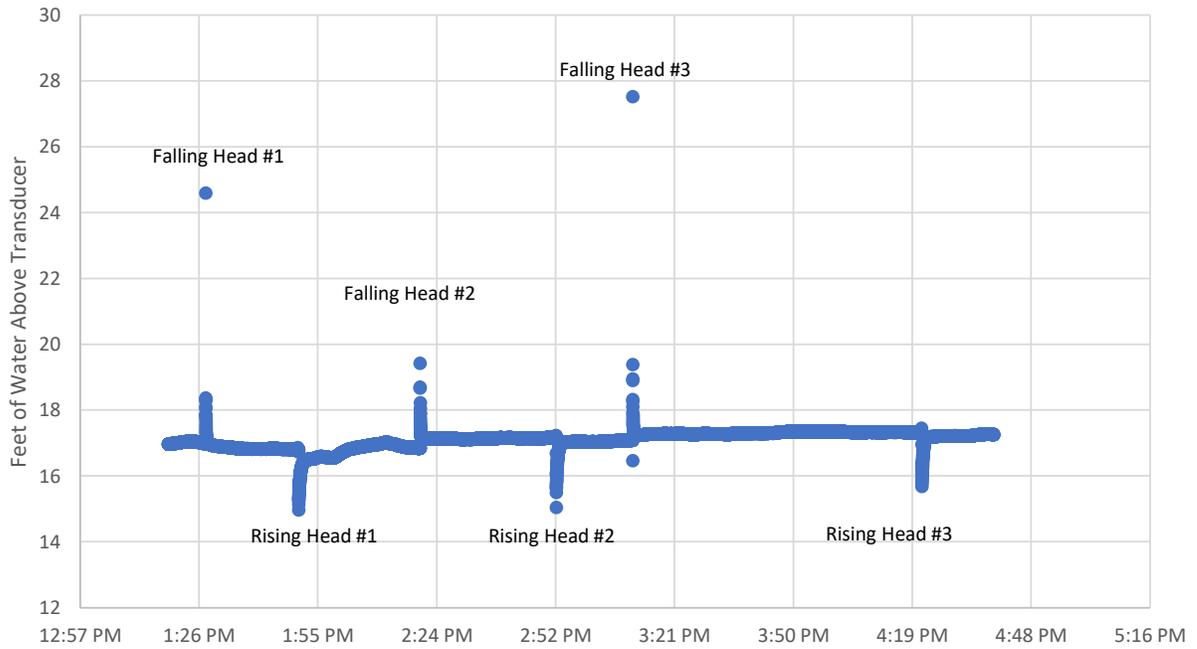
Board Block Site Seattle, Washington	
<b>HMW-3IA and HMW-3D Hydrographs</b>	
19409-04	06/21
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### HMW-5IB Hydrograph



### HMW-6IA Hydrograph



Board Block Site  
Seattle, Washington

### HMW-5IB and HMW-6IA Hydrographs

19409-04

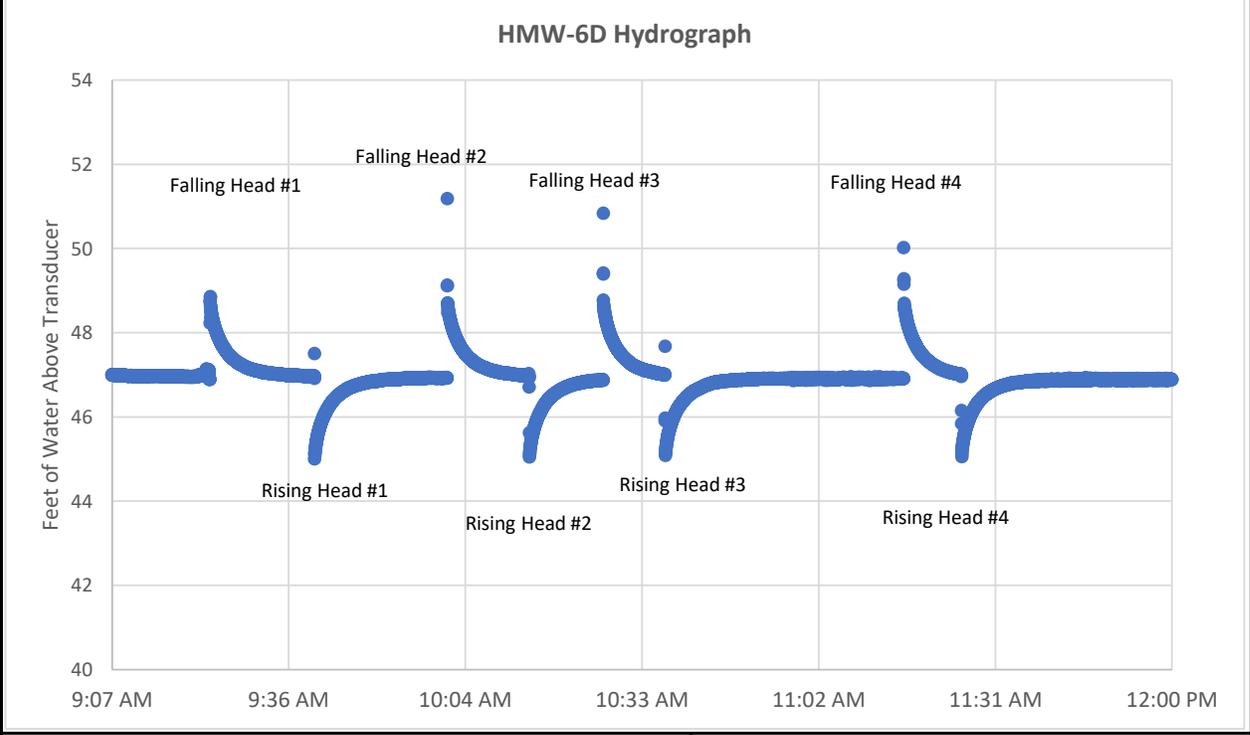
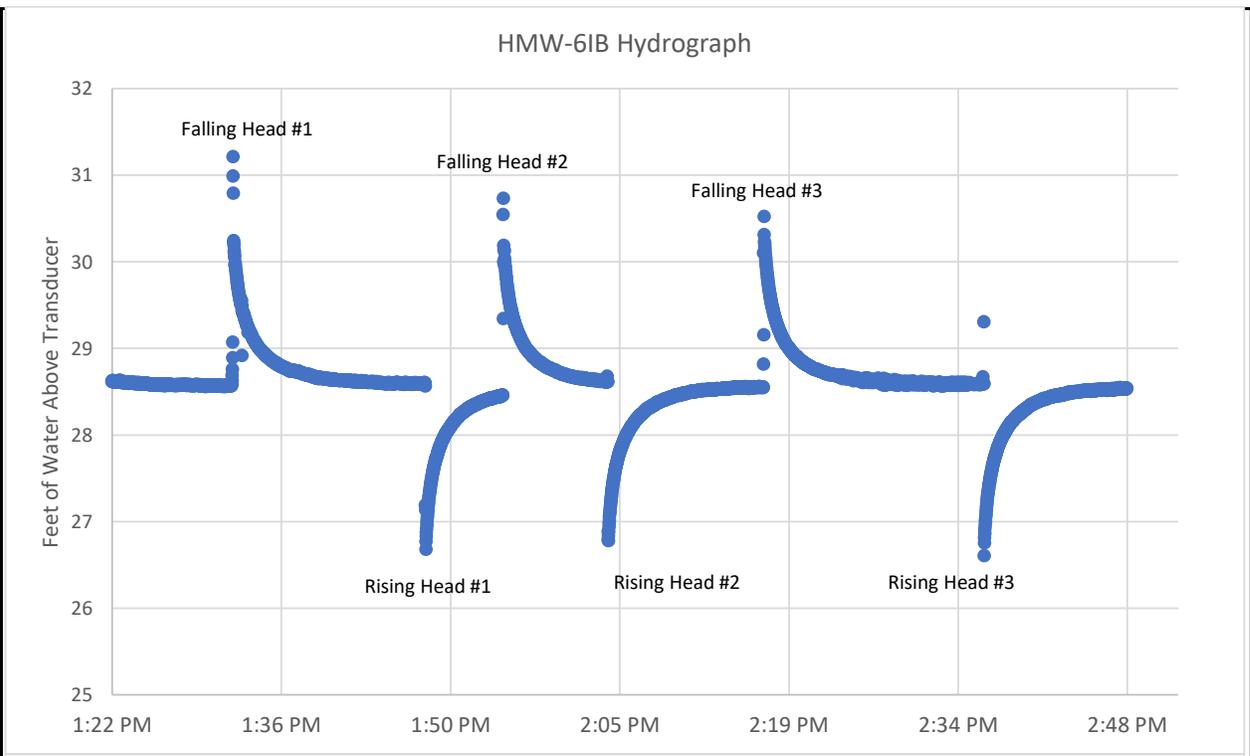
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Figure

**B-3**

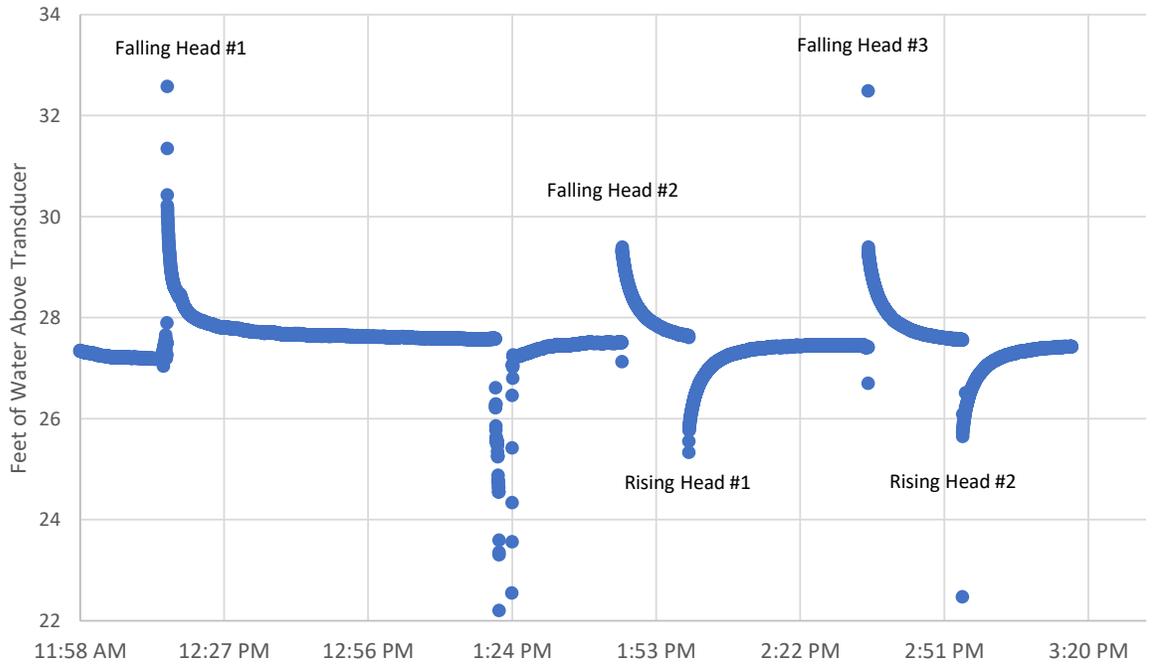
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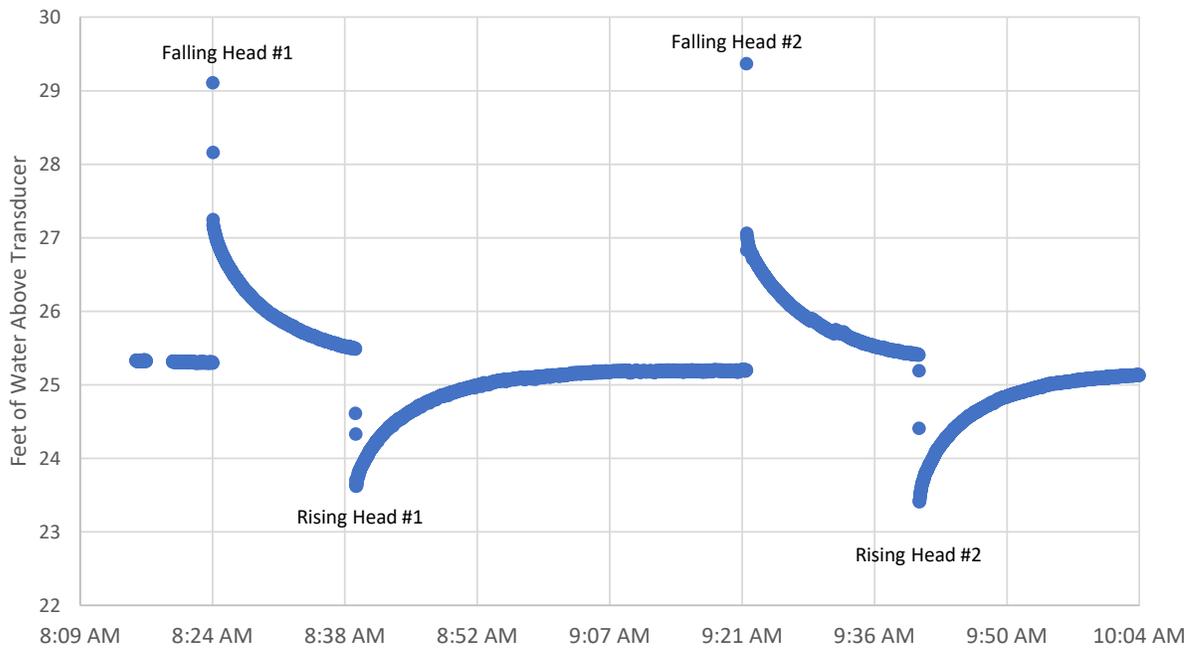
	Board Block Site Seattle, Washington
<b>HMW-6IB and HMW-6D Hydrographs</b>	
19409-04	06/21
	Figure <b>B-4</b>

AUG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-7IB Hydrograph



### HMW-8IB Hydrograph



Board Block Site  
Seattle, Washington

### HMW-7IB and HMW-8IB Hydrographs

19409-04

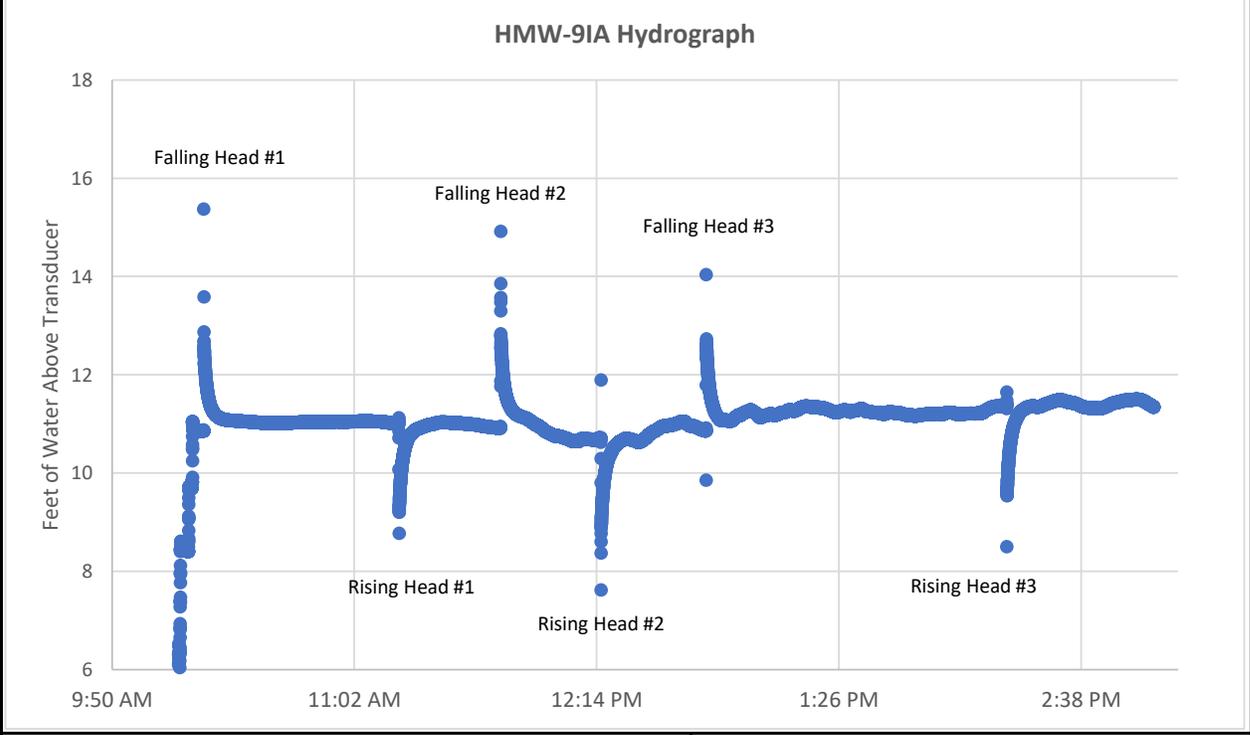
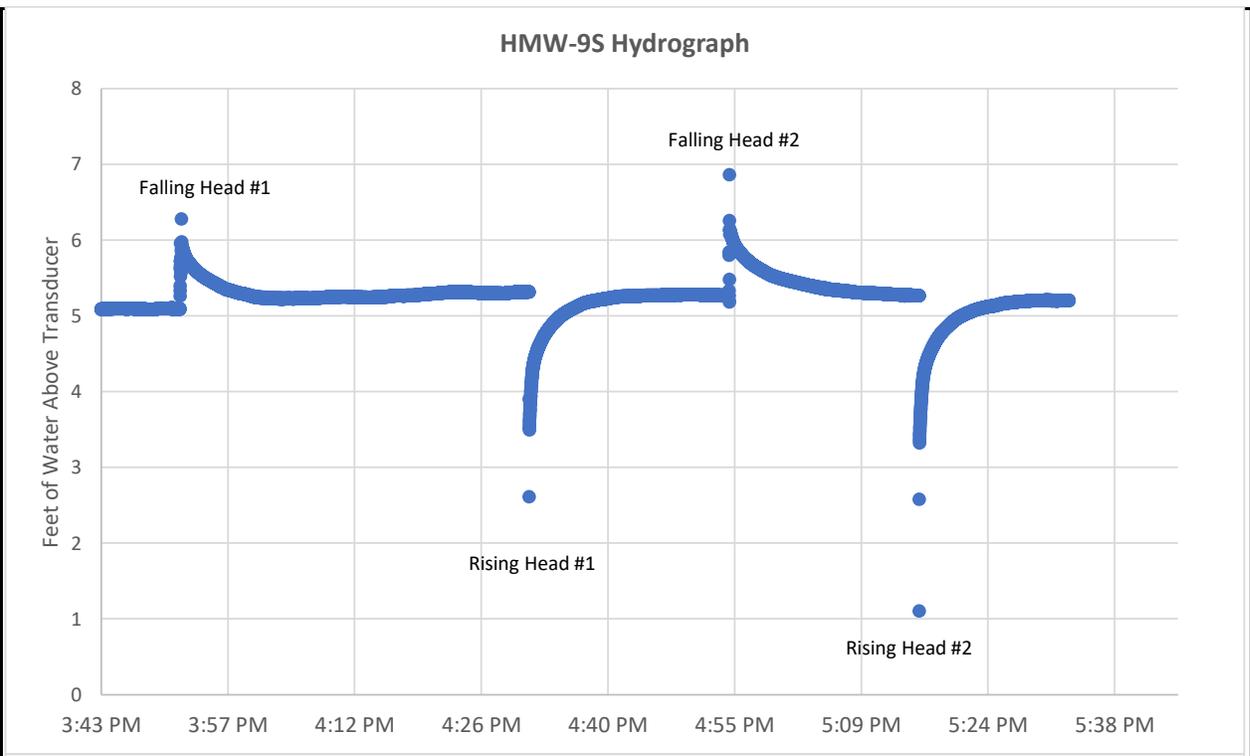
06/21



Figure

**B-5**

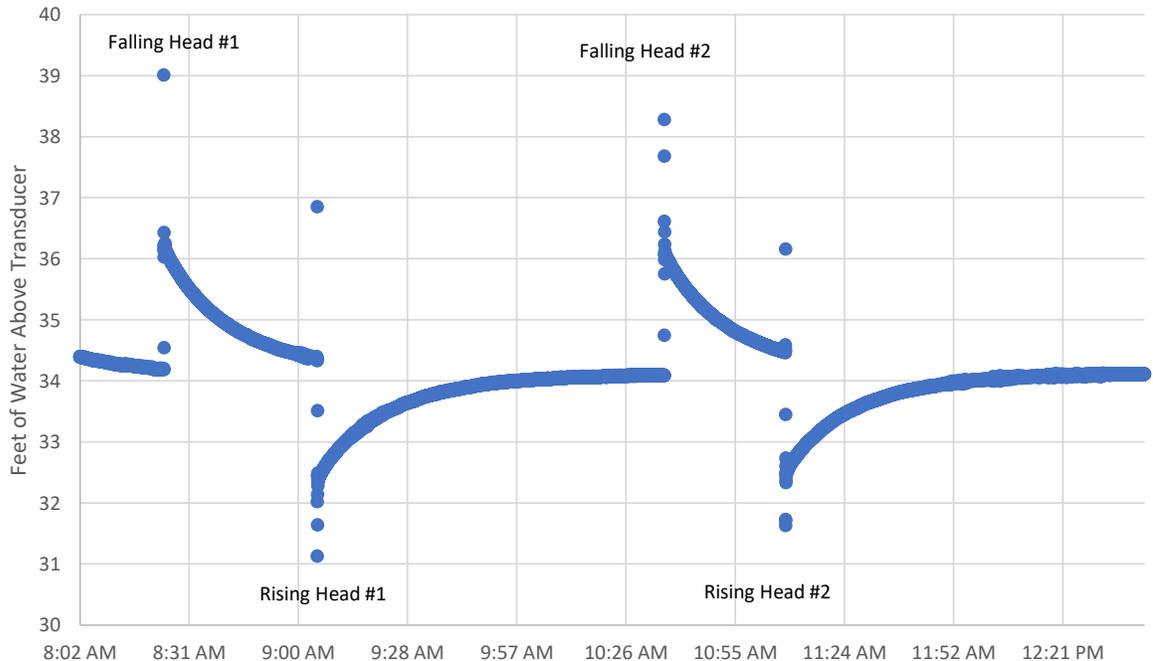
A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test



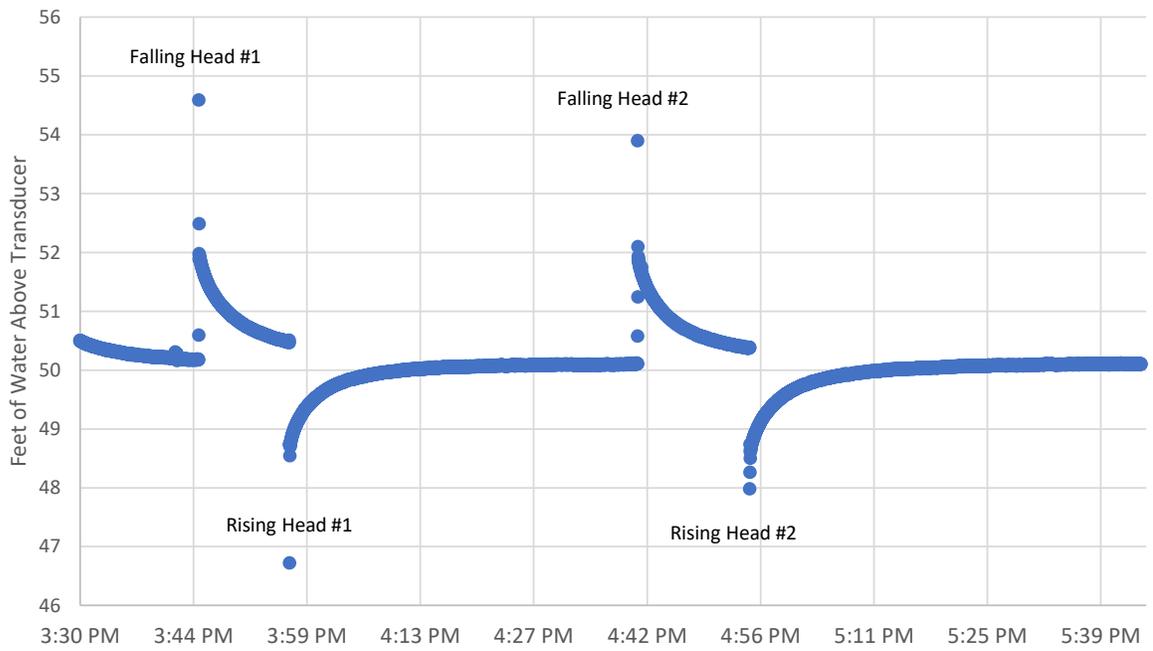
	Board Block Site Seattle, Washington	
<b>HMW-9S and HMW-9IA Hydrographs</b>		
19409-04	06/21	
		Figure <b>B-6</b>

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### HMW-9IB Hydrograph



### HMW-9D Hydrograph



Board Block Site  
Seattle, Washington

#### HMW-9IB and HMW-9D Hydrographs

19409-04

06/21

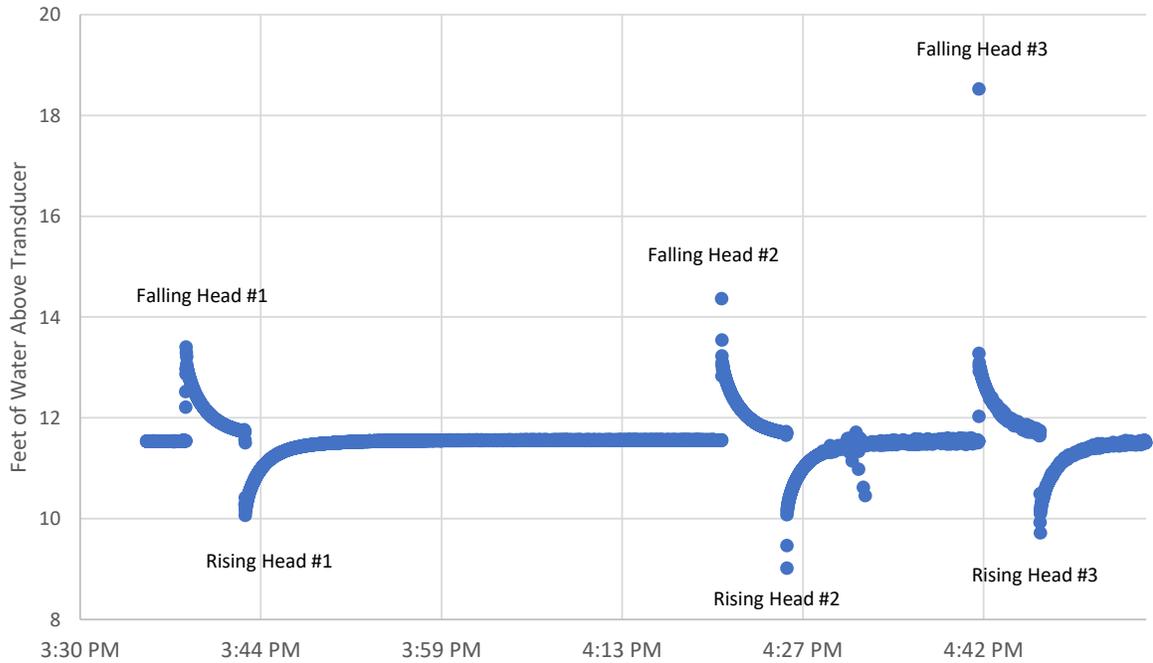


Figure

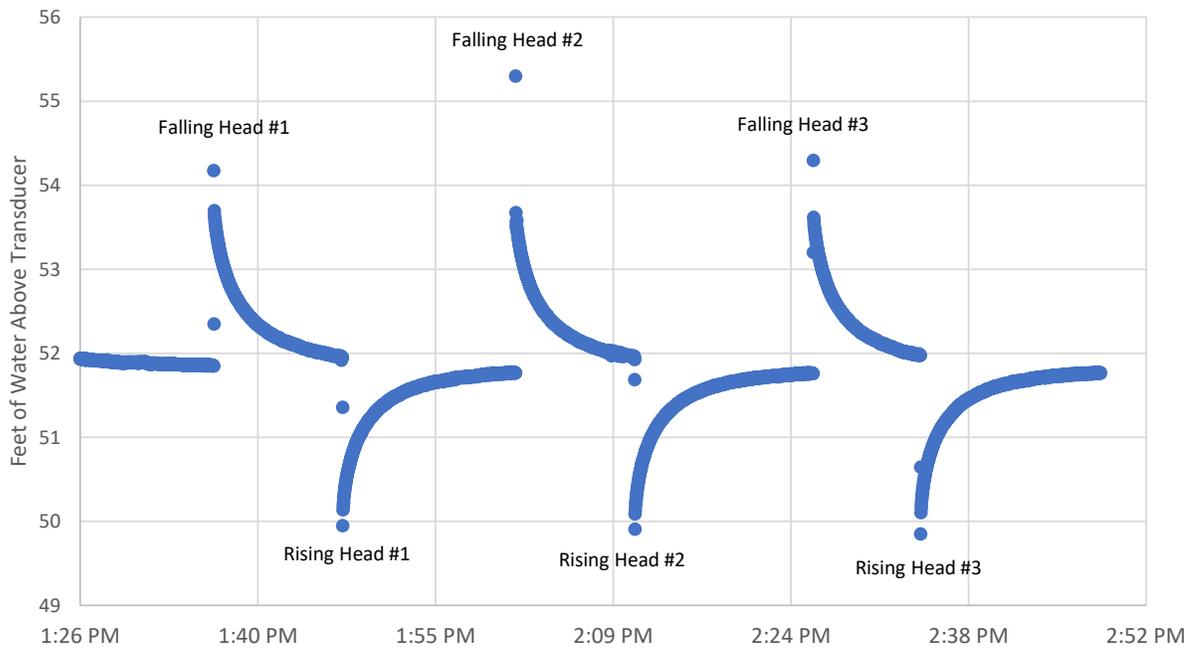
**B-7**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-10S Hydrograph



### HMW-10D Hydrograph



Board Block Site  
Seattle, Washington

### HMW-10S and HMW-10D Hydrographs

19409-04

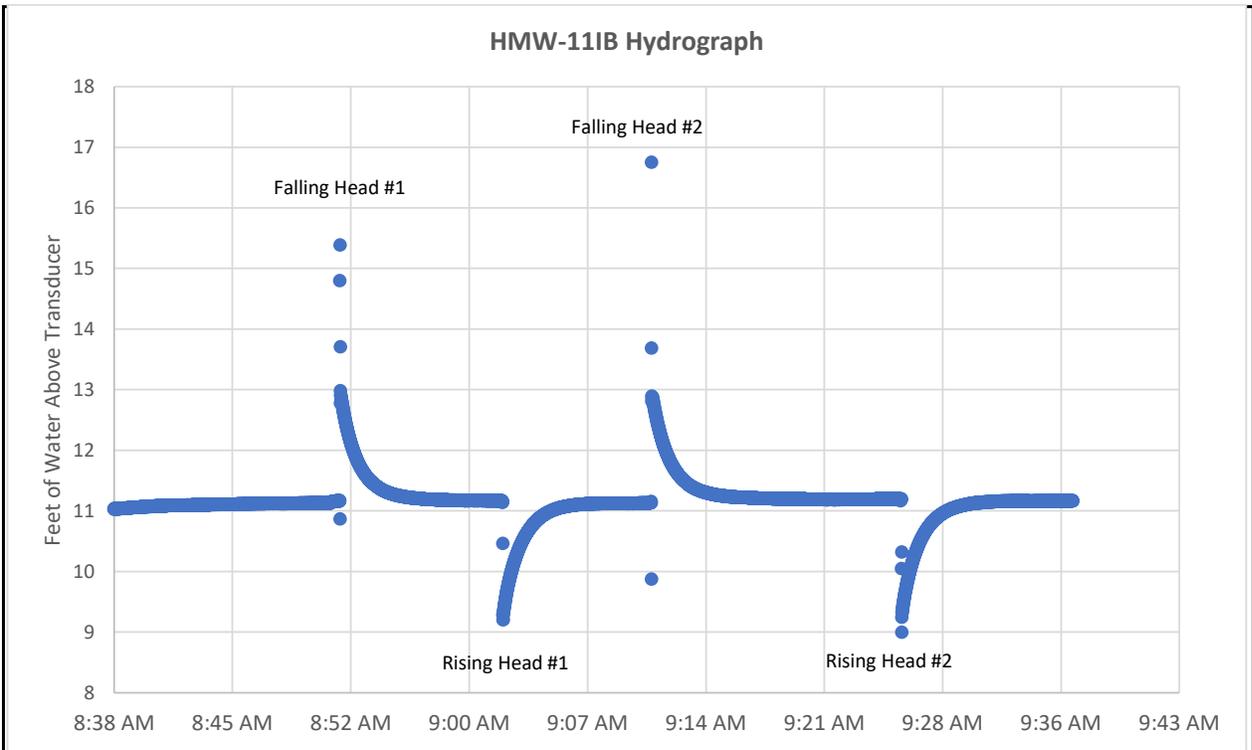
06/21



Figure

**B-8**

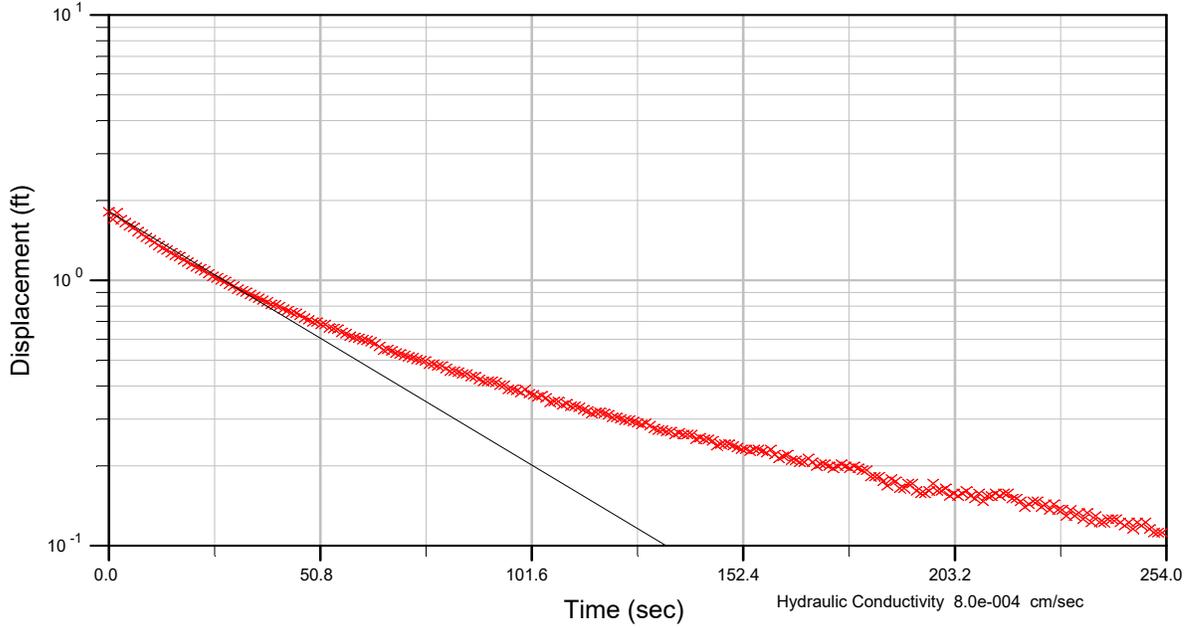
A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test



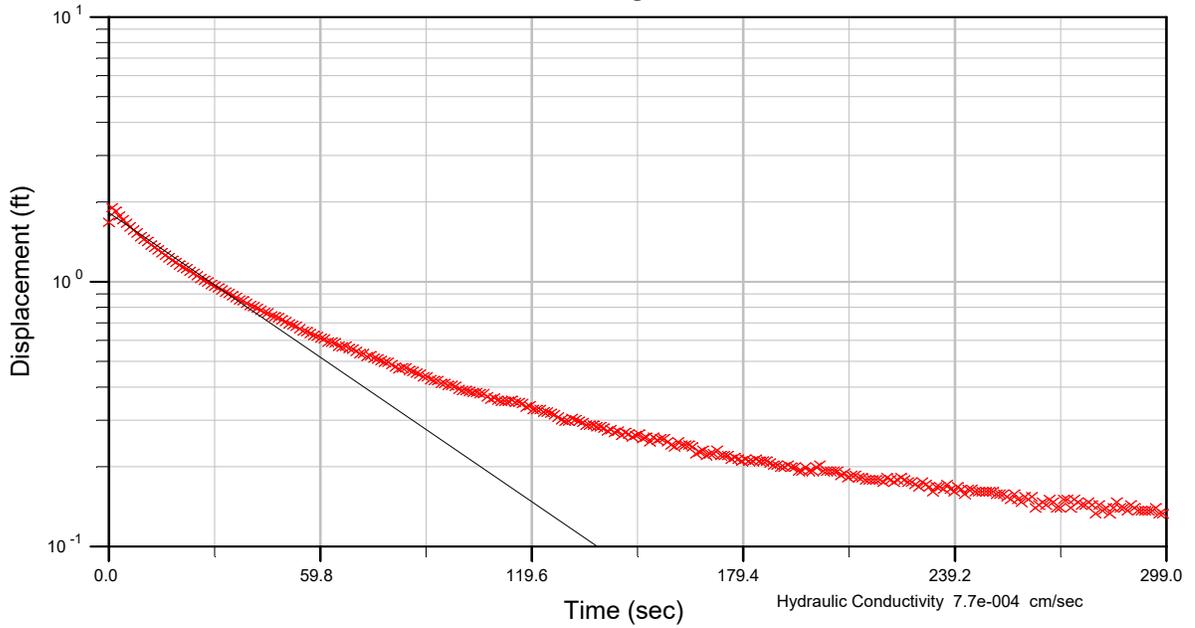
	Board Block Site Seattle, Washington	
	<b>HMW-111B Hydrograph</b>	
	19409-04	06/21
 <b>HARTCROWSER</b>	Figure <b>B-9</b>	

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### HMW-2IA Falling Head #1



### HMW-2IA Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-2IA Representative  
Slug Test Results**

19409-04

06/21

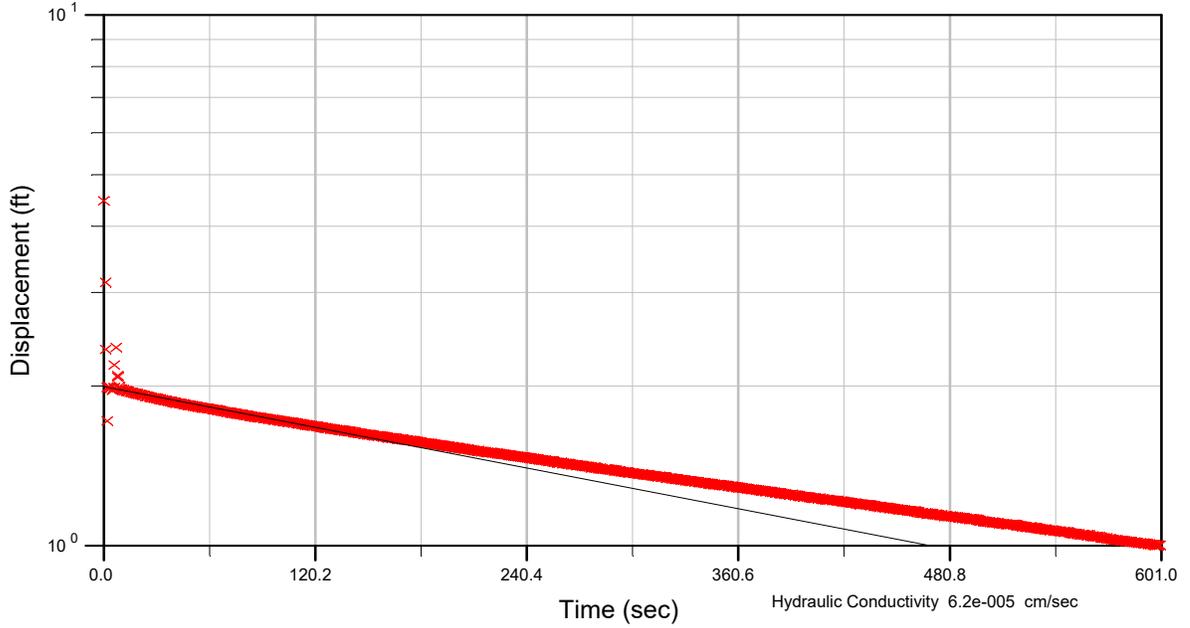


Figure

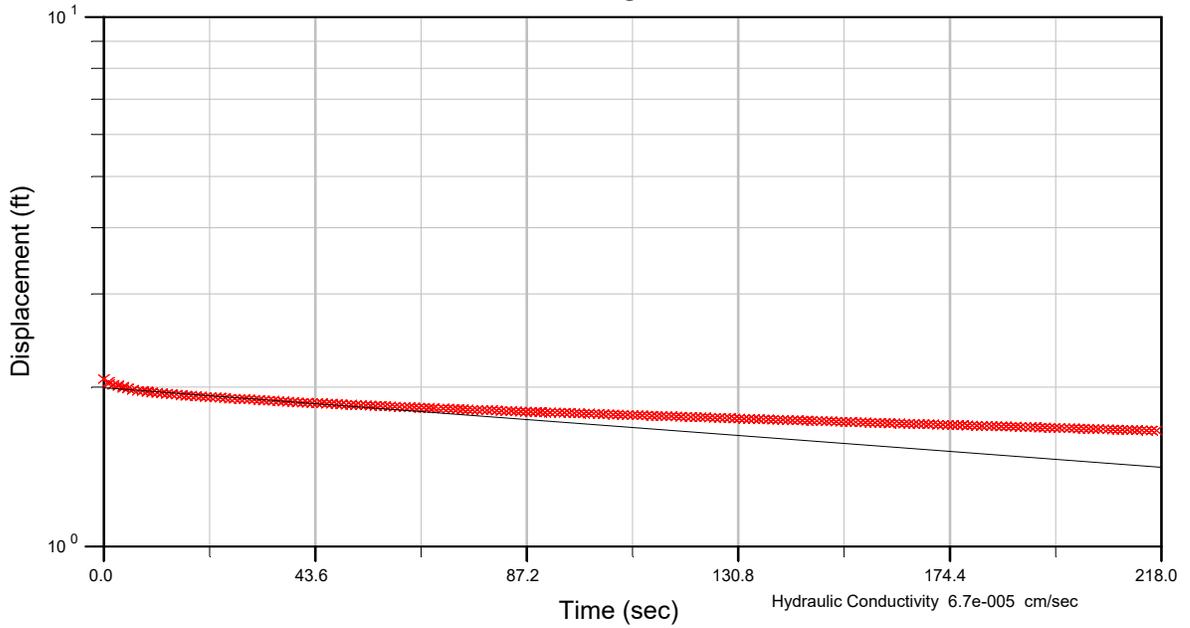
**B-10**

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### HMW-2D Falling Head #1



### HMW-2D Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-2D Representative  
Slug Test Results (Bouwer and Rice)**

19409-04

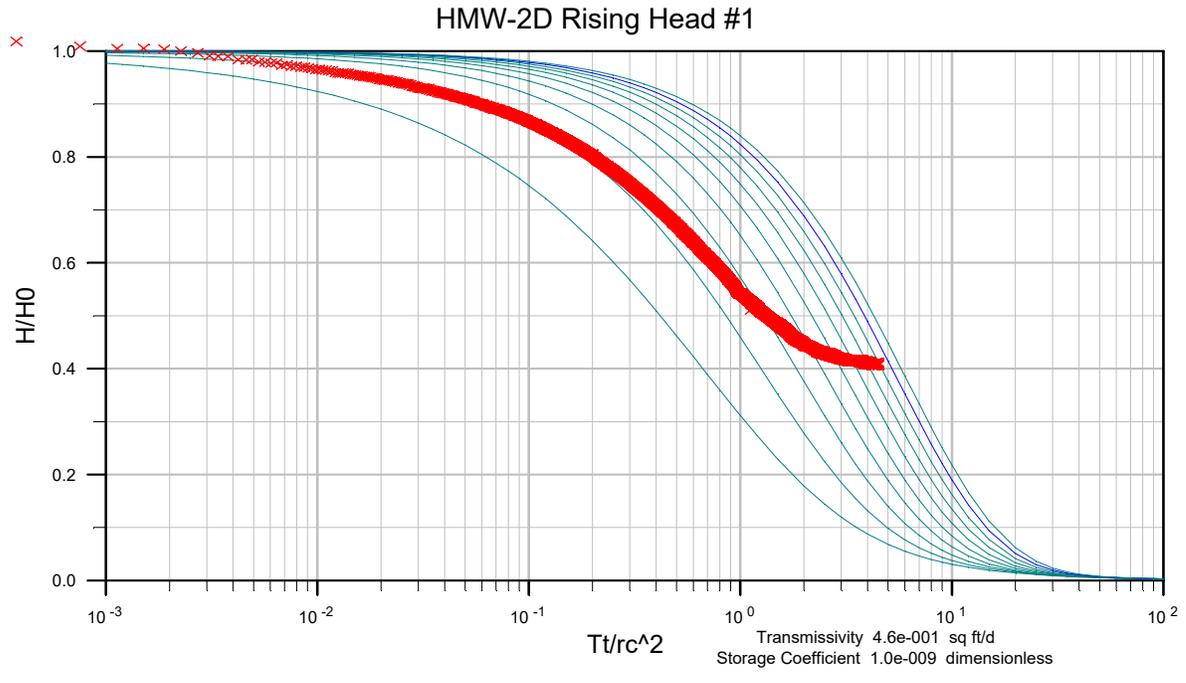
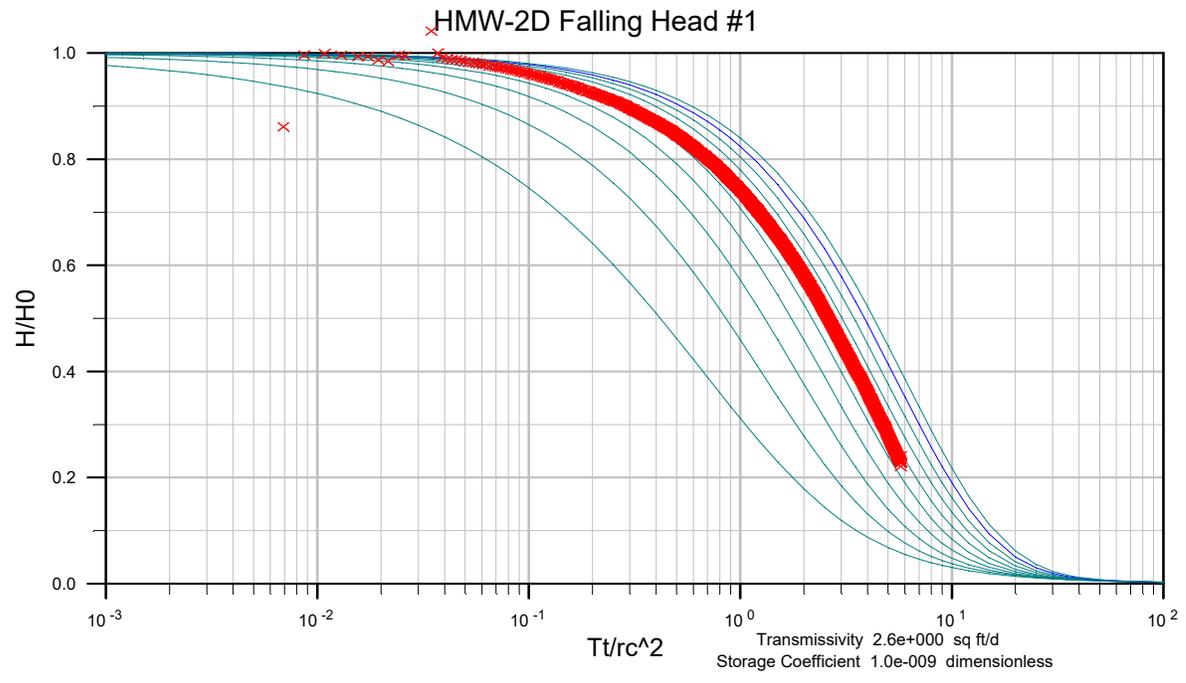
06/21



Figure

**B-11**

AUG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

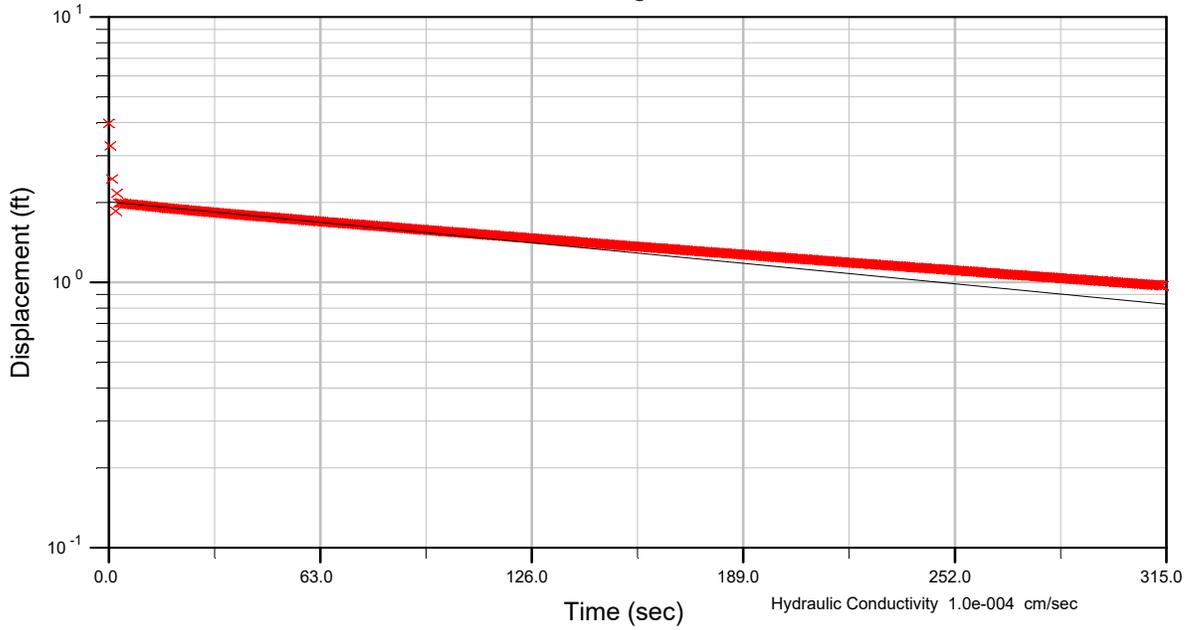


Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

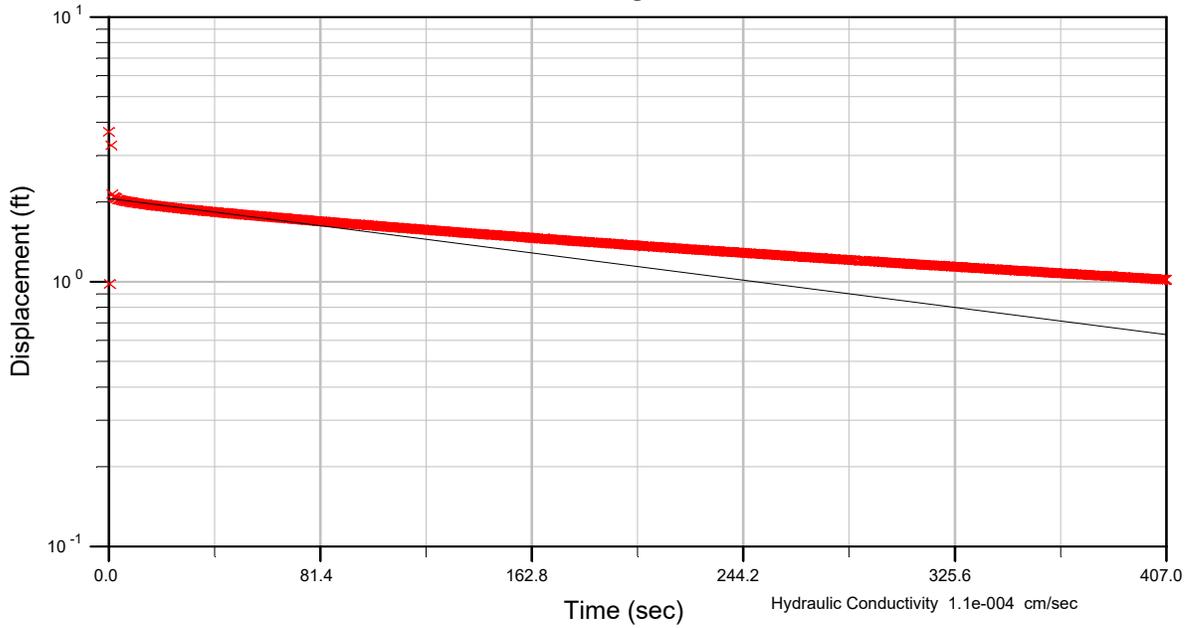
Board Block Site Seattle, Washington	
<b>HMW-2D Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-12</b>

A:\G 12\11\14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-3IA Falling Head #1



### HMW-3IA Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

#### HMW-3IA Representative Slug Test Results

19409-04

06/21

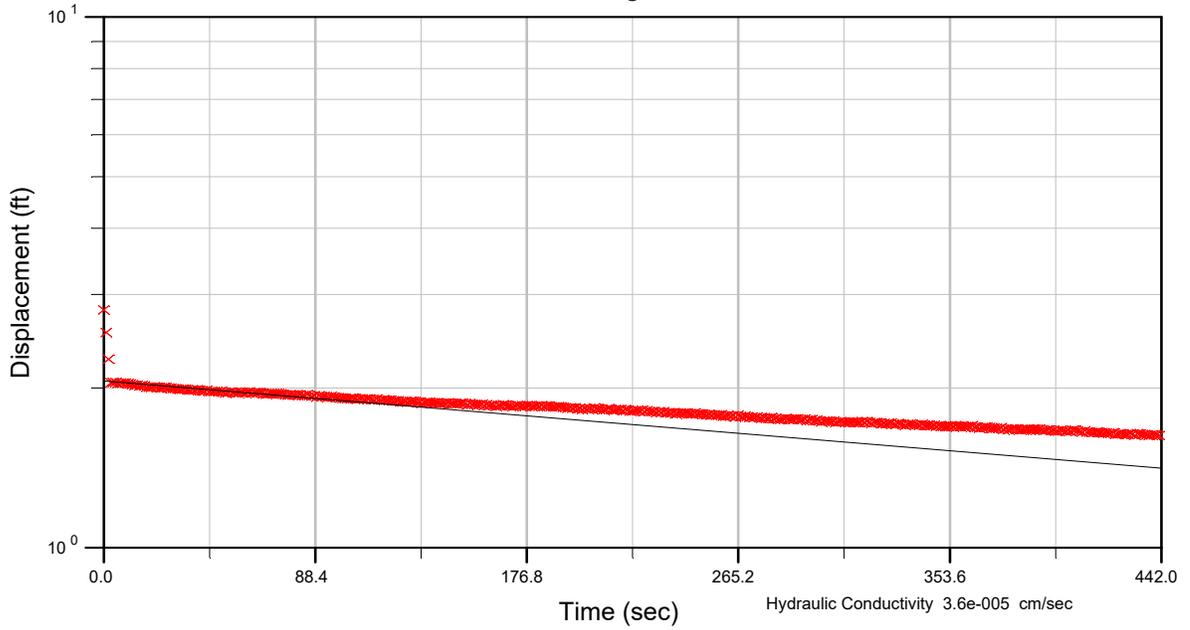


Figure

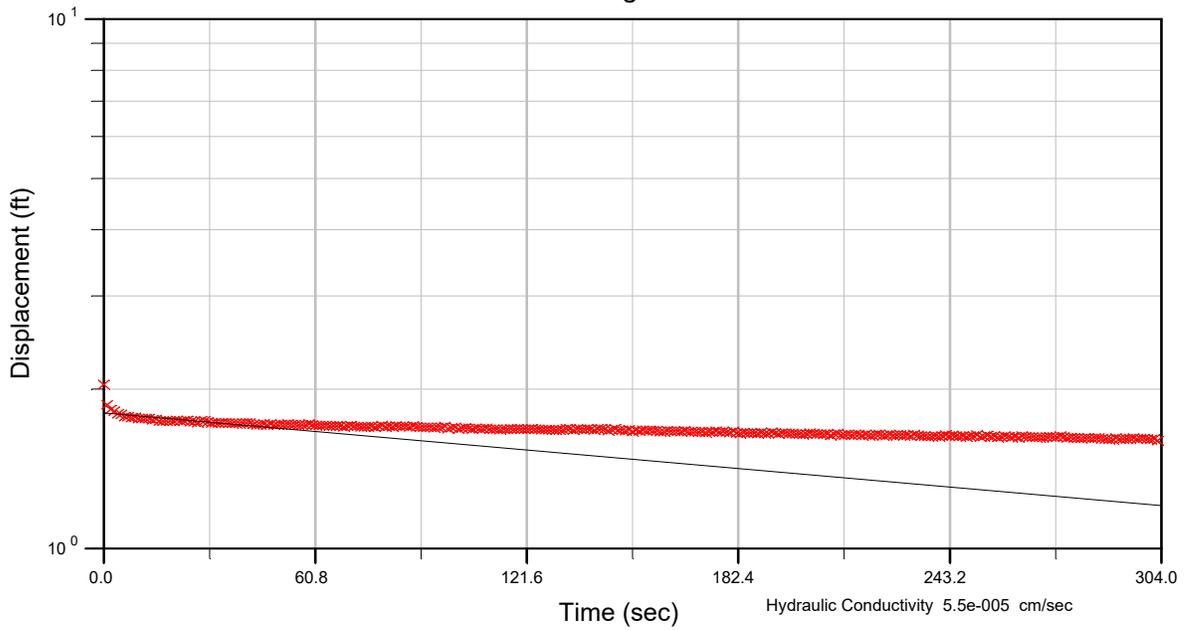
**B-13**

A:\JG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-3D Falling Head #1



### HMW-3D Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-3D Representative  
Slug Test Results (Bouwer and Rice)**

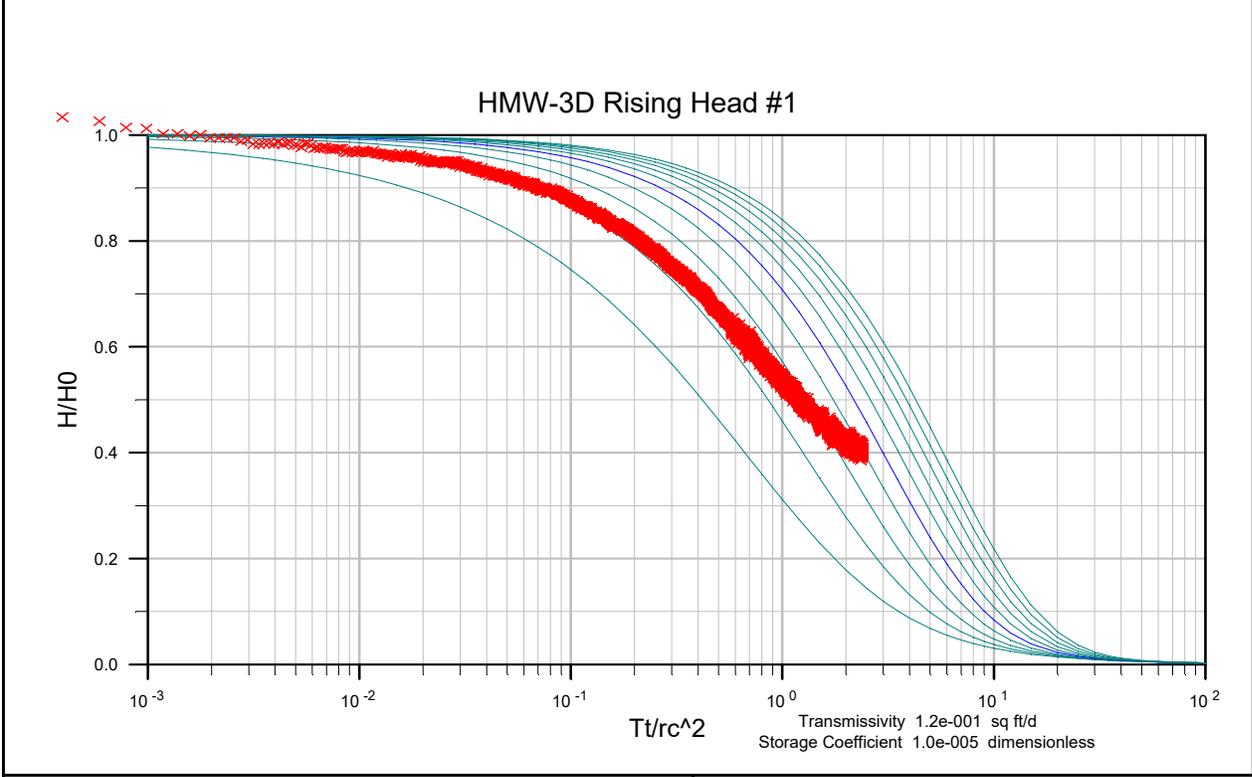
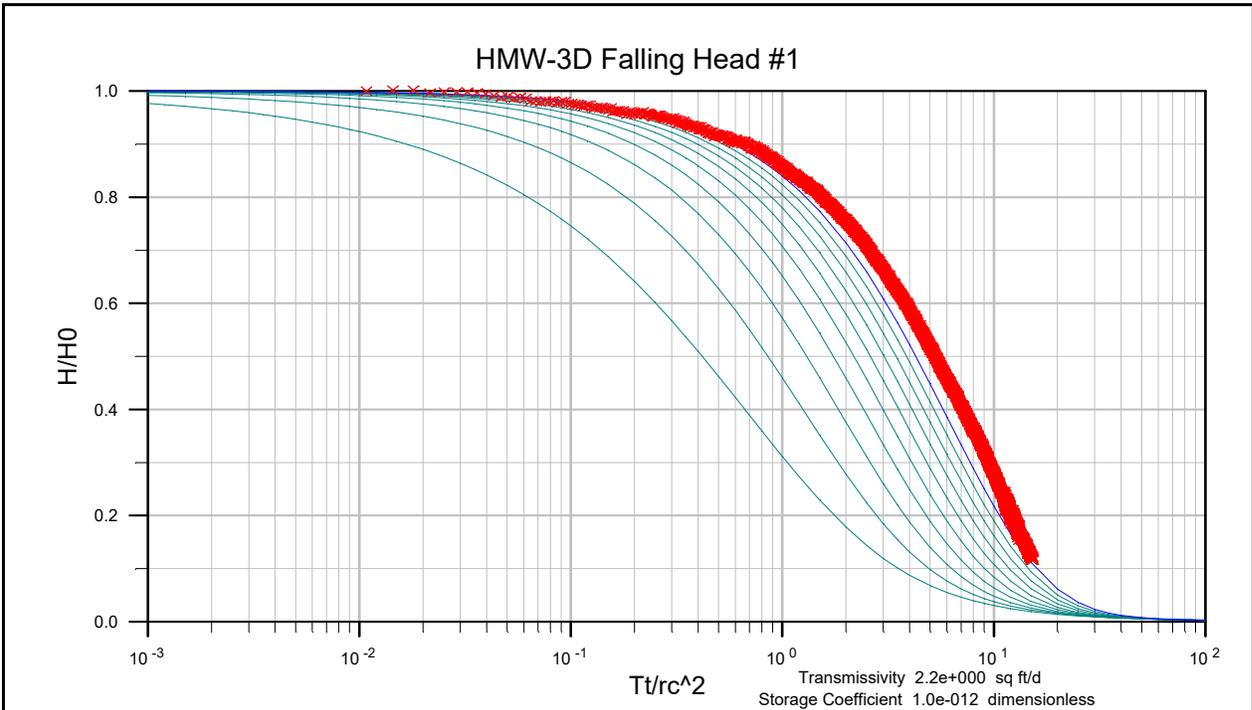
19409-04

06/21



Figure

**B-14**



A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
 Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Board Block Site  
 Seattle, Washington

**HMW-3D Representative  
 Slug Test Results (Cooper et al.)**

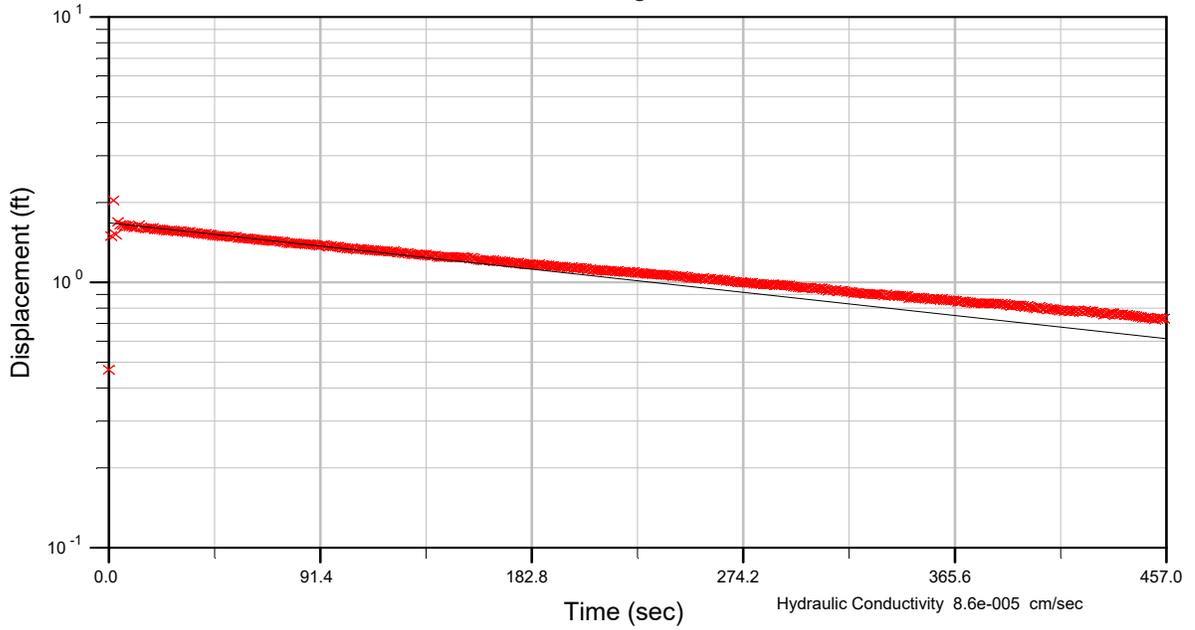
19409-04 06/21



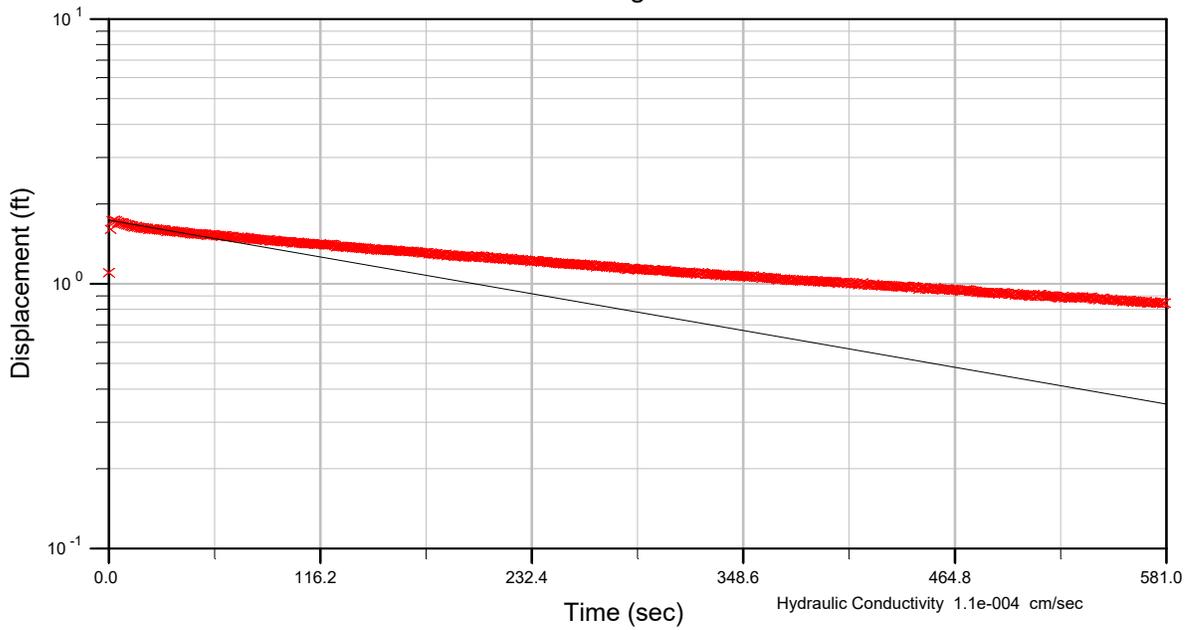
Figure  
**B-15**

AUG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-5IB Falling Head #1



### HMW-5IB Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-5IB Representative  
Slug Test Results (Bouwer and Rice)**

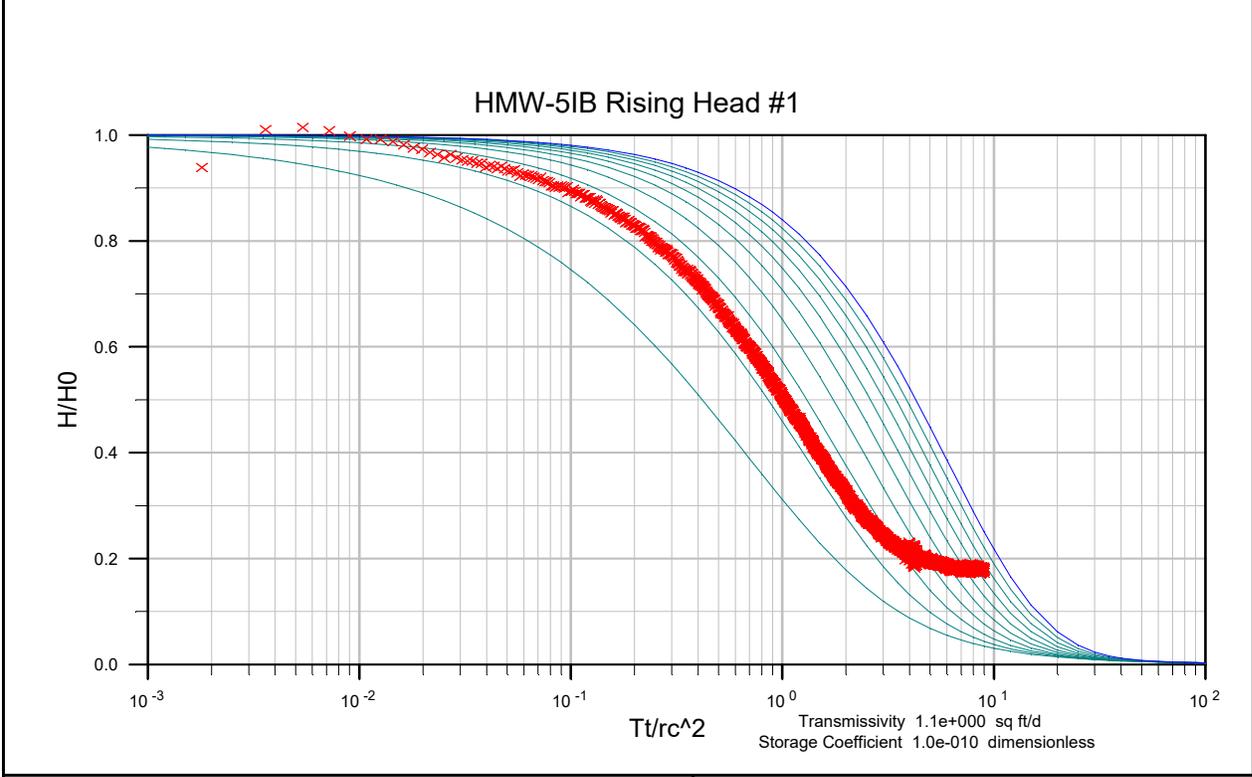
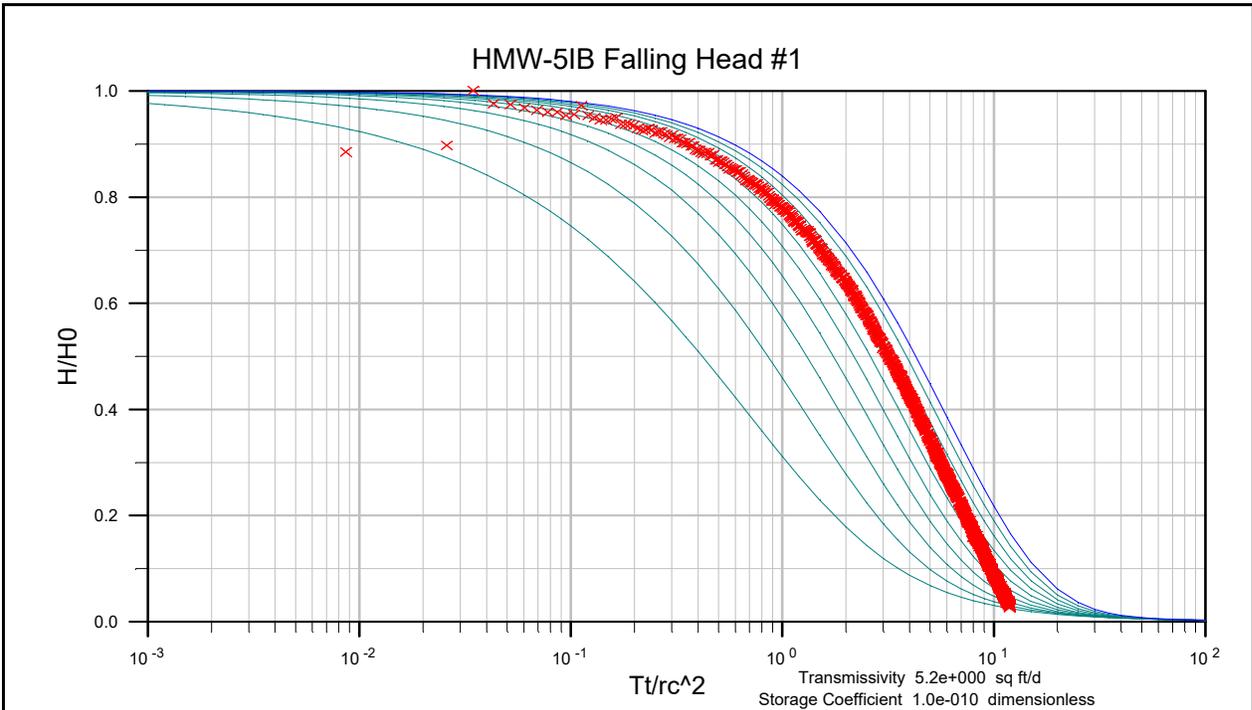
19409-04

06/21



Figure

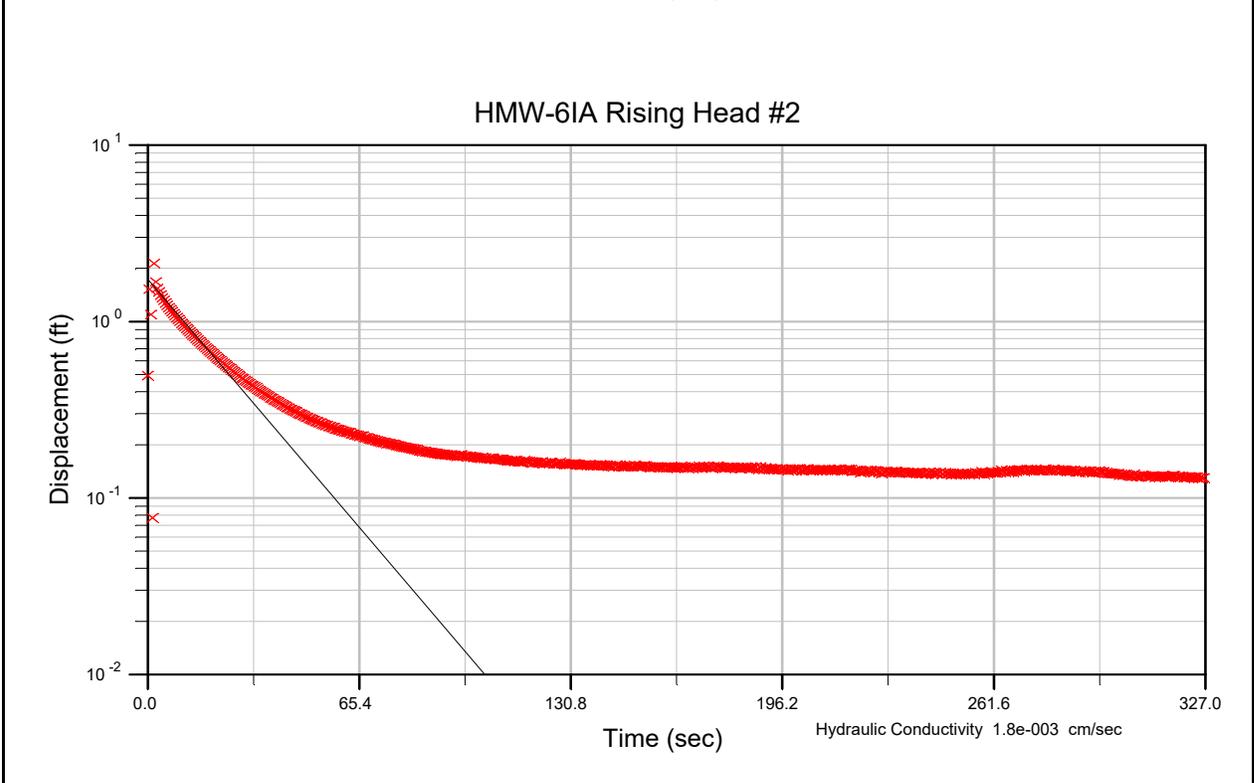
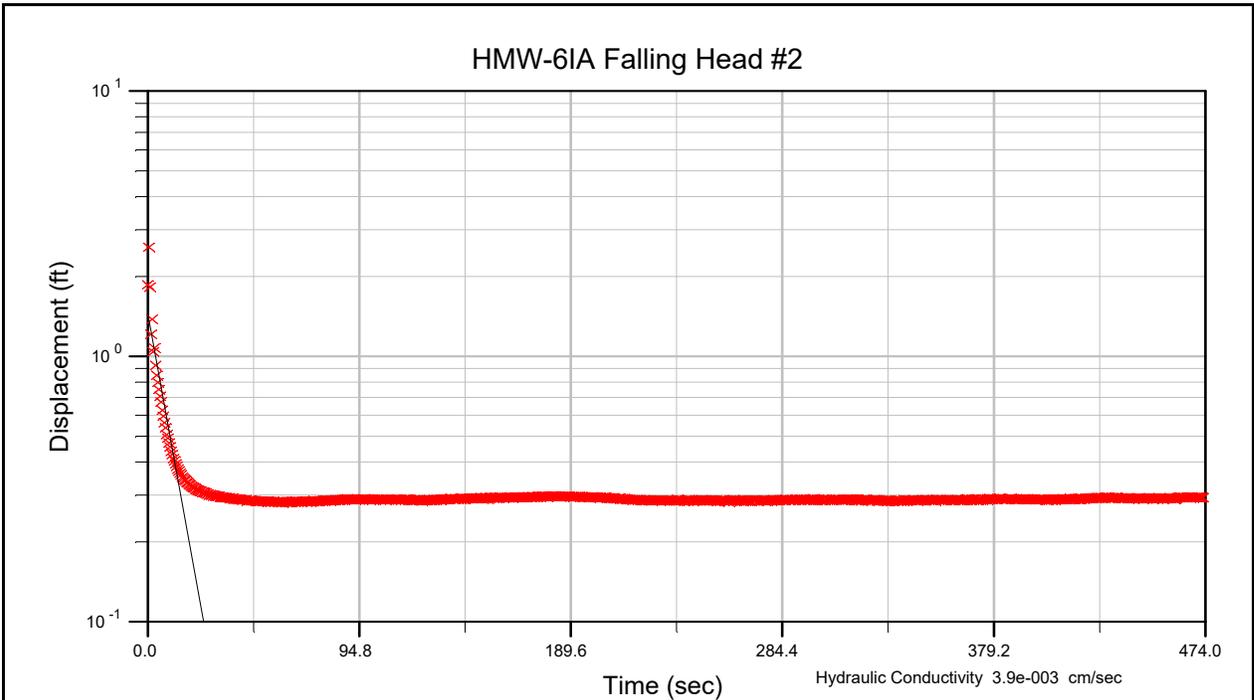
**B-16**



A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
 Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Board Block Site Seattle, Washington	
<b>HMW-51B Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-17</b>



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Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

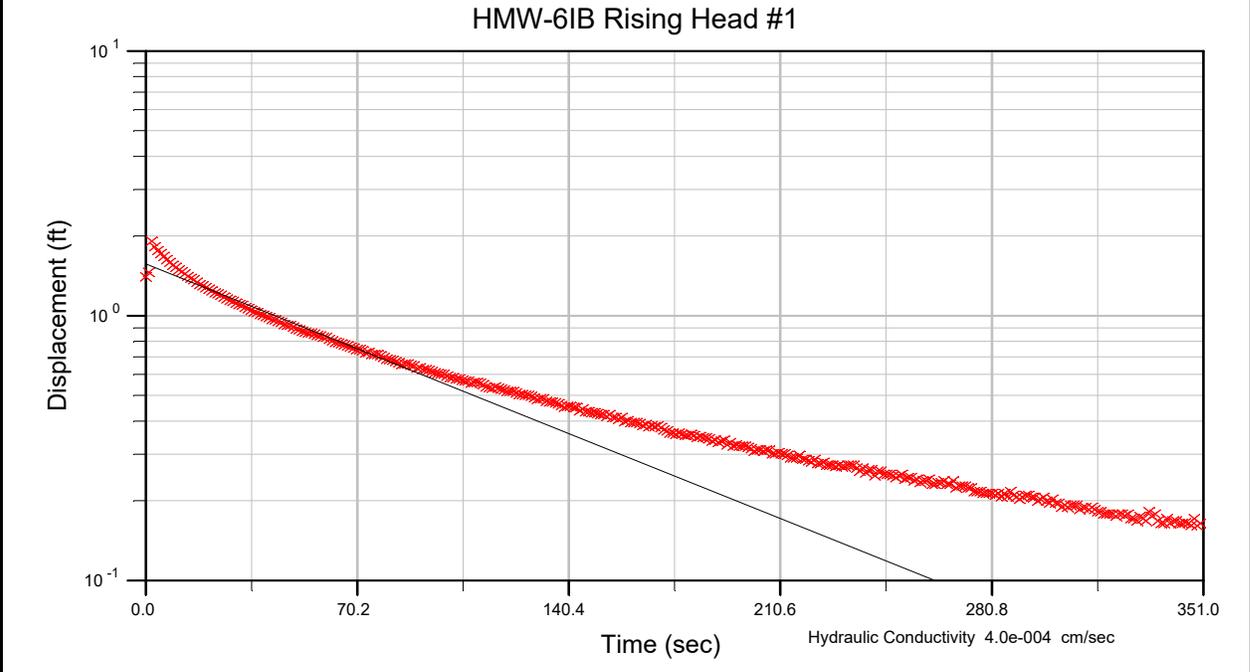
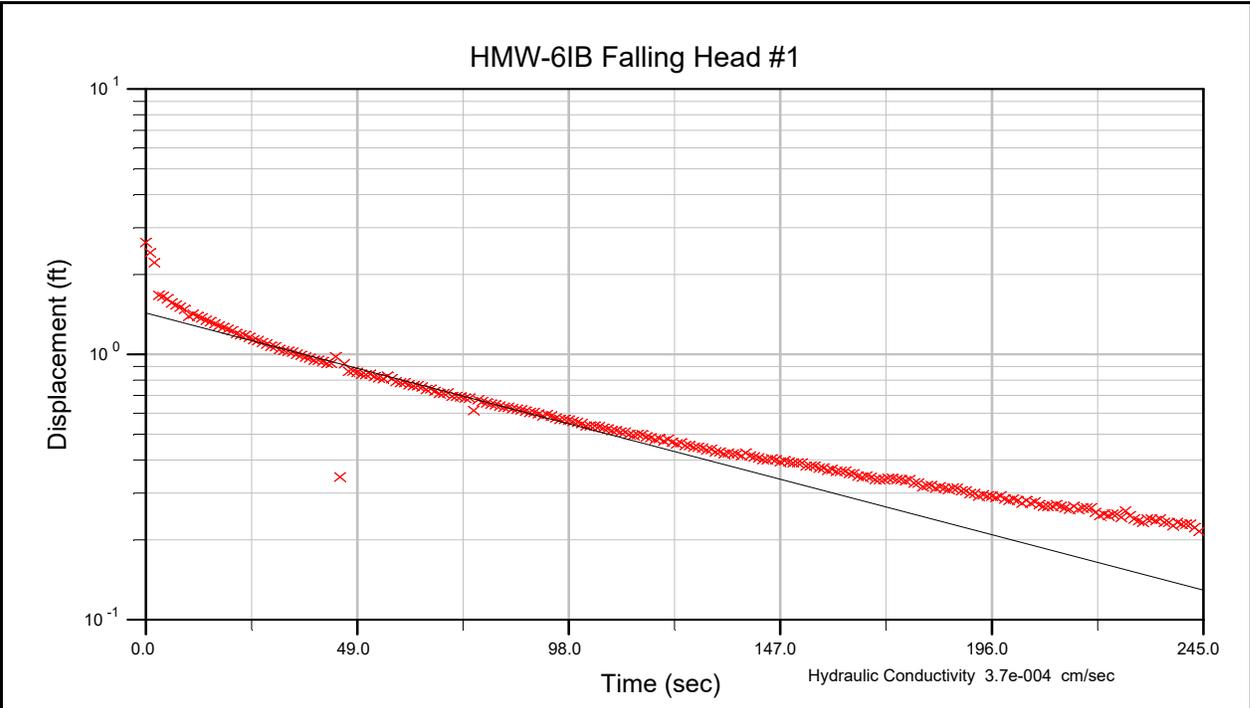
**HMW-6IA Representative  
Slug Test Results**

19409-0406/21



Figure  
**B-18**

AUG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test



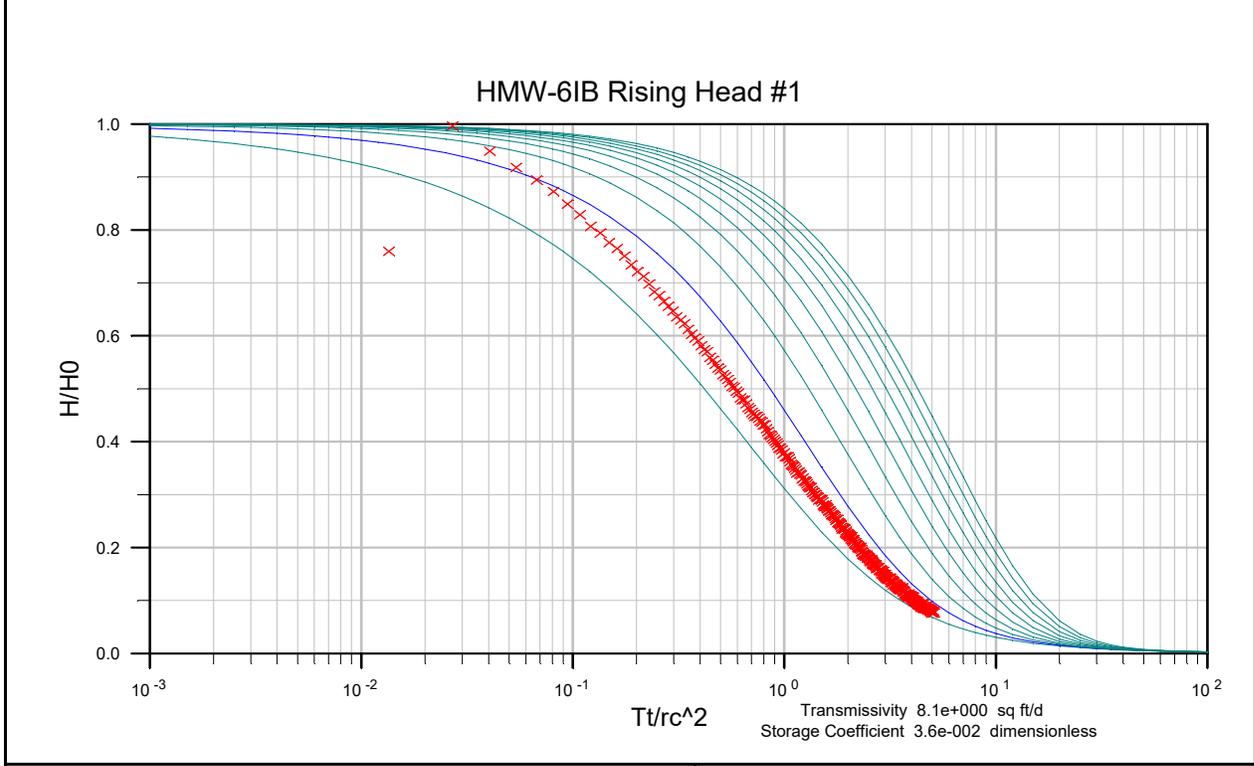
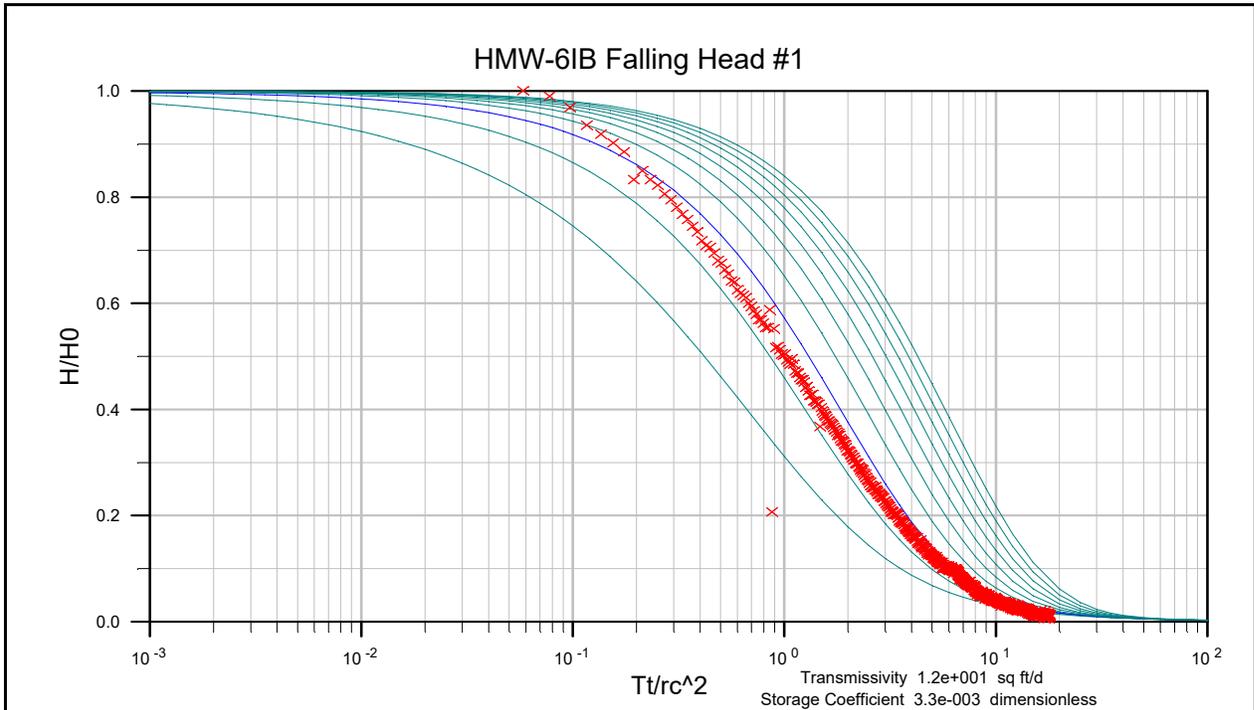
Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-6IB Representative  
Slug Test Results (Bouwer and Rice)**  
19409-04 06/21



Figure  
**B-19**



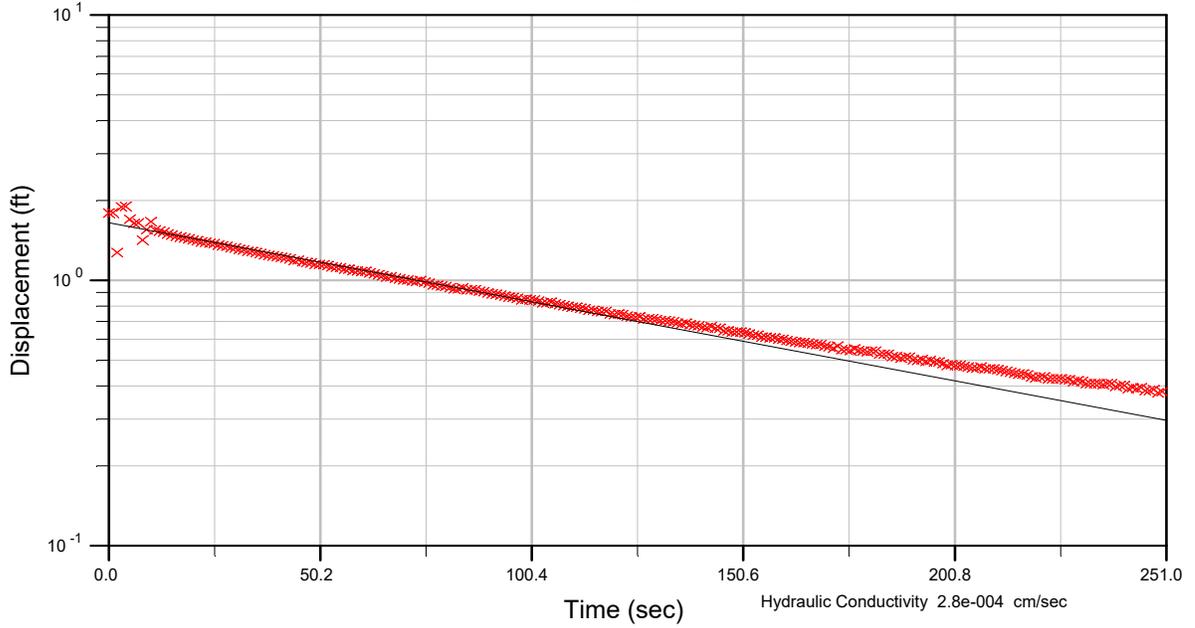
A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

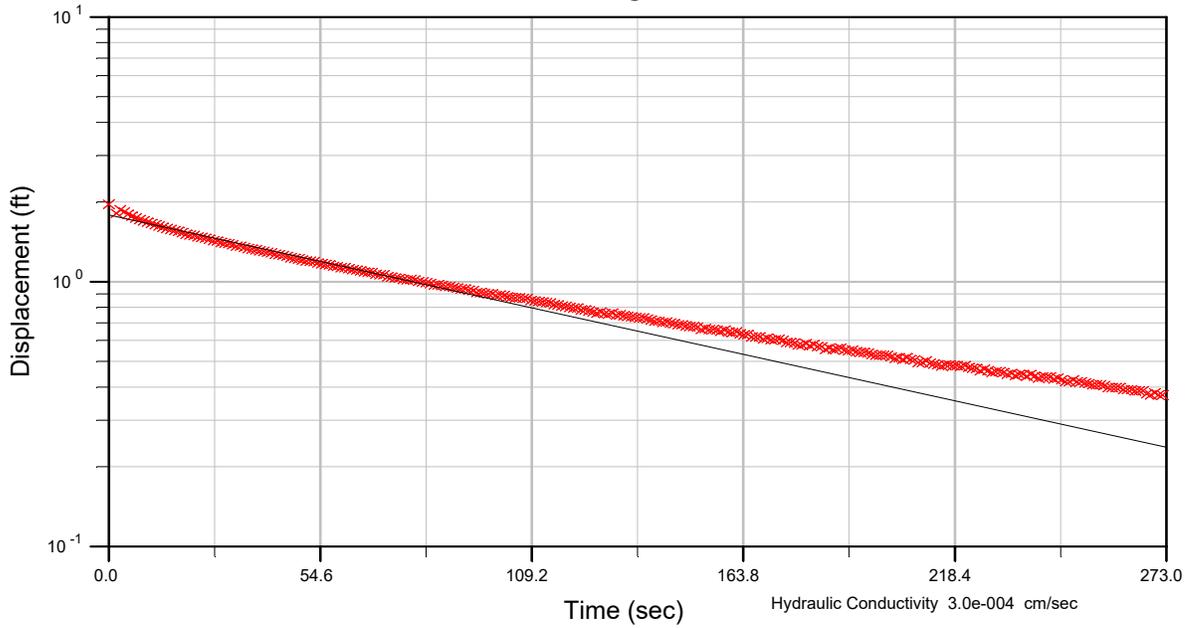
Board Block Site Seattle, Washington	
<b>HMW-6IB Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-20</b>

AUG 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

HMW-6D Falling Head #1



HMW-6D Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-6D Representative  
Slug Test Results (Bouwer and Rice)**

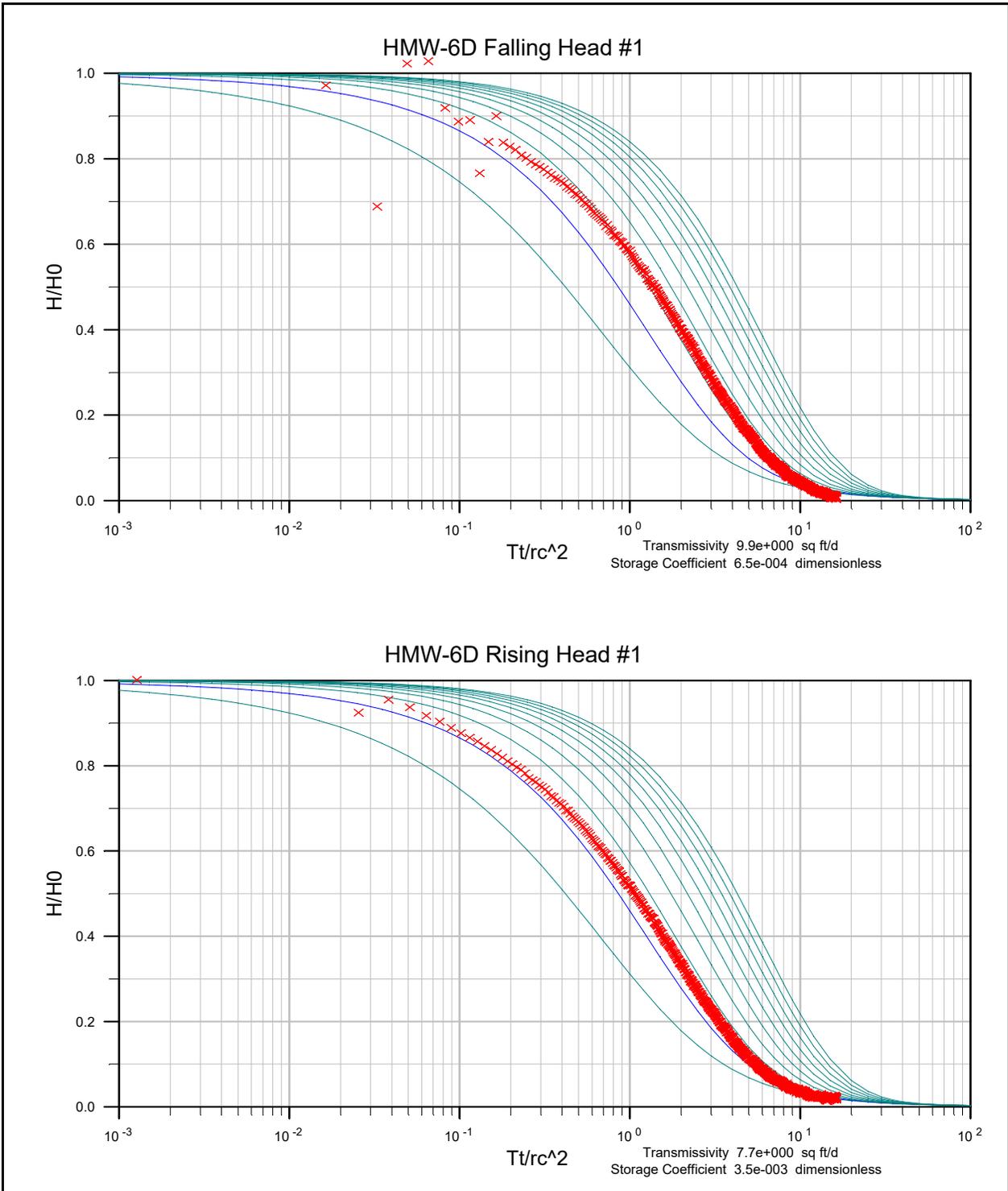
19409-04

06/21



Figure

**B-21**



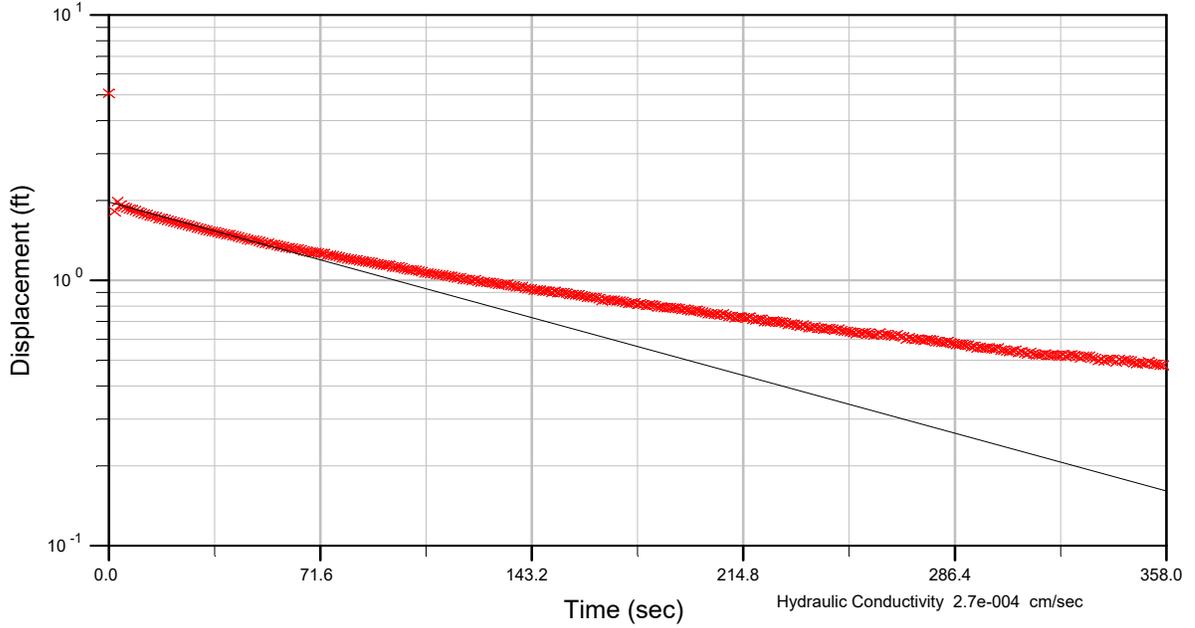
A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Cooper, Bredehoeft, and Papadopulos method was used for the slug test analysis.

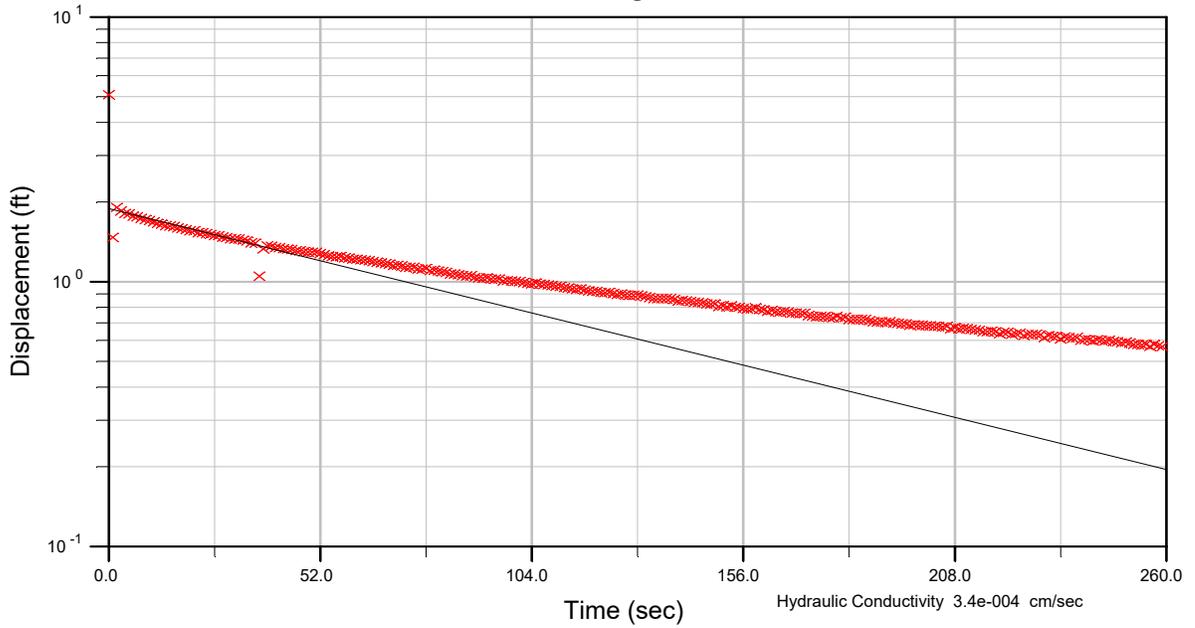
Board Block Site Seattle, Washington	
<b>HMW-6D Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-22</b>

A:\G 12\11\14 L:\Project\Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-7IB Falling Head #3



### HMW-7IB Rising Head #2



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-7IB Representative  
Slug Test Results (Bouwer and Rice)**

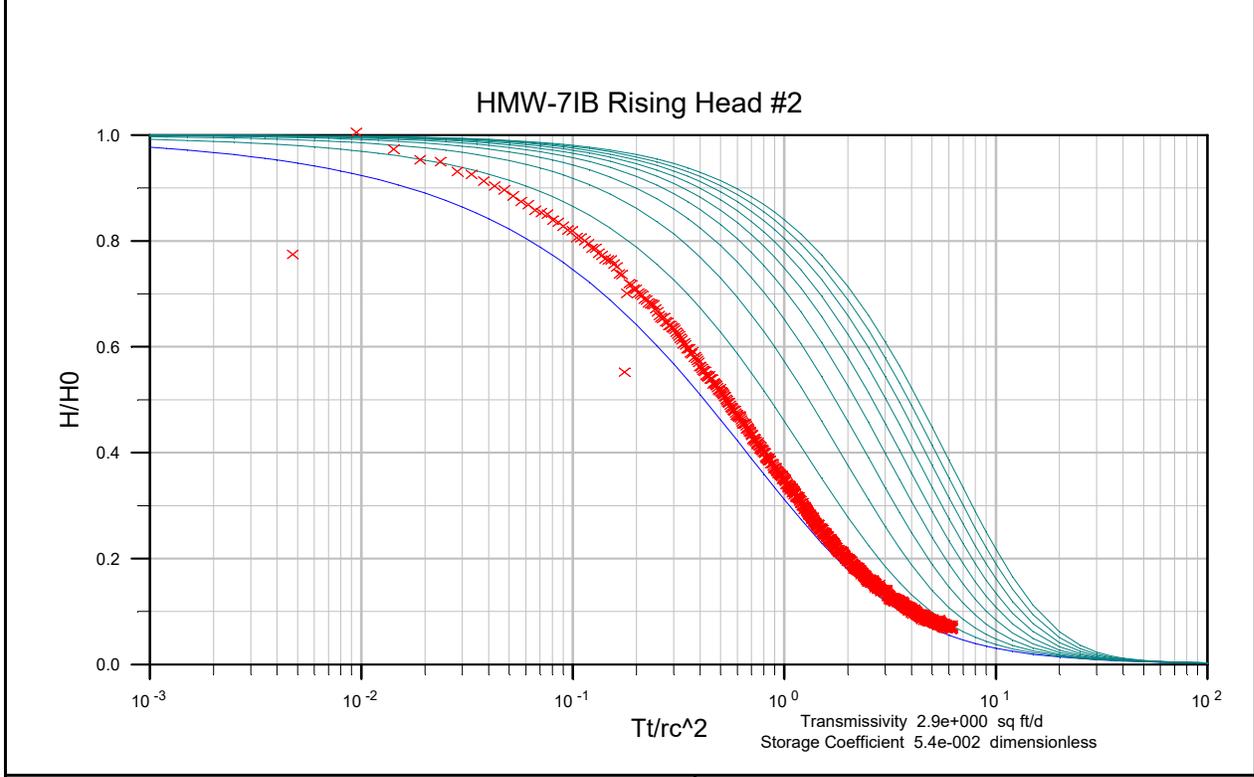
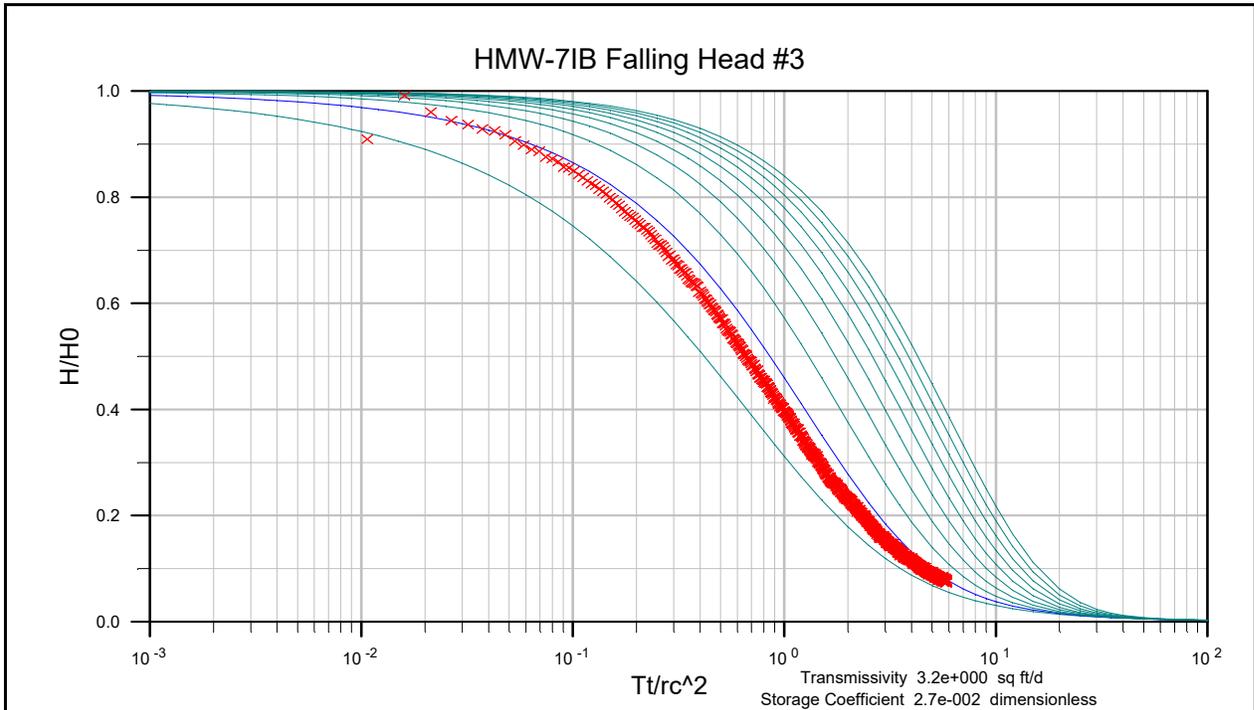
19409-04

06/21



Figure

**B-23**



A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-7IB Representative  
Slug Test Results (Cooper et al.)**

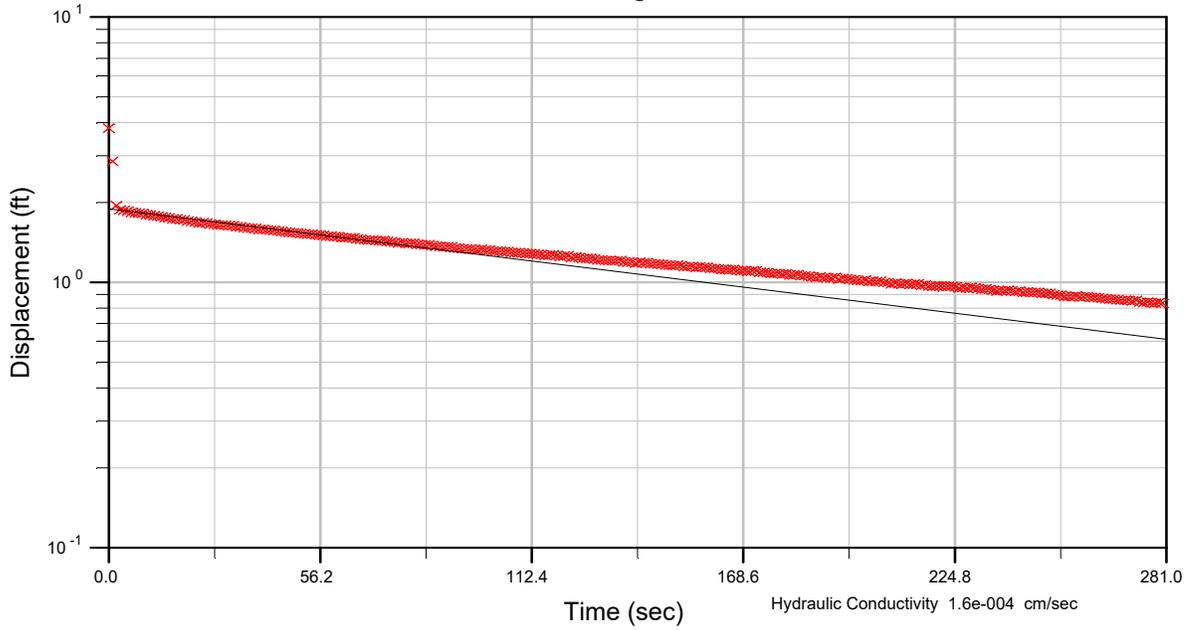
19409-04 06/21



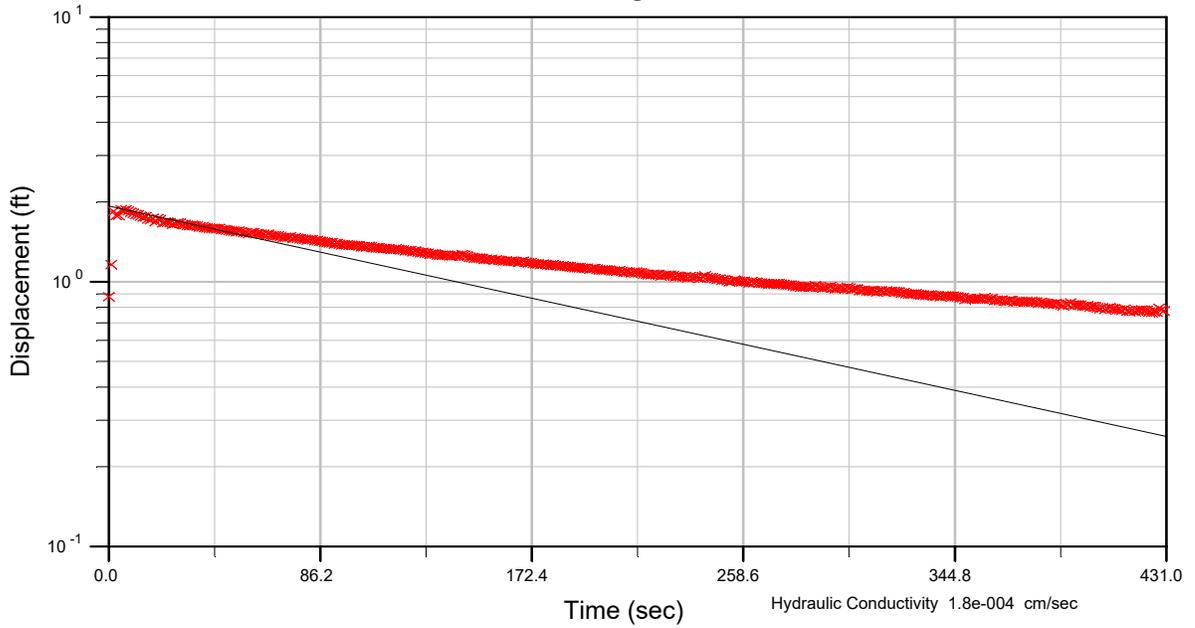
Figure  
**B-24**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-8IB Falling Head #1



### HMW-8IB Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-8IB Representative  
Slug Test Results (Bouwer and Rice)**

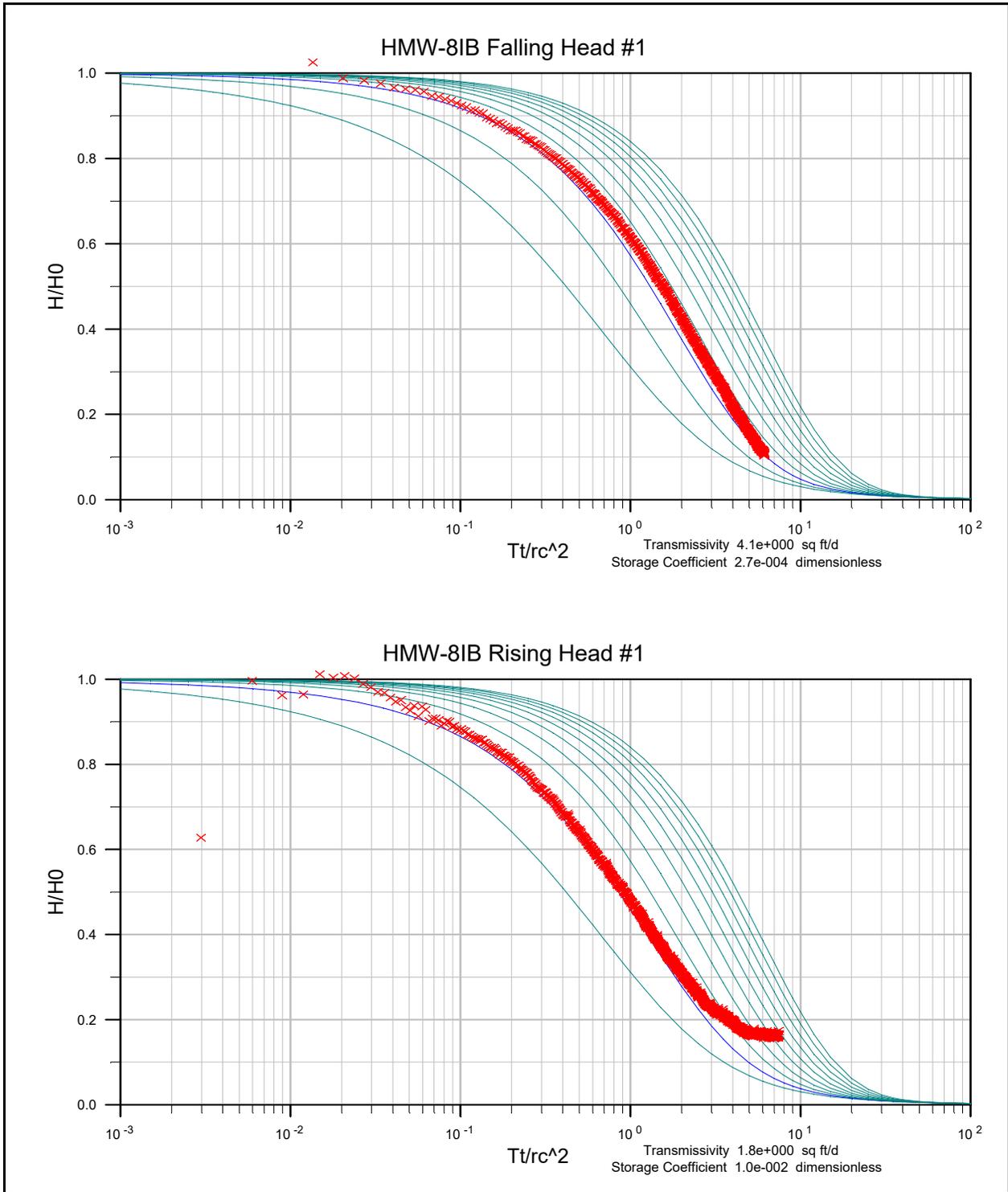
19409-04

06/21



Figure

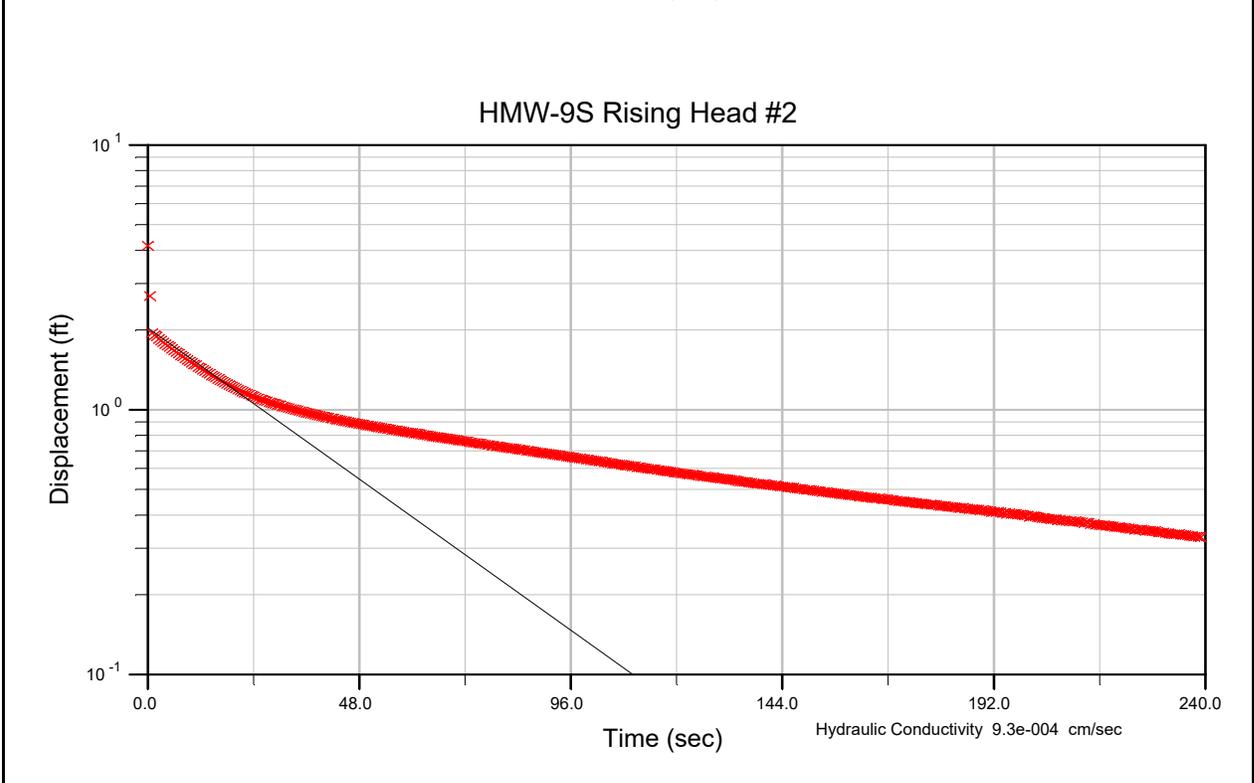
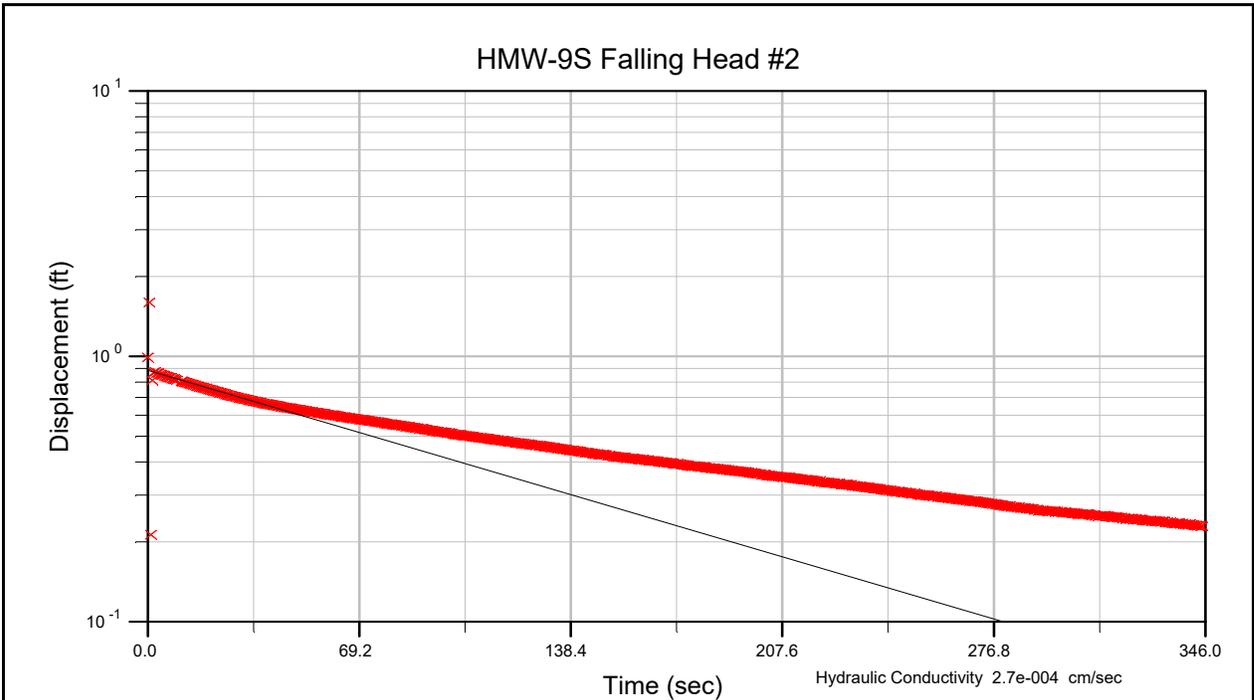
**B-25**



A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Board Block Site Seattle, Washington	
<b>HMW-8IB Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-26</b>



A:\G 12\11\14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-9S Representative  
Slug Test Results**

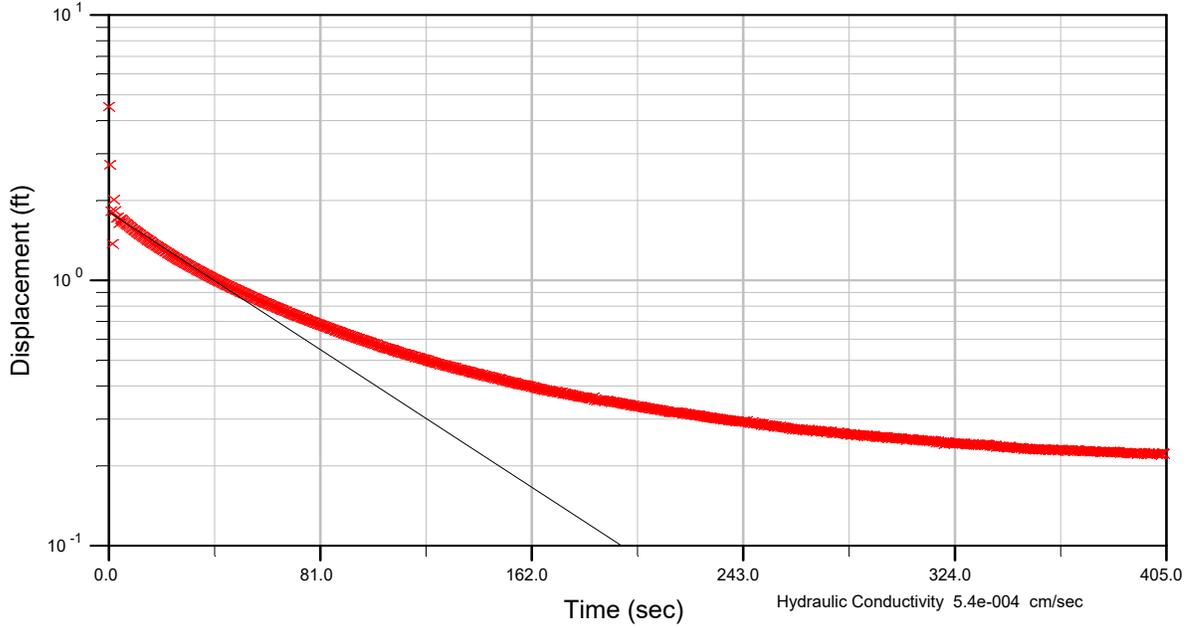
19409-04
06/21



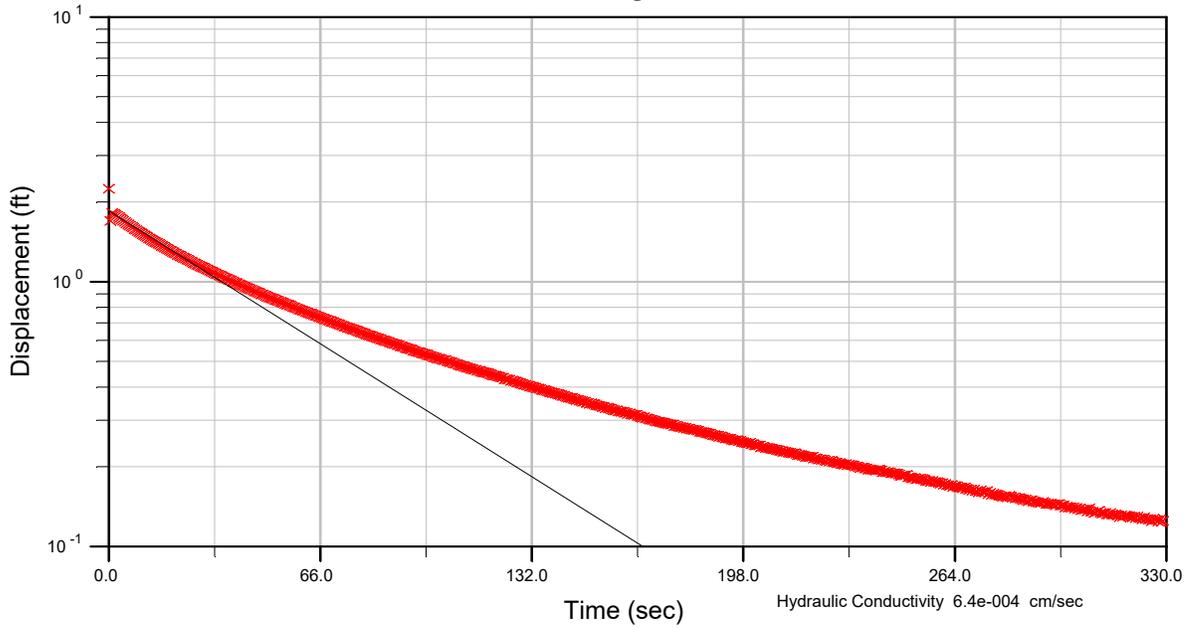
Figure  
**B-27**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-9IA Falling Head #1



### HMW-9IA Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-9IA Representative  
Slug Test Results**

19409-04

06/21

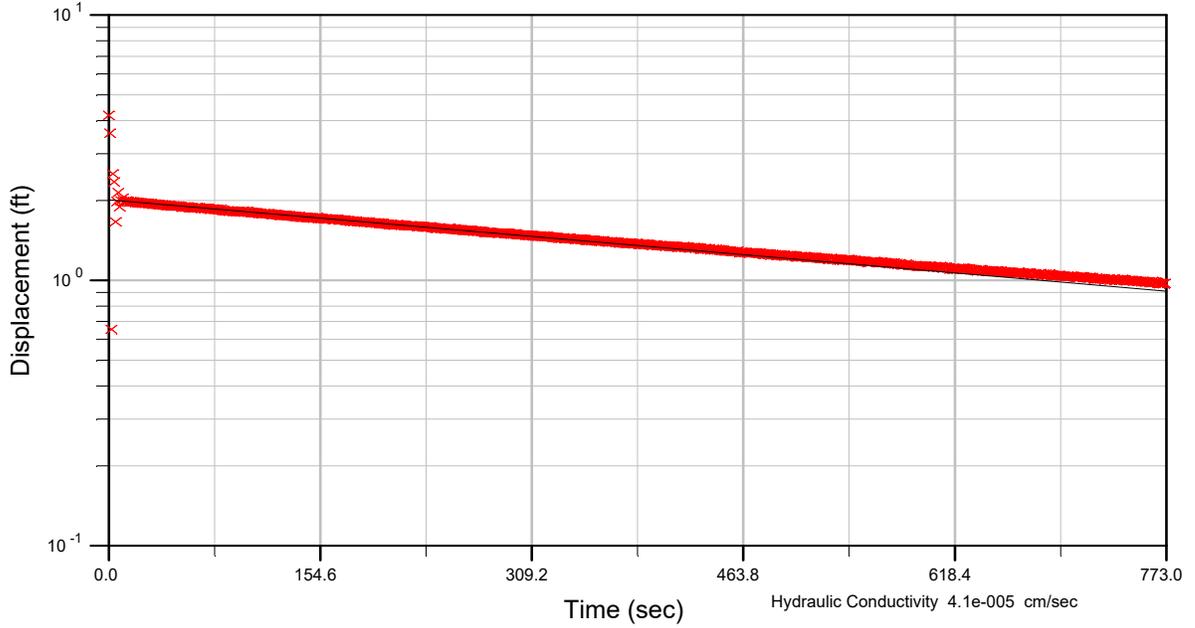


Figure

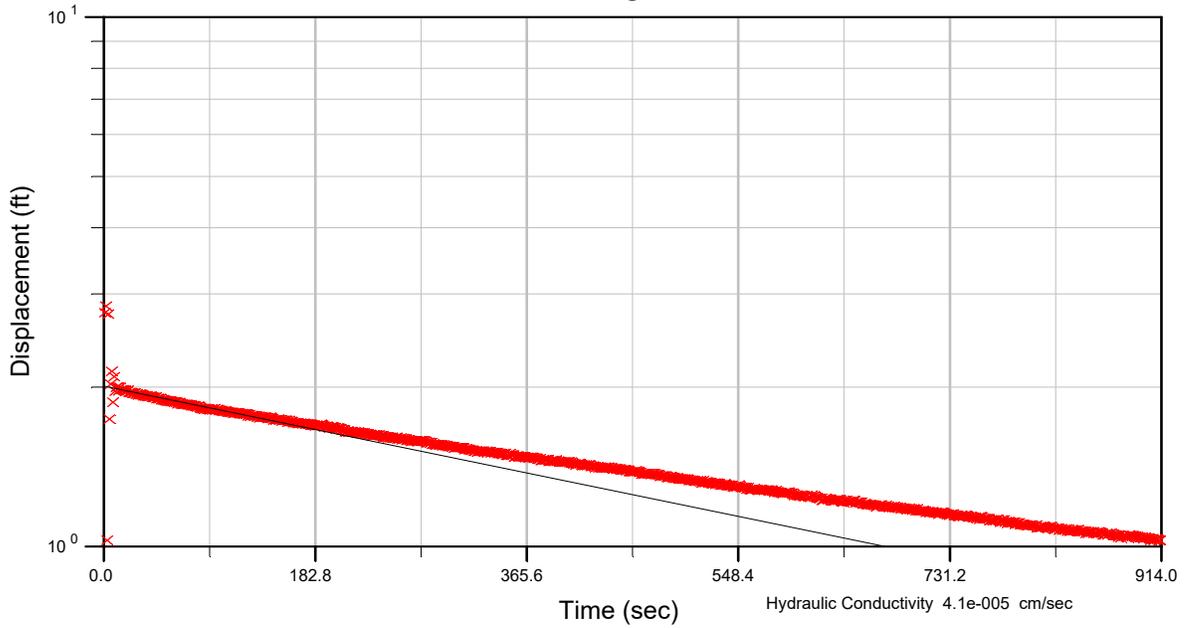
**B-28**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-9IB Falling Head #2



### HMW-9IB Rising Head #2



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

#### HMW-9IB Representative Slug Test Results (Bouwer and Rice)

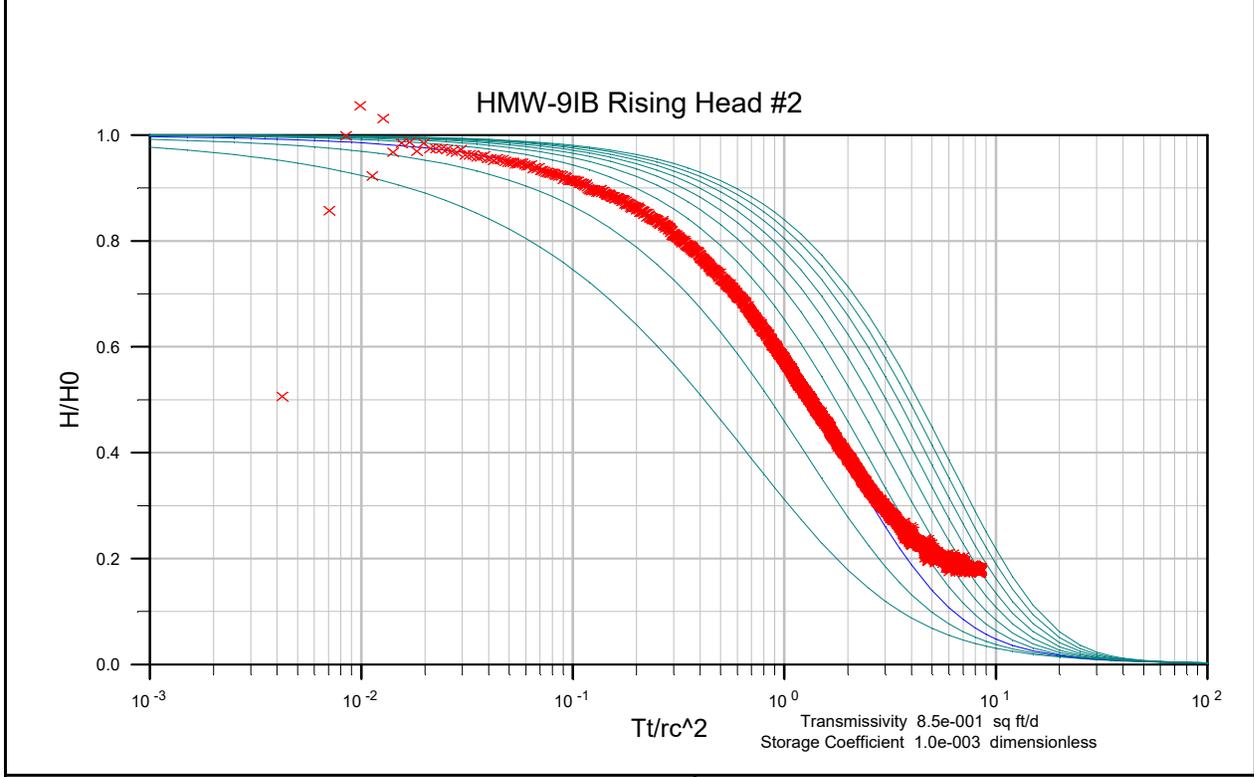
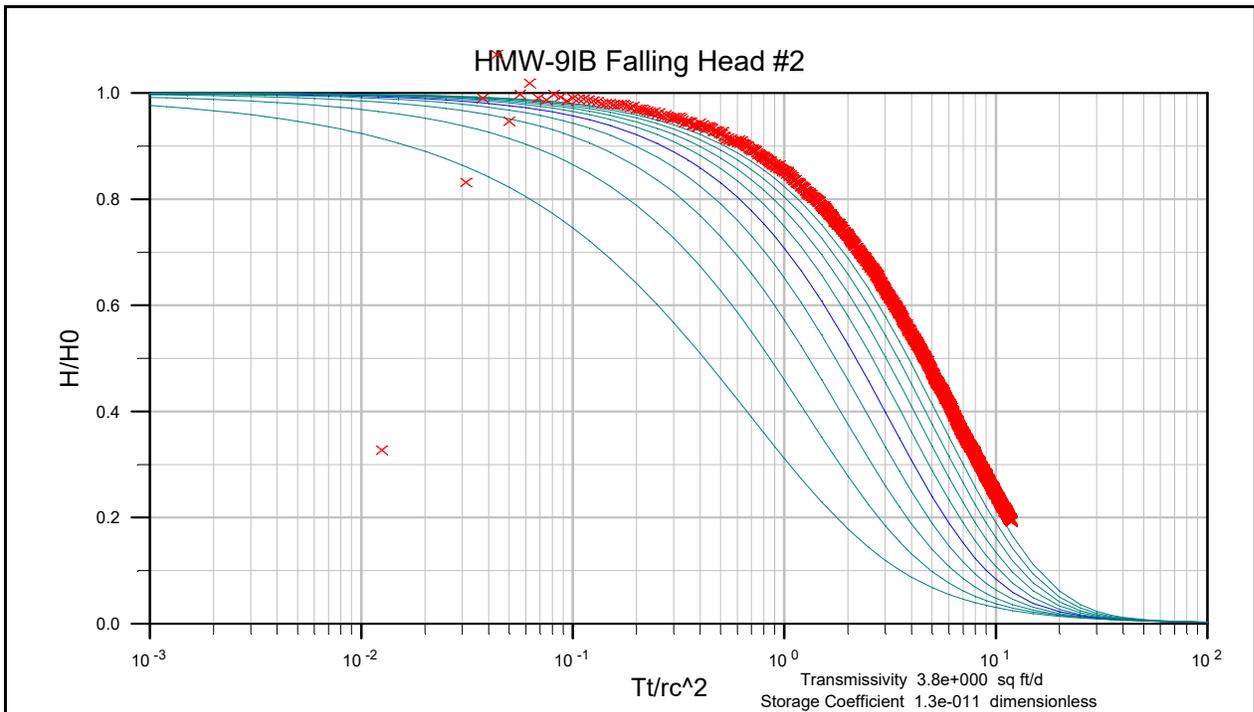
19409-04

06/21



Figure

**B-29**



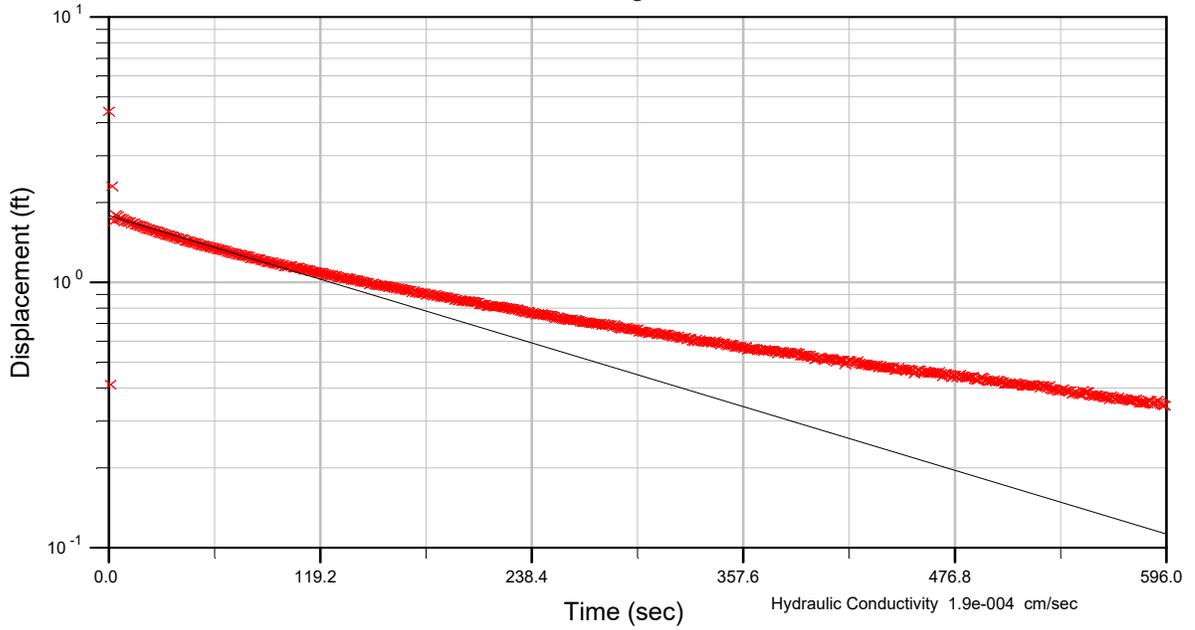
A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

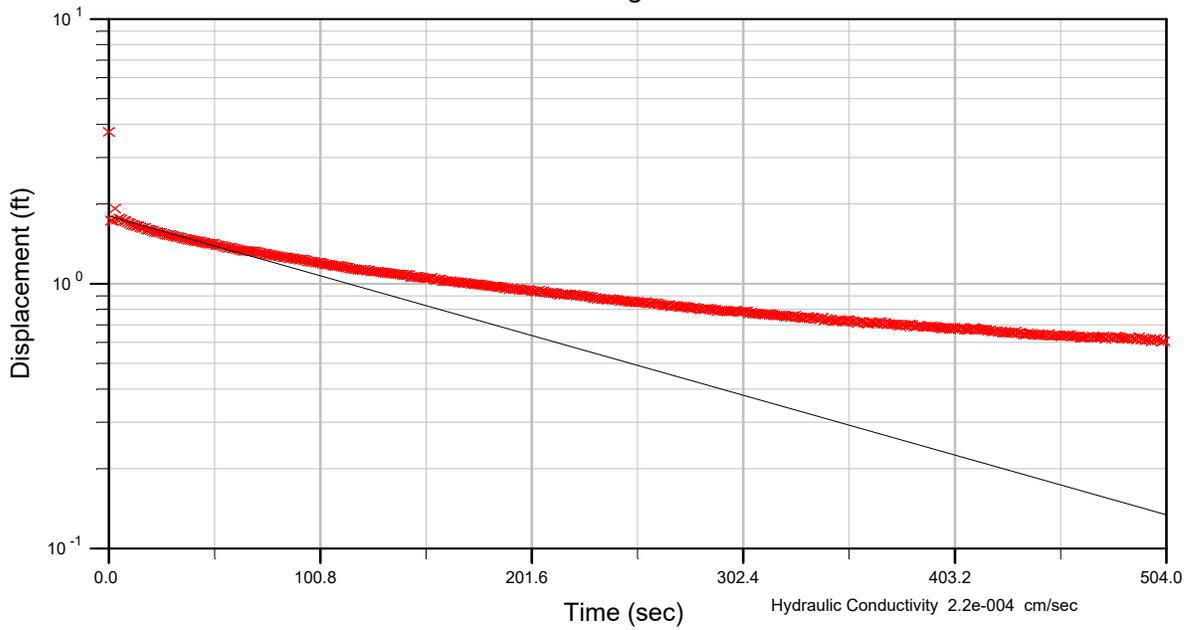
Board Block Site Seattle, Washington	
<b>HMW-91B Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-30</b>

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-9D Falling Head #1



### HMW-9D Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

**HMW-9D Representative  
Slug Test Results (Bouwer and Rice)**

19409-04

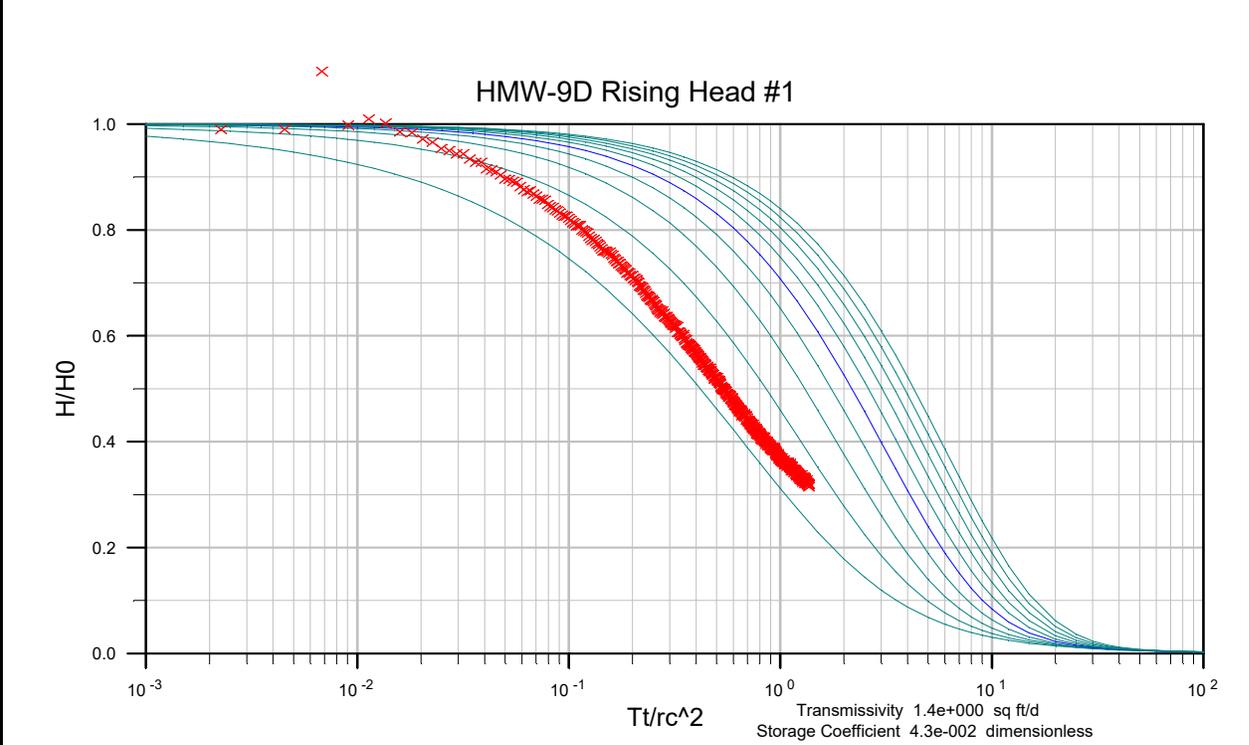
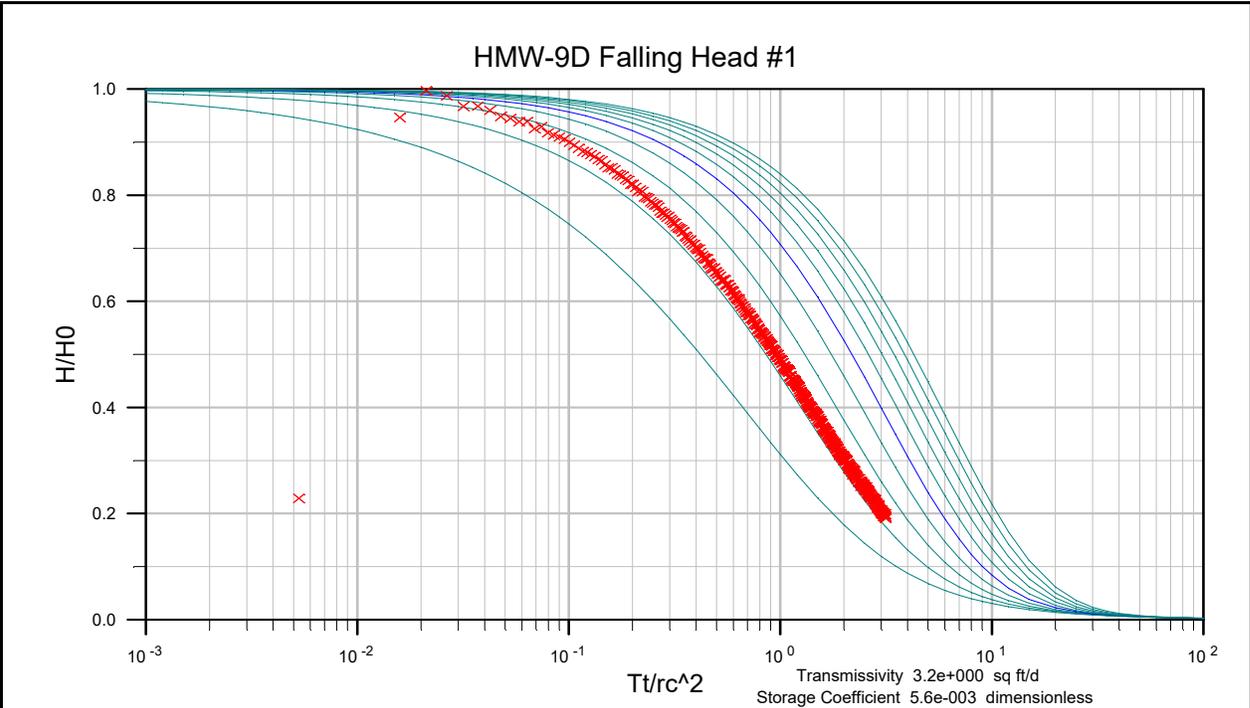
06/21



Figure

**B-31**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test



Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

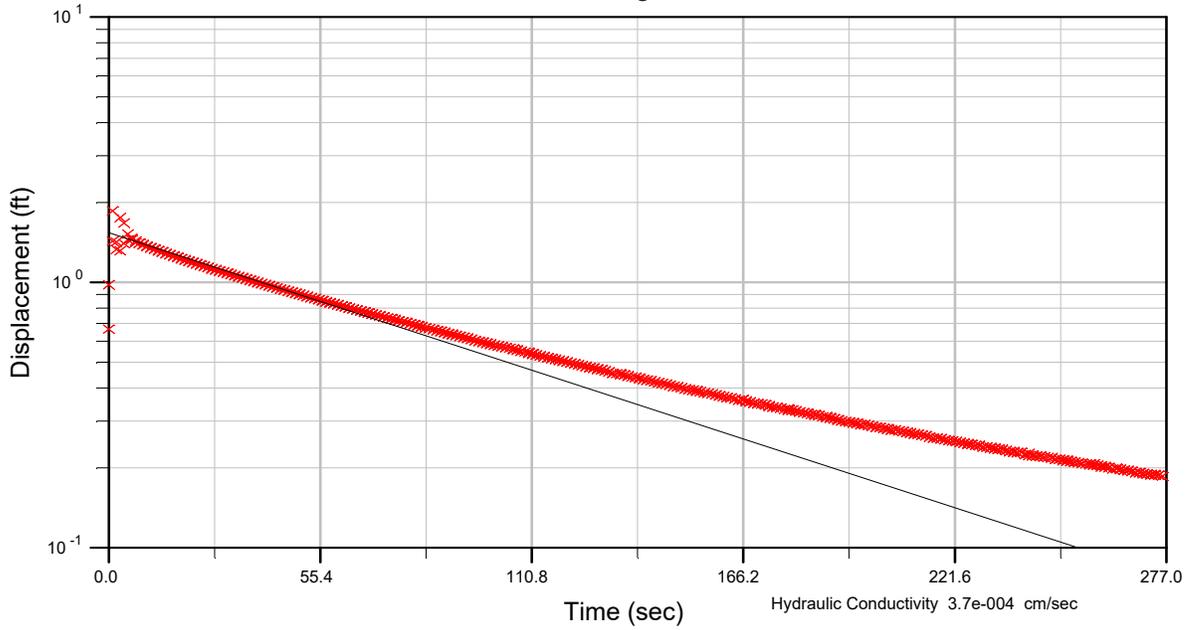
**HMW-9D Representative  
Slug Test Results (Cooper et al.)**  
19409-04 06/21



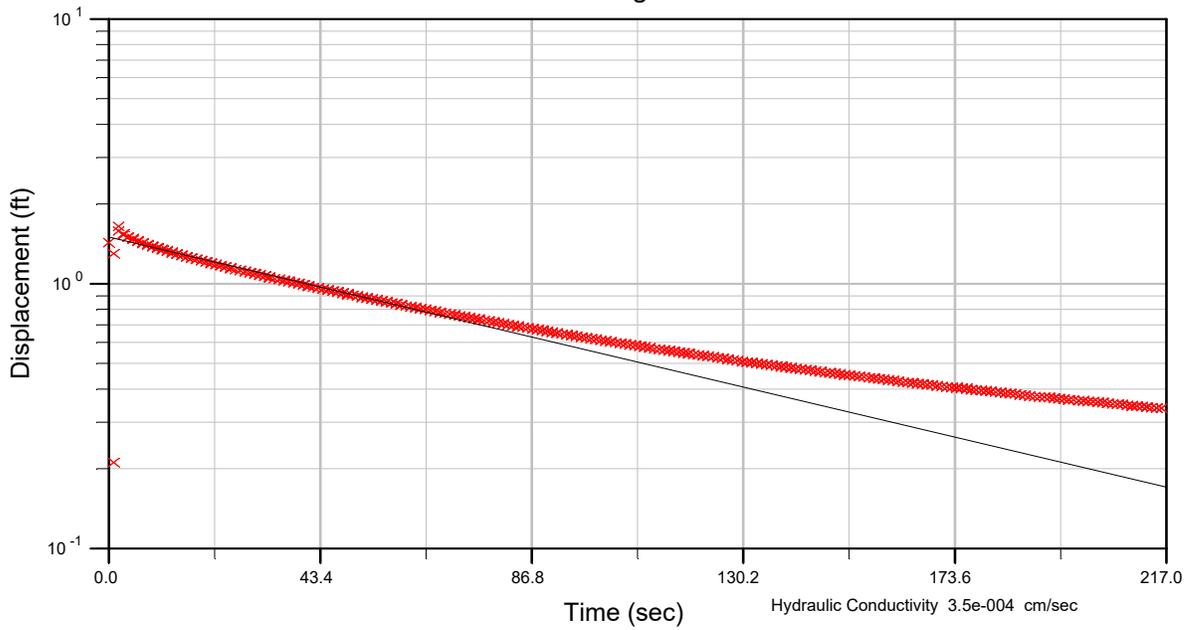
Figure  
**B-32**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

### HMW-10S Falling Head #1



### HMW-10S Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Board Block Site  
Seattle, Washington

#### HMW-10S Representative Slug Test Results

19409-04

06/21

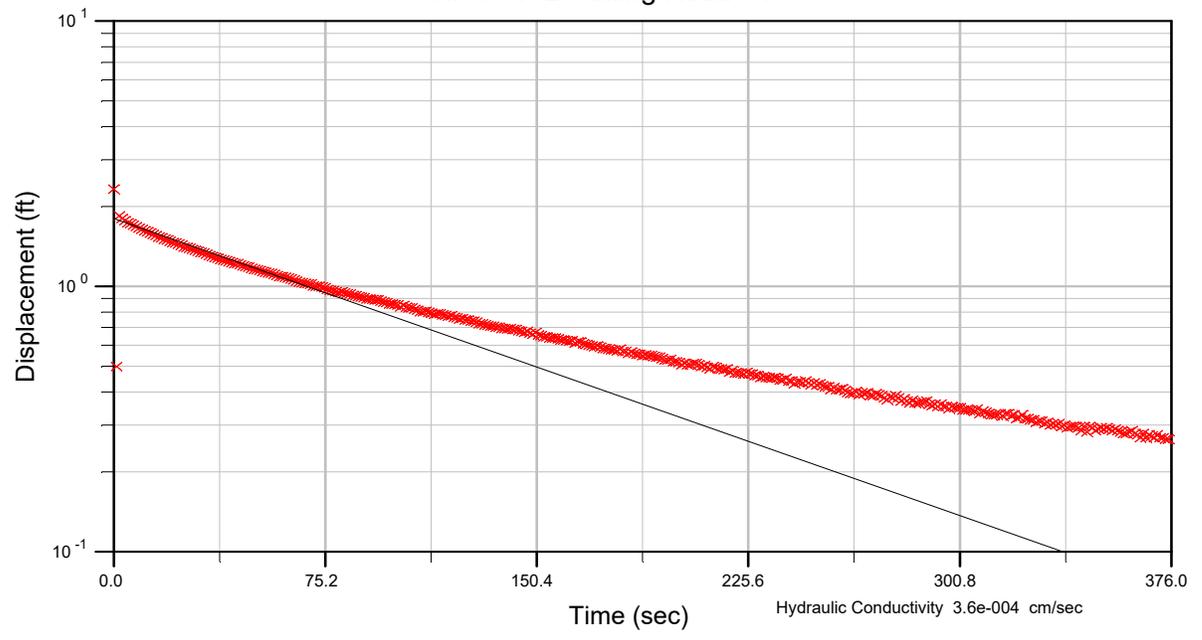


Figure

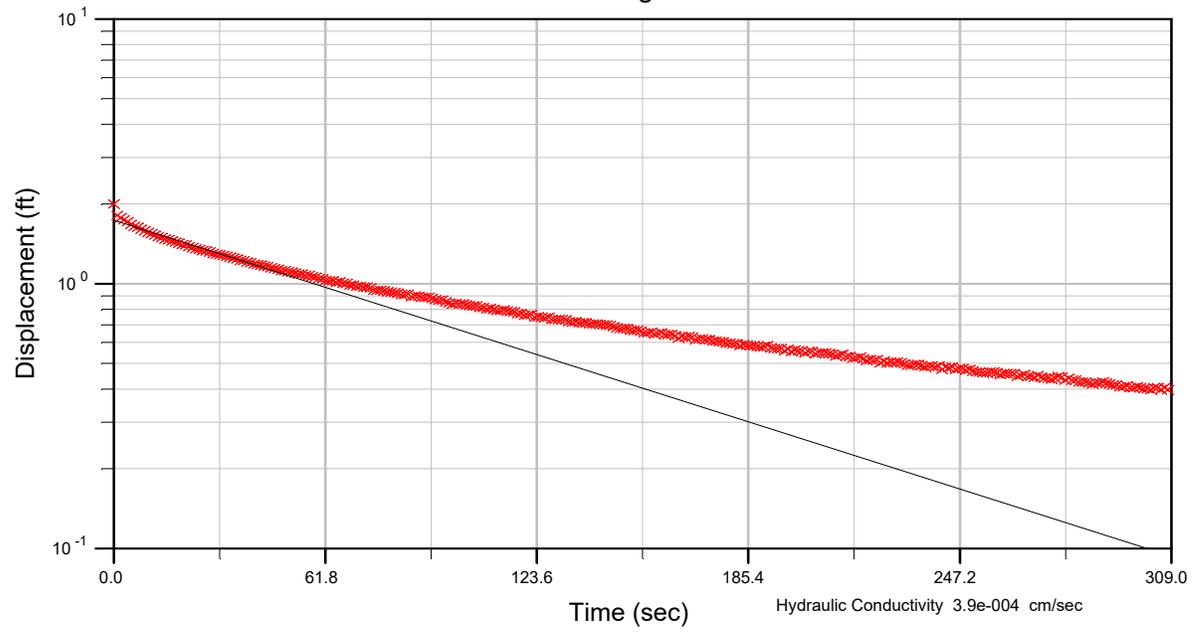
**B-33**

A:\G 12\11\14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

HMW-10D Falling Head #1



HMW-10D Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Broad Block Site  
Seattle, Washington

**HMW-10D Representative  
Slug Test Results (Bouwer and Rice)**

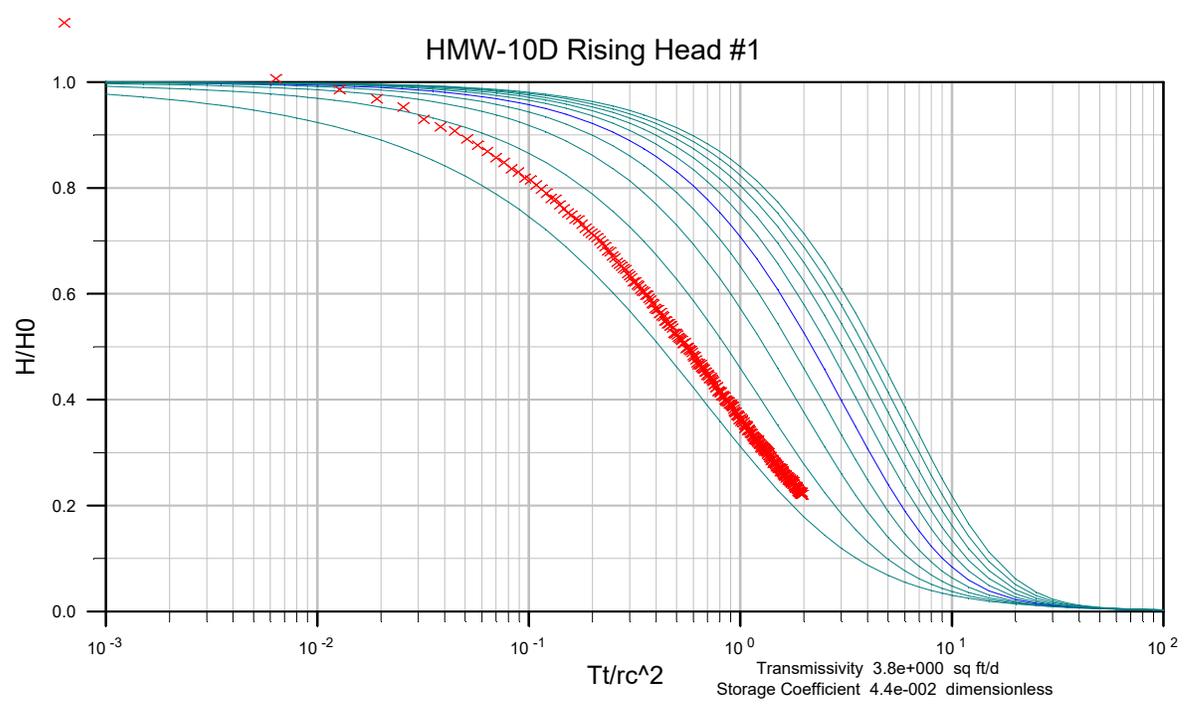
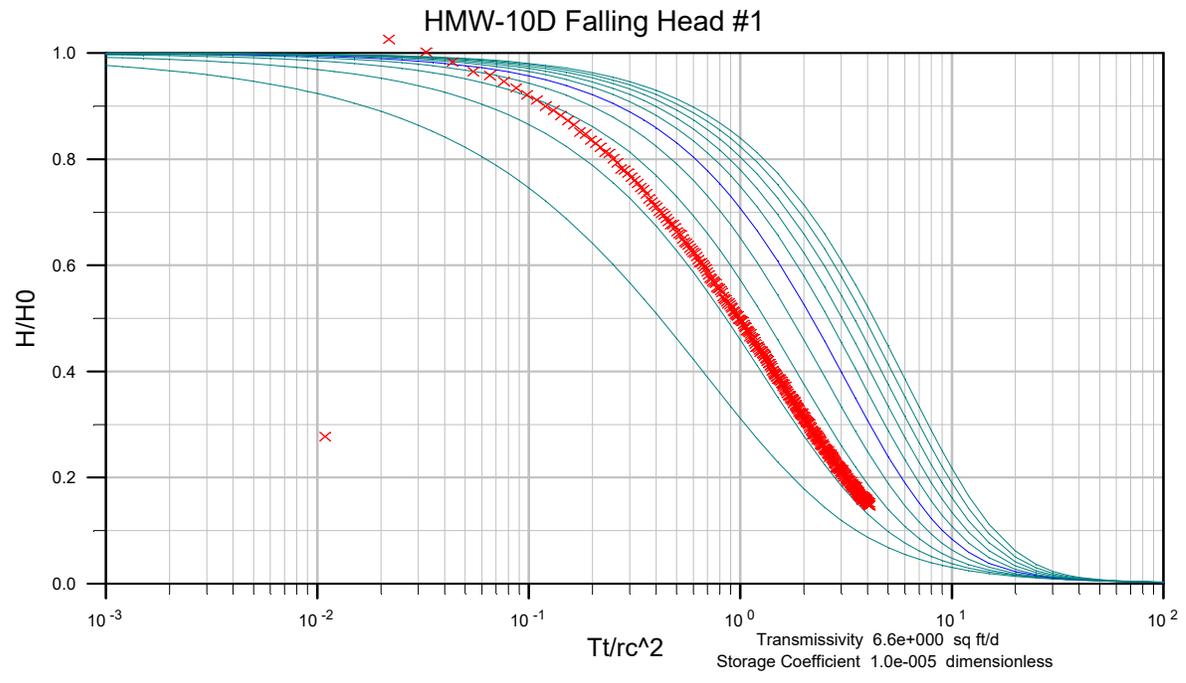
19409-04

06/21



Figure  
**B-34**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

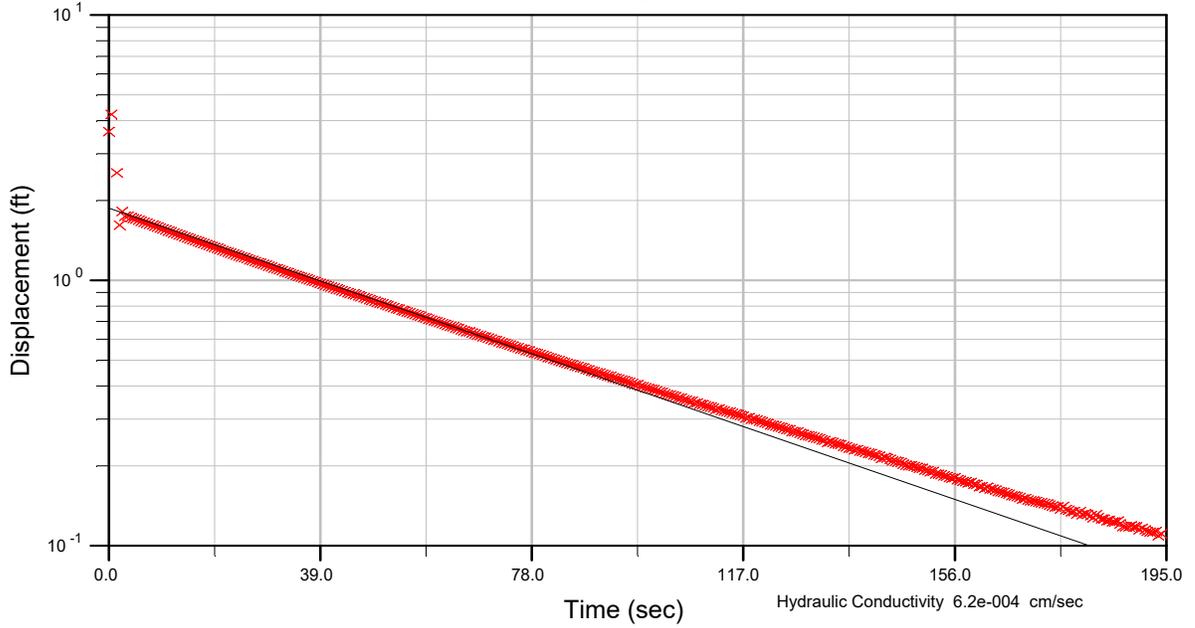


Note:  
Cooper, Bredehoeft, and Papadopoulos method was used  
for the slug test analysis.

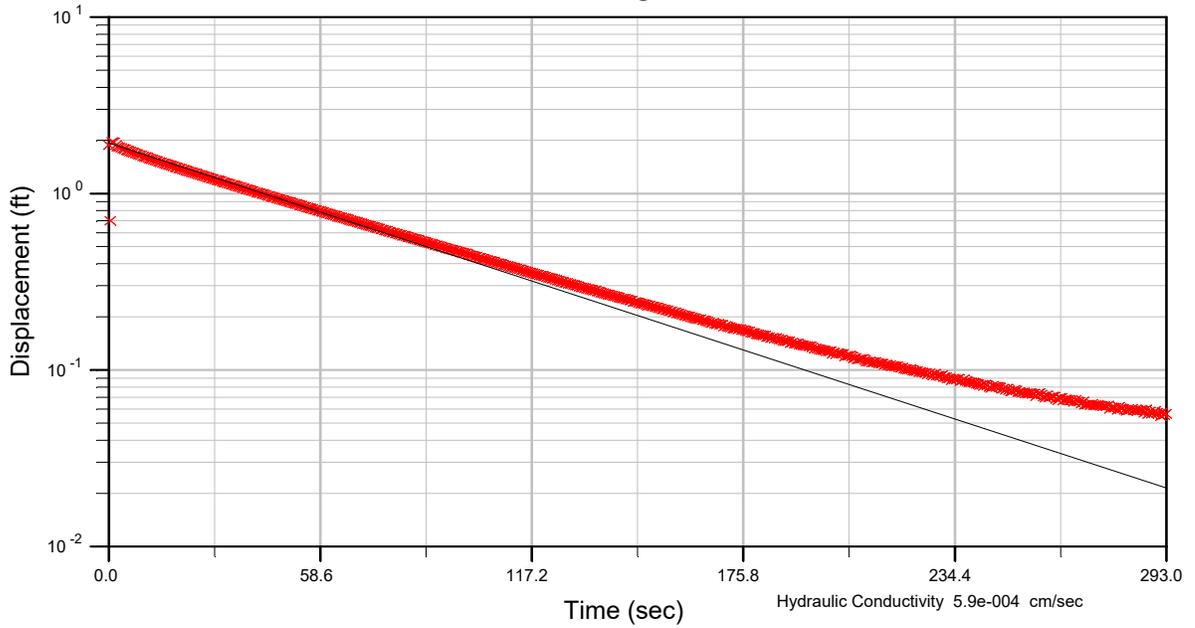
Broad Block Site Seattle, Washington	
<b>HMW-10D Representative Slug Test Results (Cooper et al.)</b>	
19409-04	06/21
	Figure <b>B-35</b>

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test

HMW-11IB Falling Head #1



HMW-11IB Rising Head #1



Note:  
Bouwer and Rice method was used for the slug test analysis.

Broad Block Site  
Seattle, Washington

**HMW-11IB Representative  
Slug Test Results (Bouwer and Rice)**

19409-04

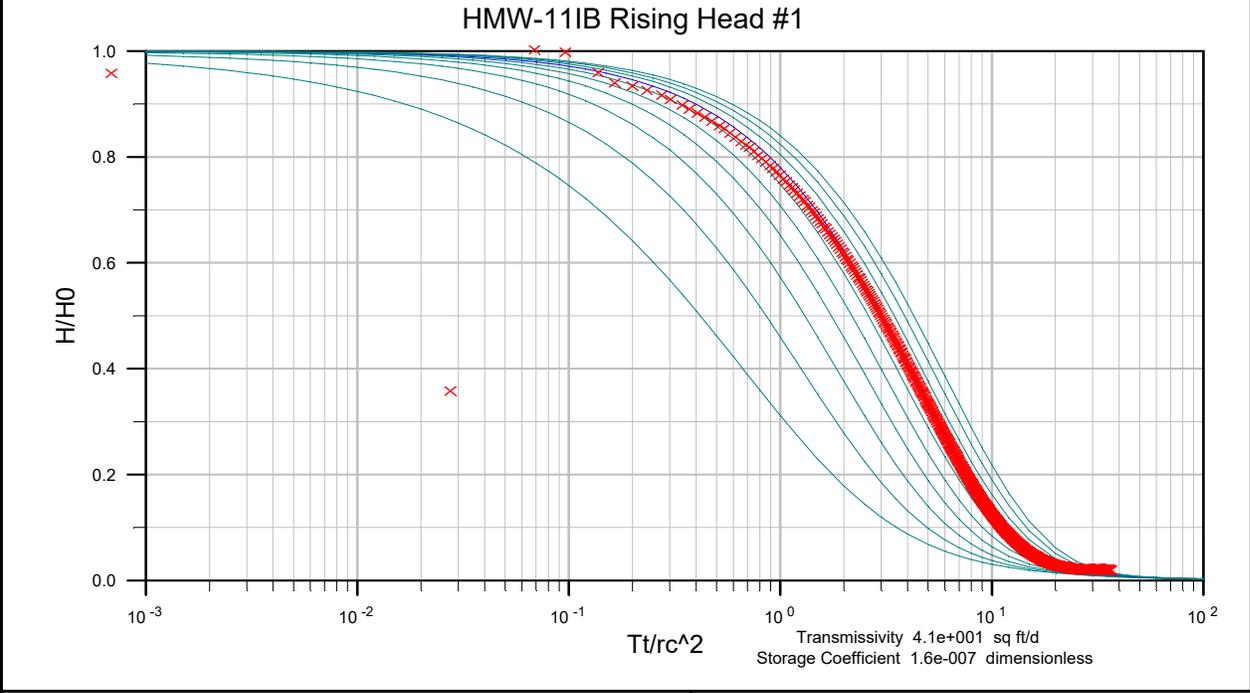
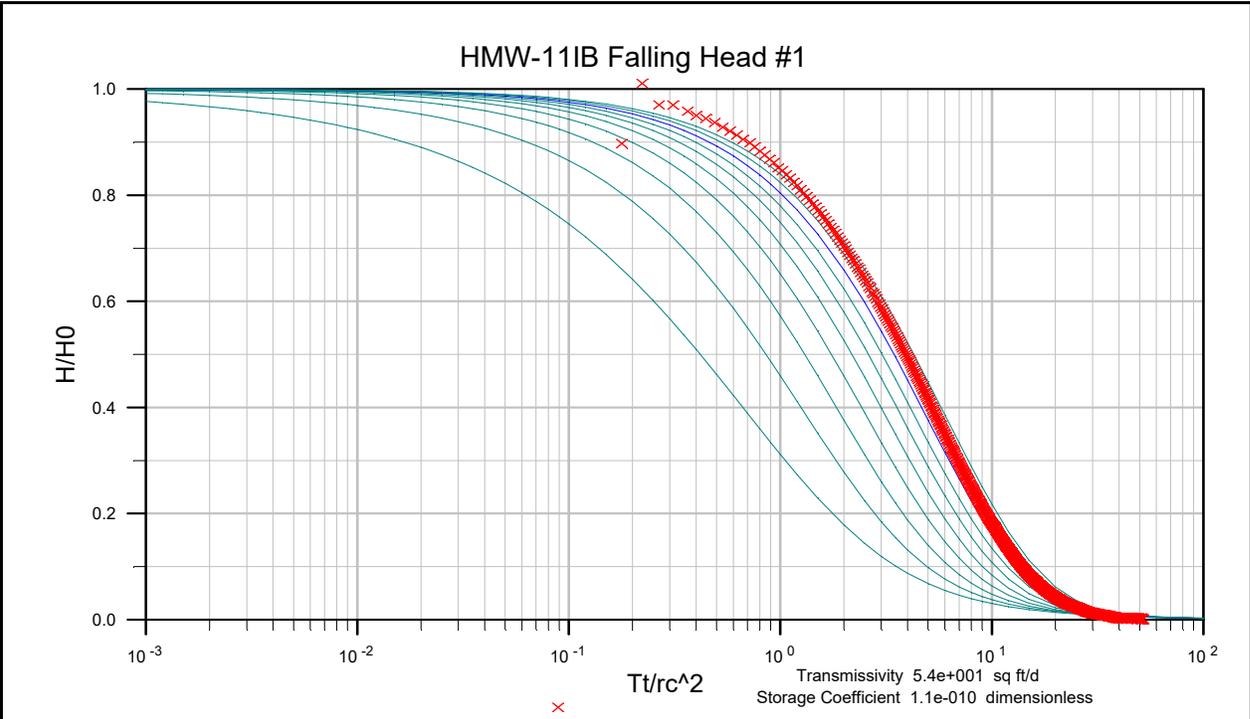
06/21



Figure

**B-36**

A:\G 12/11/14 L:\Project Notebook\1798401 Mercer Island Multi family\Slug-test Files\Slug Test



Note:  
Cooper, Bredehoeft, and Papadopoulos method was used for the slug test analysis.

Broad Block Site  
Seattle, Washington

**HMW-11IB Representative  
Slug Test Results (Cooper et al.)**

19409-04 06/21



Figure  
**B-37**

**APPENDIX C1**  
**Laboratory Reports and Data Validation Summaries**  
**(2019-2020 Investigations)**

# **APPENDIX C1**

## **LABORATORY REPORTS AND DATA VALIDATION**

### **SUMMARIES (2019-2020 INVESTIGATION)**

#### **Data Validation Summary**

Soil, grab groundwater, and monitoring well groundwater samples were collected between March 4 and March 20, 2019, February 24 and March 19, 2020, September 1 through 21, 2020, and October 29 through November 10, 2020. The soil and water samples collected in 2019 were submitted to Advanced Analytical Laboratory (AAL) of Redmond, Washington, for chemical analysis of organic and conventional parameters. Soil and groundwater samples collected in 2019 were submitted to OnSite Environmental Inc. (OnSite) of Redmond, Washington, for chemical analysis of metals. Soil and groundwater samples collected in 2020 were submitted to Friedman and Bruya Inc. (F&BI) of Seattle, Washington, for chemical analysis.

AAL reported results as Job Numbers C90305-1, C90307-1, C90309-3, C90309-4, C90314-1, C90315-2, C90318-3, and C90325-3. OnSite reported results as Laboratory Reference Numbers 1903-061, 1903-061B, 1903-097, 1903-097B, 1903-098, 1903-137, 1903-148, 1903-148B, 1903-161, 1903-161B, and 1903-216. F&BI reported results as Reference Numbers 002353, 002397, 002417, 002445, 002468, 003022, 003038, 003079, 003120, 003160, 003138, 003203, 003233, 003245, 003271, 003285, 003357, 009027, 009053, 009085, 009135, 009154, 009184, 009292, 009134, 009346, 009365, 010542, 010581, 011003, 011044, and 011180.

Soil samples were analyzed for one or more of the following:

- Total petroleum hydrocarbons as diesel- and lube-oil-range organics (DRO and HO, respectively) by Washington State Department of Ecology (Ecology) Method NWTPH-Dx.
- Total petroleum hydrocarbons as gasoline-range organics (GRO) by Ecology Method NWTPH-Gx.
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D-SIM.
- Total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and/or silver) by EPA Method 6010D/6020B.
- Total mercury by EPA Method 7471B.
- Volatile organic compounds (VOCs) by EPA Method 8260B/8260D/8021B.
- Polychlorinated biphenyls (PCBs) by EPA Method 8082A.
- Total solids by Standard Method (SM) 2540B.

Water samples were analyzed for one or more of the following:

- DRO and HO by Ecology Method NWTPH-Dx.
- GRO by Ecology Method NWTPH-Gx.
- PAHs by EPA Method 8270D-SIM.

## C1-2 | Laboratory Reports and Data Validation Summaries (2019-2020 Investigation)

- Total and dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and/or silver) by EPA Method 200.8/6020B.
- Total and dissolved mercury by EPA Method 7470A.
- VOCs by EPA 8260B/8260D/8021B.
- Total suspended solids (TSS) by SM 2540D.

The laboratory performed ongoing quality assurance/quality control (QA/QC) reviews. Hart Crowser reviewed summary reports to check that they met data quality objectives for the project.

The following criteria were evaluated during the standard data quality review process:

- Holding times.
- Reporting limits.
- Method blanks.
- Trip blanks.
- Surrogate recoveries.
- Laboratory and field duplicate relative percent differences (RPDs).
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries and RPDs.
- Spike blank/spike blank duplicate (SB/SBD) recoveries and RPDs.
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs.

The data were determined to be acceptable for use with qualifications. The complete laboratory reports are presented at the end of this appendix. The data review is summarized below.

### Reporting Limits

Reporting limits are set by the laboratories and are based on instrumentation abilities, sample matrix, and suggested reporting limits by EPA or Ecology. In some cases, the reporting limit is raised because of high analyte concentrations in the samples or matrix interferences. When sample results are between the method detection limit (MDL) and the reporting limit the laboratories flagged the result with a “J.” This J flag was changed to a T to match Environmental Information Management (EIM) database requirements.

### Sample Receiving Discrepancies

**1903-061 and 1903-061B.** The chain-of-custody (COC) was incomplete: analyses for sample MBGW2-30W were crossed off the COC, but not initialed and dated.

On April 2, 2019, the laboratory was contacted, and dissolved metals analyses were requested on the samples. The samples were filtered and preserved at the laboratory. Dissolved metals analyses were reported in 1903-061B.

**1903-097 and 1903-097B.** On April 2, 2019, the laboratory was contacted, and dissolved metals analyses were requested on the samples. The samples were filtered and preserved at the laboratory. Dissolved metals analyses were reported in 1903-097B.

**1903-098.** The COC was incomplete: the sampling time was not reported for the samples, and the sampling date was not reported for three samples.

**1903-137.** The COC was incomplete: the sampling time was not reported for thirteen samples; and two samples were crossed off the COC, but not initialed and dated. The COC was inaccurate: sample MBPP4-10 was incorrectly identified as MPP4-10. The sample name was corrected on the table in the investigation report.

**1903-148 and 1903-148B.** The COC was incomplete: one sample was crossed off the COC, but not initialed and dated.

On April 2, 2019, the laboratory was contacted, and dissolved metals analyses were requested on the samples. The samples were filtered and preserved at the laboratory. Dissolved metals analyses were reported in 1903-148B.

**1903-161 and 1903-161B.** On April 2, 2019, the laboratory was contacted, and dissolved metals analyses was requested on sample MBGW8-GW. The sample was filtered and preserved at the laboratory. Dissolved metals analyses were reported in 1903-161B. The sample name for HMW3IA-22.5 was reported incorrectly in the laboratory report and did not match the COC (the laboratory put “1” instead of “I”). The sample names were corrected on the tables in the investigation report.

**C90309-3.** The COC was inaccurate: the following samples were incorrectly identified on the COC:

Incorrect Sample Name on COC	Correct Sample Name
MBGW16	MBGW16-GW
MBPP5	MBPP5-GW

The sample names were corrected on the tables in the investigation report.

**C90309-4.** The COC was incomplete: sampling times for 39 samples were not provided; sampling dates for four samples were not provided; and the number of sampling containers were not provided. The COC was inaccurate: samples MBGW3-7.5 and MBGW3-12.5 were crossed off by the laboratory as they were not included in the sample cooler; samples MBGW3-10, MBGW3-7.5, and MBGW3-12.5 were listed twice, and duplicate entries were crossed off by the laboratory; and the following samples were incorrectly identified on the COC:

Incorrect Sample Name on COC	Correct Sample Name
MBGW-12.5	MBGW3-12.5
MBGW-25	MBGW3-25

The sample names were corrected on the COC by the laboratory.

**C90314-1.** The COC was incomplete: sampling times for seventeen samples were not provided; and the number of sampling containers were not provided. The COC was inaccurate: samples MBGW4-25 and MBGW3-26 were listed twice, and duplicate entries were crossed off by the laboratory; samples MPP5-30 and MPP5-40 were crossed off by the laboratory as the samples were not included in the cooler; sample MPP4-10 was listed twice, and both listings were crossed off by the laboratory as the sample was not included in the cooler; and the following samples were incorrectly identified on the COC:

Incorrect Sample Name on COC	Correct Sample Name
MPP5-25	MBPP5-25
MPP5-10	MBPP5-10
MPP5-17.5	MBPP5-17.5

The sample names were corrected on the tables in the investigation report.

**C90315-2.** The COC was incomplete: sampling times for thirteen samples were not provided; and the number of sampling containers were not provided. The sample names for HMW2IB-7.5, HMW2IB-15, HMW2IB-22.5, HMW2IB-30, HMW2IB-45, and HMW2IB-65 were reported incorrectly in the laboratory report and did not match the COC (the laboratory put “1” instead of “I”). The sample names were corrected on the tables in the investigation report.

**C90318-3.** The COC was incomplete: one sample time was not provided, and the number of sampling containers were not provided. The sample names for HMW4IA-5, HMW4IA-7.5, HMW4IA-10, HMW4IA-25, HMW3IA-15, HMW3IA-20, HMW3IA-22.5, and HMW3IA-25 were reported incorrectly in the laboratory report and did not match the COC (the laboratory put “1” instead of “I”). The sample names were corrected on the tables in the remedial investigation report.

**C90325-3.** The sample names for HMW-3IA and HMW-4IA were reported incorrectly in the laboratory report and did not match the COC (the laboratory put “1” instead of “I”). The sample names were corrected on the tables in the investigation report.

**002353.** The sample names for HMW-11IB-5, HMW-11IB-10, HMW-11IB-15, HMW-11IB-20, and HMW-11IB-25 were reported incorrectly in the laboratory report and did not match the COC. The laboratory report was amended and re-issued with the correct sample names.

**009154.** The sample names for MBB24-5, MBB24-10, MBB24-15, MBB24-20, MBB24-25, MBB24-30, MBB24-35, and MBB24-40 were reported incorrectly in the laboratory report and did not match the COC (the laboratory called these “MMB” instead of “MBB”). The sample names were corrected on the tables in the remedial investigation report and in subsequent sections of this appendix.

As sample quality was not affected by these discrepancies, analytical results were not qualified.

## Soil Results

### ***DRO and HO by NWTPH-Dx***

Holding times and reporting limits were acceptable. No method blank contamination was detected. Surrogate and SB recoveries were within laboratory control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate concentrations were less than five times the reporting limit.

MS/MSD recoveries and RPDs were within laboratory control limits with the following exception:

- Lab report F&BI 003038: The MS and MSD recoveries fell below laboratory control limits. The lab noted that the analyte was spiked at a level that was less than five times that present in the sample and the MS/MSD recoveries may not be meaningful. The source sample was a batch QC sample; no sample results were qualified.
- Lab report F&BI 009086: The MS recovery and associated RPD were outside laboratory control limits. The MSD recovery was within method control limits, and no sample results were qualified.

The laboratory noted the chromatographic pattern in DRO analysis for samples HMW-6IB-5, HMW-6IA-10, HMW-6IA-15, HMW7IB-5, HMW7IB-10, HMW-8IB-5, HMW-8IB-15, and MBB16-5 does not resemble the fuel standard used for quantitation. The DRO results in these samples were qualified as estimated (J).

### ***GRO by NWTPH-Gx***

Reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within laboratory control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

Holding times were acceptable with the following exceptions:

- Samples HMW4IA-7.5, MBGW2-12.5, MBGW2-25, MBPP1-20.0, MBPP1-25, MBPP2-10.0, MBPP2-20.0, MBPP2-27.5, and MBGW2-30 were analyzed past the 14-day method recommended holding time and results were qualified as estimated (J).

Surrogate recoveries were within control limits with the following exceptions:

- Sample MBGW13-10: The recoveries of the surrogates were not reported due to coelution with sample peaks. High concentrations of gasoline were present in the sample. Sample results were qualified as estimated (J).

Samples MBPP2-27.5, MBPP3-25.0, and MBGW13-20.0 were not dry weight corrected, and the results were reported as wet weight. Soil volume for dry weight analysis was not included in the sample coolers.

### ***PAHs by EPA 8270E-SIM***

Holding times and reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within laboratory control limits. LCS/LCSD recoveries and RPDs were within laboratory control limits. The field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate concentrations were less than five times the reporting limit.

Surrogate recoveries were within laboratory control limits with the following exceptions:

- Samples MBB17-15, MBB19-5, MBB19-10, MBB20-5, MBB20-10, MBB-25-10, and MBB-25-25: Two of six surrogate recoveries fell below laboratory control limits. The samples were diluted, and no results were qualified.
- Samples MBB18-5 and MBB18-10: Three of six surrogate recoveries fell below laboratory control limits. The samples were diluted, and no results were qualified.
- Samples MBB16-20, HMW-19S-26, HMW-20S-5, and HMW-20S-10: One of six surrogate recoveries fell below laboratory control limits. Other surrogate recoveries were within laboratory control limits, and no sample results were qualified.

MS/MSD recoveries and RPDs were within laboratory control limits with the following exception:

- Lab report F&BI 009053: The MS/MSD RPD for benz(a)anthracene exceeded laboratory control limits. The MS and MSD recoveries were within laboratory control limits, and no samples were qualified.

Calibration criteria were acceptable with the following exceptions:

- Samples HMW-6IB-5, HMW-6IB-10, HMW-6IB-15, HMW-6IB-20, and MBB-14-5: The calibration results for pyrene were outside of acceptance criteria. The pyrene results in these samples were qualified as estimated (J).

### ***VOCs by EPA 8260B/8260D/8021B***

No method blank contamination was detected. SB recoveries were within laboratory control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

Holding times were acceptable with the following exceptions:

- Samples HMW4IA-5.0, HMW4IA-7.5, HMW4IA-10.0, and HMW4IA-25.0 were analyzed past the 14-day method recommended holding time and results were qualified as estimated (J).

Reporting limits were acceptable with the following exceptions:

- Samples HMW-11IB-5, HMW-11IB-10, HMW-11IB-20, HMW-11IB-25, HMW-11S-10, HMW-11S-15, HMW-11S-20, HMW-11S-30, MBB-7-20, MBB-8-5, MBB-8-10, MBB-8-15, MBB-8-15 dup, MBB-8-20, MBB-8-25, MBB-9-5, MBB-9-10, MBB-9-15, MBB-9-20, MBB-9-25, MBB-6-5, MBB-10-5, MBB-10-10, MBB-10-15, MBB-10-20, MBB-10-25, MBB-4-5, MBB-4-10, MBB-4-10a, MBB-4-15, MBB-4-20, MBB-4-25, MBB-3-10, MBB-3-15, MBB-3-20, MBB-3-25, MBB-2-5, MBB-2-10, MBB-2-15, MBB-2-20, MBB-2-20a, MBB-2-25, MBB-1-5, MBB-1-15, MBB-1-20, MBB-1-25, HMW-9D-5, HMW-9D-15, HMW-9D-20, HMW5IB-5, HMW5IB-10, HMW5IB-15, HMW5IB-20, HMW5IB-25, HMW7IB-5, HMW7IB-10, HMW7IB-15, HMW7IB-25, HMW7IB-25a, HMW9IA-5, HMW9IA-10, HMW9IA-15, HMW9IA-20, HMW9IA-25, HMW9IB-5, HMW9IB-13, HMW9IB-20, HMW-9S-5, HMW-9S-14, HMW-9S-17, HMW-9S-20, HMW-9S-25, HMW-6D-5, HMW-6D-10, HMW-6D-15, HMW-6D-25, HMW-6D-30, HMW-6D-30-dup, HMW-6IA-5, HMW-6IA-10, HMW-6IA-15, HMW-6IA-20, HMW-6IA-30, HMW-8IB-5, HMW-8IB-10, HMW-8IB-20, HMW-8IB-25a, MBB-5-5, MBB-5-10, MBB-5-15, MBB-5-20, HMW-6IB-5, HMW-6IB-10, HMW-6IB-10a, HMW-6IB-15, HMW-6IB-20, HMW-6IB-25, RO-0086410-0303, RO-0088599-0303, RO-0085584-0303, MBB-6-5, MBB-6-10, MBB-6-15, MBB-6-20, MBB-6-25, HMW10S-5, HMW-10S-10, HMW-10S-10a, HMW-10S-15, HMW-10S-20, HMW-10S-25, HMW-10D-5, HMW-10D-10, HMW-10D-20, HMW-10D-25, RO0088177-0309, RO0087057-0309, MBB17-5, MBB17-10, MBB17-15, MBB17-25, MBB18-5, MBB18-15, MBB18-20, MBB19-5, MBB19-10, MBB19-15, MBB19-20, MBB24-15, MBB24-20, MBB24-25, MBB24-30, HMW-19S-30, HMW-20S-5, HMW-20S-10, HMW-20S-15, HMW-20S-25, HMW-20S-30, HMW-17S-5, HMW-17S-10, HMW-17S-15, HMW-17S-20, HMW-17S-25, HMW-18S-5, HMW-18S-10, HMW-18S-15, HMW-18S-20, HMW-18S-25, HMW-18S-30, MBB16-15, MBB16-20, MBB20-20, MBB-22-5, MBB-22-15, MBB-22-20, MBB-22-30, MBB-23-15, and MBB-23-25: The analyte concentrations reported for methylene chloride are reported below the lowest calibration standard. The methylene chloride results in these samples were qualified as estimated (J).
- Sample MBB17-5: The analyte concentration for 2-butanone (methyl ethyl ketone) is reported below the lowest calibration standard. The 2-butanone (methyl ethyl ketone) result in this sample was qualified as estimated (J).
- Sample MBB17-25: The analyte concentrations for acetone and 1,2-dibromo-3-chloropropane are reported below the lowest calibration standard. The acetone and 1,2-dibromo-3-chloropropane results in this sample were qualified as estimated (J).

Surrogate recoveries were within laboratory control limits with the following exceptions:

- Samples MBB16-5 and MBB16-10: Two of three surrogate recoveries were outside laboratory control limits due to matrix interferences. Sample results were not qualified.

MS/MSD recoveries and RPDs were within control limits with the following exceptions:

- Lab report F&BI 009027: The MS recoveries for 2,2-dichloropropane and 1,1,2,2-tetrachloroethane exceeded laboratory control limits. The source sample was a batch QC sample; no sample results were qualified.

LCS/LCSD recoveries and associated RPDs were within laboratory control limits with the following exceptions:

- Samples MBB-22-5, MBB-22-15, MBB-22-20, MBB-22-25, MBB-22-30, MBB-23-5, MBB-23-10, MBB-23-15, MBB-23-20, MBB-23-25, MBB-23-30: The LCS/LCSD recoveries for methylene chloride fell below laboratory control limits, and the associated RPD exceeded the laboratory control limit. The methylene chloride results in these samples were qualified as estimated (J).
- Samples MBB24-5 and MBB24-10: The LCS recovery for methylene chloride fell below laboratory control limits. The LCSD recovery was within laboratory control limits, and no sample results were qualified.
- Samples MBB24-15, MBB24-20, MBB24-25, and MBB24-30: The LCS/LCSD recoveries for hexane fell below laboratory control limits. The hexane results in these samples were qualified as estimated (J).
- Samples MBB24-15, MBB24-20, MBB24-25, and MBB24-30: The LCS/LCSD RPD for methylene chloride exceeded laboratory control limits. The LCS and LCSD recoveries were within laboratory control limits and no sample results were qualified.
- Samples MBB24-15, MBB24-20, MBB24-25, and MBB24-30: The LCSD recovery for 2-butanone (methyl ethyl ketone) fell below laboratory control limits. The LCS recovery was within laboratory control limits, and no sample results were qualified.
- Samples MBB24-5 and MBB24-10: The LCS recovery for 2-butanone (methyl ethyl ketone) fell below laboratory control limits, and the associated RPD exceeded laboratory control limits. The LCSD recovery was within laboratory control limits, and no sample results were qualified.
- Samples MBB24-5 and MBB24-10: The LCS/LCSD RPD for bromoform exceeded laboratory control limits. The LCS and LCSD recoveries were within laboratory control limits, and no sample results were qualified.
- Lab reports F&BI 003022 and 003038: The LCS/LCSD RPD for hexachlorobutadiene exceeded laboratory control limits. The LCS and LCSD recoveries were within laboratory control limits, and no sample results were qualified.
- Lab report F&BI 009027: The LCS/LCSD recoveries for bromomethane, hexane, 2,2-dichloropropane, and 1,1,2,2-tetrachloroethane exceeded laboratory control limits. These analytes were non-detect in the samples, and no sample results were qualified. The LCS/LCSD RPD for 2-butanone (methyl ethyl ketone) exceeded laboratory control limits. The LCS and LCSD recoveries for 2-butanone were within laboratory control limits, and no sample results were qualified.
- Lab report F&BI 009135: The LCSD recovery and associated RPD for acetone exceeded laboratory control limits. The LCS recovery was within laboratory control limits, and no sample results were qualified.

Calibration criteria were acceptable with the following exceptions:

- Samples HMW-11B-5, HMW-11B-10, HMW-11B-15, HMW-11B-20, HMW-11B-25, HMW-11S-5, HMW-11S-10, HMW-11S-15, HMW-11S-20, HMW-11S-30, MBB-7-5, MBB-7-10, MBB-7-15, MBB-7-20, MBB-7-25, MBB-9-20, MBB-4-5, MBB-4-10, MBB-4-10a, MBB-4-15, MBB-4-20, MBB-4-25, MBB-3-5, MBB-3-10, MBB-3-20, MBB-3-25, MBB-2-5, MBB-2-10, MBB-2-15, MBB-2-20, MBB-2-20a, MBB-2-25, MBB-1-5, MBB-1-10, MBB-1-15, MBB-1-20, MBB-1-25, HMW-9D-5, HMW-9D-10, HMW-9D-15, HMW-9D-20, HMW-9D-25, HMW5IB-5, HMW5IB-10, HMW5IB-15, HMW5IB-20, HMW5IB-25, HMW7IB-5, HMW7IB-10, HMW7IB-15, HMW7IB-20, HMW7IB-25, HMW7IB-25a, HMW9IA-5, HMW9IA-10, HMW9IA-15, HMW9IA-20, HMW9IA-25, HMW9IB-5, HMW9IB-13, HMW9IB-15, HMW9IB-20, HMW9IB-25, HMW-9S-5, HMW-9S-14, HMW-9S-17, HMW-9S-20, HMW-9S-25, HMW-6D-5, HMW-6D-10, HMW-6D-15, HMW-6D-25, HMW-6D-30, HMW-6D-30-dup, HMW-6IA-5, HMW-6IA-10, HMW-6IA-15, HMW-6IA-20, HMW-6IA-30, HMW-8IB-5, HMW-8IB-10, HMW-8IB-15, HMW-8IB-20, HMW-8IB-25, HMW-8IB-25a, MBB-5-5, MBB-5-10, MBB-5-15, MBB-5-20, MBB-5-25, HMW-6IB-5, HMW-6IB-10, HMW-6IB-10a, HMW-6IB-15, HMW-6IB-20, HMW-6IB-25, RO-0086410-0303, RO-0088599-0303, RO-0085584-0303, MBB-6-5, MBB-6-10, MBB-6-15, MBB-6-20, MBB-6-25, HMW10S-5, HMW-10S-10, HMW-10S-10a, HMW-10S-15, HMW-10S-20, HMW-10S-25, HMW-10D-5, HMW-10D-10, HMW-10D-15, and HMW-10D-15a: The calibration results for hexachlorobutadiene were outside of the acceptance criteria. The hexachlorobutadiene results in these samples were qualified as estimated (J).
- Samples MBB-3-5, MBB24-5, MBB24-10, HMW-19S-5, HMW-19S-10, HMW-19S-15, HMW-19S-20, HMW-19S-26, HMW-20S-10, HMW-20S-20, HMW-20S-25, MBB-22-5, MBB-22-15, MBB-22-20, MBB-22-25, MBB-22-30, MBB-23-5, MBB-23-10, MBB-23-15, MBB-23-20, MBB-23-25, and MBB-23-30: The calibration results for methylene chloride were outside of the acceptance criteria. The methylene chloride results in these samples were qualified as estimated (J).
- Samples MBB17-5, MBB17-10, MBB17-15, MBB17-25, MBB18-5, MBB18-10, MBB18-15, MBB18-20, MBB19-5, MBB19-10, MBB19-15, and MBB19-20: The calibration results for acetone were outside of the acceptance criteria. The acetone results in these samples were qualified as estimated (J).
- Samples MBB24-5 and MBB24-10: The calibration results for 2-hexanone were outside of the acceptance criteria. The 2-hexanone results in these samples were qualified as estimated (J).
- Samples MBB4-15, MBB24-20, MBB24-25, and MBB24-30: The calibration results for bromoform were outside of the acceptance criteria. The bromoform results in these samples were qualified as estimated (J).

The laboratory noted that 1,2,4-trimethylbenzene in MBB-1-20; toluene, ethylbenzene, m,p-xylene, o-xylene, and 1,2,4-trimethylbenzene in MBB-4-20; and ethylbenzene, m,p-xylene, o-xylene, and 1,2,4-trimethylbenzene in MBB-3-10 exceeded the valid instrument calibration range. The samples were diluted and reanalyzed, and results were within the valid instrument calibration range. The reanalyzed results are reported in data tables, and no sample results were qualified.

The laboratory noted that hexane, ethylbenzene, m,p-xylene, isopropylbenzene, n-propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, p-isopropyltoluene, and naphthalene in MBB16-5 and hexane, ethylbenzene, m,p-xylene, o-xylene, isopropylbenzene, n-propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, p-isopropyltoluene, and naphthalene in MBB16-10 exceeded the valid instrument calibration range. The samples were prepped via the methanolic extraction method and reanalyzed, and results were within the valid instrument calibration range. The reanalyzed results are reported in data tables, and no sample results were qualified.

The laboratory noted the presence of methylene chloride in HMW-6D-25, HMW7IB-20, HMW-8IB-5, HMW-8IB-15, HMW-8IB-25, HMW9IB-15, HMW9IB-25, HMW-9D-10, HMW-9D-25, HMW-10D-15, HMW-10D-15a, HMW-11IB-15, HMW-11S-5, HMW-17S-5, HMW-17S-10, HMW-17S-20, HMW-17S-25, HMW-18S-10, HMW-18S-15, HMW-18S-25, HMW-18S-30, HMW-19S-5, HMW-19S-10, HMW-19S-15, HMW-19S-20, HMW-19S-26, HMW-20S-10, HMW-20S-20, HMW-20S-25, MBB-1-5, MBB-1-10, MBB-3-5, MBB-5-25, MBB-7-5, MBB-7-10, MBB-7-15, MBB-7-25, MBB-8-15, MBB16-5, MBB16-10, MBB16-15, MBB16-20, MBB18-10, MBB19-15, MBB19-20, MBB20-5, MBB20-10, MBB20-15, MBB21-5, MBB21-10, MBB21-15, MBB21-20, MBB-22-25, MBB-23-5, MBB-23-10, MBB-23-20, MBB-23-30, MBB24-5, and MBB24-10 is likely due to laboratory contamination, as methylene chloride is a common lab reagent and otherwise breaks down quickly in the environment. The values reported are flagged as non-detect (U) at the detected concentration.

Samples MBGW14-15.0, MBPP2-27.5, MBPP3-25.0, MBPP8-22.5, MBGW9-20.0, HMW2IB-15, HMW2IB-30, HMW2IB-45, HMW2IB-65, HMW1IB-15, HMW1IB-20.5, HMW1IB-50.0, HMW1IB-65.0, MBGW13-7.5, MBGW13-12.5, MBGW13-20.0, MBGW6-15, and MBGW6-20 were not dry weight corrected, and the results were reported as wet weight. Soil volume for dry weight analysis was not included in the sample coolers.

### ***Total Metals by EPA 6010D/6020B***

Holding times and reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within method control limits. The laboratory duplicate RPDs were either within control limits or were not applicable when sample and/or duplicate concentrations were less than five times the reporting limit.

The laboratory noted that lead in MBB-5-10 exceeded the valid instrument calibration range. The sample was diluted and reanalyzed, and results were within the valid instrument calibration range. The reanalyzed result is reported in data tables, and no sample results were qualified.

The field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate concentrations were less than five times the reporting limit with the following exceptions:

- The RPDs for lead and chromium in sample/duplicate pair HMW-6IB-10/HMW-6IB-10a exceeded the control limits. The results for lead and chromium in HMW-6IB-10 and HMW-6IB-10a were qualified as estimated (J).

- The RPDs for chromium in sample/duplicate pairs HMW7IB-25/HMW7IB-25a, HMW-6D-30/HMW-6D-30-Dup, and MBB-8-15/MBB-8-15 dup exceeded the control limits. The results for chromium in these samples were qualified as estimated (J).

Internal standards were acceptable with the following exceptions:

- Samples MBB16-5, MBB16-15, MBB17-15, MBB-22-15, MBB24-5, MBB24-15, HMW-19S-15, HMW-19S-30, and HMW-20S-25: The internal standard associated with chromium was out of control limits. The samples were diluted and reanalyzed with passing results. The passing results are reported in data tables, and no sample results were qualified.

MS/MSD recoveries and RPDs were within method control limits with the following exceptions:

- Samples HMW-11IB-5, HMW-11IB-10, HMW-11IB-15, HMW-11IB-20, and HMW-11IB-25: The MSD recovery and associated RPD for mercury fell outside the method control limits. The laboratory noted the LCS recovery fell within the method control limits; therefore, the results were due to matrix effect. The MS recovery was within method control limits, and no sample results were qualified.
- Lab report F&BI 003038: The MS recovery and associated RPD for arsenic fell outside the method control limits and the MS/MSD RPD for barium fell outside the method control limits. The MS recovery for arsenic and the MS and MSD recoveries for barium were within laboratory control limits, and no sample results were qualified.
- Lab report F&BI 003079: The MSD recovery for lead fell below the method control limits. The MS recovery was within method control limits, and no sample results were qualified.
- Lab report F&BI 009027: The MS recovery and associated RPD for mercury fell outside the method control limits. The MSD recovery was within method control limits, and no sample results were qualified.
- Lab report F&BI 009086: The MSD recovery and associated RPD for chromium fell outside the method control limits. The MS recovery was within method control limits, and no sample results were qualified.

### **Total Mercury by EPA 7471B**

Holding times and reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within control limits. MS/MSD recoveries and RPDs were within control limits. The laboratory duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate concentrations were less than five times the reporting limit.

### ***PCBs by EPA 8082A***

Holding times and reporting limits were acceptable. No method blank contamination was detected. LCS recoveries were within control limits.

MS/MSD recoveries and RPDs were within control limits with the following exception:

- Lab report F&BI 009027: The MSD recovery for Aroclor 1260 exceeded laboratory control limits. The MS recovery was within control limits, and no sample results were qualified.

Surrogate recoveries were within control limits with the following exception:

- Sample MBB18-5: The surrogate recovery fell below the laboratory control limit due to sample matrix effects. Sample results were not qualified.

### ***Total Solids by SM 2540B***

Reporting limits were acceptable.

Holding times were acceptable with the following exceptions:

- Samples HMW4IA-5.0, HMW4IA-7.5, HMW4IA-10.0, HMW4IA-25.0, MBGW4-5.0, MBGW4-7.5, MBGW4-10.0, MBGW4-12.5, MBGW4-25, MBGW3-5.0, MBGW3-7.5, MBGW3-10.0, MBGW3-12.5, MBGW3-26.0, MBGW2-12.5, MBGW2-25, MBGW2-30, MBPP5-25, MBPP5-10, MBPP5-17.5, MBGW7-30, MBPP6-10.0, MBPP6-15.0, MBPP6-20.0, MBPP6-25.0, MBPP6-30.0, MBPP7-5.0, MBPP7-15.0, MBPP7-23, MBPP8-10.0, MBPP8-15.0, MBPP8-30.0, MBPP2-10.0, and MBGW2-10 were prepared after the applicable 14 day holding time for dry weight corrections and qualified as estimated (J).

## **Water Results**

### ***GRO by NWTPH-Gx***

Holding times and reporting limits were acceptable. No method blank contamination was detected. Surrogate, LCS, and SB recoveries were within laboratory control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

The laboratory noted that the GRO detection in sample HMW-9IB is due to individual peaks inconsistent with a standard gasoline pattern. The detection is likely due to the individual VOCs identified in the 8260D analysis. The gasoline result was qualified as estimated (J).

MS/MSD recoveries and RPDs were within laboratory control limits with the following exception:

- Lab reports F&BI 003203, 003233, and 003245: The MS and MSD recoveries exceeded laboratory control limits. The lab noted that the analyte was spiked at a level that was less than five times that

present in the sample and the MS/MSD recoveries may not be meaningful. The source samples were batch QC samples; no sample results were qualified.

### ***DRO and HO by NWTPH-Dx***

Reporting limits were acceptable. No method blank contamination was detected. Surrogate, LCS, and SB recoveries were within laboratory control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

Holding times were acceptable with the following exception:

- Sample MBB-8-GW was analyzed past the 14-day method recommended holding time and results was qualified as estimated (J).

MS/MSD recoveries and RPDs were within laboratory control limits with the following exception:

- Lab report F&BI 003203: The MSD recovery and associated RPD for DRO were outside laboratory control limits. The lab noted that the analyte was spiked at a level that was less than five times that present in the sample and the MS/MSD recoveries may not be meaningful. The MS recovery was within laboratory control limits; no sample results were qualified.

The laboratory noted the chromatographic pattern in DRO analysis for samples MBB-2-GW, MBB-3-GW, MBB-4-GW, MBB-5-GW, MBB-6-GW, MBB-9-GW, MBB15-GW, HMW-1S (F&BI 003203), HMW-2S (F&BI 003233), HMW-2D (F&BI 003233), HMW-3IA (F&BI 003245), HMW-3D (F&BI 003245), HMW-6IA, HMW-6IB, HMW-11IB, HMW-1100IB, HMW-10S, HMW-9D, HMW-900D, HMW-9S, HMW-9IB, HMW-1D-GW-0309 (F&BI 003160), HMW-16IB, and MBB-24 does not resemble the fuel standard used for quantitation. The DRO results in these samples were qualified as estimated (J).

The laboratory noted the chromatographic pattern in HO analysis for sample MBB-9-GW does not resemble the fuel standard used for quantitation. The HO result in this sample was qualified as estimated (J).

The laboratory noted the chromatographic pattern in DRO analysis for samples HMW-11S and HMW-22S does not resemble the fuel standard used for quantitation. Specifically, for HMW-11S, the laboratory report case narrative noted the reported DRO concentration was primarily due to two discrete peaks and that a pattern of peaks indicating a middle distillate product, such as diesel fuel #2, was not observed. HMW-22S is located close to HMW-11S, and the chromatogram had similar peaks (e.g., the largest peak in both samples elutes at the same time). Based on the case narrative and our interpretation of the chromatograms, the values reported are flagged as non-detect (U) at the detected concentration.

### **PAHs by EPA 8270D-SIM**

Holding times and reporting limits were acceptable. No method blank contamination was detected. LCS and SB recoveries were within laboratory control limits. LCS/LCSD recoveries and RPDs were within laboratory control limits.

Surrogate recoveries were within laboratory control limits with the following exception:

- Samples MBB-16-GW and MBB-26: One of six surrogate recoveries fell outside laboratory control limits. Other surrogate recoveries were within laboratory control limits, and no sample results were qualified.
- Sample MBB-25: Two of six surrogate recoveries exceeded laboratory control limits. Other surrogate recoveries were within laboratory control limits, and no sample results were qualified.

MS/MSD recoveries and RPDs were within laboratory control limits with the following exceptions:

- Lab reports F&BI 003233, 003245, and 003271: The MS/MSD RPD for fluorene exceeded laboratory control limits. The MS and MSD recoveries were within laboratory control limits, and no samples were qualified.
- Lab reports F&BI 003233, 003245, and 003271: The MS and MSD recoveries for benz(a)anthracene and benzo(a)pyrene exceeded laboratory control limits. The source samples were batch QC samples; no sample results were qualified.

### **VOCs by EPA 8260B/8260D/8021B**

Holding times were acceptable. No method blank contamination was detected. Surrogate and SB recoveries were within laboratory control limits. The field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

The laboratory noted that cis-1,2-dichloroethene in HMW-1D-GW-0309 (F&BI 003160), HMW-2IA (F&BI 003233), HMW-9IB, HMW-12D, HMW-20IA, MW-146, and MW-147, vinyl chloride in HMW-9IB, HMW-20IA, MW-146, and MW-147, and trichloroethene and tetrachloroethene in HMW-9IB exceeded the valid instrument calibration range. The samples were diluted and reanalyzed, and results were within the valid instrument calibration range. The reanalyzed results are reported in data tables, and no sample results were qualified.

Reporting limits were acceptable with the following exceptions:

- The concentrations of trichlorofluoromethane, 1,2,3-trichloropropane, and 1,2-dibromo-3-chloropropane in samples MBB-1-GW, MBB-2-GW, MBB-3-GW, MBB-7-GW, MBB-8-GW, MBB-9-GW, MBB-10-GW, MBB-4-GW, MBB-5-GW, MBB-6-GW, MBB-16-GW, HMW-1D-GW-0309 (F&BI 003160), HMW-1IB-GW-0310 (F&BI 003203), HMW-4IA (F&BI 003203), HMW-1S (F&BI 003203), HMW-8IB, HMW-11S, HMW-2S (F&BI 003233), HMW-2IA (F&BI 003233), HMW-2D (F&BI 003233), HMW-2IB

(F&BI 003233), HMW-7IB, HMW-3IA (F&BI 003245), HMW-3D (F&BI 003245), HMW-6IA, HMW-6IB, HMW-11IB, HMW-1100IB, HMW-10S, HMW-6D, HMW-10D, HMW-5IB, HMW-9D, HMW-900D, HMW-9S, HMW-9IB, and HMW-9IA were reported below the lowest calibration standard. The values reported are qualified as estimated (J).

- The concentrations of chloroethane in samples MBB-16-GW, HMW-9IB, and HMW-9IA were reported below the lowest calibration standard. The values reported are qualified as estimated (J).
- The concentrations of 1,1-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethane, 2,2-dichloropropane, chloroform, 1,1,1-trichloroethane, 1,1-dichloropropene, carbon tetrachloride, 1,2-dichloropropane, bromodichloromethane, 1,1,2-trichloroethane, 1,3-dichloropropane, dibromochloromethane, chlorobenzene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 2-chlorotoluene, 4-chlorotoluene, 1,2,4-trimethylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, hexachlorobutadiene, and 1,2,3-trichlorobenzene in sample MBB-16-GW were reported below the lowest calibration standard. The values reported are qualified as estimated (J).
- The concentrations of 1,2,3-trichloropropane and 1,2-dibromo-3-chloropropane in samples MBB-24, HMW-12D, HMW-13D, HMW-14D, HMW-15IB, HMW-16IB, HMW-17S, HMW-18S, HMW-19S, HMW-20IA, and HMW-20S were reported below the lowest calibration standard. The values reported are qualified as estimated (J).
- The concentrations of 1,2,3-trichloropropane in MW-146 and MW-147 were reported below the lowest calibration standard. The values reported are qualified as estimated (J).

LCS/LCSD recoveries and RPDs were within laboratory control limits with the following exceptions:

- Sample MBB-16-GW: The LCS/LCSD recoveries for bromomethane, chloroethane, 2,2-dichloropropane, 1,1,2,2-tetrachloroethane exceeded laboratory control limits. The analytes were not detected in the sample, and the results are acceptable for use without qualification.
- Sample MBB-16-GW: The LCSD recoveries for dichlorodifluoromethane and hexane exceeded the laboratory control limits. The LCS recoveries were within laboratory control limits. Sample results were not affected, and no samples were qualified.
- Samples MBB-3-GW and MBB-7-GW: The LCS/LCSD recoveries for 1,1,1,2-tetrachloroethane exceeded laboratory control limits. The analyte was not detected in the samples, and the results are acceptable for use without qualification.
- Samples HMW-3IA (F&BI 003245), HMW-3D (F&BI 003245), HMW-6IA, and HMW-6IB: The LCS/LCSD recoveries for 1,3-dichloropropane exceeded laboratory control limits. The analyte was not detected in the samples, and the results are acceptable for use without qualification.
- Samples HMW-11IB, HMW-1100IB, HMW-6D, HMW-10S, and HMW-10D: The LCS/LCSD RPD for chloromethane, vinyl chloride, chloroethane, and trichlorofluoromethane exceeded laboratory

control limits. The LCS and LCSD recoveries were within laboratory control limits and no sample results were qualified.

- Samples HMW-11IB, HMW-1100IB, HMW-6D, HMW-10S, and HMW-10D: The LCS recovery for 1,1,2-trichloroethane exceeded laboratory control limits. The LCSD recovery was within laboratory control limits and no sample results were qualified.
- Samples MBB-24, HMW-12D, and HMW-13D: The LCS/LCSD recoveries for acetone fell below laboratory control limits. The acetone results in these samples were qualified as estimated (J).
- Samples HMW-14D, HMW-15IB, HMW-16IB, HMW-17S, HMW-18S, HMW-19S, HMW-20IA, and HMW-20S: The LCS/LCSD RPDs for methylene chloride and bromoform exceeded laboratory control limits. The LCS and LCSD recoveries were within laboratory control limits and no sample results were qualified.
- Samples MW-146 and MW-147: The LCS/LCSD recoveries for dichlorodifluoromethane exceeded the laboratory control limits. The analyte was not detected in the samples, and the results are acceptable for use without qualification.

MS recoveries were within laboratory control limits with the following exception:

- Sample MBB-16-GW: The MS recoveries for 2,2-dichloropropane and 1,1,2,2-tetrachloroethane exceeded the laboratory control limits. The analytes were not detected in the sample, and the results are acceptable for use without qualification.
- Samples HMW-1S (F&BI 003203), HMW-1IB-GW-0310 (F&BI 003203), HMW-2S (F&BI 003233), HMW-2IA (F&BI 003233), HMW-2D (F&BI 003233), HMW-2IB (F&BI 003233), HMW-4IA (F&BI 003203), HMW-7IB, HMW-8IB, and HMW-11S: The MS recovery for 1,1,2,2-tetrachloroethene exceeded the laboratory control limits. The analyte was not detected in the samples, and the results are acceptable for use without qualification.
- Samples HMW-11IB, HMW-1100IB, HMW-6D, HMW-10S, and HMW-10D: The MS recoveries for 1,1-dichloroethene and methylene chloride exceeded laboratory control limits. The analytes were not detected in the samples, and the results are acceptable for use without qualification.
- Samples HMW-9IB and HMW-9IA: The MS recoveries for 2,2-dichloropropane and ethylbenzene fell below laboratory control limits. The source sample was a batch QC sample; no sample results were qualified.
- Samples HMW-14D, HMW-15IB, HMW-17S, HMW-18S, and HMW-19S: The MS recovery for hexachlorobutadiene fell below laboratory control limits. The source sample was a batch QC sample; no sample results were qualified.

- Sample HMW-161B: The MS recovery for hexachlorobutadiene fell below laboratory control limits. The sample result was qualified as estimated (J).
- Samples MW-146 and MW-147: The MS recoveries for cis-1,2-dichloroethene and vinyl chloride fell below laboratory control limits. The lab noted that the analytes were spiked at a level that was less than five times that present in the sample and the MS recoveries may not be meaningful. Sample results are acceptable for use without qualification.

No trip blank contamination was detected with the following exception:

- Trip Blank-0309 (F&BI 003160). Cis-1,2-dichloroethene was detected in Trip Blank-0309. Cis-1,2-dichloroethene was not detected in other samples in that cooler analyzed for VOCs, with the exception of sample HMW-1D-GW-0309. The concentration of cis-1,2-dichloroethene in HMW-1D-GW-0309 was more than ten times the concentration of cis-1,2-dichloroethene in Trip Blank-0309. The laboratory noted the high concentration of cis-1,2-dichloroethene in sample HMW-1D-GW-0309 likely carried over into Trip Blank-0309. Sample results were not affected, and no samples were qualified.

Calibration criteria were acceptable with the following exceptions:

- Sample HMW-12D: The calibration results for cis-1,2-dichloroethene were outside of the acceptance criteria. The cis-1,2-dichloroethene result in this sample was qualified as estimated (J).
- Samples HMW-14D, HMW-151B, HMW-161B, HMW-17S, HMW-18S, HMW-19S, HMW-201A, and HMW-20S: The calibration results for acetone and 2-butanone (methyl ethyl ketone) were outside of the acceptance criteria. The acetone and methyl ethyl ketone results in these samples were qualified as estimated (J).
- Sample MW-146: The calibration results for tetrachloroethene were outside of the acceptance criteria. The sample was reanalyzed with passing results. The passing results are reported in data tables, and no sample results were qualified.

### ***Total and Dissolved Metals by EPA 200.8/6020B***

Holding times and reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within method control limits. The laboratory and field duplicate RPDs were either within control limits or were not applicable when the sample and/or duplicate results were less than five times the reporting limit.

MS/MSD recoveries and RPDs were within method control limits with the following exception:

- Sample MBB-24: The MS and MSD recoveries for dissolved mercury fell below laboratory control limits. The dissolved mercury result was qualified as estimated (J).

Internal standards were acceptable with the following exceptions:

- MBB-8-GW and HMW-1S (F&BI 003203). The internal standard associated with total chromium was out of control limits. The samples were diluted and reanalyzed with passing results. The passing results are reported in data tables, and no sample results were qualified.
- HMW-1S (F&BI 003203). The internal standard associated with dissolved chromium was out of control limits. The sample was diluted and reanalyzed with passing results. The passing results are reported in data tables, and no sample results were qualified.

Calibration criteria were acceptable with the following exception:

- HMW-1S (F&BI 003203). The calibration results for dissolved arsenic were outside of acceptance criteria. The sample was reanalyzed with passing results. The passing results are reported in data tables, and no sample results were qualified.

### ***Total and Dissolved Mercury by EPA 7470A***

Reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within control limits. MS/MSD recoveries and RPDs were within control limits. The laboratory duplicate RPDs were not applicable as the sample and/or duplicate results were less than five times the reporting limit.

Holding times were acceptable with the following exceptions:

- Samples MBGW7-GW, MBGW1-GW, MBGW-3, MBGW-14, MBGW-15-GW, MBGW-16-GW, and MBPP5-GW were prepared and analyzed for dissolved mercury past the 28-day method recommended holding time. The sample results for dissolved mercury were qualified as estimated (J).

### ***TSS by SM 2540D***

Holding times and reporting limits were acceptable. No method blank contamination was detected. SB recoveries were within control limits. Laboratory duplicate RPDs were within control limits.



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3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 19409-01  
Laboratory Reference No. 1903-061

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 7, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 15, 2019  
Samples Submitted: March 7, 2019  
Laboratory Reference: 1903-061  
Project: 19409-01

### Case Narrative

Samples were collected on March 4 and 6, 2019 and received by the laboratory on March 7, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL METALS  
 EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW4-GW</b>					
Laboratory ID:	03-061-01					
Arsenic	<b>87</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>1900</b>	140	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>590</b>	56	EPA 200.8	3-11-19	3-11-19	
Lead	<b>65</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>0.75</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>6.7</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	

<b>Client ID:</b>	<b>MBGW7-GW</b>					
Laboratory ID:	03-061-03					
Arsenic	<b>130</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>3500</b>	280	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>7.5</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>1700</b>	110	EPA 200.8	3-11-19	3-11-19	
Lead	<b>190</b>	11	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>2.2</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>18</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	

<b>Client ID:</b>	<b>MBGW1-GW</b>					
Laboratory ID:	03-061-04					
Arsenic	<b>ND</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>65</b>	28	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>12</b>	11	EPA 200.8	3-11-19	3-11-19	
Lead	<b>1.7</b>	1.1	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL METALS  
 EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW1-GW</b>					
Laboratory ID:	03-061-05					
Arsenic	<b>88</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>1800</b>	280	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>870</b>	110	EPA 200.8	3-11-19	3-11-19	
Lead	<b>92</b>	11	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>0.92</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>13</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	

<b>Client ID:</b>	<b>DPP3-GW</b>					
Laboratory ID:	03-061-06					
Arsenic	<b>20</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>520</b>	28	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>260</b>	11	EPA 200.8	3-11-19	3-11-19	
Lead	<b>18</b>	1.1	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	

<b>Client ID:</b>	<b>DGW3-GW</b>					
Laboratory ID:	03-061-07					
Arsenic	<b>100</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>3000</b>	280	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>5.1</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>1400</b>	110	EPA 200.8	3-11-19	3-11-19	
Lead	<b>120</b>	11	EPA 200.8	3-11-19	3-11-19	
Mercury	<b>1.3</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>12</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0311WM1					
Arsenic	<b>ND</b>	3.3	EPA 200.8	3-11-19	3-11-19	
Barium	<b>ND</b>	28	EPA 200.8	3-11-19	3-11-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-11-19	3-11-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-11-19	3-11-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-11-19	3-11-19	
Silver	<b>ND</b>	11	EPA 200.8	3-11-19	3-11-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0313W1					
Mercury	<b>ND</b>	0.50	EPA 7470A	3-13-19	3-13-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	02-107-07							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Lead	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20

Laboratory ID:	03-093-01							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:	02-107-07									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	108	112	111	111	ND	97	101	75-125	4	20
Barium	107	107	111	111	ND	97	96	75-125	0	20
Cadmium	109	109	111	111	ND	98	98	75-125	0	20
Chromium	102	102	111	111	ND	92	92	75-125	0	20
Lead	107	106	111	111	ND	96	96	75-125	1	20
Selenium	103	108	111	111	ND	93	97	75-125	5	20
Silver	107	104	111	111	ND	97	94	75-125	3	20

Laboratory ID:	03-093-01									
Mercury	11.1	11.3	12.5	12.5	ND	89	91	75-125	2	20

**SPIKE BLANK**

Laboratory ID:	SB0311WM1									
Arsenic	107		111		N/A	97		85-115		
Barium	103		111		N/A	93		85-115		
Cadmium	108		111		N/A	97		85-115		
Chromium	98.7		111		N/A	89		85-115		
Lead	103		111		N/A	93		85-115		
Selenium	105		111		N/A	95		85-115		
Silver	101		111		N/A	91		85-115		

Laboratory ID:	SB0313W1									
Mercury	11.1		12.5		N/A	89		80-120		



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL SUSPENDED SOLIDS  
 SM 2540D**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW4-GW</b>					
Laboratory ID:	03-061-01					
Total Suspended Solids	<b>42000</b>	40	SM 2540D	3-11-19	3-11-19	

<b>Client ID:</b>	<b>MBGW7-GW</b>					
Laboratory ID:	03-061-03					
Total Suspended Solids	<b>100000</b>	40	SM 2540D	3-11-19	3-11-19	

<b>Client ID:</b>	<b>MBGW1-GW</b>					
Laboratory ID:	03-061-04					
Total Suspended Solids	<b>150</b>	4.0	SM 2540D	3-11-19	3-11-19	

<b>Client ID:</b>	<b>DGW1-GW</b>					
Laboratory ID:	03-061-05					
Total Suspended Solids	<b>5600</b>	40	SM 2540D	3-11-19	3-11-19	

<b>Client ID:</b>	<b>DPP3-GW</b>					
Laboratory ID:	03-061-06					
Total Suspended Solids	<b>5000</b>	20	SM 2540D	3-11-19	3-11-19	

<b>Client ID:</b>	<b>DGW3-GW</b>					
Laboratory ID:	03-061-07					
Total Suspended Solids	<b>20000</b>	40	SM 2540D	3-11-19	3-11-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**TOTAL SUSPENDED SOLIDS  
 SM 2540D  
 QUALITY CONTROL**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0311W1					
Total Suspended Solids	<b>ND</b>	4.0	SM 2540D	3-11-19	3-11-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-061-04							
	ORIG	DUP						
Total Suspended Solids	<b>152</b>	<b>152</b>	NA	NA	NA	0	22	

<b>SPIKE BLANK</b>								
Laboratory ID:	SB0311W1							
	SB	SB		SB				
Total Suspended Solids	<b>83.0</b>	100	NA	83	79-116	NA	NA	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>MBGW2-30W</b>					
Laboratory ID:	03-061-02					
Arsenic	ND	3.0	EPA 200.8	3-8-19	3-12-19	
Barium	44	25	EPA 200.8	3-8-19	3-12-19	
Cadmium	ND	4.0	EPA 200.8	3-8-19	3-12-19	
Chromium	ND	10	EPA 200.8	3-8-19	3-12-19	
Lead	ND	1.0	EPA 200.8	3-8-19	3-12-19	
Mercury	ND	0.50	EPA 7470A	3-8-19	3-13-19	
Selenium	ND	5.0	EPA 200.8	3-8-19	3-12-19	
Silver	ND	10	EPA 200.8	3-8-19	3-12-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**DISSOLVED METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0308F1					
Arsenic	<b>ND</b>	3.0	EPA 200.8	3-8-19	3-12-19	
Barium	<b>ND</b>	25	EPA 200.8	3-8-19	3-12-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	3-8-19	3-12-19	
Chromium	<b>ND</b>	10	EPA 200.8	3-8-19	3-12-19	
Lead	<b>ND</b>	1.0	EPA 200.8	3-8-19	3-12-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	3-8-19	3-12-19	
Silver	<b>ND</b>	10	EPA 200.8	3-8-19	3-12-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0308F1					
Mercury	<b>ND</b>	0.50	EPA 7470A	3-8-19	3-13-19	



Date of Report: March 15, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061  
 Project: 19409-01

**DISSOLVED METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-081-10							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-093-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>MATRIX SPIKES</b>								
Laboratory ID:	03-081-10							
	MS	MSD	MS	MSD	MS	MSD		
Arsenic	82.0	81.0	80.0	80.0	ND	103 101	75-125	1 20
Barium	79.6	79.2	80.0	80.0	ND	100 99	75-125	1 20
Cadmium	76.6	76.0	80.0	80.0	ND	96 95	75-125	1 20
Chromium	71.8	73.0	80.0	80.0	ND	90 91	75-125	2 20
Lead	73.4	73.4	80.0	80.0	ND	92 92	75-125	0 20
Selenium	86.8	85.0	80.0	80.0	ND	109 106	75-125	2 20
Silver	71.2	71.4	80.0	80.0	ND	89 89	75-125	0 20

Laboratory ID:	03-093-01							
Mercury	11.7	11.1	12.5	12.5	ND	93 89	75-125	5 20

**SPIKE BLANK**

Laboratory ID:	SB0308F1							
Arsenic	78.0		80.0		N/A	98	85-115	
Barium	76.6		80.0		N/A	96	85-115	
Cadmium	74.8		80.0		N/A	94	85-115	
Chromium	73.4		80.0		N/A	92	85-115	
Lead	77.4		80.0		N/A	97	85-115	
Selenium	82.0		80.0		N/A	103	85-115	
Silver	72.2		80.0		N/A	90	85-115	

Laboratory ID:	SB0308F1							
Mercury	11.8		12.5		N/A	94	80-120	





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

April 9, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 19409-01  
Laboratory Reference No. 1903-061B

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 7, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody,  
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: April 9, 2019  
Samples Submitted: March 7, 2019  
Laboratory Reference: 1903-061B  
Project: 19409-01

### Case Narrative

Samples were collected on March 4 and 6, 2019 and received by the laboratory on March 7, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: April 9, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061B  
 Project: 19409-01

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>DGW4-GW</b>					
Laboratory ID:	03-061-01					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	27	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW7-GW</b>					
Laboratory ID:	03-061-03					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	28	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW1-GW</b>					
Laboratory ID:	03-061-04					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061B  
 Project: 19409-01

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>DGW1-GW</b>					
Laboratory ID:	03-061-05					
Arsenic	3.1	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>DPP3-GW</b>					
Laboratory ID:	03-061-06					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>DGW3-GW</b>					
Laboratory ID:	03-061-07					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	55	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061B  
 Project: 19409-01

**DISSOLVED METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0404F1					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Laboratory ID:	MB0404F1					
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 7, 2019  
 Laboratory Reference: 1903-061B  
 Project: 19409-01

**DISSOLVED METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-161-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	44.8	44.2	NA	NA	NA	1	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-061-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	03-161-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	83.8	82.8	80.0	80.0	ND	105	104	75-125	1	20
Barium	120	124	80.0	80.0	44.8	95	99	75-125	3	20
Cadmium	74.0	75.8	80.0	80.0	ND	93	95	75-125	2	20
Chromium	74.8	73.6	80.0	80.0	ND	94	92	75-125	2	20
Lead	78.8	81.2	80.0	80.0	ND	99	102	75-125	3	20
Selenium	92.0	98.6	80.0	80.0	ND	115	123	75-125	7	20
Silver	78.2	78.4	80.0	80.0	ND	98	98	75-125	0	20

Laboratory ID:	03-061-01									
Mercury	10.8	11.1	12.5	12.5	ND	86	89	75-125	3	20

**SPIKE BLANK**

Laboratory ID:	SB0404F1									
Arsenic	78.4		80.0		N/A	98		85-115		
Barium	77.4		80.0		N/A	97		85-115		
Cadmium	74.2		80.0		N/A	93		85-115		
Chromium	74.0		80.0		N/A	93		85-115		
Lead	77.4		80.0		N/A	97		85-115		
Selenium	78.6		80.0		N/A	98		85-115		
Silver	74.0		80.0		N/A	93		85-115		

Laboratory ID:	SB0404F1									
Mercury	10.8		12.5		N/A	86		80-120		





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference



# Sample Custody Record

Samples Shipped to: On-Site Environmental



Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 19459-01 LAB NUMBER 03-061

PROJECT NAME Mercer Meadows

HART CROWSER CONTACT Roy Jensen

SAMPLED BY: \_\_\_\_\_

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	RCRAP - METALS - TOTAL	TSS	DISSOLVED PCRA*	REQUESTED ANALYSIS	NO. OF CONTAINERS
1	DGW4-GW		3/4/19	14:15	Water	X	X	(X)		3
2	MBGW2-JOW		3/4/19	13:30		X	X	X		
3	MBGW7-GW		3/6/19	10:40		X	X	(X)		
4	MBGW9-GW		3/6/19	13:00		X	X	(X)		
5	DGW1-GW		3/6/19	12:20		X	X	(X)		
6	PPP3-GW		3/6/19	8:21		X	X	(X)		
7	DGW3-GW		3/6/19	16:45		X	X	(X)		

\* LAB FILTER

RELINQUISHED BY <u>Mike Shuljian</u>	DATE <u>3/6/19</u>	RECEIVED BY <u>W. A. ...</u>	DATE <u>3/7/19</u>	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS: <u>(X) Added 4/2/19. DB (STA)</u>	TOTAL NUMBER OF CONTAINERS
SIGNATURE	TIME <u>19:00</u>	SIGNATURE <u>R. Jensen</u>	TIME <u>1100</u>		SAMPLE RECEIPT INFORMATION
PRINT NAME		PRINT NAME <u>R. Jensen</u>			CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
COMPANY		COMPANY <u>OSB</u>			GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
SIGNATURE	TIME	SIGNATURE	TIME	STORAGE LOCATION:	TURNAROUND TIME:
PRINT NAME		PRINT NAME		See Lab Work Order No. _____	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK
COMPANY		COMPANY		for Other Contract Requirements	<input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD
					<input type="checkbox"/> 72 HOURS OTHER _____

White to Lab    Yellow to Project Manager    Pink to Sample Custodian



14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

March 19, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-097

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 11, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 19, 2019  
Samples Submitted: March 11, 2019  
Laboratory Reference: 1903-097  
Project: 1940901

### Case Narrative

Samples were collected on March 6, 7, and 8, 2019 and received by the laboratory on March 11, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW2-GW</b>					
Laboratory ID:	03-097-01					
Arsenic	12	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	240	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	ND	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	77	11	EPA 200.8	3-13-19	3-13-19	
Lead	11	1.1	EPA 200.8	3-13-19	3-13-19	
Mercury	ND	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	ND	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	ND	11	EPA 200.8	3-13-19	3-13-19	

<b>Client ID:</b>	<b>MBGW-3</b>					
Laboratory ID:	03-097-02					
Arsenic	5.9	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	140	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	ND	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	61	11	EPA 200.8	3-13-19	3-13-19	
Lead	5.1	1.1	EPA 200.8	3-13-19	3-13-19	
Mercury	ND	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	ND	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	ND	11	EPA 200.8	3-13-19	3-13-19	

<b>Client ID:</b>	<b>MBGW-14</b>					
Laboratory ID:	03-097-03					
Arsenic	6.1	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	130	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	ND	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	38	11	EPA 200.8	3-13-19	3-13-19	
Lead	16	1.1	EPA 200.8	3-13-19	3-13-19	
Mercury	ND	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	ND	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	ND	11	EPA 200.8	3-13-19	3-13-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW-15-GW</b>					
Laboratory ID:	03-097-04					
Arsenic	<b>35</b>	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	<b>390</b>	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	<b>170</b>	11	EPA 200.8	3-13-19	3-13-19	
Lead	<b>20</b>	1.1	EPA 200.8	3-13-19	3-13-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	<b>ND</b>	11	EPA 200.8	3-13-19	3-13-19	

<b>Client ID:</b>	<b>MBGW-16-GW</b>					
Laboratory ID:	03-097-05					
Arsenic	<b>210</b>	33	EPA 200.8	3-13-19	3-13-19	
Barium	<b>4600</b>	280	EPA 200.8	3-13-19	3-13-19	
Cadmium	<b>5.3</b>	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	<b>2400</b>	110	EPA 200.8	3-13-19	3-13-19	
Lead	<b>190</b>	11	EPA 200.8	3-13-19	3-13-19	
Mercury	<b>1.8</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>31</b>	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	<b>ND</b>	11	EPA 200.8	3-13-19	3-13-19	

<b>Client ID:</b>	<b>MBPP5-GW</b>					
Laboratory ID:	03-097-06					
Arsenic	<b>15</b>	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	<b>230</b>	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	<b>93</b>	11	EPA 200.8	3-13-19	3-13-19	
Lead	<b>9.3</b>	1.1	EPA 200.8	3-13-19	3-13-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-13-19	3-13-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	<b>ND</b>	11	EPA 200.8	3-13-19	3-13-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0313WM1					
Arsenic	ND	3.3	EPA 200.8	3-13-19	3-13-19	
Barium	ND	28	EPA 200.8	3-13-19	3-13-19	
Cadmium	ND	4.4	EPA 200.8	3-13-19	3-13-19	
Chromium	ND	11	EPA 200.8	3-13-19	3-13-19	
Lead	ND	1.1	EPA 200.8	3-13-19	3-13-19	
Selenium	ND	5.6	EPA 200.8	3-13-19	3-13-19	
Silver	ND	11	EPA 200.8	3-13-19	3-13-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0313W2					
Mercury	ND	0.50	EPA 7470A	3-13-19	3-13-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-093-09							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Lead	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20

Laboratory ID:	03-093-02							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:	03-093-09									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	120	126	111	111	ND	108	113	75-125	5	20
Barium	124	130	111	111	ND	112	118	75-125	5	20
Cadmium	115	121	111	111	ND	104	109	75-125	5	20
Chromium	109	113	111	111	ND	98	102	75-125	4	20
Lead	106	109	111	111	ND	95	98	75-125	3	20
Selenium	129	137	111	111	ND	117	123	75-125	6	20
Silver	88.2	95.3	111	111	ND	80	86	75-125	8	20

Laboratory ID:	03-093-02									
Mercury	11.7	11.2	12.5	12.5	ND	93	89	75-125	5	20

**SPIKE BLANK**

Laboratory ID:	SB0313WM1									
Arsenic	115		111		N/A	103		85-115		
Barium	114		111		N/A	103		85-115		
Cadmium	112		111		N/A	101		85-115		
Chromium	109		111		N/A	98		85-115		
Lead	114		111		N/A	103		85-115		
Selenium	119		111		N/A	107		85-115		
Silver	94.4		111		N/A	85		85-115		

Laboratory ID:	SB0313W2									
Mercury	11.5		12.5		N/A	92		80-120		



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW-4-2.5</b>					
Laboratory ID:	03-097-07					
Arsenic	ND	11	EPA 6010D	3-14-19	3-14-19	
Barium	50	2.8	EPA 6010D	3-14-19	3-14-19	
Cadmium	ND	0.56	EPA 6010D	3-14-19	3-14-19	
Chromium	32	0.56	EPA 6010D	3-14-19	3-14-19	
Lead	ND	5.6	EPA 6010D	3-14-19	3-14-19	
Mercury	ND	0.28	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	11	EPA 6010D	3-14-19	3-14-19	
Silver	ND	1.1	EPA 6010D	3-14-19	3-14-19	

<b>Client ID:</b>	<b>MBGW-4-5</b>					
Laboratory ID:	03-097-08					
Arsenic	ND	12	EPA 6010D	3-14-19	3-14-19	
Barium	65	2.9	EPA 6010D	3-14-19	3-14-19	
Cadmium	ND	0.58	EPA 6010D	3-14-19	3-14-19	
Chromium	22	0.58	EPA 6010D	3-14-19	3-14-19	
Lead	12	5.8	EPA 6010D	3-14-19	3-14-19	
Mercury	ND	0.29	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	12	EPA 6010D	3-14-19	3-14-19	
Silver	ND	1.2	EPA 6010D	3-14-19	3-14-19	

<b>Client ID:</b>	<b>MBGW-4-7.5</b>					
Laboratory ID:	03-097-09					
Arsenic	ND	11	EPA 6010D	3-14-19	3-14-19	
Barium	46	2.7	EPA 6010D	3-14-19	3-14-19	
Cadmium	ND	0.54	EPA 6010D	3-14-19	3-14-19	
Chromium	26	0.54	EPA 6010D	3-14-19	3-14-19	
Lead	ND	5.4	EPA 6010D	3-14-19	3-14-19	
Mercury	ND	0.27	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	11	EPA 6010D	3-14-19	3-14-19	
Silver	ND	1.1	EPA 6010D	3-14-19	3-14-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW-4-25.0</b>					
Laboratory ID:	03-097-10					
Arsenic	<b>ND</b>	12	EPA 6010D	3-14-19	3-14-19	
Barium	<b>54</b>	3.0	EPA 6010D	3-14-19	3-14-19	
Cadmium	<b>ND</b>	0.60	EPA 6010D	3-14-19	3-14-19	
Chromium	<b>36</b>	0.60	EPA 6010D	3-14-19	3-14-19	
Lead	<b>ND</b>	6.0	EPA 6010D	3-14-19	3-14-19	
Mercury	<b>ND</b>	0.30	EPA 7471B	3-15-19	3-15-19	
Selenium	<b>ND</b>	12	EPA 6010D	3-14-19	3-14-19	
Silver	<b>ND</b>	1.2	EPA 6010D	3-14-19	3-14-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B  
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0314SM2					
Arsenic	ND	10	EPA 6010D	3-14-19	3-14-19	
Barium	ND	2.5	EPA 6010D	3-14-19	3-14-19	
Cadmium	ND	0.50	EPA 6010D	3-14-19	3-14-19	
Chromium	ND	0.50	EPA 6010D	3-14-19	3-14-19	
Lead	ND	5.0	EPA 6010D	3-14-19	3-14-19	
Selenium	ND	10	EPA 6010D	3-14-19	3-14-19	
Silver	ND	1.0	EPA 6010D	3-14-19	3-14-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0315S1					
Mercury	ND	0.25	EPA 7471B	3-15-19	3-15-19	



Date of Report: March 19, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-059-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	29.4	31.0	NA	NA	NA	5	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	23.4	20.8	NA	NA	NA	12	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-098-02							
Mercury	ND	ND	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	03-059-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	100	102	100	100	ND	100	102	75-125	2	20
Barium	140	133	100	100	29.4	110	103	75-125	5	20
Cadmium	42.5	43.2	50.0	50.0	ND	85	86	75-125	2	20
Chromium	114	100	100	100	23.4	91	77	75-125	13	20
Lead	235	242	250	250	ND	94	97	75-125	3	20
Selenium	97.2	98.4	100	100	ND	97	98	75-125	1	20
Silver	20.7	21.3	25.0	25.0	ND	83	85	75-125	3	20

Laboratory ID:	03-098-02									
Mercury	0.527	0.523	0.500	0.500	0.00850	104	103	80-120	1	20

**SPIKE BLANK**

Laboratory ID:	SB0314SM2									
Arsenic	102		100		N/A	102		80-120		
Barium	110		100		N/A	110		80-120		
Cadmium	43.2		50.0		N/A	86		80-120		
Chromium	99.6		100		N/A	100		80-120		
Lead	252		250		N/A	101		80-120		
Selenium	98.0		100		N/A	98		80-120		
Silver	24.8		25.0		N/A	99		80-120		

Laboratory ID:	SB0315S1									
Mercury	0.515		0.500		N/A	103		80-120		



Date of Report: March 19, 2019  
Samples Submitted: March 11, 2019  
Laboratory Reference: 1903-097  
Project: 1940901

### % MOISTURE

Date Analyzed: 3-18-19

Client ID	Lab ID	% Moisture
MBGW-4-2.5	03-097-07	11
MBGW-4-5	03-097-08	14
MBGW-4-7.5	03-097-09	8
MBGW-4-25.0	03-097-10	16





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

April 9, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-097B

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 11, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: April 9, 2019  
Samples Submitted: March 11, 2019  
Laboratory Reference: 1903-097B  
Project: 1940901

### Case Narrative

Samples were collected on March 6, 7, and 8, 2019 and received by the laboratory on March 11, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: April 9, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097B  
 Project: 1940901

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW2-GW</b>					
Laboratory ID:	03-097-01					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW-3</b>					
Laboratory ID:	03-097-02					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW-14</b>					
Laboratory ID:	03-097-03					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	40	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097B  
 Project: 1940901

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW-15-GW</b>					
Laboratory ID:	03-097-04					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	95	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW-16-GW</b>					
Laboratory ID:	03-097-05					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	25	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBPP5-GW</b>					
Laboratory ID:	03-097-06					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	26	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0404F1					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Laboratory ID:	MB0404F1					
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-097B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-161-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	44.8	44.2	NA	NA	NA	NA	1	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Lead	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20

Laboratory ID:	03-061-01							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:	03-161-01									
	MS	MSD	MS	MSD	MS	MSD				
Arsenic	83.8	82.8	80.0	80.0	ND	105	104	75-125	1	20
Barium	120	124	80.0	80.0	44.8	95	99	75-125	3	20
Cadmium	74.0	75.8	80.0	80.0	ND	93	95	75-125	2	20
Chromium	74.8	73.6	80.0	80.0	ND	94	92	75-125	2	20
Lead	78.8	81.2	80.0	80.0	ND	99	102	75-125	3	20
Selenium	92.0	98.6	80.0	80.0	ND	115	123	75-125	7	20
Silver	78.2	78.4	80.0	80.0	ND	98	98	75-125	0	20

Laboratory ID:	03-061-01									
Mercury	10.8	11.1	12.5	12.5	ND	86	89	75-125	3	20

**SPIKE BLANK**

Laboratory ID:	SB0404F1									
Arsenic	78.4		80.0		N/A	98		85-115		
Barium	77.4		80.0		N/A	97		85-115		
Cadmium	74.2		80.0		N/A	93		85-115		
Chromium	74.0		80.0		N/A	93		85-115		
Lead	77.4		80.0		N/A	97		85-115		
Selenium	78.6		80.0		N/A	98		85-115		
Silver	74.0		80.0		N/A	93		85-115		

Laboratory ID:	SB0404F1									
Mercury	10.8		12.5		N/A	86		80-120		





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







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March 20, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 19409-01  
Laboratory Reference No. 1903-098

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 11, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 20, 2019  
Samples Submitted: March 11, 2019  
Laboratory Reference: 1903-098  
Project: 19409-01

### Case Narrative

Samples were collected on March 4 and 6, 2019 and received by the laboratory on March 11, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW2-25</b>					
Laboratory ID:	03-098-01					
Arsenic	ND	14	EPA 6010D	3-18-19	3-19-19	
Barium	130	3.5	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.70	EPA 6010D	3-18-19	3-19-19	
Chromium	34	0.70	EPA 6010D	3-18-19	3-19-19	
Lead	23	7.0	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.35	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	14	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.70	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>MBPP3-25.0</b>					
Laboratory ID:	03-098-02					
Arsenic	ND	11	EPA 6010D	3-18-19	3-19-19	
Barium	35	2.7	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.55	EPA 6010D	3-18-19	3-19-19	
Chromium	26	0.55	EPA 6010D	3-18-19	3-19-19	
Lead	ND	5.5	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.27	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	11	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.55	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>MBGW2-12.5</b>					
Laboratory ID:	03-098-03					
Arsenic	ND	10	EPA 6010D	3-18-19	3-19-19	
Barium	47	2.6	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.52	EPA 6010D	3-18-19	3-19-19	
Chromium	24	0.52	EPA 6010D	3-18-19	3-19-19	
Lead	8.5	5.2	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.26	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	10	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.52	EPA 6020B	3-18-19	3-20-19	



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW2-30</b>					
Laboratory ID:	03-098-04					
Arsenic	ND	12	EPA 6010D	3-18-19	3-19-19	
Barium	46	3.1	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.61	EPA 6010D	3-18-19	3-19-19	
Chromium	42	0.61	EPA 6010D	3-18-19	3-19-19	
Lead	ND	6.1	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.31	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	12	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.61	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>DPP5-10</b>					
Laboratory ID:	03-098-05					
Arsenic	ND	11	EPA 6010D	3-18-19	3-19-19	
Barium	36	2.9	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.57	EPA 6010D	3-18-19	3-19-19	
Chromium	40	0.57	EPA 6010D	3-18-19	3-19-19	
Lead	ND	5.7	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.29	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	11	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.57	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>DPP5-17.5</b>					
Laboratory ID:	03-098-06					
Arsenic	ND	11	EPA 6010D	3-18-19	3-19-19	
Barium	43	2.8	EPA 6010D	3-18-19	3-19-19	
Cadmium	ND	0.56	EPA 6010D	3-18-19	3-19-19	
Chromium	34	0.56	EPA 6010D	3-18-19	3-19-19	
Lead	ND	5.6	EPA 6010D	3-18-19	3-19-19	
Mercury	ND	0.28	EPA 7471B	3-15-19	3-15-19	
Selenium	ND	11	EPA 6010D	3-18-19	3-19-19	
Silver	ND	0.56	EPA 6020B	3-18-19	3-20-19	



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DPP2-5</b>					
Laboratory ID:	03-098-07					
Arsenic	<b>ND</b>	12	EPA 6010D	3-18-19	3-19-19	
Barium	<b>71</b>	3.0	EPA 6010D	3-18-19	3-19-19	
Cadmium	<b>ND</b>	0.60	EPA 6010D	3-18-19	3-19-19	
Chromium	<b>43</b>	0.60	EPA 6010D	3-18-19	3-19-19	
Lead	<b>ND</b>	6.0	EPA 6010D	3-18-19	3-19-19	
Mercury	<b>ND</b>	0.30	EPA 7471B	3-15-19	3-15-19	
Selenium	<b>ND</b>	12	EPA 6010D	3-18-19	3-19-19	
Silver	<b>ND</b>	0.60	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>DPP2-10</b>					
Laboratory ID:	03-098-08					
Arsenic	<b>ND</b>	11	EPA 6010D	3-18-19	3-19-19	
Barium	<b>54</b>	2.7	EPA 6010D	3-18-19	3-19-19	
Cadmium	<b>ND</b>	0.54	EPA 6010D	3-18-19	3-19-19	
Chromium	<b>34</b>	0.54	EPA 6010D	3-18-19	3-19-19	
Lead	<b>ND</b>	5.4	EPA 6010D	3-18-19	3-19-19	
Mercury	<b>ND</b>	0.27	EPA 7471B	3-15-19	3-15-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-18-19	3-19-19	
Silver	<b>ND</b>	0.54	EPA 6020B	3-18-19	3-20-19	

<b>Client ID:</b>	<b>DPP4-12.5</b>					
Laboratory ID:	03-098-09					
Arsenic	<b>ND</b>	11	EPA 6010D	3-18-19	3-19-19	
Barium	<b>34</b>	2.7	EPA 6010D	3-18-19	3-19-19	
Cadmium	<b>ND</b>	0.54	EPA 6010D	3-18-19	3-19-19	
Chromium	<b>24</b>	0.54	EPA 6010D	3-18-19	3-19-19	
Lead	<b>ND</b>	5.4	EPA 6010D	3-18-19	3-19-19	
Mercury	<b>ND</b>	0.27	EPA 7471B	3-15-19	3-15-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-18-19	3-19-19	
Silver	<b>ND</b>	0.54	EPA 6020B	3-18-19	3-20-19	



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DPP4-20</b>					
Laboratory ID:	03-098-10					
Arsenic	<b>ND</b>	12	EPA 6010D	3-18-19	3-19-19	
Barium	<b>46</b>	3.0	EPA 6010D	3-18-19	3-19-19	
Cadmium	<b>ND</b>	0.60	EPA 6010D	3-18-19	3-19-19	
Chromium	<b>31</b>	0.60	EPA 6010D	3-18-19	3-19-19	
Lead	<b>ND</b>	6.0	EPA 6010D	3-18-19	3-19-19	
Mercury	<b>ND</b>	0.30	EPA 7471B	3-15-19	3-15-19	
Selenium	<b>ND</b>	12	EPA 6010D	3-18-19	3-19-19	
Silver	<b>ND</b>	0.60	EPA 6020B	3-18-19	3-20-19	



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B  
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0318SM2					
Arsenic	<b>ND</b>	10	EPA 6010D	3-18-19	3-19-19	
Barium	<b>ND</b>	2.5	EPA 6010D	3-18-19	3-19-19	
Cadmium	<b>ND</b>	0.50	EPA 6010D	3-18-19	3-19-19	
Chromium	<b>ND</b>	0.50	EPA 6010D	3-18-19	3-19-19	
Lead	<b>ND</b>	5.0	EPA 6010D	3-18-19	3-19-19	
Selenium	<b>ND</b>	10	EPA 6010D	3-18-19	3-19-19	
Laboratory ID:	MB0318SM2					
Silver	<b>ND</b>	0.50	EPA 6020B	3-18-19	3-20-19	
Laboratory ID:	MB0315S1					
Mercury	<b>ND</b>	0.25	EPA 7471B	3-15-19	3-15-19	



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags		
<b>DUPLICATE</b>										
Laboratory ID:	03-085-01									
	ORIG	DUP								
Arsenic	29.8	32.0	NA	NA	NA	NA	7	20		
Barium	112	109	NA	NA	NA	NA	2	20		
Cadmium	ND	ND	NA	NA	NA	NA	NA	20		
Chromium	15.9	15.9	NA	NA	NA	NA	0	20		
Lead	202	198	NA	NA	NA	NA	2	20		
Selenium	ND	ND	NA	NA	NA	NA	NA	20		
Laboratory ID:	03-085-01									
Silver	ND	ND	NA	NA	NA	NA	NA	20		
Laboratory ID:	03-098-02									
Mercury	ND	ND	NA	NA	NA	NA	NA	20		
<b>MATRIX SPIKES</b>										
Laboratory ID:	03-085-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	127	129	100	100	29.8	97	100	75-125	2	20
Barium	214	215	100	100	112	103	104	75-125	1	20
Cadmium	49.8	50.7	50.0	50.0	ND	100	101	75-125	2	20
Chromium	115	116	100	100	15.9	99	100	75-125	1	20
Lead	447	454	250	250	202	98	101	75-125	1	20
Selenium	100	97.5	100	100	ND	100	98	75-125	3	20
Laboratory ID:	03-085-01									
Silver	19.0	19.6	25.0	25.0	ND	76	79	75-125	3	20
Laboratory ID:	03-098-02									
Mercury	0.527	0.523	0.500	0.500	0.00850	104	103	80-120	1	20



Date of Report: March 20, 2019  
 Samples Submitted: March 11, 2019  
 Laboratory Reference: 1903-098  
 Project: 19409-01

**TOTAL METALS  
 EPA 6010D/7471B  
 SPIKE BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	Flags
<b>SPIKE BLANK</b>						
Laboratory ID:	SB0318SM2					
Arsenic	<b>100</b>	100	N/A	<b>100</b>	80-120	
Barium	<b>103</b>	100	N/A	<b>103</b>	80-120	
Cadmium	<b>50.1</b>	50.0	N/A	<b>100</b>	80-120	
Chromium	<b>104</b>	100	N/A	<b>104</b>	80-120	
Lead	<b>259</b>	250	N/A	<b>104</b>	80-120	
Selenium	<b>97.7</b>	100	N/A	<b>98</b>	80-120	
Laboratory ID:	SB0318SM2					
Silver	<b>20.8</b>	25.0	N/A	<b>83</b>	80-120	
Laboratory ID:	SB0315S1					
Mercury	<b>0.515</b>	0.500	N/A	<b>103</b>	80-120	



Date of Report: March 20, 2019  
Samples Submitted: March 11, 2019  
Laboratory Reference: 1903-098  
Project: 19409-01

### % MOISTURE

Date Analyzed: 3-18-19

Client ID	Lab ID	% Moisture
MBGW2-25	03-098-01	28
MBPP3-25.0	03-098-02	8
MBGW2-12.5	03-098-03	4
MBGW2-30	03-098-04	19
DPP5-10	03-098-05	13
DPP5-17.5	03-098-06	11
DPP2-5	03-098-07	17
DPP2-10	03-098-08	7
DPP4-12.5	03-098-09	8
DPP4-20	03-098-10	17





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

March 25, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-137

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 14, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 25, 2019  
Samples Submitted: March 14, 2019  
Laboratory Reference: 1903-137  
Project: 1940901

### Case Narrative

Samples were collected on March 4, 5, 6, 7, 8 and 11, 2019 and received by the laboratory on March 14, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW2-10</b>					
Laboratory ID:	03-137-01					
Arsenic	ND	11	EPA 6010D	3-19-19	3-19-19	
Barium	44	2.7	EPA 6010D	3-19-19	3-19-19	
Cadmium	ND	0.55	EPA 6010D	3-19-19	3-19-19	
Chromium	37	0.55	EPA 6010D	3-19-19	3-19-19	
Lead	ND	5.5	EPA 6010D	3-19-19	3-19-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-19-19	
Silver	ND	0.55	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBPP1-7.5</b>					
Laboratory ID:	03-137-02					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	81	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	46	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	93	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.55	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBPP2-10.0'</b>					
Laboratory ID:	03-137-03					
Arsenic	ND	12	EPA 6010D	3-19-19	3-20-19	
Barium	100	3.1	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.62	EPA 6010D	3-19-19	3-20-19	
Chromium	45	0.62	EPA 6010D	3-19-19	3-20-19	
Lead	21	6.2	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.31	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	12	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.62	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBPP5-25</b>					
Laboratory ID:	03-137-04					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	49	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.56	EPA 6010D	3-19-19	3-20-19	
Chromium	34	0.56	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.6	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.56	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW3-7.5</b>					
Laboratory ID:	03-137-05					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	43	2.7	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.54	EPA 6010D	3-19-19	3-20-19	
Chromium	32	0.54	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.4	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.54	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW3-12.5</b>					
Laboratory ID:	03-137-06					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	61	2.7	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	40	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-22-19	3-22-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.55	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW3-25.0</b>					
Laboratory ID:	03-137-07					
Arsenic	ND	12	EPA 6010D	3-19-19	3-20-19	
Barium	42	3.1	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.62	EPA 6010D	3-19-19	3-20-19	
Chromium	33	0.62	EPA 6010D	3-19-19	3-20-19	
Lead	ND	6.2	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.31	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	12	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.62	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>DGW1-25</b>					
Laboratory ID:	03-137-08					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	28	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	29	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.55	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>DGW1-10</b>					
Laboratory ID:	03-137-09					
Arsenic	ND	12	EPA 6010D	3-19-19	3-20-19	
Barium	47	2.9	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.58	EPA 6010D	3-19-19	3-20-19	
Chromium	34	0.58	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.8	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.29	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	12	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.58	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>DGW3-2.5</b>					
Laboratory ID:	03-137-10					
Arsenic	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Barium	<b>38</b>	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	<b>ND</b>	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	<b>25</b>	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	<b>ND</b>	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	<b>ND</b>	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Silver	<b>ND</b>	0.55	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>DGW3-12.5</b>					
Laboratory ID:	03-137-11					
Arsenic	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Barium	<b>43</b>	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	<b>ND</b>	0.56	EPA 6010D	3-19-19	3-20-19	
Chromium	<b>30</b>	0.56	EPA 6010D	3-19-19	3-20-19	
Lead	<b>ND</b>	5.6	EPA 6010D	3-19-19	3-20-19	
Mercury	<b>ND</b>	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Silver	<b>ND</b>	0.56	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>DGW3-25</b>					
Laboratory ID:	03-137-12					
Arsenic	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Barium	<b>30</b>	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	<b>ND</b>	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	<b>23</b>	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	<b>ND</b>	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	<b>ND</b>	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-19-19	3-20-19	
Silver	<b>ND</b>	0.55	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW5-27.5</b>					
Laboratory ID:	03-137-13					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	39	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.56	EPA 6010D	3-19-19	3-20-19	
Chromium	25	0.56	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.6	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.56	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW1-5.0</b>					
Laboratory ID:	03-137-14					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	49	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.57	EPA 6010D	3-19-19	3-20-19	
Chromium	25	0.57	EPA 6010D	3-19-19	3-20-19	
Lead	43	5.7	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.57	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW1-17.5</b>					
Laboratory ID:	03-137-15					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	45	2.9	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.57	EPA 6010D	3-19-19	3-20-19	
Chromium	43	0.57	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.7	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.29	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.57	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW15-20</b>					
Laboratory ID:	03-137-16					
Arsenic	ND	13	EPA 6010D	3-19-19	3-20-19	
Barium	170	3.3	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.66	EPA 6010D	3-19-19	3-20-19	
Chromium	18	0.66	EPA 6010D	3-19-19	3-20-19	
Lead	ND	6.6	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.33	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	13	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.66	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MPP4-10</b>					
Laboratory ID:	03-137-17					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	48	2.7	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.55	EPA 6010D	3-19-19	3-20-19	
Chromium	29	0.55	EPA 6010D	3-19-19	3-20-19	
Lead	5.6	5.5	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.55	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW7-10</b>					
Laboratory ID:	03-137-18					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	33	2.7	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.54	EPA 6010D	3-19-19	3-20-19	
Chromium	21	0.54	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.4	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.54	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW7-17.5</b>					
Laboratory ID:	03-137-19					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	37	2.7	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.53	EPA 6010D	3-19-19	3-20-19	
Chromium	34	0.53	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.3	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.53	EPA 6020B	3-19-19	3-20-19	

<b>Client ID:</b>	<b>MBGW7-40.0</b>					
Laboratory ID:	03-137-20					
Arsenic	ND	11	EPA 6010D	3-19-19	3-20-19	
Barium	42	2.8	EPA 6010D	3-19-19	3-20-19	
Cadmium	ND	0.56	EPA 6010D	3-19-19	3-20-19	
Chromium	36	0.56	EPA 6010D	3-19-19	3-20-19	
Lead	ND	5.6	EPA 6010D	3-19-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-19-19	3-20-19	
Silver	ND	0.56	EPA 6020B	3-19-19	3-20-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B/6020B  
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0319SM2					
Arsenic	ND	10	EPA 6010D	3-19-19	3-19-19	
Barium	ND	2.5	EPA 6010D	3-19-19	3-19-19	
Cadmium	ND	0.50	EPA 6010D	3-19-19	3-19-19	
Chromium	ND	0.50	EPA 6010D	3-19-19	3-19-19	
Lead	ND	5.0	EPA 6010D	3-19-19	3-19-19	
Selenium	ND	10	EPA 6010D	3-19-19	3-19-19	
Laboratory ID:	MB0319SM2					
Silver	ND	0.50	EPA 6020B	3-19-19	3-20-19	
Laboratory ID:	MB0319S1					
Mercury	ND	0.25	EPA 7471B	3-19-19	3-19-19	
Laboratory ID:	MB0322SM1					
Mercury	ND	0.25	EPA 7471B	3-22-19	3-22-19	



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B/6020B  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags		
<b>DUPLICATE</b>										
Laboratory ID:	03-137-01									
	ORIG	DUP								
Arsenic	ND	ND	NA	NA	NA	NA	20			
Barium	39.9	39.6	NA	NA	NA	1	20			
Cadmium	ND	ND	NA	NA	NA	NA	20			
Chromium	34.0	34.7	NA	NA	NA	2	20			
Lead	ND	ND	NA	NA	NA	NA	20			
Selenium	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-137-01									
Silver	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-137-01									
Mercury	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-203-03									
	ORIG	DUP								
Mercury	ND	ND	NA	NA	NA	NA	20			
<b>MATRIX SPIKES</b>										
Laboratory ID:	03-137-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	97.1	92.7	100	100	ND	97	93	75-125	5	20
Barium	138	139	100	100	39.9	99	99	75-125	1	20
Cadmium	50.0	49.0	50.0	50.0	ND	100	98	75-125	2	20
Chromium	133	137	100	100	34.0	99	103	75-125	3	20
Lead	250	250	250	250	ND	100	100	75-125	0	20
Selenium	94.1	93.7	100	100	ND	94	94	75-125	0	20
Laboratory ID:	03-137-01									
Silver	19.9	20.1	25.0	25.0	ND	80	81	75-125	1	20
Laboratory ID:	03-137-01									
Mercury	0.549	0.527	0.500	0.500	0.0129	107	103	80-120	4	20
Laboratory ID:	03-203-03									
	MS	MSD	MS	MSD		MS	MSD			
Mercury	0.556	0.556	0.500	0.500	0.0528	101	101	80-120	0	20



Date of Report: March 25, 2019  
 Samples Submitted: March 14, 2019  
 Laboratory Reference: 1903-137  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**  
**SPIKE BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>Percent Recovery</b>	<b>Recovery Limits</b>	<b>Flags</b>
<b>SPIKE BLANK</b>						
Laboratory ID:	SB0319SM2					
Arsenic	<b>96.7</b>	100	N/A	<b>97</b>	80-120	
Barium	<b>102</b>	100	N/A	<b>102</b>	80-120	
Cadmium	<b>49.0</b>	50.0	N/A	<b>98</b>	80-120	
Chromium	<b>103</b>	100	N/A	<b>103</b>	80-120	
Lead	<b>262</b>	250	N/A	<b>105</b>	80-120	
Selenium	<b>95.1</b>	100	N/A	<b>95</b>	80-120	
Laboratory ID:	SB0319SM2					
Silver	<b>21.4</b>	25.0	N/A	<b>86</b>	80-120	
Laboratory ID:	SB0319S1					
Mercury	<b>0.518</b>	0.500	N/A	<b>104</b>	80-120	
Laboratory ID:	SB0322S1					
Mercury	<b>0.539</b>	0.500	N/A	<b>108</b>	80-120	



Date of Report: March 25, 2019  
Samples Submitted: March 14, 2019  
Laboratory Reference: 1903-137  
Project: 1940901

### % MOISTURE

Date Analyzed: 3-19-19

Client ID	Lab ID	% Moisture
DGW2-10	03-137-01	9
MBPP1-7.5	03-137-02	9
MBPP2-10.0'	03-137-03	19
MBPP5-25	03-137-04	10
MBGW3-7.5	03-137-05	8
MBGW3-12.5	03-137-06	9
MBGW3-25.0	03-137-07	20
DGW1-25	03-137-08	9
DGW1-10	03-137-09	14
DGW3-2.5	03-137-10	10
DGW3-12.5	03-137-11	11
DGW3-25	03-137-12	9
MBGW5-27.5	03-137-13	11
MBGW1-5.0	03-137-14	12
MBGW1-17.5	03-137-15	13
MBGW15-20	03-137-16	24
MPP4-10	03-137-17	8
MBGW7-10	03-137-18	8
MBGW7-17.5	03-137-19	6
MBGW7-40.0	03-137-20	11





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference



# Sample Custody Record

Samples Shipped to: Onsite



Hart Crowsier, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB 1940901 LAB NUMBER **03-137**

PROJECT NAME Meyer Mega Block  
 HART CROWSER CONTACT Ray Jensen

SAMPLED BY:

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
1	DGWB2-10		3/4/19		Soil	X	1	
2	MBRP1-7.5		3/5/19			X	1	
3	MBRP2-10.0'		3/5/19			X	1	
4	MBRP5-2.5		3/7/19			X	1	
5	MBGW3-7.5		3/7/19			X	1	
6	MBGW3-12.5		3/7/19			X	1	
7	MBGW3-25.0		3/7/19			X	1	
8	DGW1-2.5		3/6/19	1106		X	1	
9	DGW1-10		3/6/19	1010		X	1	
10	DGW3-2.5		3/6/19	1335		X	1	
11	DGW3-12.5		3/6/19	1404		X	1	
12	DGW3-25		3/6/19	1442		X	1	

RCRA 8 Metals

% moisture

NO. OF CONTAINERS

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

SPECIAL SHIPMENT HANDLING OR  
STORAGE REQUIREMENTS:

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION

CUSTOMER SEALS:  
 YES  NO  N/A  
 GOOD CONDITION  
 YES  NO  
 TEMPERATURE \_\_\_\_\_  
 SHIPMENT METHOD:  HAND  OVERNIGHT  
 COURIER

TURNAROUND TIME:

24 HOURS  1 WEEK  
 48 HOURS  STANDARD  
 72 HOURS OTHER \_\_\_\_\_

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

See Lab Work Order No. \_\_\_\_\_  
 for Other Contract Requirements

White to Lab Yellow to Project Manager Pink to Sample Custodian

White to Lab

Yellow to Project Manager

Pink to Sample Custodian





14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

March 26, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-148

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 15, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 26, 2019  
Samples Submitted: March 15, 2019  
Laboratory Reference: 1903-148  
Project: 1940901

### Case Narrative

Samples were collected on March 8, 11, 12, 13 and 14, 2019 and received by the laboratory on March 15, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 26, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148  
 Project: 1940901

**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBPP7-5.0</b>					
Laboratory ID:	03-148-01					
Arsenic	ND	12	EPA 6010D	3-20-19	3-20-19	
Barium	200	3.0	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.60	EPA 6010D	3-20-19	3-20-19	
Chromium	38	0.60	EPA 6010D	3-20-19	3-20-19	
Lead	6.6	6.0	EPA 6010D	3-20-19	3-20-19	
Mercury	0.40	0.30	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	12	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.60	EPA 6020B	3-20-19	3-21-19	

<b>Client ID:</b>	<b>MBPP8-15.0</b>					
Laboratory ID:	03-148-02					
Arsenic	16	13	EPA 6010D	3-20-19	3-20-19	
Barium	80	3.2	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.63	EPA 6010D	3-20-19	3-20-19	
Chromium	30	0.63	EPA 6010D	3-20-19	3-20-19	
Lead	16	6.3	EPA 6010D	3-20-19	3-20-19	
Mercury	ND	0.32	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	13	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.63	EPA 6020B	3-20-19	3-21-19	

<b>Client ID:</b>	<b>MBGW9-10.0</b>					
Laboratory ID:	03-148-03					
Arsenic	ND	11	EPA 6010D	3-20-19	3-20-19	
Barium	43	2.6	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.53	EPA 6010D	3-20-19	3-20-19	
Chromium	42	0.53	EPA 6010D	3-20-19	3-20-19	
Lead	ND	5.3	EPA 6010D	3-20-19	3-20-19	
Mercury	ND	0.26	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.53	EPA 6020B	3-20-19	3-21-19	



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**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW10-10.0</b>					
Laboratory ID:	03-148-04					
Arsenic	ND	11	EPA 6010D	3-20-19	3-20-19	
Barium	48	2.7	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.54	EPA 6010D	3-20-19	3-20-19	
Chromium	44	0.54	EPA 6010D	3-20-19	3-20-19	
Lead	ND	5.4	EPA 6010D	3-20-19	3-20-19	
Mercury	ND	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.54	EPA 6020B	3-20-19	3-21-19	

<b>Client ID:</b>	<b>MBGW11-5.0</b>					
Laboratory ID:	03-148-09					
Arsenic	ND	11	EPA 6010D	3-20-19	3-20-19	
Barium	68	2.8	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.55	EPA 6010D	3-20-19	3-20-19	
Chromium	38	0.55	EPA 6010D	3-20-19	3-20-19	
Lead	10	5.5	EPA 6010D	3-20-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.55	EPA 6020B	3-20-19	3-21-19	

<b>Client ID:</b>	<b>HMW21B-7.5</b>					
Laboratory ID:	03-148-10					
Arsenic	ND	11	EPA 6010D	3-20-19	3-20-19	
Barium	72	2.8	EPA 6010D	3-20-19	3-20-19	
Cadmium	ND	0.56	EPA 6010D	3-20-19	3-20-19	
Chromium	33	0.56	EPA 6010D	3-20-19	3-20-19	
Lead	10	5.6	EPA 6010D	3-20-19	3-20-19	
Mercury	ND	0.28	EPA 7471B	3-19-19	3-19-19	
Selenium	ND	11	EPA 6010D	3-20-19	3-20-19	
Silver	ND	0.56	EPA 6020B	3-20-19	3-21-19	



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**TOTAL METALS**  
**EPA 6010D/7471B/6020B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW6-10</b>					
Laboratory ID:	03-148-14					
Arsenic	<b>ND</b>	11	EPA 6010D	3-20-19	3-20-19	
Barium	<b>32</b>	2.7	EPA 6010D	3-20-19	3-20-19	
Cadmium	<b>ND</b>	0.54	EPA 6010D	3-20-19	3-20-19	
Chromium	<b>21</b>	0.54	EPA 6010D	3-20-19	3-20-19	
Lead	<b>ND</b>	5.4	EPA 6010D	3-20-19	3-20-19	
Mercury	<b>ND</b>	0.27	EPA 7471B	3-19-19	3-19-19	
Selenium	<b>ND</b>	11	EPA 6010D	3-20-19	3-20-19	
Silver	<b>ND</b>	0.54	EPA 6020B	3-20-19	3-21-19	



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**TOTAL METALS  
 EPA 6010D/7471B/6020B  
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0320SM1					
Arsenic	<b>ND</b>	10	EPA 6010D	3-20-19	3-20-19	
Barium	<b>ND</b>	2.5	EPA 6010D	3-20-19	3-20-19	
Cadmium	<b>ND</b>	0.50	EPA 6010D	3-20-19	3-20-19	
Chromium	<b>ND</b>	0.50	EPA 6010D	3-20-19	3-20-19	
Lead	<b>ND</b>	5.0	EPA 6010D	3-20-19	3-20-19	
Selenium	<b>ND</b>	10	EPA 6010D	3-20-19	3-20-19	
Laboratory ID:	MB0320SM1					
Silver	<b>ND</b>	0.50	EPA 6020B	3-20-19	3-21-19	
Laboratory ID:	MB0319S2					
Mercury	<b>ND</b>	0.25	EPA 7471B	3-19-19	3-19-19	
Laboratory ID:	MB0322S1					
Mercury	<b>ND</b>	0.25	EPA 7471B	3-22-19	3-22-19	



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**TOTAL METALS  
 EPA 6010D/7471B/6020B  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags		
<b>DUPLICATE</b>										
Laboratory ID:	03-123-04									
	ORIG	DUP								
Arsenic	ND	ND	NA	NA	NA	NA	20			
Barium	39.9	42.6	NA	NA	NA	7	20			
Cadmium	ND	ND	NA	NA	NA	NA	20			
Chromium	46.9	39.0	NA	NA	NA	19	20			
Lead	ND	ND	NA	NA	NA	NA	20			
Selenium	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-123-04									
Silver	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-123-04									
Mercury	ND	ND	NA	NA	NA	NA	20			
Laboratory ID:	03-203-03									
	ORIG	DUP								
Mercury	ND	ND	NA	NA	NA	NA	20			
<b>MATRIX SPIKES</b>										
Laboratory ID:	03-123-04									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	101	97.8	100	100	ND	101	98	75-125	3	20
Barium	141	142	100	100	39.9	101	102	75-125	1	20
Cadmium	48.4	48.4	50.0	50.0	ND	97	97	75-125	0	20
Chromium	138	139	100	100	46.9	92	92	75-125	0	20
Lead	243	243	250	250	ND	97	97	75-125	0	20
Selenium	93.1	99.3	100	100	ND	93	99	75-125	6	20
Laboratory ID:	03-123-04									
Silver	18.8	19.3	25.0	25.0	ND	75	77	75-125	3	20
Laboratory ID:	03-123-04									
Mercury	0.576	0.593	0.500	0.500	0.0136	112	116	80-120	3	20
Laboratory ID:	03-203-03									
	MS	MSD	MS	MSD		MS	MSD			
Mercury	0.556	0.556	0.500	0.500	ND	111	111	80-120	0	20



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**TOTAL METALS**  
**EPA 6010D/7471B/6020B**  
**SPIKE BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>Spike Level</b>	<b>Source Result</b>	<b>Percent Recovery</b>	<b>Recovery Limits</b>	<b>Flags</b>
<b>SPIKE BLANK</b>						
Laboratory ID:	SB0320SM1					
Arsenic	<b>102</b>	100	N/A	<b>102</b>	80-120	
Barium	<b>102</b>	100	N/A	<b>102</b>	80-120	
Cadmium	<b>49.3</b>	50.0	N/A	<b>99</b>	80-120	
Chromium	<b>104</b>	100	N/A	<b>104</b>	80-120	
Lead	<b>253</b>	250	N/A	<b>101</b>	80-120	
Selenium	<b>101</b>	100	N/A	<b>101</b>	80-120	
<hr/>						
Laboratory ID:	SB0320SM1					
Silver	<b>21.3</b>	25.0	N/A	<b>85</b>	80-120	
<hr/>						
Laboratory ID:	SB0319S2					
Mercury	<b>0.557</b>	0.500	N/A	<b>111</b>	80-120	
<hr/>						
Laboratory ID:	SB0322S1					
Mercury	<b>0.539</b>	0.500	N/A	<b>108</b>	80-120	



Date of Report: March 26, 2019  
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 Project: 1940901

**TOTAL METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW9-GW</b>					
Laboratory ID:	03-148-05					
Arsenic	71	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	1900	110	EPA 200.8	3-19-19	3-19-19	
Cadmium	ND	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	930	44	EPA 200.8	3-19-19	3-19-19	
Lead	89	4.4	EPA 200.8	3-19-19	3-19-19	
Mercury	0.88	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	7.9	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	ND	11	EPA 200.8	3-19-19	3-19-19	

<b>Client ID:</b>	<b>MBGW10-GW</b>					
Laboratory ID:	03-148-06					
Arsenic	180	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	4200	280	EPA 200.8	3-19-19	3-19-19	
Cadmium	6.1	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	2300	110	EPA 200.8	3-19-19	3-19-19	
Lead	200	11	EPA 200.8	3-19-19	3-19-19	
Mercury	2.3	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	20	11	EPA 200.8	3-19-19	3-19-19	
Silver	ND	22	EPA 200.8	3-19-19	3-19-19	

<b>Client ID:</b>	<b>MBGW5-GW</b>					
Laboratory ID:	03-148-07					
Arsenic	130	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	3200	280	EPA 200.8	3-19-19	3-19-19	
Cadmium	5.8	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	1500	110	EPA 200.8	3-19-19	3-19-19	
Lead	140	11	EPA 200.8	3-19-19	3-19-19	
Mercury	2.2	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	25	11	EPA 200.8	3-19-19	3-19-19	
Silver	ND	11	EPA 200.8	3-19-19	3-19-19	



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**TOTAL METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW11-GW</b>					
Laboratory ID:	03-148-08					
Arsenic	<b>14</b>	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	<b>240</b>	56	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>86</b>	22	EPA 200.8	3-19-19	3-19-19	
Lead	<b>8.9</b>	2.2	EPA 200.8	3-19-19	3-19-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	

<b>Client ID:</b>	<b>MBGW6-GW</b>					
Laboratory ID:	03-148-11					
Arsenic	<b>15</b>	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	<b>200</b>	56	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>74</b>	22	EPA 200.8	3-19-19	3-19-19	
Lead	<b>10</b>	2.2	EPA 200.8	3-19-19	3-19-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	

<b>Client ID:</b>	<b>MBGW13-GW</b>					
Laboratory ID:	03-148-12					
Arsenic	<b>110</b>	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	<b>1600</b>	110	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>910</b>	44	EPA 200.8	3-19-19	3-19-19	
Lead	<b>110</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Mercury	<b>1.8</b>	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	<b>9.5</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	



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**TOTAL METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>DPP3-GW</b>					
Laboratory ID:	03-148-13					
Arsenic	<b>280</b>	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	<b>14000</b>	1100	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>13</b>	8.9	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>5400</b>	440	EPA 200.8	3-19-19	3-19-19	
Lead	<b>370</b>	44	EPA 200.8	3-19-19	3-19-19	
Mercury	<b>2.8</b>	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	<b>35</b>	11	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	



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**TOTAL METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0319WM1					
Arsenic	<b>ND</b>	3.3	EPA 200.8	3-19-19	3-19-19	
Barium	<b>ND</b>	28	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-19-19	3-19-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0319W1					
Mercury	<b>ND</b>	0.50	EPA 7470A	3-19-19	3-19-19	



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**TOTAL METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-162-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Lead	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20

Laboratory ID:	03-157-01							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:	03-162-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	128	125	111	111	ND	116	113	75-125	2	20
Barium	130	132	111	111	ND	117	119	75-125	2	20
Cadmium	123	122	111	111	ND	111	110	75-125	0	20
Chromium	121	116	111	111	ND	109	105	75-125	4	20
Lead	120	118	111	111	ND	108	107	75-125	1	20
Selenium	127	123	111	111	ND	115	111	75-125	4	20
Silver	116	112	111	111	ND	105	101	75-125	3	20

Laboratory ID:	03-157-01									
Mercury	12.2	12.2	12.5	12.5	ND	97	97	75-125	0	20

**SPIKE BLANK**

Laboratory ID:	SB0319WM1									
Arsenic	117		111		N/A	106		85-115		
Barium	118		111		N/A	106		85-115		
Cadmium	115		111		N/A	104		85-115		
Chromium	110		111		N/A	99		85-115		
Lead	118		111		N/A	106		85-115		
Selenium	114		111		N/A	103		85-115		
Silver	109		111		N/A	98		85-115		

Laboratory ID:	SB0319W1									
Mercury	11.9		12.5		N/A	95		80-120		



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**TOTAL SUSPENDED SOLIDS  
 SM 2540D**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW9-GW</b>					
Laboratory ID:	03-148-05					
Total Suspended Solids	<b>15000</b>	80	SM 2540D	3-18-19	3-18-19	

<b>Client ID:</b>	<b>MBGW10-GW</b>					
Laboratory ID:	03-148-06					
Total Suspended Solids	<b>38000</b>	80	SM 2540D	3-18-19	3-18-19	

<b>Client ID:</b>	<b>MBGW5-GW</b>					
Laboratory ID:	03-148-07					
Total Suspended Solids	<b>47000</b>	80	SM 2540D	3-18-19	3-18-19	

<b>Client ID:</b>	<b>MBGW11-GW</b>					
Laboratory ID:	03-148-08					
Total Suspended Solids	<b>2400</b>	8.0	SM 2540D	3-18-19	3-18-19	

<b>Client ID:</b>	<b>MBGW6-GW</b>					
Laboratory ID:	03-148-11					
Total Suspended Solids	<b>3800</b>	16	SM 2540D	3-18-19	3-18-19	

<b>Client ID:</b>	<b>MBGW13-GW</b>					
Laboratory ID:	03-148-12					
Total Suspended Solids	<b>11000</b>	40	SM 2540D	3-18-19	3-18-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148  
 Project: 1940901

**TOTAL SUSPENDED SOLIDS  
 SM 2540D  
 QUALITY CONTROL**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0318W1					
Total Suspended Solids	<b>ND</b>	4.0	SM 2540D	3-18-19	3-18-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-148-11							
	ORIG	DUP						
Total Suspended Solids	<b>3800</b>	<b>3620</b>	NA	NA	NA	5	22	

<b>SPIKE BLANK</b>								
Laboratory ID:	SB0318W1							
	SB	SB		SB				
Total Suspended Solids	<b>93.0</b>	100	NA	93	79-116	NA	NA	



Date of Report: March 26, 2019  
Samples Submitted: March 15, 2019  
Laboratory Reference: 1903-148  
Project: 1940901

### % MOISTURE

Date Analyzed: 3-19-19

Client ID	Lab ID	% Moisture
MBPP7-5.0	03-148-01	16
MBPP8-15.0	03-148-02	21
MBGW9-10.0	03-148-03	5
MBGW10-10.0	03-148-04	7
MBGW11-5.0	03-148-09	9
HMW21B-7.5	03-148-10	11
MBGW6-10	03-148-14	7





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference









14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

April 9, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-148B

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 15, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: April 9, 2019  
Samples Submitted: March 15, 2019  
Laboratory Reference: 1903-148B  
Project: 1940901

### Case Narrative

Samples were collected on March 8, 11, 12, 13 and 14, 2019 and received by the laboratory on March 15, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: April 9, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148B  
 Project: 1940901

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW9-GW</b>					
Laboratory ID:	03-148-05					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW10-GW</b>					
Laboratory ID:	03-148-06					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	26	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW5-GW</b>					
Laboratory ID:	03-148-07					
Arsenic	ND	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	ND	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	ND	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	ND	10	EPA 200.8	4-4-19	4-9-19	
Lead	ND	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	ND	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	ND	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	ND	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148B  
 Project: 1940901

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW11-GW</b>					
Laboratory ID:	03-148-08					
Arsenic	<b>6.9</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>32</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW6-GW</b>					
Laboratory ID:	03-148-11					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	

<b>Client ID:</b>	<b>MBGW13-GW</b>					
Laboratory ID:	03-148-12					
Arsenic	<b>3.3</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0404F1					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Laboratory ID:	MB0404F1					
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 15, 2019  
 Laboratory Reference: 1903-148B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-161-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	44.8	44.2	NA	NA	NA	1	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-061-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	03-161-01									
	MS	MSD	MS	MSD	MS	MSD				
Arsenic	83.8	82.8	80.0	80.0	ND	105	104	75-125	1	20
Barium	120	124	80.0	80.0	44.8	95	99	75-125	3	20
Cadmium	74.0	75.8	80.0	80.0	ND	93	95	75-125	2	20
Chromium	74.8	73.6	80.0	80.0	ND	94	92	75-125	2	20
Lead	78.8	81.2	80.0	80.0	ND	99	102	75-125	3	20
Selenium	92.0	98.6	80.0	80.0	ND	115	123	75-125	7	20
Silver	78.2	78.4	80.0	80.0	ND	98	98	75-125	0	20

Laboratory ID:	03-061-01									
Mercury	10.8	11.1	12.5	12.5	ND	86	89	75-125	3	20

**SPIKE BLANK**

Laboratory ID:	SB0404F1									
Arsenic	78.4		80.0		N/A	98		85-115		
Barium	77.4		80.0		N/A	97		85-115		
Cadmium	74.2		80.0		N/A	93		85-115		
Chromium	74.0		80.0		N/A	93		85-115		
Lead	77.4		80.0		N/A	97		85-115		
Selenium	78.6		80.0		N/A	98		85-115		
Silver	74.0		80.0		N/A	93		85-115		

Laboratory ID:	SB0404F1									
Mercury	10.8		12.5		N/A	86		80-120		





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference



# Sample Custody Record

Samples Shipped to: DPSite



Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

1082

JOB 194D901 LAB NUMBER 03-148  
PROJECT NAME Merces Hedge Block  
HART CROWSER CONTACT Roy Jensen  
SAMPLED BY:

~~RCRA Metals~~  
~~TSS~~  
~~DISSOLVED RCRA METALS~~  
~~REQUESTED ANALYSIS~~  
~~% MOISTURE~~

NO. OF CONTAINERS  
OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX										
1	<del>MBPT-5.0</del>	<del>MBPT-5.0</del>	<del>3/8/19</del>	<del>1158</del>	<del>SOIL</del>	X									
2	MBPT-15.0	MBPT-15.0	3/8/19	0915		X									
3	MBG09-10.0	MBG09-10.0	3/13/19	1355		X									
4	MBG010-10.0	MBG010-10.0	3/13/19	0900		X									
5	MBG09-6W	MBG09-6W	3/13/19	1615	water	X									
6	MBG010-6W	MBG010-6W	3/13/19	1115	water	X									
7	MBG05-6W	MBG05-6W	3/11/19	1300		X									
8	MBG011-6W	MBG011-6W	3/12/19	1443		X									
9	MBG011-5.0	MBG011-5.0	3/12/19	0913	soil	X									
10	HMW01B-7.5	HMW01B-7.5	3/12/19	1140	soil	X									
11	MBG06-6W	MBG06-6W	3/14/19	1620	water	X									
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:									
<u>MBPT</u>		<u>3/15/19</u>	<u>MBG</u>		<u>3/15/19</u>	<u>Added 4/21/19. DS (STA)</u>									
SIGNATURE		TIME	SIGNATURE		TIME	COOLER NO.:									
<u>MBPT</u>		<u>1230</u>	<u>MBG</u>		<u>1230</u>	STORAGE LOCATION:									
PRINT NAME			PRINT NAME			See Lab Work Order No. _____									
COMPANY			COMPANY			for Other Contract Requirements									
TURNAROUND TIME:												TOTAL NUMBER OF CONTAINERS			
<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____												SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE: _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> OVERNIGHT <input type="checkbox"/> COURIER			

White to Lab    Yellow to Project Manager    Pink to Sample Custodian





14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

March 26, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-161

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 18, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister  
Project Manager

Enclosures



---

OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: March 26, 2019  
Samples Submitted: March 18, 2019  
Laboratory Reference: 1903-161  
Project: 1940901

### Case Narrative

Samples were collected on March 15 and 16, 2019 and received by the laboratory on March 18, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW8-GW</b>					
Laboratory ID:	03-161-01					
Arsenic	<b>37</b>	6.7	EPA 200.8	3-19-19	3-19-19	
Barium	<b>800</b>	56	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>360</b>	22	EPA 200.8	3-19-19	3-19-19	
Lead	<b>30</b>	2.2	EPA 200.8	3-19-19	3-19-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-19-19	3-19-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0319WM1					
Arsenic	<b>ND</b>	3.3	EPA 200.8	3-19-19	3-19-19	
Barium	<b>ND</b>	28	EPA 200.8	3-19-19	3-19-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-19-19	3-19-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-19-19	3-19-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-19-19	3-19-19	
Silver	<b>ND</b>	11	EPA 200.8	3-19-19	3-19-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0319W1					
Mercury	<b>ND</b>	0.50	EPA 7470A	3-19-19	3-19-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-162-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Lead	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20

Laboratory ID:	03-157-01							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:	03-162-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	128	125	111	111	ND	116	113	75-125	2	20
Barium	130	132	111	111	ND	117	119	75-125	2	20
Cadmium	123	122	111	111	ND	111	110	75-125	0	20
Chromium	121	116	111	111	ND	109	105	75-125	4	20
Lead	120	118	111	111	ND	108	107	75-125	1	20
Selenium	127	123	111	111	ND	115	111	75-125	4	20
Silver	116	112	111	111	ND	105	101	75-125	3	20

Laboratory ID:	03-157-01									
Mercury	12.2	12.2	12.5	12.5	ND	97	97	75-125	0	20

**SPIKE BLANK**

Laboratory ID:	SB0319WM1									
Arsenic	117		111		N/A	106		85-115		
Barium	118		111		N/A	106		85-115		
Cadmium	115		111		N/A	104		85-115		
Chromium	110		111		N/A	99		85-115		
Lead	118		111		N/A	106		85-115		
Selenium	114		111		N/A	103		85-115		
Silver	109		111		N/A	98		85-115		

Laboratory ID:	SB0319W1									
Mercury	11.9		12.5		N/A	95		80-120		



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MBGW8-25.0</b>					
Laboratory ID:	03-161-02					
Arsenic	ND	11	EPA 6010D	3-22-19	3-22-19	
Barium	40	2.7	EPA 6010D	3-22-19	3-22-19	
Cadmium	ND	0.55	EPA 6010D	3-22-19	3-22-19	
Chromium	36	0.55	EPA 6010D	3-22-19	3-22-19	
Lead	ND	5.5	EPA 6010D	3-22-19	3-22-19	
Mercury	ND	0.27	EPA 7471B	3-22-19	3-22-19	
Selenium	ND	11	EPA 6010D	3-22-19	3-22-19	
Silver	ND	1.1	EPA 6010D	3-22-19	3-22-19	

<b>Client ID:</b>	<b>MBGW12-5.0</b>					
Laboratory ID:	03-161-03					
Arsenic	ND	11	EPA 6010D	3-22-19	3-22-19	
Barium	56	2.9	EPA 6010D	3-22-19	3-22-19	
Cadmium	ND	0.57	EPA 6010D	3-22-19	3-22-19	
Chromium	42	0.57	EPA 6010D	3-22-19	3-22-19	
Lead	ND	5.7	EPA 6010D	3-22-19	3-22-19	
Mercury	ND	0.29	EPA 7471B	3-22-19	3-22-19	
Selenium	ND	11	EPA 6010D	3-22-19	3-22-19	
Silver	ND	1.1	EPA 6010D	3-22-19	3-22-19	

<b>Client ID:</b>	<b>HMW31A-22.5</b>					
Laboratory ID:	03-161-04					
Arsenic	ND	12	EPA 6010D	3-22-19	3-22-19	
Barium	50	2.9	EPA 6010D	3-22-19	3-22-19	
Cadmium	ND	0.59	EPA 6010D	3-22-19	3-22-19	
Chromium	39	0.59	EPA 6010D	3-22-19	3-22-19	
Lead	ND	5.9	EPA 6010D	3-22-19	3-22-19	
Mercury	ND	0.29	EPA 7471B	3-22-19	3-22-19	
Selenium	ND	12	EPA 6010D	3-22-19	3-22-19	
Silver	ND	1.2	EPA 6010D	3-22-19	3-22-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B  
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0322SM1					
Arsenic	<b>ND</b>	10	EPA 6010D	3-22-19	3-22-19	
Barium	<b>ND</b>	2.5	EPA 6010D	3-22-19	3-22-19	
Cadmium	<b>ND</b>	0.50	EPA 6010D	3-22-19	3-22-19	
Chromium	<b>ND</b>	0.50	EPA 6010D	3-22-19	3-22-19	
Lead	<b>ND</b>	5.0	EPA 6010D	3-22-19	3-22-19	
Selenium	<b>ND</b>	10	EPA 6010D	3-22-19	3-22-19	
Silver	<b>ND</b>	1.0	EPA 6010D	3-22-19	3-22-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0322S1					
Mercury	<b>ND</b>	0.25	EPA 7471B	3-22-19	3-22-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL METALS  
 EPA 6010D/7471B  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-203-03							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	58.2	59.8	NA	NA	NA	3	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	51.5	45.6	NA	NA	NA	12	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-203-03							
Mercury	ND	ND	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	03-203-03									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	92.4	90.3	100	100	ND	92	90	75-125	2	20
Barium	158	162	100	100	58.2	100	104	75-125	2	20
Cadmium	46.6	47.4	50.0	50.0	ND	93	95	75-125	2	20
Chromium	131	133	100	100	51.5	80	82	75-125	1	20
Lead	233	238	250	250	ND	93	95	75-125	2	20
Selenium	91.7	88.3	100	100	ND	92	88	75-125	4	20
Silver	21.0	20.4	25.0	25.0	ND	84	82	75-125	3	20

Laboratory ID:	03-203-03									
Mercury	0.556	0.556	0.500	0.500	ND	111	111	80-120	0	20

**SPIKE BLANK**

Laboratory ID:	SB0322SM1									
Arsenic	100		100		N/A	100		80-120		
Barium	100		100		N/A	100		80-120		
Cadmium	47.8		50.0		N/A	96		80-120		
Chromium	103		100		N/A	103		80-120		
Lead	249		250		N/A	100		80-120		
Selenium	101		100		N/A	101		80-120		
Silver	25.4		25.0		N/A	101		80-120		

Laboratory ID:	SB0322S1									
Mercury	0.539		0.500		N/A	108		80-120		



Date of Report: March 26, 2019  
Samples Submitted: March 18, 2019  
Laboratory Reference: 1903-161  
Project: 1940901

**TOTAL SUSPENDED SOLIDS  
SM 2540D**

Matrix: Water  
Units: mg/L

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>MBGW8-GW</b>					
Laboratory ID:	03-161-01					
Total Suspended Solids	<b>8900</b>	40	SM 2540D	3-21-19	3-22-19	



Date of Report: March 26, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161  
 Project: 1940901

**TOTAL SUSPENDED SOLIDS  
 SM 2540D  
 QUALITY CONTROL**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0321W1					
Total Suspended Solids	<b>ND</b>	4.0	SM 2540D	3-21-19	3-22-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-176-01							
	ORIG	DUP						
Total Suspended Solids	<b>33.0</b>	<b>34.0</b>	NA	NA	NA	3	22	

<b>SPIKE BLANK</b>								
Laboratory ID:	SB0321W1							
	SB	SB		SB				
Total Suspended Solids	<b>103</b>	100	NA	103	79-116	NA	NA	



Date of Report: March 26, 2019  
Samples Submitted: March 18, 2019  
Laboratory Reference: 1903-161  
Project: 1940901

### % MOISTURE

Date Analyzed: 3-22-19

Client ID	Lab ID	% Moisture
MBGW8-25.0	03-161-02	9
MBGW12-5.0	03-161-03	13
HMW31A-22.5	03-161-04	15





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

April 9, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-161B

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 18, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: April 9, 2019  
Samples Submitted: March 18, 2019  
Laboratory Reference: 1903-161B  
Project: 1940901

### Case Narrative

Samples were collected on March 15 and 16, 2019 and received by the laboratory on March 18, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: April 9, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161B  
 Project: 1940901

**DISSOLVED METALS**  
**EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>MBGW8-GW</b>					
Laboratory ID:	03-161-01					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>45</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0404F1					
Arsenic	<b>ND</b>	3.0	EPA 200.8	4-4-19	4-9-19	
Barium	<b>ND</b>	25	EPA 200.8	4-4-19	4-9-19	
Cadmium	<b>ND</b>	4.0	EPA 200.8	4-4-19	4-9-19	
Chromium	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Lead	<b>ND</b>	1.0	EPA 200.8	4-4-19	4-9-19	
Selenium	<b>ND</b>	5.0	EPA 200.8	4-4-19	4-9-19	
Silver	<b>ND</b>	10	EPA 200.8	4-4-19	4-9-19	
Laboratory ID:	MB0404F1					
Mercury	<b>ND</b>	0.50	EPA 7470A	4-4-19	4-8-19	



Date of Report: April 9, 2019  
 Samples Submitted: March 18, 2019  
 Laboratory Reference: 1903-161B  
 Project: 1940901

**DISSOLVED METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-161-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	44.8	44.2	NA	NA	NA	1	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	03-061-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	03-161-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	83.8	82.8	80.0	80.0	ND	105	104	75-125	1	20
Barium	120	124	80.0	80.0	44.8	95	99	75-125	3	20
Cadmium	74.0	75.8	80.0	80.0	ND	93	95	75-125	2	20
Chromium	74.8	73.6	80.0	80.0	ND	94	92	75-125	2	20
Lead	78.8	81.2	80.0	80.0	ND	99	102	75-125	3	20
Selenium	92.0	98.6	80.0	80.0	ND	115	123	75-125	7	20
Silver	78.2	78.4	80.0	80.0	ND	98	98	75-125	0	20

Laboratory ID:	03-061-01									
Mercury	10.8	11.1	12.5	12.5	ND	86	89	75-125	3	20

**SPIKE BLANK**

Laboratory ID:	SB0404F1									
Arsenic	78.4		80.0		N/A	98		85-115		
Barium	77.4		80.0		N/A	97		85-115		
Cadmium	74.2		80.0		N/A	93		85-115		
Chromium	74.0		80.0		N/A	93		85-115		
Lead	77.4		80.0		N/A	97		85-115		
Selenium	78.6		80.0		N/A	98		85-115		
Silver	74.0		80.0		N/A	93		85-115		

Laboratory ID:	SB0404F1									
Mercury	10.8		12.5		N/A	86		80-120		





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference







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April 2, 2019

Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott, Suite 600  
Seattle, WA 98121

Re: Analytical Data for Project 1940901  
Laboratory Reference No. 1903-216

Dear Roy:

Enclosed are the analytical results and associated quality control data for samples submitted on March 25, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: April 2, 2019  
Samples Submitted: March 25, 2019  
Laboratory Reference: 1903-216  
Project: 1940901

### Case Narrative

Samples were collected on March 20, 21 and 22, 2019 and received by the laboratory on March 25, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: April 2, 2019  
 Samples Submitted: March 25, 2019  
 Laboratory Reference: 1903-216  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>HMW-1S-GW</b>					
Laboratory ID:	03-216-01					
Arsenic	<b>14</b>	3.3	EPA 200.8	3-29-19	3-29-19	
Barium	<b>83</b>	28	EPA 200.8	3-29-19	3-29-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-29-19	3-29-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	
Lead	<b>2.7</b>	1.1	EPA 200.8	3-29-19	3-29-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-28-19	3-28-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-29-19	3-29-19	
Silver	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	

<b>Client ID:</b>	<b>DMW-1S-GW-21</b>					
Laboratory ID:	03-216-02					
Arsenic	<b>8.1</b>	3.3	EPA 200.8	3-29-19	3-29-19	
Barium	<b>38</b>	28	EPA 200.8	3-29-19	3-29-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-29-19	3-29-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-29-19	3-29-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-28-19	3-28-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-29-19	3-29-19	
Silver	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	

<b>Client ID:</b>	<b>DMW-1S-GW-22</b>					
Laboratory ID:	03-216-03					
Arsenic	<b>8.3</b>	3.3	EPA 200.8	3-29-19	3-29-19	
Barium	<b>40</b>	28	EPA 200.8	3-29-19	3-29-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-29-19	3-29-19	
Chromium	<b>14</b>	11	EPA 200.8	3-29-19	3-29-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-29-19	3-29-19	
Mercury	<b>ND</b>	0.50	EPA 7470A	3-28-19	3-28-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-29-19	3-29-19	
Silver	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	



Date of Report: April 2, 2019  
 Samples Submitted: March 25, 2019  
 Laboratory Reference: 1903-216  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 METHOD BLANK QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>METHOD BLANK</b>						
Laboratory ID:	MB0329WM1					
Arsenic	<b>ND</b>	3.3	EPA 200.8	3-29-19	3-29-19	
Barium	<b>ND</b>	28	EPA 200.8	3-29-19	3-29-19	
Cadmium	<b>ND</b>	4.4	EPA 200.8	3-29-19	3-29-19	
Chromium	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	
Lead	<b>ND</b>	1.1	EPA 200.8	3-29-19	3-29-19	
Selenium	<b>ND</b>	5.6	EPA 200.8	3-29-19	3-29-19	
Silver	<b>ND</b>	11	EPA 200.8	3-29-19	3-29-19	
<b>METHOD BLANK</b>						
Laboratory ID:	MB0328W2					
Mercury	<b>ND</b>	0.50	EPA 7470A	3-28-19	3-28-19	



Date of Report: April 2, 2019  
 Samples Submitted: March 25, 2019  
 Laboratory Reference: 1903-216  
 Project: 1940901

**TOTAL METALS  
 EPA 200.8/7470A  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
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**DUPLICATE**

Laboratory ID:		03-106-06							
	ORIG	DUP	Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit
Arsenic	ND	ND	NA	NA		NA	NA	NA	20
Barium	ND	ND	NA	NA		NA	NA	NA	20
Cadmium	ND	ND	NA	NA		NA	NA	NA	20
Chromium	ND	ND	NA	NA		NA	NA	NA	20
Lead	ND	ND	NA	NA		NA	NA	NA	20
Selenium	ND	ND	NA	NA		NA	NA	NA	20
Silver	ND	ND	NA	NA		NA	NA	NA	20

Laboratory ID:		03-240-01							
Mercury	ND	ND	NA	NA		NA	NA	NA	20

**MATRIX SPIKES**

Laboratory ID:		03-106-06								
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	110	111	111	111	ND	99	100	75-125	1	20
Barium	121	122	111	111	ND	109	110	75-125	1	20
Cadmium	106	105	111	111	ND	95	95	75-125	1	20
Chromium	103	102	111	111	ND	93	92	75-125	0	20
Lead	102	103	111	111	ND	92	93	75-125	0	20
Selenium	111	107	111	111	ND	100	96	75-125	4	20
Silver	115	108	111	111	ND	104	98	75-125	6	20

Laboratory ID:		03-240-01								
Mercury	6.33	6.38	6.25	6.25	ND	101	102	75-125	1	20

**SPIKE BLANK**

Laboratory ID:		SB0329WM1								
Arsenic	115		111		N/A	103		85-115		
Barium	111		111		N/A	100		85-115		
Cadmium	112		111		N/A	101		85-115		
Chromium	104		111		N/A	94		85-115		
Lead	110		111		N/A	99		85-115		
Selenium	119		111		N/A	107		85-115		
Silver	116		111		N/A	105		85-115		

Laboratory ID:		SB0328W2								
Mercury	6.20		6.25		N/A	99		80-120		



Date of Report: April 2, 2019  
 Samples Submitted: March 25, 2019  
 Laboratory Reference: 1903-216  
 Project: 1940901

**TOTAL SUSPENDED SOLIDS  
 SM 2540D**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>HMW-1S-GW</b>					
Laboratory ID:	03-216-01					
Total Suspended Solids	<b>180</b>	4.0	SM 2540D	3-26-19	3-27-19	

<b>Client ID:</b>	<b>DMW-1S-GW-21</b>					
Laboratory ID:	03-216-02					
Total Suspended Solids	<b>31</b>	4.0	SM 2540D	3-26-19	3-27-19	

<b>Client ID:</b>	<b>DMW-1S-GW-22</b>					
Laboratory ID:	03-216-03					
Total Suspended Solids	<b>48</b>	4.0	SM 2540D	3-26-19	3-27-19	



Date of Report: April 2, 2019  
 Samples Submitted: March 25, 2019  
 Laboratory Reference: 1903-216  
 Project: 1940901

**TOTAL SUSPENDED SOLIDS  
 SM 2540D  
 QUALITY CONTROL**

Matrix: Water  
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0326W1					
Total Suspended Solids	<b>ND</b>	4.0	SM 2540D	3-26-19	3-27-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	03-216-01							
	ORIG	DUP						
Total Suspended Solids	<b>183</b>	<b>183</b>	NA	NA	NA	NA	0	22

<b>SPIKE BLANK</b>								
Laboratory ID:	SB0326W1							
	SB	SB		SB				
Total Suspended Solids	<b>79.0</b>	100	NA	79	79-116	NA	NA	





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference





March 20, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90305-1)* Project.

Samples were received on *March 05, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

AAL Job Number: C90305-1  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: Mercer Megablock  
Client Project Number: 19409-01  
Date received: 03/05/19

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results

8260B, µg/L	MTH BLK	LCS	MBGW2-30W	DGW4-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/06/19	03/06/19	03/06/19
MTBE	5.0	nd		nd
Chloromethane	1.0	nd		nd
Vinyl chloride(*)	0.2	nd		nd
Bromomethane	1.0	nd		nd
Chloroethane	1.0	nd		nd
Trichlorofluoromethane	1.0	nd		nd
1,1-Dichloroethene	1.0	nd		nd
Methylene chloride	1.0	nd		nd
trans-1,2-Dichloroethene	1.0	nd		nd
1,1-Dichloroethane	1.0	nd		nd
2,2-Dichloropropane	1.0	nd		nd
cis-1,2-Dichloroethene	1.0	nd		nd
Chloroform	1.0	nd		nd
1,1,1-Trichloroethane	1.0	nd		nd
Carbontetrachloride	1.0	nd		nd
1,1-Dichloropropene	1.0	nd		nd
Benzene	1.0	nd	90%	nd
1,2-Dichloroethane(EDC)	1.0	nd		nd
Trichloroethene	1.0	nd	90%	nd
1,2-Dichloropropane	1.0	nd		nd
Dibromomethane	1.0	nd		nd
Bromodichloromethane	1.0	nd		nd
cis-1,3-Dichloropropene	1.0	nd		nd
Toluene	1.0	nd	98%	nd
trans-1,3-Dichloropropene	1.0	nd		nd
1,1,2-Trichloroethane	1.0	nd		nd
Tetrachloroethene	1.0	nd		nd
1,3-Dichloropropane	1.0	nd		nd
Dibromochloromethane	1.0	nd		nd
1,2-Dibromoethane (EDB)*	0.01	nd		nd
Chlorobenzene	1.0	nd	109%	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd
Ethylbenzene	1.0	nd		nd
Xylenes	1.0	nd		nd
Styrene	1.0	nd		nd
Bromoform	1.0	nd		nd
Isopropylbenzene	1.0	nd		nd
1,2,3-Trichloropropane	1.0	nd		nd
Bromobenzene	1.0	nd		nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd
n-Propylbenzene	1.0	nd		nd
2-Chlorotoluene	1.0	nd		nd
4-Chlorotoluene	1.0	nd		nd
1,3,5-Trimethylbenzene	1.0	nd		nd
tert-Butylbenzene	1.0	nd		nd
1,2,4-Trimethylbenzene	1.0	nd		nd
sec-Butylbenzene	1.0	nd		nd
1,3-Dichlorobenzene	1.0	nd		nd

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results

8260B, µg/L		MTH BLK	LCS	MBGW2-30W	DGW4-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/06/19	03/06/19	03/06/19	03/06/19
Isopropyltoluene	1.0	nd		nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd
n-Butylbenzene	1.0	nd		nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd
Naphthalene	1.0	nd		nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane		97%	99%	97%	95%
Toluene-d8		107%	97%	102%	102%
1,2-Dichloroethane-d4		98%	100%	104%	102%
4-Bromofluorobenzene		106%	111%	107%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results		MS	MSD	RPD
<b>8260B, µg/L</b>		<b>MBGW2-30W</b>	<b>MBGW2-30W</b>	<b>MBGW2-30W</b>
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/06/19	03/06/19	03/06/19
MTBE	5.0			
Chloromethane	1.0			
Vinyl chloride(*)	0.2			
Bromomethane	1.0			
Chloroethane	1.0			
Trichlorofluoromethane	1.0			
1,1-Dichloroethene	1.0			
Methylene chloride	1.0			
trans-1,2-Dichloroethene	1.0			
1,1-Dichloroethane	1.0			
2,2-Dichloropropane	1.0			
cis-1,2-Dichloroethene	1.0			
Chloroform	1.0			
1,1,1-Trichloroethane	1.0			
Carbontetrachloride	1.0			
1,1-Dichloropropene	1.0			
Benzene	1.0	87%	93%	7%
1,2-Dichloroethane(EDC)	1.0			
Trichloroethene	1.0	88%	99%	12%
1,2-Dichloropropane	1.0			
Dibromomethane	1.0			
Bromodichloromethane	1.0			
cis-1,3-Dichloropropene	1.0			
Toluene	1.0	94%	105%	11%
trans-1,3-Dichloropropene	1.0			
1,1,2-Trichloroethane	1.0			
Tetrachloroethene	1.0			
1,3-Dichloropropane	1.0			
Dibromochloromethane	1.0			
1,2-Dibromoethane (EDB)*	0.01			
Chlorobenzene	1.0	100%	111%	10%
1,1,1,2-Tetrachloroethane	1.0			
Ethylbenzene	1.0			
Xylenes	1.0			
Styrene	1.0			
Bromoform	1.0			
Isopropylbenzene	1.0			
1,2,3-Trichloropropane	1.0			
Bromobenzene	1.0			
1,1,2,2-Tetrachloroethane	1.0			
n-Propylbenzene	1.0			
2-Chlorotoluene	1.0			
4-Chlorotoluene	1.0			
1,3,5-Trimethylbenzene	1.0			
tert-Butylbenzene	1.0			
1,2,4-Trimethylbenzene	1.0			
sec-Butylbenzene	1.0			
1,3-Dichlorobenzene	1.0			

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW2-30W	MBGW2-30W	MBGW2-30W
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/06/19	03/06/19	03/06/19

Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
1,2-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dibromo-3-Chloropropane	1.0
1,2,4-Trichlorobenzene	1.0
Hexachloro-1,3-butadiene	1.0
Naphthalene	1.0
1,2,3-Trichlorobenzene	1.0

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	98%	96%
Toluene-d8	96%	93%
1,2-Dichloroethane-d4	101%	104%
4-Bromofluorobenzene	111%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results					Dupl
NWTPH-Dx, mg/L		MTH BLK	MBGW2-30W	DGW4-GW	DGW4-GW
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	03/05/19	03/05/19	03/05/19	03/05/19
Date analyzed	Limits	03/05/19	03/05/19	03/05/19	03/05/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	113%	113%	125%	121%
o-Terphenyl	128%	114%	125%	123%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90305-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/05/19

Analytical Results					Dupl
NWTPH-Gx		MTH BLK	MBGW2-30W	DGW4-GW	DGW4-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/06/19	03/06/19	03/06/19	03/06/19

<u>NWTPH-Gx, mg/L</u>					
Mineral spirits/Stoddard	0.10	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd

Surrogate recoveries:					
Trifluorotoluene		80%	74%	71%	74%
Bromofluorobenzene		96%	94%	91%	84%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%



March 20, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90307-1)* Project.

Samples were received on *March 07, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

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4078 148 Ave NE ■ Redmond, WA 98052

425.702-8571

*E-mail: aachemlab@yahoo.com*

AAL Job Number: C90307-1  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: Mercer Megablock  
Client Project Number: 19409-01  
Date received: 03/07/19

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results

8260B, µg/L	MTH BLK	LCS	DPP3-GW	MBGW7-GW	MBGW1-GW	
Matrix	Water	Water	Water	Water	Water	
Date analyzed	Reporting Limits	03/09/19	03/09/19	03/09/19	03/09/19	
MTBE	5.0	nd		nd	nd	nd
Chloromethane	1.0	nd		nd	nd	nd
Vinyl chloride(*)	0.2	nd		nd	nd	nd
Bromomethane	1.0	nd		nd	nd	nd
Chloroethane	1.0	nd		nd	nd	nd
Trichlorofluoromethane	1.0	nd		nd	nd	nd
1,1-Dichloroethene	1.0	nd		nd	nd	nd
Methylene chloride	1.0	nd		nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd		nd	nd	nd
1,1-Dichloroethane	1.0	nd		nd	nd	nd
2,2-Dichloropropane	1.0	nd		nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd		nd	nd	19
Chloroform	1.0	nd		nd	nd	nd
1,1,1-Trichloroethane	1.0	nd		nd	nd	nd
Carbontetrachloride	1.0	nd		nd	nd	nd
1,1-Dichloropropene	1.0	nd		nd	nd	nd
Benzene	1.0	nd	89%	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd		nd	nd	nd
Trichloroethene	1.0	nd	87%	nd	nd	3.9
1,2-Dichloropropane	1.0	nd		nd	nd	nd
Dibromomethane	1.0	nd		nd	nd	nd
Bromodichloromethane	1.0	nd		nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd		nd	nd	nd
Toluene	1.0	nd	98%	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd		nd	nd	nd
1,1,2-Trichloroethane	1.0	nd		nd	nd	nd
Tetrachloroethene	1.0	nd		nd	nd	9.5
1,3-Dichloropropane	1.0	nd		nd	nd	nd
Dibromochloromethane	1.0	nd		nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd		nd	nd	nd
Chlorobenzene	1.0	nd	108%	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd	nd	nd
Ethylbenzene	1.0	nd		nd	nd	nd
Xylenes	1.0	nd		nd	nd	nd
Styrene	1.0	nd		nd	nd	nd
Bromoform	1.0	nd		nd	nd	nd
Isopropylbenzene	1.0	nd		nd	nd	nd
1,2,3-Trichloropropane	1.0	nd		nd	nd	nd
Bromobenzene	1.0	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd	nd	nd
n-Propylbenzene	1.0	nd		nd	nd	nd
2-Chlorotoluene	1.0	nd		nd	nd	nd
4-Chlorotoluene	1.0	nd		nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd		nd	nd	nd
tert-Butylbenzene	1.0	nd		nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd		nd	nd	nd
sec-Butylbenzene	1.0	nd		nd	nd	nd
1,3-Dichlorobenzene	1.0	nd		nd	nd	nd

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results

8260B, µg/L		MTH BLK	LCS	DPP3-GW	MBGW7-GW	MBGW1-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19
Isopropyltoluene	1.0	nd		nd	nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd	nd
n-Butylbenzene	1.0	nd		nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd	nd
Naphthalene	1.0	nd		nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane		104%	94%	95%	93%	95%
Toluene-d8		111%	95%	104%	95%	102%
1,2-Dichloroethane-d4		99%	100%	99%	102%	99%
4-Bromofluorobenzene		99%	104%	104%	103%	109%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results		MS		MSD		RPD
8260B, µg/L	DGW3-GW	DGW1-GW	DPP3-GW	DPP3-GW	DPP3-GW	
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19
MTBE	5.0	nd	nd			
Chloromethane	1.0	nd	nd			
Vinyl chloride(*)	0.2	nd	nd			
Bromomethane	1.0	nd	nd			
Chloroethane	1.0	nd	nd			
Trichlorofluoromethane	1.0	nd	nd			
1,1-Dichloroethene	1.0	nd	nd			
Methylene chloride	1.0	nd	nd			
trans-1,2-Dichloroethene	1.0	nd	nd			
1,1-Dichloroethane	1.0	nd	nd			
2,2-Dichloropropane	1.0	nd	nd			
cis-1,2-Dichloroethene	1.0	nd	nd			
Chloroform	1.0	nd	nd			
1,1,1-Trichloroethane	1.0	nd	nd			
Carbontetrachloride	1.0	nd	nd			
1,1-Dichloropropene	1.0	nd	nd			
Benzene	1.0	nd	nd	87%	91%	4%
1,2-Dichloroethane(EDC)	1.0	nd	nd			
Trichloroethene	1.0	nd	nd	87%	91%	4%
1,2-Dichloropropane	1.0	nd	nd			
Dibromomethane	1.0	nd	nd			
Bromodichloromethane	1.0	nd	nd			
cis-1,3-Dichloropropene	1.0	nd	nd			
Toluene	1.0	nd	nd	99%	104%	5%
trans-1,3-Dichloropropene	1.0	nd	nd			
1,1,2-Trichloroethane	1.0	nd	nd			
Tetrachloroethene	1.0	nd	nd			
1,3-Dichloropropane	1.0	nd	nd			
Dibromochloromethane	1.0	nd	nd			
1,2-Dibromoethane (EDB)*	0.01	nd	nd			
Chlorobenzene	1.0	nd	nd	107%	111%	3%
1,1,1,2-Tetrachloroethane	1.0	nd	nd			
Ethylbenzene	1.0	nd	8.0			
Xylenes	1.0	nd	14			
Styrene	1.0	nd	nd			
Bromoform	1.0	nd	nd			
Isopropylbenzene	1.0	nd	2.6			
1,2,3-Trichloropropane	1.0	nd	nd			
Bromobenzene	1.0	nd	nd			
1,1,2,2-Tetrachloroethane	1.0	nd	nd			
n-Propylbenzene	1.0	nd	3.7			
2-Chlorotoluene	1.0	nd	nd			
4-Chlorotoluene	1.0	nd	nd			
1,3,5-Trimethylbenzene	1.0	nd	6.5			
tert-Butylbenzene	1.0	nd	nd			
1,2,4-Trimethylbenzene	1.0	nd	12			
sec-Butylbenzene	1.0	nd	1.2			
1,3-Dichlorobenzene	1.0	nd	nd			

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results		MS	MSD	RPD	
8260B, µg/L	DGW3-GW	DGW1-GW	DPP3-GW	DPP3-GW	DPP3-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/09/19	03/09/19	03/09/19	03/09/19
Isopropyltoluene	1.0	nd	1.7		
1,4-Dichlorobenzene	1.0	nd	nd		
1,2-Dichlorobenzene	1.0	nd	nd		
n-Butylbenzene	1.0	nd	nd		
1,2-Dibromo-3-Chloropropane	1.0	nd	nd		
1,2,4-Trichlorobenzene	1.0	nd	1.5		
Hexachloro-1,3-butadiene	1.0	nd	nd		
Naphthalene	1.0	nd	nd		
1,2,3-Trichlorobenzene	1.0	nd	nd		

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	97%	96%	96%	92%
Toluene-d8	106%	104%	96%	89%
1,2-Dichloroethane-d4	101%	99%	106%	104%
4-Bromofluorobenzene	104%	124%	106%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results

NWTPH-Dx, mg/L		MTH BLK	DPP3-GW	MBGW7-GW	MBGW1-GW	DGW3-GW
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Date analyzed	Limits	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	122%	122%	118%	119%	117%
o-Terphenyl	128%	120%	120%	122%	119%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results		Dupl	
NWTPH-Dx, mg/L		DGW1-GW	DGW1-GW
Matrix	Water	Water	Water
Date extracted	Reporting	03/07/19	03/07/19
Date analyzed	Limits	03/07/19	03/07/19
Kerosene/Jet fuel	0.20	nd	nd
Diesel/Fuel oil	0.20	nd	nd
Heavy oil	0.50	nd	nd

Surrogate recoveries:

Fluorobiphenyl	120%	127%
o-Terphenyl	120%	129%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results

NWTPH-Gx		MTH BLK	DPP3-GW	MBGW7-GW	MBGW1-GW	DGW3-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19

**NWTPH-Gx, mg/L**

Mineral spirits/Stoddard	0.10	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	95%	104%	103%	103%	99%
Bromofluorobenzene	97%	99%	97%	103%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90307-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/07/19

Analytical Results		Dupl	RPD
<b>NWTPH-Gx</b>		<b>DGW1-GW</b>	<b>DGW1-GW</b>
Matrix	Water	Water	Water
Date analyzed	Reporting Limits	03/09/19	03/09/19

<b>NWTPH-Gx, mg/L</b>				
Mineral spirits/Stoddard	0.10	nd	nd	
Gasoline	0.10	0.34	0.37	8%

Surrogate recoveries:				
Trifluorotoluene		95%	101%	
Bromofluorobenzene		102%	97%	

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

# Sample Custody Record

Samples Shipped to: AAAL



C90307-1

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1941090</u> LAB NUMBER _____						REQUESTED ANALYSIS										NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS				
PROJECT NAME <u>Mercer Megablock</u>						NWTPH-DX	NWTPH-GX	VOCs	PAHs												
HART CROWSER CONTACT <u>Roy Jensen</u>																					
SAMPLED BY: <u>CLR/MCS</u>																					
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX																
	<del>DW15-GW</del>	<del>Water</del>	<del>3/5/14</del>	<del>13:58</del>	<del>Water</del>			X													
	<del>DW12-GW</del>	<del>Water</del>																			
	<del>DW15-GW</del>	<del>Water</del>	<del>3/5/14</del>	<del>13:58</del>	<del>Water</del>																
	DPP3-GW	↓	3/5/14	16:15	↓	X	X	X													6
	MBGW7-GW	↓	3/6/14	10:40	↓	X	X	X													6
	MBGW1-GW	↓	3/6/14	13:00	↓	X	X	X													6
	DGW3-GW	↓	3/6/14	16:45	↓	X	X	X													6
	DGW2-GW	↓	3/6/14	12:20	↓	X	X	X													6
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:										TOTAL NUMBER OF CONTAINERS					
<i>Mike Shaljiun</i>		3/6/14	<i>V. F. Ivanov</i>		03/07/14											SAMPLE RECEIPT INFORMATION					
SIGNATURE		TIME	SIGNATURE		TIME											CUSTODY SEALS:					
PRINT NAME		18:40	PRINT NAME		10:00											<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A					
COMPANY			COMPANY													GOOD CONDITION					
																<input type="checkbox"/> YES <input type="checkbox"/> NO					
																TEMPERATURE _____					
																SHIPMENT METHOD: <input type="checkbox"/> HAND					
																<input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT					
RELINQUISHED BY		DATE	RECEIVED BY		DATE	COOLER NO.:					STORAGE LOCATION:					TURNAROUND TIME:					
SIGNATURE		TIME	SIGNATURE		TIME											<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK					
PRINT NAME			PRINT NAME			See Lab Work Order No. _____										<input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD					
COMPANY			COMPANY			for Other Contract Requirements										<input type="checkbox"/> 72 HOURS    OTHER _____					

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

March 20, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90309-3)* Project.

Samples were received on *March 09, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

AAL Job Number: C90309-3  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: Mercer Megablock  
Client Project Number: 19409-01  
Date received: 03/09/17

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results

8260B, µg/L	MTH BLK	LCS	DGW2	MBGW3	MBPP5	MBGW16
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/11/19	03/11/19	03/11/19	03/11/19	03/11/19
MTBE	5.0	nd		nd	nd	nd
Chloromethane	1.0	nd		nd	nd	nd
Vinyl chloride(*)	0.2	nd		nd	nd	nd
Bromomethane	1.0	nd		nd	nd	nd
Chloroethane	1.0	nd		nd	nd	nd
Trichlorofluoromethane	1.0	nd		nd	nd	nd
1,1-Dichloroethene	1.0	nd		nd	nd	nd
Methylene chloride	1.0	nd		nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd		nd	nd	nd
1,1-Dichloroethane	1.0	nd		nd	nd	nd
2,2-Dichloropropane	1.0	nd		nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd		nd	4.8	nd
Chloroform	1.0	nd		nd	nd	nd
1,1,1-Trichloroethane	1.0	nd		nd	nd	nd
Carbontetrachloride	1.0	nd		nd	nd	nd
1,1-Dichloropropene	1.0	nd		nd	nd	nd
Benzene	1.0	nd	88%	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd		nd	nd	nd
Trichloroethene	1.0	nd	88%	nd	7.4	nd
1,2-Dichloropropane	1.0	nd		nd	nd	nd
Dibromomethane	1.0	nd		nd	nd	nd
Bromodichloromethane	1.0	nd		nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd		nd	nd	nd
Toluene	1.0	nd	100%	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd		nd	nd	nd
1,1,2-Trichloroethane	1.0	nd		nd	nd	nd
Tetrachloroethene	1.0	nd		nd	35	2.9
1,3-Dichloropropane	1.0	nd		nd	nd	nd
Dibromochloromethane	1.0	nd		nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd		nd	nd	nd
Chlorobenzene	1.0	nd	102%	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd	nd	nd
Ethylbenzene	1.0	nd		nd	nd	nd
Xylenes	1.0	nd		nd	nd	nd
Styrene	1.0	nd		nd	nd	nd
Bromoform	1.0	nd		nd	nd	nd
Isopropylbenzene	1.0	nd		nd	nd	nd
1,2,3-Trichloropropane	1.0	nd		nd	nd	nd
Bromobenzene	1.0	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd	nd	nd
n-Propylbenzene	1.0	nd		nd	nd	nd
2-Chlorotoluene	1.0	nd		nd	nd	nd
4-Chlorotoluene	1.0	nd		nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd		nd	nd	nd
tert-Butylbenzene	1.0	nd		nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd		nd	nd	nd
sec-Butylbenzene	1.0	nd		nd	nd	nd
1,3-Dichlorobenzene	1.0	nd		nd	nd	nd

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results

8260B, µg/L		MTH BLK	LCS	DGW2	MBGW3	MBPP5	MBGW16
Matrix	Water	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/11/19	03/11/19	03/11/19	03/11/19	03/11/19	03/11/19
Isopropyltoluene	1.0	nd		nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd	nd	nd
n-Butylbenzene	1.0	nd		nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd	nd	nd
Naphthalene	1.0	nd		nd	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane		101%	94%	96%	93%	92%	93%
Toluene-d8		114%	96%	101%	98%	98%	93%
1,2-Dichloroethane-d4		97%	102%	98%	99%	99%	99%
4-Bromofluorobenzene		103%	108%	102%	110%	111%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW16	MBGW16	MBGW16
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/11/19	03/11/19	03/11/19

MTBE	5.0			
Chloromethane	1.0			
Vinyl chloride(*)	0.2			
Bromomethane	1.0			
Chloroethane	1.0			
Trichlorofluoromethane	1.0			
1,1-Dichloroethene	1.0			
Methylene chloride	1.0			
trans-1,2-Dichloroethene	1.0			
1,1-Dichloroethane	1.0			
2,2-Dichloropropane	1.0			
cis-1,2-Dichloroethene	1.0			
Chloroform	1.0			
1,1,1-Trichloroethane	1.0			
Carbontetrachloride	1.0			
1,1-Dichloropropene	1.0			
Benzene	1.0	91%	77%	17%
1,2-Dichloroethane(EDC)	1.0			
Trichloroethene	1.0	90%	76%	16%
1,2-Dichloropropane	1.0			
Dibromomethane	1.0			
Bromodichloromethane	1.0			
cis-1,3-Dichloropropene	1.0			
Toluene	1.0	99%	88%	12%
trans-1,3-Dichloropropene	1.0			
1,1,2-Trichloroethane	1.0			
Tetrachloroethene	1.0			
1,3-Dichloropropane	1.0			
Dibromochloromethane	1.0			
1,2-Dibromoethane (EDB)*	0.01			
Chlorobenzene	1.0	112%	96%	15%
1,1,1,2-Tetrachloroethane	1.0			
Ethylbenzene	1.0			
Xylenes	1.0			
Styrene	1.0			
Bromoform	1.0			
Isopropylbenzene	1.0			
1,2,3-Trichloropropane	1.0			
Bromobenzene	1.0			
1,1,2,2-Tetrachloroethane	1.0			
n-Propylbenzene	1.0			
2-Chlorotoluene	1.0			
4-Chlorotoluene	1.0			
1,3,5-Trimethylbenzene	1.0			
tert-Butylbenzene	1.0			
1,2,4-Trimethylbenzene	1.0			
sec-Butylbenzene	1.0			
1,3-Dichlorobenzene	1.0			

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW16	MBGW16	MBGW16
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/11/19	03/11/19	03/11/19

Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
1,2-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dibromo-3-Chloropropane	1.0
1,2,4-Trichlorobenzene	1.0
Hexachloro-1,3-butadiene	1.0
Naphthalene	1.0
1,2,3-Trichlorobenzene	1.0

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	88%	89%
Toluene-d8	88%	87%
1,2-Dichloroethane-d4	100%	100%
4-Bromofluorobenzene	99%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results								Dupl
NWTPH-Dx, mg/L		MTH BLK	DGW2	MBGW3	MBGW14	MBPP5	MBGW16	MBGW16
Matrix	Water	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19
Date analyzed	Limits	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19	03/09/19
Kerosene/Jet fuel	0.20	nd						
Diesel/Fuel oil	0.20	nd						
Heavy oil	0.50	nd						

Surrogate recoveries:

Fluorobiphenyl	119%	122%	128%	121%	129%	125%	128%
o-Terphenyl	125%	129%	125%	124%	130%	128%	124%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: Mercer Megablock  
 Client Project Number: 19409-01  
 Date received: 03/09/17

Analytical Results							Dupl
NWTPH-Gx		MTH BLK	DGW2	MBGW3	MBPP5	MBGW16	MBGW16
Matrix	Water	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/11/19	03/11/19	03/11/19	03/11/19	03/11/19	03/11/19

<u>NWTPH-Gx, mg/L</u>							
Mineral spirits/Stoddard	0.10	nd	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd	nd

Surrogate recoveries:							
Trifluorotoluene		121%	98%	102%	111%	103%	105%
Bromofluorobenzene		99%	103%	106%	109%	108%	104%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%



AAL Job Number: C90309-4  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/09,12/19

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MTH BLK	LCS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/12/19	03/12/19	03/15/19	03/15/19
Date analyzed	Limits	03/14/19	03/14/19	03/12/19	03/12/19	03/15/19	03/15/19
MTBE	100	nd		nd		nd	
Dichlorodifluoromethane	50	nd		nd		nd	
Chloromethane	50	nd		nd		nd	
Vinyl chloride	50	nd		nd		nd	
Bromomethane	50	nd		nd		nd	
Chloroethane	50	nd		nd		nd	
Trichlorofluoromethane	50	nd		nd		nd	
1,1-Dichloroethene	50	nd		nd		nd	
Methylene chloride	20	nd		nd		nd	
trans-1,2-Dichloroethene	50	nd		nd		nd	
1,1-Dichloroethane	50	nd		nd		nd	
2,2-Dichloropropane	50	nd		nd		nd	
cis-1,2-Dichloroethene	50	nd		nd		nd	
Chloroform	50	nd		nd		nd	
1,1,1-Trichloroethane	50	nd		nd		nd	
Carbontetrachloride	50	nd		nd		nd	
1,1-Dichloropropene	50	nd		nd		nd	
Benzene	20	nd	96%	nd	93%	nd	100%
1,2-Dichloroethane(EDC)	20	nd		nd		nd	
Trichloroethene	20	nd	95%	nd	93%	nd	86%
1,2-Dichloropropane	50	nd		nd		nd	
Dibromomethane	50	nd		nd		nd	
Bromodichloromethane	50	nd		nd		nd	
cis-1,3-Dichloropropene	50	nd		nd		nd	
Toluene	50	nd	103%	nd	97%	nd	98%
trans-1,3-Dichloropropene	50	nd		nd		nd	
1,1,2-Trichloroethane	50	nd		nd		nd	
Tetrachloroethene	50	nd		nd		nd	
1,3-Dichloropropane	50	nd		nd		nd	
Dibromochloromethane	20	nd		nd		nd	
1,2-Dibromoethane (EDB)*	5	nd		nd		nd	
Chlorobenzene	50	nd	109%	nd	106%	nd	100%
1,1,1,2-Tetrachloroethane	50	nd		nd		nd	
Ethylbenzene	50	nd		nd		nd	
Xylenes	50	nd		nd		nd	
Styrene	50	nd		nd		nd	
Bromoform	50	nd		nd		nd	
Isopropylbenzene	50	nd		nd		nd	
1,2,3-Trichloropropane	50	nd		nd		nd	
Bromobenzene	50	nd		nd		nd	
1,1,2,2-Tetrachloroethane	50	nd		nd		nd	
n-Propylbenzene	50	nd		nd		nd	
2-Chlorotoluene	50	nd		nd		nd	
4-Chlorotoluene	50	nd		nd		nd	
1,3,5-Trimethylbenzene	50	nd		nd		nd	
tert-Butylbenzene	50	nd		nd		nd	
1,2,4-Trimethylbenzene	50	nd		nd		nd	

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MTH BLK	LCS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/12/19	03/12/19	03/15/19	03/15/19
Date analyzed	Limits	03/14/19	03/14/19	03/12/19	03/12/19	03/15/19	03/15/19
sec-Butylbenzene	50	nd		nd		nd	
1,3-Dichlorobenzene	50	nd		nd		nd	
Isopropyltoluene	50	nd		nd		nd	
1,4-Dichlorobenzene	50	nd		nd		nd	
1,2-Dichlorobenzene	50	nd		nd		nd	
n-Butylbenzene	50	nd		nd		nd	
1,2-Dibromo-3-Chloropropane	50	nd		nd		nd	
1,2,4-Trichlorobenzene	50	nd		nd		nd	
Hexachloro-1,3-butadiene	50	nd		nd		nd	
Naphthalene	50	nd		nd		nd	
1,2,3-Trichlorobenzene	50	nd		nd		nd	

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	96%	92%	92%	90%	105%	94%
Toluene-d8	103%	90%	99%	88%	123%	92%
1,2-Dichloroethane-d4	99%	98%	99%	102%	96%	101%
4-Bromofluorobenzene	105%	99%	99%	99%	99%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBGW1-5	MBGW1-12.5	MBGW1-17.5	MBGW1-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBGW1-5	MBGW1-12.5	MBGW1-17.5	MBGW1-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	88%	87%	87%	85%
Toluene-d8	89%	92%	91%	93%
1,2-Dichloroethane-d4	105%	99%	99%	101%
4-Bromofluorobenzene	90%	110%	112%	100%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBGW1-30	MBPP4-2.5	MBPP4-10	MBPP4-15	MBPP4-17
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBGW1-30	MBPP4-2.5	MBPP4-10	MBPP4-15	MBPP4-17
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	85%	84%	84%	88%	88%
Toluene-d8	86%	98%	98%	93%	94%
1,2-Dichloroethane-d4	95%	99%	99%	99%	96%
4-Bromofluorobenzene	110%	100%	100%	113%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBPP4-18	MBGW16-10	MBGW16-15	MBGW16-30	DPP6-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/14/19	03/12/19	03/12/19	03/12/19	03/12/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBPP4-18	MBGW16-10	MBGW16-15	MBGW16-30	DPP6-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/14/19	03/12/19	03/12/19	03/12/19	03/12/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	89%	85%	87%	90%
Toluene-d8	101%	92%	92%	95%	97%
1,2-Dichloroethane-d4	97%	97%	99%	100%	97%
4-Bromofluorobenzene	104%	100%	107%	115%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		DPP6-7.5	DPP6-12.5	DPP6-17.5	DGW4-5	DGW4-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		DPP6-7.5	DPP6-12.5	DPP6-17.5	DGW4-5	DGW4-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	92%	84%	88%	88%	89%
Toluene-d8	98%	90%	94%	94%	94%
1,2-Dichloroethane-d4	101%	101%	97%	99%	98%
4-Bromofluorobenzene	108%	108%	100%	102%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		DGW4-15	DGW4-20	DGW4-35	DGW4-50	MBPP5-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/15/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/15/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		DGW4-15	DGW4-20	DGW4-35	DGW4-50	MBPP5-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/15/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/15/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	92%	95%	93%	87%
Toluene-d8	93%	95%	90%	98%	93%
1,2-Dichloroethane-d4	100%	90%	92%	99%	97%
4-Bromofluorobenzene	104%	93%	94%	98%	100%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBPP5-15	MBPP5-20	MBPP5-25	MBGW3-10	MBGW3-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/14/19	03/14/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/14/19	03/14/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

8260B, µg/kg		MBPP5-15	MBPP5-20	MBPP5-25	MBGW3-10	MBGW3-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/14/19	03/14/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/14/19	03/14/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	97%	90%	84%	84%	90%
Toluene-d8	101%	95%	87%	93%	94%
1,2-Dichloroethane-d4	98%	99%	101%	99%	99%
4-Bromofluorobenzene	101%	109%	101%	101%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

MS

8260B, µg/kg		MBGW2-10	MBGW3-26/25	DGW2-5	DGW2-10	MBPP4-2.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/15/19	03/12/19	03/12/19	03/14/19
Date analyzed	Limits	03/14/19	03/15/19	03/12/19	03/12/19	03/14/19
MTBE	100	nd	nd	nd	nd	
Dichlorodifluoromethane	50	nd	nd	nd	nd	
Chloromethane	50	nd	nd	nd	nd	
Vinyl chloride	50	nd	nd	nd	nd	
Bromomethane	50	nd	nd	nd	nd	
Chloroethane	50	nd	nd	nd	nd	
Trichlorofluoromethane	50	nd	nd	nd	nd	
1,1-Dichloroethene	50	nd	nd	nd	nd	
Methylene chloride	20	nd	nd	nd	nd	
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	
1,1-Dichloroethane	50	nd	nd	nd	nd	
2,2-Dichloropropane	50	nd	nd	nd	nd	
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	
Chloroform	50	nd	nd	nd	nd	
1,1,1-Trichloroethane	50	nd	nd	nd	nd	
Carbontetrachloride	50	nd	nd	nd	nd	
1,1-Dichloropropene	50	nd	nd	nd	nd	
Benzene	20	nd	nd	nd	nd	90%
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	
Trichloroethene	20	nd	nd	nd	nd	84%
1,2-Dichloropropane	50	nd	nd	nd	nd	
Dibromomethane	50	nd	nd	nd	nd	
Bromodichloromethane	50	nd	nd	nd	nd	
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	
Toluene	50	nd	nd	nd	nd	89%
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	
1,1,2-Trichloroethane	50	nd	nd	nd	nd	
Tetrachloroethene	50	nd	74	nd	nd	
1,3-Dichloropropane	50	nd	nd	nd	nd	
Dibromochloromethane	20	nd	nd	nd	nd	
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	
Chlorobenzene	50	nd	nd	nd	nd	97%
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	
Ethylbenzene	50	nd	nd	nd	nd	
Xylenes	50	nd	nd	nd	nd	
Styrene	50	nd	nd	nd	nd	
Bromoform	50	nd	nd	nd	nd	
Isopropylbenzene	50	nd	nd	nd	nd	
1,2,3-Trichloropropane	50	nd	nd	nd	nd	
Bromobenzene	50	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	
n-Propylbenzene	50	nd	nd	nd	nd	
2-Chlorotoluene	50	nd	nd	nd	nd	
4-Chlorotoluene	50	nd	nd	nd	nd	
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	
tert-Butylbenzene	50	nd	nd	nd	nd	
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

MS

8260B, µg/kg		MBGW2-10	MBGW3-26/25	DGW2-5	DGW2-10	MBPP4-2.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/15/19	03/12/19	03/12/19	03/14/19
Date analyzed	Limits	03/14/19	03/15/19	03/12/19	03/12/19	03/14/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	84%	85%	93%	93%
Toluene-d8	104%	86%	94%	104%	98%
1,2-Dichloroethane-d4	99%	97%	98%	99%	97%
4-Bromofluorobenzene	95%	97%	108%	100%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		MSD	RPD	MS	MSD	RPD
<b>8260B, µg/kg</b>		<b>MBPP4-2.5</b>	<b>MBPP4-2.5</b>	<b>DGW2-10</b>	<b>DGW2-10</b>	<b>DGW2-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/14/19	03/14/19	03/12/19	03/12/19	03/12/19

MTBE	100					
Dichlorodifluoromethane	50					
Chloromethane	50					
Vinyl chloride	50					
Bromomethane	50					
Chloroethane	50					
Trichlorofluoromethane	50					
1,1-Dichloroethene	50					
Methylene chloride	20					
trans-1,2-Dichloroethene	50					
1,1-Dichloroethane	50					
2,2-Dichloropropane	50					
cis-1,2-Dichloroethene	50					
Chloroform	50					
1,1,1-Trichloroethane	50					
Carbontetrachloride	50					
1,1-Dichloropropene	50					
Benzene	20	105%	16%	102%	90%	12%
1,2-Dichloroethane(EDC)	20					
Trichloroethene	20	94%	11%	96%	88%	9%
1,2-Dichloropropane	50					
Dibromomethane	50					
Bromodichloromethane	50					
cis-1,3-Dichloropropene	50					
Toluene	50	103%	15%	103%	92%	11%
trans-1,3-Dichloropropene	50					
1,1,2-Trichloroethane	50					
Tetrachloroethene	50					
1,3-Dichloropropane	50					
Dibromochloromethane	20					
1,2-Dibromoethane (EDB)*	5					
Chlorobenzene	50	117%	19%	109%	101%	8%
1,1,1,2-Tetrachloroethane	50					
Ethylbenzene	50					
Xylenes	50					
Styrene	50					
Bromoform	50					
Isopropylbenzene	50					
1,2,3-Trichloropropane	50					
Bromobenzene	50					
1,1,2,2-Tetrachloroethane	50					
n-Propylbenzene	50					
2-Chlorotoluene	50					
4-Chlorotoluene	50					
1,3,5-Trimethylbenzene	50					
tert-Butylbenzene	50					
1,2,4-Trimethylbenzene	50					

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		MSD	RPD	MS	MSD	RPD
<b>8260B, µg/kg</b>		<b>MBPP4-2.5</b>	<b>MBPP4-2.5</b>	<b>DGW2-10</b>	<b>DGW2-10</b>	<b>DGW2-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/14/19	03/14/19	03/12/19	03/12/19	03/12/19

sec-Butylbenzene	50
1,3-Dichlorobenzene	50
Isopropyltoluene	50
1,4-Dichlorobenzene	50
1,2-Dichlorobenzene	50
n-Butylbenzene	50
1,2-Dibromo-3-Chloropropane	50
1,2,4-Trichlorobenzene	50
Hexachloro-1,3-butadiene	50
Naphthalene	50
1,2,3-Trichlorobenzene	50

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	91%	101%
Toluene-d8	85%	88%	101%
1,2-Dichloroethane-d4	104%	96%	104%
4-Bromofluorobenzene	101%	103%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		MS	MSD	RPD
8260B, µg/kg		MBGW3-25	MBGW3-25	MBGW3-25
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19

MTBE	100			
Dichlorodifluoromethane	50			
Chloromethane	50			
Vinyl chloride	50			
Bromomethane	50			
Chloroethane	50			
Trichlorofluoromethane	50			
1,1-Dichloroethene	50			
Methylene chloride	20			
trans-1,2-Dichloroethene	50			
1,1-Dichloroethane	50			
2,2-Dichloropropane	50			
cis-1,2-Dichloroethene	50			
Chloroform	50			
1,1,1-Trichloroethane	50			
Carbontetrachloride	50			
1,1-Dichloropropene	50			
Benzene	20	95%	86%	9%
1,2-Dichloroethane(EDC)	20			
Trichloroethene	20	90%	103%	14%
1,2-Dichloropropane	50			
Dibromomethane	50			
Bromodichloromethane	50			
cis-1,3-Dichloropropene	50			
Toluene	50	91%	90%	1%
trans-1,3-Dichloropropene	50			
1,1,2-Trichloroethane	50			
Tetrachloroethene	50			
1,3-Dichloropropane	50			
Dibromochloromethane	20			
1,2-Dibromoethane (EDB)*	5			
Chlorobenzene	50	103%	97%	6%
1,1,1,2-Tetrachloroethane	50			
Ethylbenzene	50			
Xylenes	50			
Styrene	50			
Bromoform	50			
Isopropylbenzene	50			
1,2,3-Trichloropropane	50			
Bromobenzene	50			
1,1,2,2-Tetrachloroethane	50			
n-Propylbenzene	50			
2-Chlorotoluene	50			
4-Chlorotoluene	50			
1,3,5-Trimethylbenzene	50			
tert-Butylbenzene	50			
1,2,4-Trimethylbenzene	50			

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		MS	MSD	RPD
<b>8260B, µg/kg</b>		<b>MBGW3-25</b>	<b>MBGW3-25</b>	<b>MBGW3-25</b>
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19

sec-Butylbenzene	50
1,3-Dichlorobenzene	50
Isopropyltoluene	50
1,4-Dichlorobenzene	50
1,2-Dichlorobenzene	50
n-Butylbenzene	50
1,2-Dibromo-3-Chloropropane	50
1,2,4-Trichlorobenzene	50
Hexachloro-1,3-butadiene	50
Naphthalene	50
1,2,3-Trichlorobenzene	50

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	98%	95%
Toluene-d8	102%	103%
1,2-Dichloroethane-d4	98%	95%
4-Bromofluorobenzene	99%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		Dupl				
NWTPH-Dx, mg/kg		MTH BLK	MTH BLK	MBGW1-5	MBGW1-5	MBGW1-17.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/19/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/19/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	114%	89%	125%	124%	123%
o-Terphenyl	126%	125%	129%	128%	130%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW1-25	MBPP4-10	MBPP4-18	MBGW16-10	MBGW16-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	121%	120%	113%	118%	120%
o-Terphenyl	123%	125%	120%	125%	125%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		Dupl				
NWTPH-Dx, mg/kg		MBGW16-30	MBGW16-30	MBPP1-20	MBPP1-25	MBPP2-20
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	121%	121%	122%	123%	122%
o-Terphenyl	125%	125%	126%	128%	126%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

NWTPH-Dx, mg/kg		MBPP3-10	MBPP3-20	MBPP5-10	MBPP5-15	DPP6-7.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	120%	125%	123%	127%	120%
o-Terphenyl	125%	129%	128%	128%	123%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

NWTPH-Dx, mg/kg		DPP6-12.5	DPP6-17.5	DGW4-5	DGW4-15	DGW4-20	DGW4-35
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	119%	120%	119%	119%	122%	121%
o-Terphenyl	122%	124%	123%	124%	126%	115%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

NWTPH-Dx, mg/kg		DGW4-50	MBGW3-10	MBGW3-12.5	MBGW3-25	MBGW3-26
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19	03/12/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	120%	115%	126%	122%	122%
o-Terphenyl	123%	114%	130%	127%	127%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW2-10	DGW2-5	DGW2-10	MBGW14-10	MBGW14-20
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/19/19	03/19/19	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/19/19	03/19/19	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	125%	78%	84%	122%	125%
o-Terphenyl	130%	123%	99%	126%	130%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		Dupl	
NWTPH-Dx, mg/kg		MBGW14-30	MBGW14-30
Matrix	Soil	Soil	Soil
Date extracted	Reporting	03/12/19	03/12/19
Date analyzed	Limits	03/12/19	03/12/19
Kerosene/Jet fuel	20	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd
Heavy oil	50	nd	nd

Surrogate recoveries:

Fluorobiphenyl	123%	122%
o-Terphenyl	127%	122%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MTH BLK</b>	<b>MTH BLK</b>	<b>MBGW1-5</b>	<b>MBGW1-17.5</b>	<b>MBGW1-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/13/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/13/19	03/14/19	03/14/19	03/14/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	95%	109%	83%	86%	87%
Bromofluorobenzene	90%	98%	105%	108%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBPP4-10</b>	<b>MBPP4-18</b>	<b>MBGW16-10</b>	<b>MBGW16-20</b>	<b>MBGW16-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/13/19	03/13/19	03/13/19	03/13/19	03/13/19
Date analyzed	Limits	03/13/19	03/13/19	03/13/19	03/13/19	03/13/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	93%	85%	86%	101%	75%
Bromofluorobenzene	94%	107%	98%	120%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBPP5-10</b>	<b>MBPP5-15</b>	<b>MBPP5-20</b>	<b>MBPP5-25</b>	<b>DPP6-7.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	91%	103%	103%	103%	74%
Bromofluorobenzene	114%	114%	114%	114%	108%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

<b>NWTPH-Gx</b>		<b>DPP6-12.5</b>	<b>DPP6-17.5</b>	<b>DGW4-5</b>	<b>DGW4-15</b>	<b>DGW4-20</b>	<b>DGW4-35</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/13/19	03/13/19	03/13/19	03/13/19
Date analyzed	Limits	03/14/19	03/14/19	03/13/19	03/13/19	03/13/19	03/13/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	99%	85%	109%	97%	105%	109%
Bromofluorobenzene	110%	116%	110%	109%	109%	105%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

<b>NWTPH-Gx</b>		<b>DGW4-50</b>	<b>MBGW3-10</b>	<b>MBGW3-26</b>	<b>MBGW2-10</b>	<b>DGW2-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/13/19	03/14/19	03/13/19	03/13/19	03/13/19
Date analyzed	Limits	03/13/19	03/14/19	03/13/19	03/13/19	03/13/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	107%	75%	90%	83%	87%
Bromofluorobenzene	104%	104%	95%	108%	119%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		Dupl		Dupl
<b>NWTPH-Gx</b>		<b>DGW2-5</b>	<b>DGW2-10</b>	<b>DGW2-10</b>
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/13/19	03/13/19	03/13/19
Date analyzed	Limits	03/13/19	03/13/19	03/13/19

<b>NWTPH-Gx, mg/kg</b>				
Mineral spirits/Stoddard	5.0	nd	nd	nd
Gasoline	5.0	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	88%	82%	83%
Bromofluorobenzene	118%	86%	87%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results

PAH (8270 sim), mg/kg		MTH BLK	LCS	MBGW1-25	MBGW3-26
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19
1-Methylnaphthalene	0.10	nd		nd	nd
2-Methylnaphthalene	0.10	nd		nd	nd
Naphthalene	0.10	nd		nd	nd
Acenaphthylene	0.10	nd		nd	nd
Acenaphthene	0.10	nd	106%	nd	nd
Fluorene	0.10	nd		nd	nd
Phenanthrene	0.10	nd		nd	nd
Anthracene	0.10	nd		nd	nd
Fluoranthene	0.10	nd		nd	nd
Pyrene	0.10	nd	113%	nd	nd
Benzo(a)anthracene	0.10	nd		nd	nd
Chrysene	0.10	nd		nd	nd
Benzo(b)fluoranthene	0.10	nd		nd	nd
Benzo(k)fluoranthene	0.10	nd		nd	nd
Benzo(a)pyrene	0.10	nd		nd	nd
Indeno(1,2,3-cd)pyrene	0.10	nd		nd	nd
Dibenzo(ah)anthracene	0.10	nd		nd	nd
Benzo(ghi)perylene	0.10	nd		nd	nd
Surrogate recoveries:					
2-Fluorobiphenyl		96%	110%	99%	140%
o-Terphenyl		99%	96%	101%	97%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

Analytical Results		MS	MSD	RPD
PAH (8270 sim), mg/kg		MBGW2-30	MBGW2-30	MBGW2-30
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19
1-Methylnaphthalene	0.10			
2-Methylnaphthalene	0.10			
Naphthalene	0.10			
Acenaphthylene	0.10			
Acenaphthene	0.10	92%	93%	1%
Fluorene	0.10			
Phenanthrene	0.10			
Anthracene	0.10			
Fluoranthene	0.10			
Pyrene	0.10	106%	103%	3%
Benzo(a)anthracene	0.10			
Chrysene	0.10			
Benzo(b)fluoranthene	0.10			
Benzo(k)fluoranthene	0.10			
Benzo(a)pyrene	0.10			
Indeno(1,2,3-cd)pyrene	0.10			
Dibenzo(ah)anthracene	0.10			
Benzo(ghi)perylene	0.10			
<b>Surrogate recoveries:</b>				
2-Fluorobiphenyl		107%	105%	
o-Terphenyl		97%	99%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>MBGW1-5</b>	<b>MBGW1-12.5</b>	<b>MBGW1-17.5</b>	<b>MBGW1-25</b>	<b>MBGW1-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	13%	12%	14%	14%	14%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>MBPP4-2.5</b>	<b>MBPP4-10</b>	<b>MBPP4-15</b>	<b>MBPP4-17</b>	<b>MBPP4-18</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	12%	12%	14%	14%	13%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>MBGW16-10</b>	<b>MBGW16-15</b>	<b>MBGW16-30</b>	<b>DPP6-5</b>	<b>DPP6-7.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	14%	13%	14%	14%	13%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>DPP6-12.5</b>	<b>DPP6-17.5</b>	<b>DGW4-5</b>	<b>DGW4-10</b>	<b>DGW4-15</b>	<b>DGW4-20</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	13%	14%	11%	12%	12%	13%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>DGW4-35</b>	<b>DGW4-50</b>	<b>MBPP5-10</b>	<b>MBPP5-15</b>	<b>MBPP5-20</b>	<b>MBPP5-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	14%	13%	13%	12%	11%	13%

AAL Job Number: C90309-4  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>MBGW3-10</b>	<b>MBGW3-25</b>	<b>MBGW2-10</b>	<b>MBGW3-26/25</b>	<b>DGW2-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	14%	14%	14%	19%	12%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>DGW2-10</b>	<b>MBPP1-20</b>	<b>MBPP1-25</b>	<b>MBPP2-20</b>	<b>MBPP3-10</b>	<b>MBPP3-20</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	13%	16%	18%	16%	15%	16%

AAL Job Number: C90309-4  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/09,12/19

<b>Moisture, SM2540B</b>	<b>MBPP5-10</b>	<b>MBPP5-15</b>	<b>MBGW14-10</b>	<b>MBGW14-20</b>	<b>MBGW14-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Moisture, %	15%	14%	15%	17%	18%

March 23, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90314-1)* Project.

Samples were received on *March 14, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

AAL Job Number: C90314-1  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/15/19

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MTH BLK	LCS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/16/19	03/16/19	03/18/19	03/18/19
Date analyzed	Limits	03/15/19	03/15/19	03/16/19	03/16/19	03/18/19	03/18/19
MTBE	100	nd		nd		nd	
Dichlorodifluoromethane	50	nd		nd		nd	
Chloromethane	50	nd		nd		nd	
Vinyl chloride	50	nd		nd		nd	
Bromomethane	50	nd		nd		nd	
Chloroethane	50	nd		nd		nd	
Trichlorofluoromethane	50	nd		nd		nd	
1,1-Dichloroethene	50	nd		nd		nd	
Methylene chloride	20	nd		nd		nd	
trans-1,2-Dichloroethene	50	nd		nd		nd	
1,1-Dichloroethane	50	nd		nd		nd	
2,2-Dichloropropane	50	nd		nd		nd	
cis-1,2-Dichloroethene	50	nd		nd		nd	
Chloroform	50	nd		nd		nd	
1,1,1-Trichloroethane	50	nd		nd		nd	
Carbontetrachloride	50	nd		nd		nd	
1,1-Dichloropropene	50	nd		nd		nd	
Benzene	20	nd	100%	nd	82%	nd	78%
1,2-Dichloroethane(EDC)	20	nd		nd		nd	
Trichloroethene	20	nd	86%	nd	80%	nd	75%
1,2-Dichloropropane	50	nd		nd		nd	
Dibromomethane	50	nd		nd		nd	
Bromodichloromethane	50	nd		nd		nd	
cis-1,3-Dichloropropene	50	nd		nd		nd	
Toluene	50	nd	98%	nd	91%	nd	92%
trans-1,3-Dichloropropene	50	nd		nd		nd	
1,1,2-Trichloroethane	50	nd		nd		nd	
Tetrachloroethene	50	nd		nd		nd	
1,3-Dichloropropane	50	nd		nd		nd	
Dibromochloromethane	20	nd		nd		nd	
1,2-Dibromoethane (EDB)*	5	nd		nd		nd	
Chlorobenzene	50	nd	100%	nd	99%	nd	99%
1,1,1,2-Tetrachloroethane	50	nd		nd		nd	
Ethylbenzene	50	nd		nd		nd	
Xylenes	50	nd		nd		nd	
Styrene	50	nd		nd		nd	
Bromoform	50	nd		nd		nd	
Isopropylbenzene	50	nd		nd		nd	
1,2,3-Trichloropropane	50	nd		nd		nd	
Bromobenzene	50	nd		nd		nd	
1,1,2,2-Tetrachloroethane	50	nd		nd		nd	
n-Propylbenzene	50	nd		nd		nd	
2-Chlorotoluene	50	nd		nd		nd	
4-Chlorotoluene	50	nd		nd		nd	
1,3,5-Trimethylbenzene	50	nd		nd		nd	
tert-Butylbenzene	50	nd		nd		nd	
1,2,4-Trimethylbenzene	50	nd		nd		nd	

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MTH BLK	LCS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/16/19	03/16/19	03/18/19	03/18/19
Date analyzed	Limits	03/15/19	03/15/19	03/16/19	03/16/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd		nd		nd	
1,3-Dichlorobenzene	50	nd		nd		nd	
Isopropyltoluene	50	nd		nd		nd	
1,4-Dichlorobenzene	50	nd		nd		nd	
1,2-Dichlorobenzene	50	nd		nd		nd	
n-Butylbenzene	50	nd		nd		nd	
1,2-Dibromo-3-Chloropropane	50	nd		nd		nd	
1,2,4-Trichlorobenzene	50	nd		nd		nd	
Hexachloro-1,3-butadiene	50	nd		nd		nd	
Naphthalene	50	nd		nd		nd	
1,2,3-Trichlorobenzene	50	nd		nd		nd	

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	105%	94%	87%	85%	91%	86%
Toluene-d8	123%	92%	97%	84%	97%	83%
1,2-Dichloroethane-d4	96%	101%	97%	98%	96%	103%
4-Bromofluorobenzene	99%	104%	97%	96%	92%	92%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DPP1-7.5	DPP1-20	DPP3-5	DPP3-15	DPP3-30	DMW1S-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	100	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DPP1-7.5	DPP1-20	DPP3-5	DPP3-15	DPP3-30	DMW1S-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	80%	81%	88%	86%	84%	84%
Toluene-d8	84%	83%	99%	91%	90%	89%
1,2-Dichloroethane-d4	98%	98%	96%	98%	100%	94%
4-Bromofluorobenzene	104%	102%	100%	98%	101%	113%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DMW1S-10	DMW1S-12.5	DMW1S-15	DMW1S-20	DGW1-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	53	2,100	120	nd	nd
Xylenes	50	71	4,400	200	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	1,500	120	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	110	3,200	280	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	190	6,200	760	nd	nd
tert-Butylbenzene	50	nd	105	nd	nd	nd
1,2,4-Trimethylbenzene	50	510	13,000	1,900	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DMW1S-10	DMW1S-12.5	DMW1S-15	DMW1S-20	DGW1-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
sec-Butylbenzene	50	71	1,900	250	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	120	3,200	480	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	180	820	580	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	79%	89%	79%	83%	80%
Toluene-d8	83%	94%	84%	86%	86%
1,2-Dichloroethane-d4	102%	109%	101%	99%	99%
4-Bromofluorobenzene	106%	C	109%	105%	98%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DGW1-30	DGW1-10	DGW1-12.5	DGW1-15	DGW3-2.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/15/19	03/16/19	03/16/19	03/16/19	03/16/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DGW1-30	DGW1-10	DGW1-12.5	DGW1-15	DGW3-2.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/15/19	03/16/19	03/16/19	03/16/19	03/16/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	82%	79%	81%	84%	82%
Toluene-d8	84%	86%	82%	89%	88%
1,2-Dichloroethane-d4	97%	101%	98%	95%	99%
4-Bromofluorobenzene	97%	105%	94%	99%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DGW3-12.5	DGW3-15	DGW3-20	DGW3-25	DGW2-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	03/16/19	03/16/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DGW3-12.5	DGW3-15	DGW3-20	DGW3-25	DGW2-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	03/16/19	03/16/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	81%	82%	80%	83%	85%
Toluene-d8	90%	91%	85%	82%	92%
1,2-Dichloroethane-d4	98%	99%	98%	98%	98%
4-Bromofluorobenzene	99%	95%	101%	99%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg	DGW2-30	MBGW4-7.5	MBGW4-10	MBGW4-12.5	
Matrix	Soil	Soil	Soil	Soil	
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		DGW2-30	MBGW4-7.5	MBGW4-10	MBGW4-12.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	03/16/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	88%	81%	84%	80%
Toluene-d8	90%	83%	87%	84%
1,2-Dichloroethane-d4	97%	99%	98%	96%
4-Bromofluorobenzene	98%	103%	110%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW4-25	MBGW3-7.5	MBGW3-10	MBGW3-12.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	03/16/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW4-25	MBGW3-7.5	MBGW3-10	MBGW3-12.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/16/19	03/16/19	03/16/19
Date analyzed	Limits	03/16/19	03/16/19	03/16/19	03/16/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	80%	81%	79%	81%
Toluene-d8	83%	83%	85%	85%
1,2-Dichloroethane-d4	101%	98%	99%	98%
4-Bromofluorobenzene	82%	96%	108%	100%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW3-26	MBGW2-12.5	MBGW2-25	MBGW2-30
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/16/19	03/18/19	03/18/19	03/18/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW3-26	MBGW2-12.5	MBGW2-25	MBGW2-30
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/16/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/16/19	03/18/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	80%	80%	83%	85%
Toluene-d8	85%	86%	86%	90%
1,2-Dichloroethane-d4	98%	99%	98%	97%
4-Bromofluorobenzene	99%	98%	100%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>8260B, µg/kg</b>		<b>MBGW5-10</b>	<b>MBGW5-15</b>	<b>MBGW5-20</b>	<b>MBGW5-27.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW5-10	MBGW5-15	MBGW5-20	MBGW5-27.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	78%	82%	84%	85%
Toluene-d8	86%	87%	91%	92%
1,2-Dichloroethane-d4	103%	98%	99%	99%
4-Bromofluorobenzene	96%	94%	98%	98%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW5-45	MPP5-25	MPP5-10	MPP5-17.5	MBGW7-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	260	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	470	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	3,400	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW5-45	MPP5-25	MPP5-10	MPP5-17.5	MBGW7-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	86%	91%	82%	92%	86%
Toluene-d8	95%	92%	91%	94%	96%
1,2-Dichloroethane-d4	98%	94%	95%	95%	94%
4-Bromofluorobenzene	100%	95%	97%	95%	100%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBPP6-10	MBPP6-15	MBPP6-20	MBPP6-25	MBPP6-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBPP6-10	MBPP6-15	MBPP6-20	MBPP6-25	MBPP6-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	72%	82%	82%	83%	81%
Toluene-d8	86%	90%	88%	89%	87%
1,2-Dichloroethane-d4	95%	99%	97%	98%	94%
4-Bromofluorobenzene	97%	110%	104%	97%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS			MSD	
8260B, µg/kg		MBPP7-5	MBPP7-15	MBPP7-23	MBGW2-25	MBGW2-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
MTBE	100	nd	nd	nd		
Dichlorodifluoromethane	50	nd	nd	nd		
Chloromethane	50	nd	nd	nd		
Vinyl chloride	50	nd	nd	nd		
Bromomethane	50	nd	nd	nd		
Chloroethane	50	nd	nd	nd		
Trichlorofluoromethane	50	nd	nd	nd		
1,1-Dichloroethene	50	nd	nd	nd		
Methylene chloride	20	nd	nd	nd		
trans-1,2-Dichloroethene	50	nd	nd	nd		
1,1-Dichloroethane	50	nd	nd	nd		
2,2-Dichloropropane	50	nd	nd	nd		
cis-1,2-Dichloroethene	50	nd	nd	nd		
Chloroform	50	nd	nd	nd		
1,1,1-Trichloroethane	50	nd	nd	nd		
Carbontetrachloride	50	nd	nd	nd		
1,1-Dichloropropene	50	nd	nd	nd		
Benzene	20	nd	nd	nd	83%	88%
1,2-Dichloroethane(EDC)	20	nd	nd	nd		
Trichloroethene	20	nd	nd	nd	82%	86%
1,2-Dichloropropane	50	nd	nd	nd		
Dibromomethane	50	nd	nd	nd		
Bromodichloromethane	50	nd	nd	nd		
cis-1,3-Dichloropropene	50	nd	nd	nd		
Toluene	50	nd	nd	nd	85%	99%
trans-1,3-Dichloropropene	50	nd	nd	nd		
1,1,2-Trichloroethane	50	nd	nd	nd		
Tetrachloroethene	50	nd	nd	nd		
1,3-Dichloropropane	50	nd	nd	nd		
Dibromochloromethane	20	nd	nd	nd		
1,2-Dibromoethane (EDB)*	5	nd	nd	nd		
Chlorobenzene	50	nd	nd	nd	97%	108%
1,1,1,2-Tetrachloroethane	50	nd	nd	nd		
Ethylbenzene	50	nd	nd	nd		
Xylenes	50	nd	nd	nd		
Styrene	50	nd	nd	nd		
Bromoform	50	nd	nd	nd		
Isopropylbenzene	50	nd	nd	nd		
1,2,3-Trichloropropane	50	nd	nd	nd		
Bromobenzene	50	nd	nd	nd		
1,1,2,2-Tetrachloroethane	50	nd	nd	nd		
n-Propylbenzene	50	nd	nd	nd		
2-Chlorotoluene	50	nd	nd	nd		
4-Chlorotoluene	50	nd	nd	nd		
1,3,5-Trimethylbenzene	50	nd	nd	nd		
tert-Butylbenzene	50	nd	nd	nd		
1,2,4-Trimethylbenzene	50	nd	nd	nd		

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS			MSD	
8260B, µg/kg		MBPP7-5	MBPP7-15	MBPP7-23	MBGW2-25	MBGW2-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
sec-Butylbenzene	50	nd	nd	nd		
1,3-Dichlorobenzene	50	nd	nd	nd		
Isopropyltoluene	50	nd	nd	nd		
1,4-Dichlorobenzene	50	nd	nd	nd		
1,2-Dichlorobenzene	50	nd	nd	nd		
n-Butylbenzene	50	nd	nd	nd		
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd		
1,2,4-Trichlorobenzene	50	nd	nd	nd		
Hexachloro-1,3-butadiene	50	nd	nd	nd		
Naphthalene	50	nd	nd	nd		
1,2,3-Trichlorobenzene	50	nd	nd	nd		

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	82%	85%	86%	91%	87%
Toluene-d8	85%	93%	95%	93%	83%
1,2-Dichloroethane-d4	97%	99%	97%	99%	98%
4-Bromofluorobenzene	101%	96%	98%	91%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		RPD	MS	MSD	RPD
<b>8260B, µg/kg</b>		<b>MBGW2-25</b>	<b>MBPP7-23</b>	<b>MBPP7-23</b>	<b>MBPP7-23</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19

MTBE	100				
Dichlorodifluoromethane	50				
Chloromethane	50				
Vinyl chloride	50				
Bromomethane	50				
Chloroethane	50				
Trichlorofluoromethane	50				
1,1-Dichloroethene	50				
Methylene chloride	20				
trans-1,2-Dichloroethene	50				
1,1-Dichloroethane	50				
2,2-Dichloropropane	50				
cis-1,2-Dichloroethene	50				
Chloroform	50				
1,1,1-Trichloroethane	50				
Carbontetrachloride	50				
1,1-Dichloropropene	50				
Benzene	20	6%	86%	89%	4%
1,2-Dichloroethane(EDC)	20				
Trichloroethene	20	4%	79%	88%	10%
1,2-Dichloropropane	50				
Dibromomethane	50				
Bromodichloromethane	50				
cis-1,3-Dichloropropene	50				
Toluene	50	14%	89%	98%	10%
trans-1,3-Dichloropropene	50				
1,1,2-Trichloroethane	50				
Tetrachloroethene	50				
1,3-Dichloropropane	50				
Dibromochloromethane	20				
1,2-Dibromoethane (EDB)*	5				
Chlorobenzene	50	11%	100%	103%	3%
1,1,1,2-Tetrachloroethane	50				
Ethylbenzene	50				
Xylenes	50				
Styrene	50				
Bromoform	50				
Isopropylbenzene	50				
1,2,3-Trichloropropane	50				
Bromobenzene	50				
1,1,2,2-Tetrachloroethane	50				
n-Propylbenzene	50				
2-Chlorotoluene	50				
4-Chlorotoluene	50				
1,3,5-Trimethylbenzene	50				
tert-Butylbenzene	50				
1,2,4-Trimethylbenzene	50				

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		RPD	MS	MSD	RPD
<b>8260B, µg/kg</b>		<b>MBGW2-25</b>	<b>MBPP7-23</b>	<b>MBPP7-23</b>	<b>MBPP7-23</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19

sec-Butylbenzene	50
1,3-Dichlorobenzene	50
Isopropyltoluene	50
1,4-Dichlorobenzene	50
1,2-Dichlorobenzene	50
n-Butylbenzene	50
1,2-Dibromo-3-Chloropropane	50
1,2,4-Trichlorobenzene	50
Hexachloro-1,3-butadiene	50
Naphthalene	50
1,2,3-Trichlorobenzene	50

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	83%	90%
Toluene-d8	92%	85%
1,2-Dichloroethane-d4	99%	97%
4-Bromofluorobenzene	96%	97%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	MTH BLK	MTH BLK	DPP1-7.5	DPP1-20	DPP3-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/15/19	03/19/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/15/19	03/19/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	120%	109%	89%	122%	121%	122%
o-Terphenyl	121%	124%	125%	125%	123%	123%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		DPP3-30	DMW1S-5	DMW1S-10	DMW1S-12.5	DMW1S-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	124%	123%	124%	108%	128%
o-Terphenyl	126%	127%	126%	127%	126%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		DMW1S-20	DGW1-25	DGW1-10	DGW1-12.5	DGW1-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	121%	122%	124%	121%	121%
o-Terphenyl	126%	126%	125%	126%	126%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results						Dupl
NWTPH-Dx, mg/kg		DGW3-2.5	DGW3-12.5	DGW3-25	DGW2-30	DGW2-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	122%	120%	120%	121%	124%
o-Terphenyl	127%	121%	126%	126%	129%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW4-7.5	MBGW4-5	MBGW4-12.5	MBGW4-25	MBGW3-5.0
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/19/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/19/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	29	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	125%	126%	125%	121%	75%
o-Terphenyl	130%	130%	129%	125%	89%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW3-7.5	MBGW3-12.5	DPP2-5	DPP2-10	MBGW2-12.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/19/19	03/19/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	83%	77%	121%	121%	126%
o-Terphenyl	93%	87%	124%	123%	130%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results						Dupl
NWTPH-Dx, mg/kg		MBGW2-25	MBGW2-30	MBGW5-10	MBGW5-15	MBGW5-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/14/19	03/14/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	126%	127%	127%	120%	125%
o-Terphenyl	130%	127%	127%	129%	125%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Dx, mg/kg</b>		<b>MBGW5-27.5</b>	<b>MPP4-10</b>	<b>MBGW5-45</b>	<b>MPP5-25</b>	<b>MPP5-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	102%	101%	102%	90%	99%
o-Terphenyl	111%	109%	110%	90%	122%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl			
NWTPH-Dx, mg/kg		MBPP6-10	MBPP7-5	MBPP7-5	MBPP7-23
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/14/19	03/14/19	03/14/19
Date analyzed	Limits	03/15/19	03/14/19	03/14/19	03/14/19
Kerosene/Jet fuel	20	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	94%	90%	86%	86%
o-Terphenyl	102%	98%	95%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MTH BLK</b>	<b>MTH BLK</b>	<b>DPP3-5</b>	<b>DPP3-30</b>	<b>DMW1S-5</b>	<b>DMW1S-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/19/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/19/19	03/18/19	03/18/19	03/18/19	03/18/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd	29

Surrogate recoveries:

Trifluorotoluene	112%	116%	115%	121%	126%	114%
Bromofluorobenzene	98%	106%	98%	106%	125%	116%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>DMW1S-12.5</b>	<b>DMW1S-15</b>	<b>DMW1S-20</b>	<b>DGW1-25</b>	<b>DGW1-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	1,200	67	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	118%	84%	93%	96%	70%
Bromofluorobenzene	C	112%	107%	94%	87%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>DGW1-12.5</b>	<b>DGW1-15</b>	<b>DGW3-2.5</b>	<b>DGW3-12.5</b>	<b>DGW3-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/19/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/19/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	99%	92%	87%	98%	85%
Bromofluorobenzene	108%	96%	80%	99%	79%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>DGW2-30</b>	<b>MBGW4-7.5</b>	<b>MBGW4-12.5</b>	<b>MBGW4-25</b>	<b>MBGW3-26</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	106%	93%	111%	70%	86%
Bromofluorobenzene	106%	99%	125%	71%	92%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBGW3-7.5</b>	<b>MBGW3-12.5</b>	<b>MBGW2-12.5</b>	<b>MBGW2-25</b>	<b>MBGW2-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	70%	72%	92%	85%	75%
Bromofluorobenzene	71%	78%	101%	93%	80%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl				
<b>NWTPH-Gx</b>		<b>MBGW2-30</b>	<b>MBGW5-10</b>	<b>MBGW5-15</b>	<b>MBGW5-27.5</b>	<b>MBGW5-45</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19

<b>NWTPH-Gx, mg/kg</b>						
Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:						
Trifluorotoluene		98%	83%	86%	94%	99%
Bromofluorobenzene		97%	84%	88%	97%	117%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results Dupl

<b>NWTPH-Gx</b>		<b>MPP5-25</b>	<b>MPP5-10</b>	<b>MBPP6-10</b>	<b>MBPP7-5</b>	<b>MBPP7-23</b>	<b>MBPP7-23</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	74%	83%	77%	79%	71%	71%
Bromofluorobenzene	79%	87%	76%	79%	92%	92%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%  
 Moisture, %

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

PAH (8270 sim), mg/kg		MTH BLK	LCS	DMW1S-15	DGW1-10	MBGW3-12.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
1-Methylnaphthalene	0.10	nd		nd	nd	nd
2-Methylnaphthalene	0.10	nd		nd	nd	nd
Naphthalene	0.10	nd		nd	nd	nd
Acenaphthylene	0.10	nd		nd	nd	nd
Acenaphthene	0.10	nd	106%	nd	nd	nd
Fluorene	0.10	nd		nd	nd	nd
Phenanthrene	0.10	nd		nd	nd	nd
Anthracene	0.10	nd		nd	nd	nd
Fluoranthene	0.10	nd		nd	nd	nd
Pyrene	0.10	nd	113%	nd	nd	nd
Benzo(a)anthracene	0.10	nd		nd	nd	nd
Chrysene	0.10	nd		nd	nd	nd
Benzo(b)fluoranthene	0.10	nd		nd	nd	nd
Benzo(k)fluoranthene	0.10	nd		nd	nd	nd
Benzo(a)pyrene	0.10	nd		nd	nd	nd
Indeno(1,2,3-cd)pyrene	0.10	nd		nd	nd	nd
Dibenzo(ah)anthracene	0.10	nd		nd	nd	nd
Benzo(ghi)perylene	0.10	nd		nd	nd	nd

Surrogate recoveries:

2-Fluorobiphenyl	96%	110%	122%	107%	127%
o-Terphenyl	99%	96%	97%	102%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS		MSD		RPD
PAH (8270 sim), mg/kg		MBGW2-25	MBGW2-30	MBGW2-30	MBGW2-30	MBGW2-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
Date analyzed	Limits	03/18/19	03/18/19	03/18/19	03/18/19	03/18/19
1-Methylnaphthalene	0.10	nd	nd			
2-Methylnaphthalene	0.10	nd	nd			
Naphthalene	0.10	nd	nd			
Acenaphthylene	0.10	nd	nd			
Acenaphthene	0.10	nd	nd	92%	93%	1%
Fluorene	0.10	nd	nd			
Phenanthrene	0.10	nd	nd			
Anthracene	0.10	nd	nd			
Fluoranthene	0.10	nd	nd			
Pyrene	0.10	nd	nd	106%	103%	3%
Benzo(a)anthracene	0.10	nd	nd			
Chrysene	0.10	nd	nd			
Benzo(b)fluoranthene	0.10	nd	nd			
Benzo(k)fluoranthene	0.10	nd	nd			
Benzo(a)pyrene	0.10	nd	nd			
Indeno(1,2,3-cd)pyrene	0.10	nd	nd			
Dibenzo(ah)anthracene	0.10	nd	nd			
Benzo(ghi)perylene	0.10	nd	nd			
<b>Surrogate recoveries:</b>						
2-Fluorobiphenyl		111%	102%	107%	105%	
o-Terphenyl		101%	98%	97%	99%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>DPP1-7.5</b>	<b>DPP1-20</b>	<b>DPP3-5</b>	<b>DPP3-15</b>	<b>DPP3-30</b>	<b>DMW1S-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	13%	14%	15%	16%	15%	14%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>DMW1S-10</b>	<b>DMW1S-12.5</b>	<b>DMW1S-15</b>	<b>DMW1S-20</b>	<b>DGW1-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	15%	14%	14%	15%	16%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>DGW1-30</b>	<b>DGW1-10</b>	<b>DGW1-12.5</b>	<b>DGW1-15</b>	<b>DGW3-2.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	14%	13%	14%	14%	15%

AAL Job Number: C90314-1  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>DGW3-12.5</b>	<b>DGW3-15</b>	<b>DGW3-20</b>	<b>DGW3-25</b>	<b>DGW2-25</b>	<b>DGW2-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	15%	14%	14%	14%	17%	28%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW4-5</b>	<b>MBGW4-7.5</b>	<b>MBGW4-10</b>	<b>MBGW4-12.5</b>	<b>MBGW4-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	14%	13%	14%	15%	14%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW3-5</b>	<b>MBGW3-7.5</b>	<b>MBGW3-10</b>	<b>MBGW3-12.5</b>	<b>MBGW3-26</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	16%	17%	14%	15%	16%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>DPP2-5</b>	<b>DPP2-10</b>	<b>MBGW2-12.5</b>	<b>MBGW2-25</b>	<b>MBGW2-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	15%	15%	14%	16%	18%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW5-10</b>	<b>MBGW5-15</b>	<b>MBGW5-20</b>	<b>MBGW5-27.5</b>	<b>MBGW5-45</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	13%	14%	14%	14%	13%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MPP5-25</b>	<b>MPP5-10</b>	<b>MPP5-17.5</b>	<b>MBGW7-30</b>	<b>MBPP6-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	14%	15%	16%	14%	14%

AAL Job Number: C90314-1  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBPP6-15</b>	<b>MBPP6-20</b>	<b>MBPP6-25</b>	<b>MBPP6-30</b>	<b>MBPP7-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/23/19	03/23/19	03/23/19	03/23/19	03/23/19
Moisture, %	15%	14%	13%	16%	14%

AAL Job Number: C90314-1  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBPP7-15</b>	<b>MBPP7-23</b>
Matrix	Soil	Soil
Date analyzed	03/23/19	03/23/19
Moisture, %	15%	18%

# Sample Custody Record

Samples Shipped to: Advanced Analytical Lab



C-903/4-1 ①

Lot 105

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>Merced Mesquite Block</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS TPHG TPH-DX VOCs PAHs	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
---	--	-------------------	--

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TPHG	TPH-DX	VOCs	PAHs
	DPP1-7.5		3/4/19		soil	X	X		
	DPP1-20		3/4/19			X	X		
	DPP3-5		3/5/19			X	X	X	
	DPP3-15		3/5/19	1503				X	
	DPP3-30		3/5/19	1534		X	X	X	
	DMW15-5		3/5/19	0927		X	X	X	
	DMW15-10		3/5/19			X	X	X	
	DMW15-12.5		3/5/19	1004		X	X	X	
	DMW15-15		3/5/19			X	X	X	X
	DMW15-20		3/5/19			X	X	X	
	DGW1-25		3/6/19	1110		X	X	X	
	DGW1-30		3/6/19	1119				X	

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>Rebecca Diehl</u>	3/4/19	<u>HAL</u>	03/14/19	See Lab Work Order No. _____ for Other Contract Requirements	SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME		PRINT NAME			
COMPANY		COMPANY			
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	STORAGE LOCATION:
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME		PRINT NAME			
COMPANY		COMPANY			

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

Samples Shipped to: Advanced Analytical Lab



2 of 0

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940701</u> LAB NUMBER _____ PROJECT NAME <u>Murder Merge Block</u> HART CROWSER CONTACT <u>Froy Jensen</u> SAMPLED BY: _____						REQUESTED ANALYSIS												NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS			
						TPHG	TPH-Dx	VOCs	PAHS													
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX																	
	D6W1-10		3/6/19	1010	Soil	X	X	X	X													
	D6W1-12.5		3/6/19	1017		X	X	X														
	D6W1-15		3/6/19	1025		X	X	X														
	D6W3-2.5		3/6/19	1330		X	X	X														
	<del>D6W3-2.5</del>		<del>3/6/19</del>	<del>1330</del>																		<u>VBT</u>
	D6W3-12.5		3/6/19	1404		X	X	X														
	<del>D6W3-12.5</del>		<del>3/6/19</del>	<del>1404</del>																		<u>VBT</u>
	D6W3-15		3/6/19	1408				X														
	D6W3-20		3/6/19	1422				X														
	D6W3-25		3/6/19	1442		X	X	X														
	D6W2-25		3/7/19					X														
	D6W2-30		3/7/19	1102		X	X	X														
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:						TOTAL NUMBER OF CONTAINERS										
SIGNATURE		TIME	SIGNATURE		TIME																	
PRINT NAME			PRINT NAME																			
COMPANY			COMPANY																			
RELINQUISHED BY		DATE	RECEIVED BY		DATE	COOLER NO.: _____ STORAGE LOCATION: _____						TURNAROUND TIME:										
SIGNATURE		TIME	SIGNATURE		TIME																	
PRINT NAME			PRINT NAME																			
COMPANY			COMPANY																			
SAMPLE RECEIPT INFORMATION		CUSTODY SEALS:																				
<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		GOOD CONDITION																				
<input type="checkbox"/> YES <input type="checkbox"/> NO		TEMPERATURE _____																				
<input type="checkbox"/> HAND <input type="checkbox"/> OVERNIGHT		SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER																				
<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK		See Lab Work Order No. _____																				
<input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD		for Other Contract Requirements																				
<input type="checkbox"/> 72 HOURS OTHER _____																						

# Sample Custody Record

Samples Shipped to: Advanced Analytical Lab



3 of \_\_\_\_\_

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1740701</u> LAB NUMBER _____						REQUESTED ANALYSIS												NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS						
PROJECT NAME <u>Meteor Mega Black</u>						TPH-G	TPH-Dx	VOCs	PAHs																
HART CROWSER CONTACT <u>Ray Jensen</u>																									
SAMPLED BY: _____																									
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX																				
	MBGW4-5.0		3/6/19	0732	soil		X																		
	MBGW4-7.5		3/6/19	0734		X	X	X																	
	MBGW4-10.0		3/6/19	0737				X																	
	MBGW4-12.5		3/6/19	0745		X	X	X																	
	<del>MBGW4-25</del>		<del>3/6/19</del>			X		X																	
	<del>MBGW4-25</del>		<del>3/6/19</del>			X	X	X																	
	<del>MBGW3-26</del>		<del>3/7/19</del>	<del>1330</del>		X		X																	
	MBGW3-5.0		3/7/19				X																		
	MBGW3-7.5		3/7/19			X	X	X																	
	MBGW3-10.0		3/7/19					X																	
	MBGW3-12.5		3/7/19			X	X	X	X																
	MBGW3-26.0		3/7/19			X		X																	

RELINQUISHED BY <u>[Signature]</u>	DATE 3/14/19	RECEIVED BY <u>[Signature]</u>	DATE 03/17/19	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
SIGNATURE <u>[Signature]</u>	TIME 10:30	SIGNATURE <u>[Signature]</u>	TIME 10:30		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
PRINT NAME <u>HC</u>		PRINT NAME <u>HAL</u>			
COMPANY		COMPANY			
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME		PRINT NAME		See Lab Work Order No. _____	TURNAROUND TIME:
COMPANY		COMPANY		for Other Contract Requirements	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____

# Sample Custody Record

Samples Shipped to: Advanced Analytical Lab



1 of 1

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>Merced Mega Block</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS TPH-C TPH-Dx VCS PAKS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
---	--	-------------------	--

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TPH-C	TPH-Dx	VCS	PAKS										
	DPP2-5		3/4/19		SOI		X												
	DPP2-10		3/4/19		SOI		X												
	MBGW2-12.5		3/4/19			X	X	X											
	MBGW2-25		3/4/19	1300		X	X	X	X										
	MBGW2-30		3/4/19	1326		X	X	X	X										
	MBGW5-10		3/11/19	1010		X	X	X											
	MBGW5-15		3/11/19	1025		X	X	X											
	MBGW5-20		3/11/19	1055				X											
	MBGW5-27.5		3/11/19	1122		X	X	X											
	<del>MPP4-10</del>		<del>3/7/19</del>				X												
	<del>MPP4-10</del>		<del>3/7/19</del>				X												
	MBGW5-45		3/11/19	1507	V	X	X	X											

VAT (see 090309-4)  
VAT

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/14/19	<u>[Signature]</u>	03/14/19		SAMPLE RECEIPT INFORMATION
SIGNATURE	TIME	SIGNATURE	TIME		CUSTODY SEALS:
PRINT NAME	1030	PRINT NAME	1030		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
COMPANY		COMPANY			GOOD CONDITION
					<input type="checkbox"/> YES <input type="checkbox"/> NO
					TEMPERATURE _____
RELINQUISHED BY	DATE	RECEIVED BY	DATE		SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
					TURNAROUND TIME:
SIGNATURE	TIME	SIGNATURE	TIME	COOLER NO.:	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK
PRINT NAME		PRINT NAME		STORAGE LOCATION:	<input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD
COMPANY		COMPANY		See Lab Work Order No. _____ for Other Contract Requirements	<input type="checkbox"/> 72 HOURS OTHER _____



# Sample Custody Record



6.05

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

Samples Shipped to: Advanced Analytical Lab

JOB <u>1740701</u> LAB NUMBER _____ PROJECT NAME <u>Merces Mega Block</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS <table border="1" style="width:100%; height: 100px;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH6</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH-DX</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">VOCs</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">PAHs</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>	TPH6	TPH-DX	VOCs	PAHs																		NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
TPH6	TPH-DX	VOCs	PAHs																					

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TPH6	TPH-DX	VOCs	PAHs											
	MBPP6-10.0		3/5/19	1024	soil			X												
	MBPP6-15.0		3/5/19	1031				X												
	MBPP6-20.0		3/5/19	1036				X												
	MBPP6-25.0		3/5/19	1043				X												
	MBPP6-30.0		3/5/19	1053		X	X	X												
	MBPP7-5.0		3/5/19	1158		X	X	X												
	MBPP7-15.0		3/5/19	1214				X												
	MBPP7-23		3/5/19			X	X	X												

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/14/19	<u>[Signature]</u>	03/14/19		
SIGNATURE	TIME	SIGNATURE	TIME		SAMPLE RECEIPT INFORMATION
<u>[Print Name]</u>	1030	<u>[Print Name]</u>	1030		CUSTODY SEALS:
COMPANY		COMPANY			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
RELINQUISHED BY	DATE	RECEIVED BY	DATE		GOOD CONDITION
					<input type="checkbox"/> YES <input type="checkbox"/> NO
SIGNATURE	TIME	SIGNATURE	TIME	COOLER NO.:	TEMPERATURE _____
				STORAGE LOCATION:	SHIPMENT METHOD: <input type="checkbox"/> HAND
PRINT NAME		PRINT NAME		See Lab Work Order No. _____	<input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
COMPANY		COMPANY		for Other Contract Requirements	TURNAROUND TIME:
					<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK
					<input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD
					<input type="checkbox"/> 72 HOURS    OTHER _____

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

March 27, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90315-2)* Project.

Samples were received on *March 15, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

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4078 148 Ave NE ■ Redmond, WA 98052

425.702-8571

*E-mail: aachemlab@yahoo.com*

AAL Job Number: C90315-2  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/15/19

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MBPP8-10	MBPP8-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/21/19	03/21/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/21/19	03/21/19	03/19/19	03/19/19
MTBE	100	nd		nd		nd	nd
Dichlorodifluoromethane	50	nd		nd		nd	nd
Chloromethane	50	nd		nd		nd	nd
Vinyl chloride	50	nd		nd		nd	nd
Bromomethane	50	nd		nd		nd	nd
Chloroethane	50	nd		nd		nd	nd
Trichlorofluoromethane	50	nd		nd		nd	nd
1,1-Dichloroethene	50	nd		nd		nd	nd
Methylene chloride	20	nd		nd		nd	nd
trans-1,2-Dichloroethene	50	nd		nd		nd	nd
1,1-Dichloroethane	50	nd		nd		nd	nd
2,2-Dichloropropane	50	nd		nd		nd	nd
cis-1,2-Dichloroethene	50	nd		nd		nd	nd
Chloroform	50	nd		nd		nd	nd
1,1,1-Trichloroethane	50	nd		nd		nd	nd
Carbontetrachloride	50	nd		nd		nd	nd
1,1-Dichloropropene	50	nd		nd		nd	nd
Benzene	20	nd	88%	nd	81%	nd	nd
1,2-Dichloroethane(EDC)	20	nd		nd		nd	nd
Trichloroethene	20	nd	84%	nd	80%	nd	nd
1,2-Dichloropropane	50	nd		nd		nd	nd
Dibromomethane	50	nd		nd		nd	nd
Bromodichloromethane	50	nd		nd		nd	nd
cis-1,3-Dichloropropene	50	nd		nd		nd	nd
Toluene	50	nd	94%	nd	91%	nd	nd
trans-1,3-Dichloropropene	50	nd		nd		nd	nd
1,1,2-Trichloroethane	50	nd		nd		nd	nd
Tetrachloroethene	50	nd		nd		nd	nd
1,3-Dichloropropane	50	nd		nd		nd	nd
Dibromochloromethane	20	nd		nd		nd	nd
1,2-Dibromoethane (EDB)*	5	nd		nd		nd	nd
Chlorobenzene	50	nd	102%	nd	95%	nd	nd
1,1,1,2-Tetrachloroethane	50	nd		nd		nd	nd
Ethylbenzene	50	nd		nd		nd	nd
Xylenes	50	nd		nd		nd	nd
Styrene	50	nd		nd		nd	nd
Bromoform	50	nd		nd		nd	nd
Isopropylbenzene	50	nd		nd		nd	nd
1,2,3-Trichloropropane	50	nd		nd		nd	nd
Bromobenzene	50	nd		nd		nd	nd
1,1,2,2-Tetrachloroethane	50	nd		nd		nd	nd
n-Propylbenzene	50	nd		nd		nd	nd
2-Chlorotoluene	50	nd		nd		nd	nd
4-Chlorotoluene	50	nd		nd		nd	nd
1,3,5-Trimethylbenzene	50	nd		nd		nd	nd
tert-Butylbenzene	50	nd		nd		nd	nd
1,2,4-Trimethylbenzene	50	nd		nd		nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MTH BLK	LCS	MTH BLK	LCS	MBPP8-10	MBPP8-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/21/19	03/21/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/21/19	03/21/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd		nd		nd	nd
1,3-Dichlorobenzene	50	nd		nd		nd	nd
Isopropyltoluene	50	nd		nd		nd	nd
1,4-Dichlorobenzene	50	nd		nd		nd	nd
1,2-Dichlorobenzene	50	nd		nd		nd	nd
n-Butylbenzene	50	nd		nd		nd	nd
1,2-Dibromo-3-Chloropropane	50	nd		nd		nd	nd
1,2,4-Trichlorobenzene	50	nd		nd		nd	nd
Hexachloro-1,3-butadiene	50	nd		nd		nd	nd
Naphthalene	50	nd		nd		nd	nd
1,2,3-Trichlorobenzene	50	nd		nd		nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	97%	88%	96%	88%	84%	78%
Toluene-d8	108%	89%	112%	87%	92%	90%
1,2-Dichloroethane-d4	97%	99%	96%	101%	101%	99%
4-Bromofluorobenzene	95%	97%	102%	103%	97%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>8260B, µg/kg</b>		<b>MBPP8-30</b>	<b>MBGW14-10</b>	<b>MBGW14-15</b>	<b>MBGW14-20</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBPP8-30	MBGW14-10	MBGW14-15	MBGW14-20
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	85%	91%	90%	93%
Toluene-d8	92%	101%	105%	98%
1,2-Dichloroethane-d4	99%	101%	101%	94%
4-Bromofluorobenzene	98%	102%	104%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW14-30	MBPP1-20	MBPP1-25	MBPP2-10	MBPP2-20
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW14-30	MBPP1-20	MBPP1-25	MBPP2-10	MBPP2-20
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	84%	94%	93%	88%	86%
Toluene-d8	88%	102%	102%	93%	95%
1,2-Dichloroethane-d4	101%	95%	96%	97%	101%
4-Bromofluorobenzene	103%	90%	100%	104%	117%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBPP2-27.5	MBPP3-10	MBPP3-20	MBPP3-25	MBPP8-22.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBPP2-27.5	MBPP3-10	MBPP3-20	MBPP3-25	MBPP8-22.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	85%	89%	88%	87%	85%
Toluene-d8	93%	96%	92%	90%	89%
1,2-Dichloroethane-d4	102%	98%	104%	103%	99%
4-Bromofluorobenzene	104%	97%	100%	111%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW9-10	MBGW9-15	MBGW9-20	MBGW9-25	MBGW9-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	100	nd	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW9-10	MBGW9-15	MBGW9-20	MBGW9-25	MBGW9-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	84%	85%	89%	88%	89%
Toluene-d8	93%	94%	94%	93%	94%
1,2-Dichloroethane-d4	97%	99%	103%	101%	102%
4-Bromofluorobenzene	108%	99%	103%	98%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW10-10	MBGW10-15	MBGW10-20	MBGW10-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW10-10	MBGW10-15	MBGW10-20	MBGW10-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%	86%	83%	90%
Toluene-d8	85%	96%	85%	97%
1,2-Dichloroethane-d4	98%	98%	102%	97%
4-Bromofluorobenzene	104%	94%	104%	98%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW10-30	MBGW11-5	MBGW11-10	HMW21B-7.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/21/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/21/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW10-30	MBGW11-5	MBGW11-10	HMW21B-7.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/21/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	84%	85%	87%	80%
Toluene-d8	92%	98%	91%	84%
1,2-Dichloroethane-d4	103%	106%	101%	98%
4-Bromofluorobenzene	98%	97%	101%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW21B-15	HMW21B-22.5	HMW21B-30	HMW21B-45
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	120
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW21B-15	HMW21B-22.5	HMW21B-30	HMW21B-45
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	82%	86%	82%	82%
Toluene-d8	84%	97%	87%	88%
1,2-Dichloroethane-d4	98%	95%	98%	100%
4-Bromofluorobenzene	97%	99%	98%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW21B-65	HMW11B-7.5	HMW11B-15	HMW11B-20.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW21B-65	HMW11B-7.5	HMW11B-15	HMW11B-20.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	88%	84%	85%
Toluene-d8	102%	101%	89%	92%
1,2-Dichloroethane-d4	99%	95%	100%	98%
4-Bromofluorobenzene	93%	98%	95%	107%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW1IB-27.5	HMW1IB-50	HMW1IB-65	MBGW13-5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	24	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	120	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		HMW1IB-27.5	HMW1IB-50	HMW1IB-65	MBGW13-5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	81%	83%	81%	83%
Toluene-d8	84%	89%	86%	80%
1,2-Dichloroethane-d4	95%	99%	97%	99%
4-Bromofluorobenzene	109%	99%	104%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg	MBGW13-7.5	MBGW13-10	MBGW13-12.5	MBGW13-15	
Matrix	Soil	Soil	Soil	Soil	
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	140	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	170	3,900	500	110
Xylenes	50	190	7,000	630	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	970	85	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	100	3,000	250	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	200	5,700	510	79
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	550	15,000	1,600	210

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW13-7.5	MBGW13-10	MBGW13-12.5	MBGW13-15
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	970	103	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	55	2,200	230	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	87%	84%	80%	82%
Toluene-d8	96%	92%	85%	82%
1,2-Dichloroethane-d4	99%	103%	97%	96%
4-Bromofluorobenzene	111%	120%	99%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW13-20	MBGW6-10	MBGW6-15	MBGW6-20
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	60	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	120	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/kg		MBGW13-20	MBGW6-10	MBGW6-15	MBGW6-20
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	84%	87%	86%	92%
Toluene-d8	88%	97%	91%	101%
1,2-Dichloroethane-d4	101%	96%	101%	100%
4-Bromofluorobenzene	111%	96%	100%	105%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS	MSD	RPD	MS	
<b>8260B, µg/kg</b>		<b>MBGW6-30</b>	<b>MBPP8-10</b>	<b>MBPP8-10</b>	<b>MBPP8-10</b>	<b>HMW11B-20.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/19/19	03/19/19	03/19/19	03/21/19
Date analyzed	Limits	03/21/19	03/19/19	03/19/19	03/19/19	03/21/19

MTBE	100	nd				
Dichlorodifluoromethane	50	nd				
Chloromethane	50	nd				
Vinyl chloride	50	nd				
Bromomethane	50	nd				
Chloroethane	50	nd				
Trichlorofluoromethane	50	nd				
1,1-Dichloroethene	50	nd				
Methylene chloride	20	nd				
trans-1,2-Dichloroethene	50	nd				
1,1-Dichloroethane	50	nd				
2,2-Dichloropropane	50	nd				
cis-1,2-Dichloroethene	50	nd				
Chloroform	50	nd				
1,1,1-Trichloroethane	50	nd				
Carbontetrachloride	50	nd				
1,1-Dichloropropene	50	nd				
Benzene	20	nd	82%	92%	12%	79%
1,2-Dichloroethane(EDC)	20	nd				
Trichloroethene	20	nd	81%	87%	7%	75%
1,2-Dichloropropane	50	nd				
Dibromomethane	50	nd				
Bromodichloromethane	50	nd				
cis-1,3-Dichloropropene	50	nd				
Toluene	50	nd	87%	105%	19%	83%
trans-1,3-Dichloropropene	50	nd				
1,1,2-Trichloroethane	50	nd				
Tetrachloroethene	50	nd				
1,3-Dichloropropane	50	nd				
Dibromochloromethane	20	nd				
1,2-Dibromoethane (EDB)*	5	nd				
Chlorobenzene	50	nd	92%	111%	18%	92%
1,1,1,2-Tetrachloroethane	50	nd				
Ethylbenzene	50	nd				
Xylenes	50	nd				
Styrene	50	nd				
Bromoform	50	nd				
Isopropylbenzene	50	nd				
1,2,3-Trichloropropane	50	nd				
Bromobenzene	50	nd				
1,1,2,2-Tetrachloroethane	50	nd				
n-Propylbenzene	50	nd				
2-Chlorotoluene	50	nd				
4-Chlorotoluene	50	nd				
1,3,5-Trimethylbenzene	50	nd				
tert-Butylbenzene	50	nd				
1,2,4-Trimethylbenzene	50	nd				

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS	MSD	RPD	MS	
<b>8260B, µg/kg</b>		<b>MBGW6-30</b>	<b>MBPP8-10</b>	<b>MBPP8-10</b>	<b>MBPP8-10</b>	<b>HMW11B-20.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/19/19	03/19/19	03/19/19	03/21/19
Date analyzed	Limits	03/21/19	03/19/19	03/19/19	03/19/19	03/21/19

sec-Butylbenzene	50	nd
1,3-Dichlorobenzene	50	nd
Isopropyltoluene	50	nd
1,4-Dichlorobenzene	50	nd
1,2-Dichlorobenzene	50	nd
n-Butylbenzene	50	nd
1,2-Dibromo-3-Chloropropane	50	nd
1,2,4-Trichlorobenzene	50	nd
Hexachloro-1,3-butadiene	50	nd
Naphthalene	50	nd
1,2,3-Trichlorobenzene	50	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	87%	91%	86%	88%
Toluene-d8	97%	98%	85%	86%
1,2-Dichloroethane-d4	100%	101%	97%	93%
4-Bromofluorobenzene	99%	95%	99%	98%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MSD	RPD
<b>8260B, µg/kg</b>		<b>HMW11B-20.5</b>	<b>HMW11B-20.5</b>
Matrix	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19

MTBE	100		
Dichlorodifluoromethane	50		
Chloromethane	50		
Vinyl chloride	50		
Bromomethane	50		
Chloroethane	50		
Trichlorofluoromethane	50		
1,1-Dichloroethene	50		
Methylene chloride	20		
trans-1,2-Dichloroethene	50		
1,1-Dichloroethane	50		
2,2-Dichloropropane	50		
cis-1,2-Dichloroethene	50		
Chloroform	50		
1,1,1-Trichloroethane	50		
Carbontetrachloride	50		
1,1-Dichloropropene	50		
Benzene	20	91%	14%
1,2-Dichloroethane(EDC)	20		
Trichloroethene	20	89%	17%
1,2-Dichloropropane	50		
Dibromomethane	50		
Bromodichloromethane	50		
cis-1,3-Dichloropropene	50		
Toluene	50	102%	20%
trans-1,3-Dichloropropene	50		
1,1,2-Trichloroethane	50		
Tetrachloroethene	50		
1,3-Dichloropropane	50		
Dibromochloromethane	20		
1,2-Dibromoethane (EDB)*	5		
Chlorobenzene	50	111%	19%
1,1,1,2-Tetrachloroethane	50		
Ethylbenzene	50		
Xylenes	50		
Styrene	50		
Bromoform	50		
Isopropylbenzene	50		
1,2,3-Trichloropropane	50		
Bromobenzene	50		
1,1,2,2-Tetrachloroethane	50		
n-Propylbenzene	50		
2-Chlorotoluene	50		
4-Chlorotoluene	50		
1,3,5-Trimethylbenzene	50		
tert-Butylbenzene	50		
1,2,4-Trimethylbenzene	50		

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MSD	RPD
<b>8260B, µg/kg</b>		<b>HMW11B-20.5</b>	<b>HMW11B-20.5</b>
Matrix	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19

sec-Butylbenzene	50
1,3-Dichlorobenzene	50
Isopropyltoluene	50
1,4-Dichlorobenzene	50
1,2-Dichlorobenzene	50
n-Butylbenzene	50
1,2-Dibromo-3-Chloropropane	50
1,2,4-Trichlorobenzene	50
Hexachloro-1,3-butadiene	50
Naphthalene	50
1,2,3-Trichlorobenzene	50

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%
Toluene-d8	88%
1,2-Dichloroethane-d4	99%
4-Bromofluorobenzene	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	MBPP8-10	MBPP8-15	MBPP8-30	MBPP2-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	150	nd	nd

Surrogate recoveries:

Fluorobiphenyl	84%	93%	86%	86%	84%
o-Terphenyl	99%	102%	94%	93%	93%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW9-10	MBGW9-15	MBGW9-25	MBGW9-30	MBGW10-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	82%	87%	84%	83%	84%
o-Terphenyl	92%	92%	93%	91%	92%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW10-15	MBGW10-25	MBGW10-30	MBGW11-5	MBGW11-10
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	85%	83%	83%	86%	84%
o-Terphenyl	93%	94%	92%	90%	94%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		HMW21B-7.5	HMW21B-22.5	HMW11B-7.5	HMW11B-27.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	83%	84%	85%	80%
o-Terphenyl	93%	92%	93%	94%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/kg		MBGW13-5	MBGW13-10	MBGW13-15	MBGW6-10	MBGW6-30
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	85%	87%	84%	85%	84%
o-Terphenyl	92%	95%	92%	94%	93%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl
<b>NWTPH-Dx, mg/kg</b>		<b>MBGW6-30</b>
Matrix	Soil	Soil
Date extracted	Reporting	03/15/19
Date analyzed	Limits	03/15/19
Kerosene/Jet fuel	20	nd
Diesel/Fuel oil /Creosote	20	nd
Heavy oil	50	nd

Surrogate recoveries:

Fluorobiphenyl	80%
o-Terphenyl	89%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MTH BLK</b>	<b>MTH BLK</b>	<b>MTH BLK</b>	<b>MBPP8-10</b>	<b>MBPP8-15</b>	<b>MBPP8-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/20/19	03/21/19	03/23/19	03/20/19	03/20/19	03/20/19
Date analyzed	Limits	03/20/19	03/21/19	03/23/19	03/20/19	03/20/19	03/20/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	80%	94%	118%	78%	71%	71%
Bromofluorobenzene	96%	91%	103%	115%	107%	119%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBGW14-10</b>	<b>MBGW14-20</b>	<b>MBGW14-30</b>	<b>MBPP1-20</b>	<b>MBPP1-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19
Date analyzed	Limits	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	73%	76%	73%	78%	89%
Bromofluorobenzene	119%	117%	115%	110%	82%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBPP2-10</b>	<b>MBPP2-20</b>	<b>MBPP2-27.5</b>	<b>MBPP3-10</b>	<b>MBPP3-25</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19
Date analyzed	Limits	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	82%	79%	82%	80%	85%
Bromofluorobenzene	86%	83%	83%	88%	88%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBGW9-10</b>	<b>MBGW9-15</b>	<b>MBGW9-25</b>	<b>MBGW9-30</b>	<b>MBGW10-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/21/19	03/21/19	03/21/19
Date analyzed	Limits	03/21/19	03/21/19	03/21/19	03/21/19	03/21/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	76%	93%	94%	70%	107%
Bromofluorobenzene	70%	78%	85%	71%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl				
<b>NWTPH-Gx</b>		<b>MBGW10-15</b>	<b>MBGW10-15</b>	<b>MBGW10-25</b>	<b>MBGW10-30</b>	<b>MBGW11-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/23/19	03/23/19	03/23/19
Date analyzed	Limits	03/21/19	03/21/19	03/23/19	03/23/19	03/23/19

<b>NWTPH-Gx, mg/kg</b>						
Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	88%	83%	92%	98%	91%
Bromofluorobenzene	80%	80%	73%	72%	72%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl			
<b>NWTPH-Gx</b>		<b>MBGW11-10</b>	<b>HMW21B-7.5</b>	<b>HMW21B-7.5</b>	<b>HMW21B-22.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/23/19	03/23/19	03/23/19	03/21/19
Date analyzed	Limits	03/23/19	03/23/19	03/23/19	03/21/19

<b>NWTPH-Gx, mg/kg</b>					
Mineral spirits/Stoddard	5.0	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd

Surrogate recoveries:					
Trifluorotoluene		101%	87%	86%	95%
Bromofluorobenzene		88%	89%	89%	86%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>HMW1B-7.5</b>	<b>HMW1B-27.5</b>	<b>MBGW13-5</b>	<b>MBGW13-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/21/19	03/21/19	03/23/19	03/23/19
Date analyzed	Limits	03/21/19	03/21/19	03/23/19	03/23/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	730

Surrogate recoveries:

Trifluorotoluene	100%	109%	103%	C
Bromofluorobenzene	92%	96%	106%	C

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBGW13-15</b>	<b>MBGW13-20</b>	<b>MBGW6-10</b>	<b>MBGW6-30</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/23/19	03/23/19	03/23/19	03/23/19
Date analyzed	Limits	03/23/19	03/23/19	03/23/19	03/23/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd
Gasoline	5.0	16	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	80%	87%	104%	88%
Bromofluorobenzene	103%	96%	108%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBPP8-10</b>	<b>MBPP8-15</b>	<b>MBPP8-30</b>	<b>MBPP2-10</b>	<b>MBGW9-10</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/26/19	03/26/19	03/26/19	03/26/19	03/26/19
Moisture, %	18%	18%	16%	18%	17%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW9-15</b>	<b>MBGW9-25</b>	<b>MBGW9-30</b>	<b>MBGW10-10</b>	<b>MBGW10-15</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/26/19	03/26/19	03/26/19	03/26/19	03/26/19
Moisture, %	17%	18%	18%	18%	16%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW10-25</b>	<b>MBGW10-30</b>	<b>MBGW11-5</b>	<b>MBGW11-10</b>	<b>HMW21B-7.5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/26/19	03/26/19	03/26/19	03/26/19	03/26/19
Moisture, %	18%	17%	17%	19%	18%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>HMW21B-22.5</b>	<b>HMW11B-7.5</b>	<b>HMW11B-27.5</b>	<b>MBGW13-5</b>
Matrix	Soil	Soil	Soil	Soil
Date analyzed	03/26/19	03/26/19	03/26/19	03/26/19
Moisture, %	17%	18%	17%	16%

AAL Job Number: C90315-2  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/15/19

<b>Moisture, SM2540B</b>	<b>MBGW13-10</b>	<b>MBGW13-15</b>	<b>MBGW6-10</b>	<b>MBGW6-30</b>
Matrix	Soil	Soil	Soil	Soil
Date analyzed	03/26/19	03/26/19	03/26/19	03/26/19
Moisture, %	17%	17%	19%	16%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/L		MTH BLK	LCS	MBGW5-GW	MBGW6-GW	MBGW9-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	5.0	nd		nd	nd	nd
Chloromethane	1.0	nd		nd	nd	nd
Vinyl chloride(*)	0.2	nd		nd	nd	nd
Bromomethane	1.0	nd		nd	nd	nd
Chloroethane	1.0	nd		nd	nd	nd
Trichlorofluoromethane	1.0	nd		nd	nd	nd
1,1-Dichloroethene	1.0	nd		nd	nd	nd
Methylene chloride	1.0	nd		nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd		nd	nd	nd
1,1-Dichloroethane	1.0	nd		nd	nd	nd
2,2-Dichloropropane	1.0	nd		nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd		2.1	1.0	nd
Chloroform	1.0	nd		nd	nd	nd
1,1,1-Trichloroethane	1.0	nd		nd	nd	nd
Carbontetrachloride	1.0	nd		nd	nd	nd
1,1-Dichloropropene	1.0	nd		nd	nd	nd
Benzene	1.0	nd	100%	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd		nd	nd	nd
Trichloroethene	1.0	nd	86%	nd	1.1	nd
1,2-Dichloropropane	1.0	nd		nd	nd	nd
Dibromomethane	1.0	nd		nd	nd	nd
Bromodichloromethane	1.0	nd		nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd		nd	nd	nd
Toluene	1.0	nd	98%	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd		nd	nd	nd
1,1,2-Trichloroethane	1.0	nd		nd	nd	nd
Tetrachloroethene	1.0	nd		nd	4.3	nd
1,3-Dichloropropane	1.0	nd		nd	nd	nd
Dibromochloromethane	1.0	nd		nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd		nd	nd	nd
Chlorobenzene	1.0	nd	100%	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd	nd	nd
Ethylbenzene	1.0	nd		nd	nd	nd
Xylenes	1.0	nd		nd	nd	nd
Styrene	1.0	nd		nd	nd	nd
Bromoform	1.0	nd		nd	nd	nd
Isopropylbenzene	1.0	nd		nd	nd	nd
1,2,3-Trichloropropane	1.0	nd		nd	nd	nd
Bromobenzene	1.0	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd	nd	nd
n-Propylbenzene	1.0	nd		nd	nd	nd
2-Chlorotoluene	1.0	nd		nd	nd	nd
4-Chlorotoluene	1.0	nd		nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd		nd	nd	nd
tert-Butylbenzene	1.0	nd		nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd		nd	nd	nd
sec-Butylbenzene	1.0	nd		nd	nd	nd
1,3-Dichlorobenzene	1.0	nd		nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/L		MTH BLK	LCS	MBGW5-GW	MBGW6-GW	MBGW9-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	5.0	nd		nd	nd	nd
Isopropyltoluene	1.0	nd		nd	nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd	nd
n-Butylbenzene	1.0	nd		nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd	nd
Naphthalene	1.0	nd		nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane		105%	94%	91%	95%	99%
Toluene-d8		123%	92%	97%	113%	112%
1,2-Dichloroethane-d4		96%	101%	99%	98%	94%
4-Bromofluorobenzene		99%	104%	101%	99%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/L		MBGW10-GW	MBGW11-GW	MBGW13-GW	MBGW15-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	5.0	nd	nd	nd	nd
Chloromethane	1.0	nd	nd	nd	nd
Vinyl chloride(*)	0.2	nd	nd	nd	nd
Bromomethane	1.0	nd	nd	nd	nd
Chloroethane	1.0	nd	nd	nd	nd
Trichlorofluoromethane	1.0	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd
2,2-Dichloropropane	1.0	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd
1,1,1-Trichloroethane	1.0	nd	nd	nd	nd
Carbontetrachloride	1.0	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd	nd	nd	nd
Trichloroethene	1.0	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene	1.0	nd	nd	nd	35
1,3-Dichloropropane	1.0	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd	nd	nd	nd
Chlorobenzene	1.0	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Xylenes	1.0	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd
Bromoform	1.0	nd	nd	nd	nd
Isopropylbenzene	1.0	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

8260B, µg/L		MBGW10-GW	MBGW11-GW	MBGW13-GW	MBGW15-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19	03/15/19
MTBE	5.0	nd	nd	nd	nd
Isopropyltoluene	1.0	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd	nd	nd	nd
Naphthalene	1.0	nd	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	94%	87%	88%
Toluene-d8	95%	99%	87%	87%
1,2-Dichloroethane-d4	100%	99%	101%	100%
4-Bromofluorobenzene	103%	114%	100%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW5-GW	MBGW5-GW	MBGW5-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19

MTBE	5.0			
Chloromethane	1.0			
Vinyl chloride(*)	0.2			
Bromomethane	1.0			
Chloroethane	1.0			
Trichlorofluoromethane	1.0			
1,1-Dichloroethene	1.0			
Methylene chloride	1.0			
trans-1,2-Dichloroethene	1.0			
1,1-Dichloroethane	1.0			
2,2-Dichloropropane	1.0			
cis-1,2-Dichloroethene	1.0			
Chloroform	1.0			
1,1,1-Trichloroethane	1.0			
Carbontetrachloride	1.0			
1,1-Dichloropropene	1.0			
Benzene	1.0	93%	108%	15%
1,2-Dichloroethane(EDC)	1.0			
Trichloroethene	1.0	95%	103%	8%
1,2-Dichloropropane	1.0			
Dibromomethane	1.0			
Bromodichloromethane	1.0			
cis-1,3-Dichloropropene	1.0			
Toluene	1.0	101%	108%	6%
trans-1,3-Dichloropropene	1.0			
1,1,2-Trichloroethane	1.0			
Tetrachloroethene	1.0			
1,3-Dichloropropane	1.0			
Dibromochloromethane	1.0			
1,2-Dibromoethane (EDB)*	0.01			
Chlorobenzene	1.0	104%	119%	13%
1,1,1,2-Tetrachloroethane	1.0			
Ethylbenzene	1.0			
Xylenes	1.0			
Styrene	1.0			
Bromoform	1.0			
Isopropylbenzene	1.0			
1,2,3-Trichloropropane	1.0			
Bromobenzene	1.0			
1,1,2,2-Tetrachloroethane	1.0			
n-Propylbenzene	1.0			
2-Chlorotoluene	1.0			
4-Chlorotoluene	1.0			
1,3,5-Trimethylbenzene	1.0			
tert-Butylbenzene	1.0			
1,2,4-Trimethylbenzene	1.0			
sec-Butylbenzene	1.0			
1,3-Dichlorobenzene	1.0			

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW5-GW	MBGW5-GW	MBGW5-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/15/19	03/15/19	03/15/19

MTBE	5.0
Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
1,2-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dibromo-3-Chloropropane	1.0
1,2,4-Trichlorobenzene	1.0
Hexachloro-1,3-butadiene	1.0
Naphthalene	1.0
1,2,3-Trichlorobenzene	1.0

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	94%	94%
Toluene-d8	88%	94%
1,2-Dichloroethane-d4	100%	101%
4-Bromofluorobenzene	98%	106%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Dx, mg/L		MTH BLK	MBGW5-GW	MBGW6-GW	MBGW9-GW	MBGW10-GW
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	84%	85%	86%	84%	88%
o-Terphenyl	102%	95%	96%	94%	98%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results		Dupl			
NWTPH-Dx, mg/L		MBGW11-GW	MBGW13-GW	MBGW15-GW	MBGW15-GW
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	03/15/19	03/15/19	03/15/19	03/15/19
Date analyzed	Limits	03/15/19	03/15/19	03/15/19	03/15/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	83%	106%	101%	84%
o-Terphenyl	94%	114%	109%	120%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results

NWTPH-Gx		MTH BLK	MBGW5-GW	MBGW6-GW	MBGW9-GW	MBGW10-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/16/19	03/16/19	03/16/19	03/16/19	03/16/19

NWTPH-Gx, mg/L

Mineral spirits/Stoddard	0.10	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	99%	124%	122%	120%	101%
Bromofluorobenzene	88%	108%	107%	111%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90315-2  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/15/19

Analytical Results					Dupl
NWTPH-Gx		MBGW11-GW	MBGW13-GW	MBGW15-GW	MBGW15-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/16/19	03/16/19	03/16/19	03/16/19

NWTPH-Gx, mg/L					
Mineral spirits/Stoddard	0.10	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd

Surrogate recoveries:					
Trifluorotoluene		114%	112%	99%	104%
Bromofluorobenzene		110%	113%	95%	100%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

# Sample Custody Record

Samples Shipped to: Advanced Analytical Labs


①
C90315-2 1 of 3  
**HARTCROWSER**

Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1740901</u> LAB NUMBER _____						REQUESTED ANALYSIS												NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS					
PROJECT NAME <u>Meteor Major Block</u>						TPHG	TPH-Dx	VOCs	PAHs															
HART CROWSER CONTACT <u>My Jensen</u>																								
SAMPLED BY: _____																								
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX																			
	MBPP8-10.0		3/6/19	0706	soil	X	X	X																
	MBPP8-15.0		3/6/19	0715		X	X	X																
	MBPP8-30.0		3/6/19	0948		X	X	X																
	MBGW14-10.0		3/6/19			X		X																
	MBGW14-15.0		3/6/19					X																
	MBGW14-20.0		3/6/19			X		X																
	MBGW14-30.0		3/6/19			X		X																
	MBPP1-20.0		3/5/19			X		X																
	MBPP1-25.0		3/5/19			X		X																
	MBPP2-10.0		3/5/19			X	X	X																
	MBPP2-20.0		3/5/19			X		X																
	MBPP2-27.5		3/5/19			X		X																

RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS	
<i>[Signature]</i>		3/15/19	<i>[Signature]</i>		03/15/19		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____	
<i>[Signature]</i>			<i>[Signature]</i>					
PRINT NAME			PRINT NAME					
COMPANY			COMPANY					
RELINQUISHED BY		DATE	RECEIVED BY		DATE	COOLER NO.: _____ STORAGE LOCATION: _____		
<i>[Signature]</i>			<i>[Signature]</i>					
PRINT NAME			PRINT NAME					
COMPANY			COMPANY					
See Lab Work Order No. _____ for Other Contract Requirements								

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

Samples Shipped to: Advanced Analytical Lab

090315-2



208 3

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>Mercer Mega Block</u> HART CROWSER CONTACT <u>Boy Jensen</u> SAMPLED BY: _____						REQUESTED ANALYSIS TPHG TPH-DX VOCs PAHs										NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS				
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX																
	MBPP3	-10.0	3/6/19		Soil	X		X													
	MBPP3	-20.0	3/6/19					X													
	MBPP3	-25.0	3/6/19			X		X													
	MBPP3	-22.5	3/6/19					X													
	MBGW7	-10.0	3/13/19	1355		X	X	X													
	MBGW7	-15.0	3/13/19	1415		X	X	X													
	MBGW7	-20.0	3/13/19	1435				X													
	MBGW7	-25.0	3/13/19	1500		X	X	X													
	MBGW7	-30.0	3/13/19	1525		X	X	X													
	MBGW10	-10.0	3/13/19	0900		X	X	X													
	MBGW10	-15.0	3/13/19	0920		X	X	X													
	MBGW10	-20.0	3/13/19	0945				X													
RELINQUISHED BY		DATE	RECEIVED BY			DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  COOLER NO.: _____ STORAGE LOCATION: _____  See Lab Work Order No. _____ for Other Contract Requirements										TOTAL NUMBER OF CONTAINERS				
SIGNATURE		TIME	SIGNATURE		TIME	SAMPLE RECEIPT INFORMATION															
PRINT NAME		TIME	PRINT NAME		TIME	CUSTODY SEALS:															
COMPANY		TIME	COMPANY		TIME	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____															

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

C90315-2



3092

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

Samples Shipped to: AAL

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____						REQUESTED ANALYSIS <div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">TPHG</div> <div style="margin-bottom: 5px;">TPH-DX</div> <div style="margin-bottom: 5px;">VOCs</div> <div style="margin-bottom: 5px;">PAHS</div> </div>										NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS			
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX															
	MBGW10-25.0		3/13/19	1010	soil	X	X	X												
	MBGW10-30.0		3/13/19	1040	soil	X	X	X												
	MBGW9-6W		3/13/19	1615	water	X	X	X												
	MBGW10-6W		3/13/19	1115	water	X	X	X												
	MBGW5-6W		3/11/19	1300	water	X	X	X												
	MBGW11-6W		3/12/19	1443	water	X	X	X												
	MBGW11-5.0		3/12/19	0913	soil	X	X	X												
	MBGW11-10.0		3/12/19	0933	soil	X	X	X												
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  COOLER NO.: _____ STORAGE LOCATION: _____  See Lab Work Order No. _____ for Other Contract Requirements										TOTAL NUMBER OF CONTAINERS				
SIGNATURE		TIME	SIGNATURE		TIME											SAMPLE RECEIPT INFORMATION				
PRINT NAME		TIME	PRINT NAME		TIME											CUSTODY SEALS:				
COMPANY		TIME	COMPANY		TIME											<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT				
RELINQUISHED BY		DATE	RECEIVED BY		DATE											TURNAROUND TIME:				
SIGNATURE		TIME	SIGNATURE		TIME											<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____				
PRINT NAME		TIME	PRINT NAME		TIME															
COMPANY		TIME	COMPANY		TIME															

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

C90315-2



1 of 3

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

Samples Shipped to: AA L

JOB <u>940901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>roy Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS <table border="1" style="width:100%; height: 100px; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TPHG</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH-Dx</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">VOCs</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">PAHs</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>	TPHG	TPH-Dx	VOCs	PAHs																			NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSING INSTRUCTIONS
TPHG	TPH-Dx	VOCs	PAHs																						

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TPHG	TPH-Dx	VOCs	PAHs												
	HMW21B-7.5		3/12/19	1140	soil	X	X	X													
	HMW21B-15		3/12/19	1258				X													
	HMW21B-22.5		3/12/19	1242		X	XX														
	HMW21B-30		3/12/19	1307				X													
	HMW21B-45		3/12/19	1402				X													
	HMW21B-65		3/12/19	1525				X													
	HMW21B-7.5		3/12/19	1110		X	XX	X													
	HMW21B-15		3/12/19	1157				X													
	HMW21B-20.5		3/12/19	1349				X													
	HMW21B-27.5		3/12/19	1444		XX	X	X													
	HMW21B-50.0		3/12/19	1705				X													
	HMW21B-65.0		3/13/19	1315				X													

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/15/19	<u>[Signature]</u>	03/15/19		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME		PRINT NAME			
COMPANY		COMPANY			
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	STORAGE LOCATION:
SIGNATURE	TIME	SIGNATURE	TIME	See Lab Work Order No. _____ for Other Contract Requirements	
PRINT NAME		PRINT NAME			
COMPANY		COMPANY			

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

C90315-2



2093

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

Samples Shipped to: AAI

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>Bay Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS TPHG TPH-DX VOCs PAHs	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
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LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TPHG	TPH-DX	VOCs	PAHs
	MBGW6-6W		3/14/19	1620	water	X	X	X	
	MBGW13-6W		3/14/19	1140		X	X	X	
	MBGW15-6W		3/13/19	1345		X	X	X	
	MBGW13-5.0		3/14/19	0859	soil	X	X	X	
	MBGW13-7.5		3/14/19	0910				X	
	MBGW13-10.0		3/14/19	0917		X	X	X	
	MBGW13-12.5		3/14/19	0920				X	
	MBGW13-15		3/14/19	0930		X	X	X	
	MBGW13-20.0		3/14/19	1000		X		X	
	MBGW6-10.0		3/14/19	1320		X	X	X	
	MBGW6-15		3/14/19	1340				X	
	MBGW6-20		3/14/19	1405				X	

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/15/19	<u>V. Jensen</u>	03/15/19		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME	1222	PRINT NAME	12:30		
COMPANY		COMPANY			
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	STORAGE LOCATION:
SIGNATURE	TIME	SIGNATURE	TIME	See Lab Work Order No. _____	
PRINT NAME		PRINT NAME		for Other Contract Requirements	
COMPANY		COMPANY			

White to Lab    Yellow to Project Manager    Pink to Sample Custodian



March 28, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90318-3)* Project.

Samples were received on *March 18, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

---

4078 148 Ave NE ■ Redmond, WA 98052

425.702-8571

*E-mail: aachemlab@yahoo.com*

AAL Job Number: C90318-3  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/18/19

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Analytical Results

8260B, µg/kg		MTH BLK	LCS	MBGW8-10	MBGW8-15	MBGW8-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
MTBE	100	nd		nd	nd	nd
Dichlorodifluoromethane	50	nd		nd	nd	nd
Chloromethane	50	nd		nd	nd	nd
Vinyl chloride	50	nd		nd	nd	nd
Bromomethane	50	nd		nd	nd	nd
Chloroethane	50	nd		nd	nd	nd
Trichlorofluoromethane	50	nd		nd	nd	nd
1,1-Dichloroethene	50	nd		nd	nd	nd
Methylene chloride	20	nd		nd	nd	nd
trans-1,2-Dichloroethene	50	nd		nd	nd	nd
1,1-Dichloroethane	50	nd		nd	nd	nd
2,2-Dichloropropane	50	nd		nd	nd	nd
cis-1,2-Dichloroethene	50	nd		nd	nd	nd
Chloroform	50	nd		nd	nd	nd
1,1,1-Trichloroethane	50	nd		nd	nd	nd
Carbontetrachloride	50	nd		nd	nd	nd
1,1-Dichloropropene	50	nd		nd	nd	nd
Benzene	20	nd	90%	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd		nd	nd	nd
Trichloroethene	20	nd	89%	nd	nd	nd
1,2-Dichloropropane	50	nd		nd	nd	nd
Dibromomethane	50	nd		nd	nd	nd
Bromodichloromethane	50	nd		nd	nd	nd
cis-1,3-Dichloropropene	50	nd		nd	nd	nd
Toluene	50	nd	93%	nd	nd	nd
trans-1,3-Dichloropropene	50	nd		nd	nd	nd
1,1,2-Trichloroethane	50	nd		nd	nd	nd
Tetrachloroethene	50	nd		nd	nd	nd
1,3-Dichloropropane	50	nd		nd	nd	nd
Dibromochloromethane	20	nd		nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd		nd	nd	nd
Chlorobenzene	50	nd	103%	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd		nd	nd	nd
Ethylbenzene	50	nd		nd	nd	nd
Xylenes	50	nd		nd	nd	nd
Styrene	50	nd		nd	nd	nd
Bromoform	50	nd		nd	nd	nd
Isopropylbenzene	50	nd		nd	nd	nd
1,2,3-Trichloropropane	50	nd		nd	nd	nd
Bromobenzene	50	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd		nd	nd	nd
n-Propylbenzene	50	nd		nd	nd	nd
2-Chlorotoluene	50	nd		nd	nd	nd
4-Chlorotoluene	50	nd		nd	nd	nd
1,3,5-Trimethylbenzene	50	nd		nd	nd	nd
tert-Butylbenzene	50	nd		nd	nd	nd
1,2,4-Trimethylbenzene	50	nd		nd	nd	nd

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Analytical Results

8260B, µg/kg		MTH BLK	LCS	MBGW8-10	MBGW8-15	MBGW8-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
sec-Butylbenzene	50	nd		nd	nd	nd
1,3-Dichlorobenzene	50	nd		nd	nd	nd
Isopropyltoluene	50	nd		nd	nd	nd
1,4-Dichlorobenzene	50	nd		nd	nd	nd
1,2-Dichlorobenzene	50	nd		nd	nd	nd
n-Butylbenzene	50	nd		nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd		nd	nd	nd
1,2,4-Trichlorobenzene	50	nd		nd	nd	nd
Hexachloro-1,3-butadiene	50	nd		nd	nd	nd
Naphthalene	50	nd		nd	nd	nd
1,2,3-Trichlorobenzene	50	nd		nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	90%	87%	87%	84%	84%
Toluene-d8	101%	90%	97%	93%	92%
1,2-Dichloroethane-d4	95%	97%	97%	97%	98%
4-Bromofluorobenzene	98%	101%	101%	97%	107%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

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Analytical Results

8260B, µg/kg		MBGW8-35	MBGW12-5	MBGW12-20	MBGW12-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

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Analytical Results

8260B, µg/kg		MBGW8-35	MBGW12-5	MBGW12-20	MBGW12-25
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	83%	90%	86%	88%
Toluene-d8	84%	96%	91%	94%
1,2-Dichloroethane-d4	101%	99%	97%	98%
4-Bromofluorobenzene	100%	102%	100%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
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 C - coelution with sample peaks  
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 Acceptable RPD limit: 30%

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Analytical Results

8260B, µg/kg		MBGW12-30	HMW31A-15	HMW31A-20	HMW31A-22.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

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Analytical Results

8260B, µg/kg		MBGW12-30	HMW31A-15	HMW31A-20	HMW31A-22.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	84%	90%	87%	83%
Toluene-d8	91%	96%	92%	85%
1,2-Dichloroethane-d4	98%	99%	101%	98%
4-Bromofluorobenzene	101%	101%	113%	99%

Data Qualifiers and Analytical Comments

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 Acceptable RPD limit: 30%

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Analytical Results

8260B, µg/kg		HMW31A-25	HMW41A-5	HMW41A-7.5	HMW41A-10
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
MTBE	100	nd	nd	nd	nd
Dichlorodifluoromethane	50	nd	nd	nd	nd
Chloromethane	50	nd	nd	nd	nd
Vinyl chloride	50	nd	nd	nd	nd
Bromomethane	50	nd	nd	nd	nd
Chloroethane	50	nd	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd	nd
Methylene chloride	20	nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd	nd
2,2-Dichloropropane	50	nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd	nd	nd	nd
Chloroform	50	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd
Carbontetrachloride	50	nd	nd	nd	nd
1,1-Dichloropropene	50	nd	nd	nd	nd
Benzene	20	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	20	nd	nd	nd	nd
Trichloroethene	20	nd	nd	nd	nd
1,2-Dichloropropane	50	nd	nd	nd	nd
Dibromomethane	50	nd	nd	nd	nd
Bromodichloromethane	50	nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd	nd	nd	nd
Toluene	50	nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd	nd
1,3-Dichloropropane	50	nd	nd	nd	nd
Dibromochloromethane	20	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	5	nd	nd	nd	nd
Chlorobenzene	50	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd
Ethylbenzene	50	nd	nd	nd	nd
Xylenes	50	nd	nd	nd	nd
Styrene	50	nd	nd	nd	nd
Bromoform	50	nd	nd	nd	nd
Isopropylbenzene	50	nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd	nd	nd	nd
Bromobenzene	50	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd
n-Propylbenzene	50	nd	nd	nd	nd
2-Chlorotoluene	50	nd	nd	nd	nd
4-Chlorotoluene	50	nd	nd	nd	nd
1,3,5-Trimethylbenzene	50	nd	nd	nd	nd
tert-Butylbenzene	50	nd	nd	nd	nd
1,2,4-Trimethylbenzene	50	nd	nd	nd	nd

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Analytical Results

8260B, µg/kg		HMW31A-25	HMW41A-5	HMW41A-7.5	HMW41A-10
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19
sec-Butylbenzene	50	nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd	nd	nd	nd
Isopropyltoluene	50	nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd	nd	nd	nd
n-Butylbenzene	50	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd
Naphthalene	50	nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	86%	82%	81%	81%
Toluene-d8	88%	88%	85%	89%
1,2-Dichloroethane-d4	95%	101%	97%	95%
4-Bromofluorobenzene	98%	100%	107%	103%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

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Analytical Results		MS	MSD	RPD	
8260B, µg/kg	HMW41A-25	MBGW8-10	MBGW8-10	MBGW8-10	
Matrix	Soil	Soil	Soil	Soil	
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	
MTBE	100	nd			
Dichlorodifluoromethane	50	nd			
Chloromethane	50	nd			
Vinyl chloride	50	nd			
Bromomethane	50	nd			
Chloroethane	50	nd			
Trichlorofluoromethane	50	nd			
1,1-Dichloroethene	50	nd			
Methylene chloride	20	nd			
trans-1,2-Dichloroethene	50	nd			
1,1-Dichloroethane	50	nd			
2,2-Dichloropropane	50	nd			
cis-1,2-Dichloroethene	50	nd			
Chloroform	50	nd			
1,1,1-Trichloroethane	50	nd			
Carbontetrachloride	50	nd			
1,1-Dichloropropene	50	nd			
Benzene	20	nd	81%	94%	15%
1,2-Dichloroethane(EDC)	20	nd			
Trichloroethene	20	nd	77%	96%	23%
1,2-Dichloropropane	50	nd			
Dibromomethane	50	nd			
Bromodichloromethane	50	nd			
cis-1,3-Dichloropropene	50	nd			
Toluene	50	nd	84%	96%	13%
trans-1,3-Dichloropropene	50	nd			
1,1,2-Trichloroethane	50	nd			
Tetrachloroethene	50	nd			
1,3-Dichloropropane	50	nd			
Dibromochloromethane	20	nd			
1,2-Dibromoethane (EDB)*	5	nd			
Chlorobenzene	50	nd	93%	112%	19%
1,1,1,2-Tetrachloroethane	50	nd			
Ethylbenzene	50	nd			
Xylenes	50	nd			
Styrene	50	nd			
Bromoform	50	nd			
Isopropylbenzene	50	nd			
1,2,3-Trichloropropane	50	nd			
Bromobenzene	50	nd			
1,1,2,2-Tetrachloroethane	50	nd			
n-Propylbenzene	50	nd			
2-Chlorotoluene	50	nd			
4-Chlorotoluene	50	nd			
1,3,5-Trimethylbenzene	50	nd			
tert-Butylbenzene	50	nd			
1,2,4-Trimethylbenzene	50	nd			

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Analytical Results		MS	MSD	RPD	
8260B, µg/kg		HMW41A-25	MBGW8-10	MBGW8-10	MBGW8-10
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/22/19	03/22/19	03/22/19	03/22/19
Date analyzed	Limits	03/22/19	03/22/19	03/22/19	03/22/19

sec-Butylbenzene	50	nd
1,3-Dichlorobenzene	50	nd
Isopropyltoluene	50	nd
1,4-Dichlorobenzene	50	nd
1,2-Dichlorobenzene	50	nd
n-Butylbenzene	50	nd
1,2-Dibromo-3-Chloropropane	50	nd
1,2,4-Trichlorobenzene	50	nd
Hexachloro-1,3-butadiene	50	nd
Naphthalene	50	nd
1,2,3-Trichlorobenzene	50	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	87%	91%	91%
Toluene-d8	92%	92%	98%
1,2-Dichloroethane-d4	98%	99%	95%
4-Bromofluorobenzene	104%	97%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 M-matrix interference  
 C - coelution with sample peaks  
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 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	MBGW8-10	MBGW8-25	MBGW12-5	MBGW12-25
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19	03/19/19
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	90%	88%	87%	87%	86%
o-Terphenyl	95%	98%	98%	96%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results

NWTPH-Dx, mg/kg		HMW31A-20	HMW31A-22.5	HMW31A-25	HMW41A-7.5
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
Kerosene/Jet fuel	20	nd	nd	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd	nd	160
Heavy oil	50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	87%	94%	90%	92%
o-Terphenyl	97%	104%	101%	97%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results		Dupl	
NWTPH-Dx, mg/kg		HMW41A-25	HMW41A-25
Matrix	Soil	Soil	Soil
Date extracted	Reporting	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19
Kerosene/Jet fuel	20	nd	nd
Diesel/Fuel oil /Creosote	20	nd	nd
Heavy oil	50	nd	nd

Surrogate recoveries:

Fluorobiphenyl	88%	89%
o-Terphenyl	99%	111%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 M - matrix Interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results Dupl

<b>NWTPH-Gx</b>		<b>MTH BLK</b>	<b>MBGW8-10</b>	<b>MBGW8-25</b>	<b>MBGW12-5</b>	<b>MBGW12-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19
Date analyzed	Limits	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	92%	90%	91%	88%	93%
Bromofluorobenzene	82%	104%	101%	103%	93%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MBGW12-25</b>	<b>HMW31A-22.5</b>	<b>HMW41A-7.5</b>
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/25/19	03/25/19	03/25/19
Date analyzed	Limits	03/25/19	03/25/19	03/25/19

**NWTPH-Gx, mg/kg**

Mineral spirits/Stoddard	5.0	nd	nd	nd
Gasoline	5.0	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	86%	82%	81%
Bromofluorobenzene	96%	103%	93%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 C - coelution with sample peaks  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results		MS		MSD		RPD	
PAH (8270 sim), mg/kg	MTH BLK	LCS	HMW41A-7.5	HMW41A-7.5	HMW41A-7.5	HMW41A-7.5	HMW41A-7.5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19
Date analyzed	Limits	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19	03/20/19
1-Methylnaphthalene	0.10	nd		nd			
2-Methylnaphthalene	0.10	nd		nd			
Naphthalene	0.10	nd		nd			
Acenaphthylene	0.10	nd		0.37			
Acenaphthene	0.10	nd	108%	1.1	91%	83%	9%
Fluorene	0.10	nd		nd			
Phenanthrene	0.10	nd		2.0			
Anthracene	0.10	nd		nd			
Fluoranthene	0.10	nd		4.7			
Pyrene	0.10	nd	114%	4.4	102%	98%	5%
Benzo(a)anthracene	0.10	nd		1.5			
Chrysene	0.10	nd		2.3			
Benzo(b)fluoranthene	0.10	nd		1.2			
Benzo(k)fluoranthene	0.10	nd		nd			
Benzo(a)pyrene	0.10	nd		nd			
Indeno(1,2,3-cd)pyrene	0.10	nd		nd			
Dibenzo(ah)anthracene	0.10	nd		nd			
Benzo(ghi)perylene	0.10	nd		nd			

Surrogate recoveries:

2-Fluorobiphenyl	95%	110%	100%	108%	106%
o-Terphenyl	98%	94%	96%	98%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 M - matrix interference  
 Results reported on dry-weight basis  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

<b>Moisture, SM2540B</b>	<b>MBGW8-10</b>	<b>MBGW8-15</b>	<b>MBGW8-25</b>	<b>MBGW8-35</b>	<b>MBGW12-5</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
Moisture, %	20%	17%	16%	15%	15%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

<b>Moisture, SM2540B</b>	<b>MBGW12-20</b>	<b>MBGW12-25</b>	<b>MBGW12-30</b>	<b>HMW31A-15</b>	<b>HMW31A-20</b>
Matrix	Soil	Soil	Soil	Soil	Soil
Date analyzed	03/22/19	03/22/19	03/22/19	03/22/19	03/22/19
Moisture, %	18%	22%	18%	16%	16%

AAL Job Number: C90318-3  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/18/19

<b>Moisture, SM2540B</b>	<b>HMW31A-22.5</b>	<b>HMW31A-25</b>	<b>HMW41A-5</b>	<b>HMW41A-7.5</b>
Matrix	Soil	Soil	Soil	Soil
Date analyzed	03/22/19	03/22/19	03/22/19	03/22/19
Moisture, %	23%	17%	18%	16%

AAL Job Number: C90318-3  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/18/19

<b>Moisture, SM2540B</b>	<b>HMW41A-10</b>	<b>HMW41A-25</b>
Matrix	Soil	Soil
Date analyzed	03/22/19	03/22/19
Moisture, %	17%	16%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results

8260B, µg/L	MTH BLK	LCS	MBGW8-GW	MBGW12-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/19/19	03/19/19	03/19/19
MTBE	5.0	nd		nd
Chloromethane	1.0	nd		nd
Vinyl chloride(*)	0.2	nd		nd
Bromomethane	1.0	nd		nd
Chloroethane	1.0	nd		nd
Trichlorofluoromethane	1.0	nd		nd
1,1-Dichloroethene	1.0	nd		nd
Methylene chloride	1.0	nd		nd
trans-1,2-Dichloroethene	1.0	nd		nd
1,1-Dichloroethane	1.0	nd		nd
2,2-Dichloropropane	1.0	nd		nd
cis-1,2-Dichloroethene	1.0	nd		nd
Chloroform	1.0	nd		nd
1,1,1-Trichloroethane	1.0	nd		nd
Carbontetrachloride	1.0	nd		nd
1,1-Dichloropropene	1.0	nd		nd
Benzene	1.0	nd	88%	nd
1,2-Dichloroethane(EDC)	1.0	nd		nd
Trichloroethene	1.0	nd	84%	1.0
1,2-Dichloropropane	1.0	nd		nd
Dibromomethane	1.0	nd		nd
Bromodichloromethane	1.0	nd		nd
cis-1,3-Dichloropropene	1.0	nd		nd
Toluene	1.0	nd	95%	nd
trans-1,3-Dichloropropene	1.0	nd		nd
1,1,2-Trichloroethane	1.0	nd		nd
Tetrachloroethene	1.0	nd		5.1
1,3-Dichloropropane	1.0	nd		nd
Dibromochloromethane	1.0	nd		nd
1,2-Dibromoethane (EDB)*	0.01	nd		nd
Chlorobenzene	1.0	nd	102%	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd
Ethylbenzene	1.0	nd		nd
Xylenes	1.0	nd		nd
Styrene	1.0	nd		nd
Bromoform	1.0	nd		nd
Isopropylbenzene	1.0	nd		nd
1,2,3-Trichloropropane	1.0	nd		nd
Bromobenzene	1.0	nd		nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd
n-Propylbenzene	1.0	nd		nd
2-Chlorotoluene	1.0	nd		nd
4-Chlorotoluene	1.0	nd		nd
1,3,5-Trimethylbenzene	1.0	nd		nd
tert-Butylbenzene	1.0	nd		nd
1,2,4-Trimethylbenzene	1.0	nd		nd
sec-Butylbenzene	1.0	nd		nd
1,3-Dichlorobenzene	1.0	nd		nd

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results

8260B, µg/L		MTH BLK	LCS	MBGW8-GW	MBGW12-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/19/19	03/19/19	03/19/19	03/19/19
MTBE	5.0	nd		nd	nd
Isopropyltoluene	1.0	nd		nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd
n-Butylbenzene	1.0	nd		nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd
Naphthalene	1.0	nd		nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane		97%	88%	96%	86%
Toluene-d8		108%	89%	93%	92%
1,2-Dichloroethane-d4		97%	99%	101%	98%
4-Bromofluorobenzene		95%	97%	109%	94%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW8-GW	MBGW8-GW	MBGW8-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/19/19	03/19/19	03/19/19

MTBE	5.0			
Chloromethane	1.0			
Vinyl chloride(*)	0.2			
Bromomethane	1.0			
Chloroethane	1.0			
Trichlorofluoromethane	1.0			
1,1-Dichloroethene	1.0			
Methylene chloride	1.0			
trans-1,2-Dichloroethene	1.0			
1,1-Dichloroethane	1.0			
2,2-Dichloropropane	1.0			
cis-1,2-Dichloroethene	1.0			
Chloroform	1.0			
1,1,1-Trichloroethane	1.0			
Carbontetrachloride	1.0			
1,1-Dichloropropene	1.0			
Benzene	1.0	82%	92%	12%
1,2-Dichloroethane(EDC)	1.0			
Trichloroethene	1.0	81%	87%	7%
1,2-Dichloropropane	1.0			
Dibromomethane	1.0			
Bromodichloromethane	1.0			
cis-1,3-Dichloropropene	1.0			
Toluene	1.0	87%	105%	19%
trans-1,3-Dichloropropene	1.0			
1,1,2-Trichloroethane	1.0			
Tetrachloroethene	1.0			
1,3-Dichloropropane	1.0			
Dibromochloromethane	1.0			
1,2-Dibromoethane (EDB)*	0.01			
Chlorobenzene	1.0	92%	111%	18%
1,1,1,2-Tetrachloroethane	1.0			
Ethylbenzene	1.0			
Xylenes	1.0			
Styrene	1.0			
Bromoform	1.0			
Isopropylbenzene	1.0			
1,2,3-Trichloropropane	1.0			
Bromobenzene	1.0			
1,1,2,2-Tetrachloroethane	1.0			
n-Propylbenzene	1.0			
2-Chlorotoluene	1.0			
4-Chlorotoluene	1.0			
1,3,5-Trimethylbenzene	1.0			
tert-Butylbenzene	1.0			
1,2,4-Trimethylbenzene	1.0			
sec-Butylbenzene	1.0			
1,3-Dichlorobenzene	1.0			

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results		MS	MSD	RPD
8260B, µg/L		MBGW8-GW	MBGW8-GW	MBGW8-GW
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/19/19	03/19/19	03/19/19

MTBE	5.0
Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
1,2-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dibromo-3-Chloropropane	1.0
1,2,4-Trichlorobenzene	1.0
Hexachloro-1,3-butadiene	1.0
Naphthalene	1.0
1,2,3-Trichlorobenzene	1.0

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	91%	86%
Toluene-d8	98%	85%
1,2-Dichloroethane-d4	101%	97%
4-Bromofluorobenzene	95%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results					Dupl
NWTPH-Dx, mg/L		MTH BLK	MBGW8-GW	MBGW12-GW	MBGW12-GW
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	03/19/19	03/19/19	03/19/19	03/19/19
Date analyzed	Limits	03/19/19	03/19/19	03/19/19	03/19/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	86%	98%	88%	77%
o-Terphenyl	108%	113%	96%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90318-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/18/19

Analytical Results		Dupl			
NWTPH-Gx		MTH BLK	MBGW8-GW	MBGW12-GW	MBGW12-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/20/19	03/20/19	03/20/19	03/20/19

<u>NWTPH-Gx, mg/L</u>					
Mineral spirits/Stoddard	0.10	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd

Surrogate recoveries:					
Trifluorotoluene		90%	89%	87%	90%
Bromofluorobenzene		85%	89%	89%	97%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

# Sample Custody Record

Samples Shipped to: AAL



C90318-3

1

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1740901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____						REQUESTED ANALYSIS TPH-G TPH-DX VOCs PAHs										NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
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LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX															
	MBGL08-6W		3/16/19	0813	water	X	X	X												
	MBGL02-6W		3/15/19	1200		X	X	X												

RELINQUISHED BY  SIGNATURE R. Dozier PRINT NAME HC COMPANY		DATE 3/18/19 TIME 1332	RECEIVED BY  SIGNATURE V. Navar PRINT NAME AAL COMPANY		DATE 03/18/19 TIME 1332	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  COOLER NO.: _____ STORAGE LOCATION: _____  See Lab Work Order No. _____ for Other Contract Requirements										TOTAL NUMBER OF CONTAINERS  SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT	
RELINQUISHED BY  SIGNATURE  PRINT NAME  COMPANY		DATE  TIME	RECEIVED BY  SIGNATURE  PRINT NAME  COMPANY		DATE  TIME	TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____											

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

Samples Shipped to: AAL



C90318-3

②

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS PH-G PH-DX VOCs PAHs	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
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LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX													
	MBGLW8-10.0		3/15/19		soil	X	X	X										
	MBGLW8-15.0		3/15/19	1531				X										
	MBGLW8-25.0		3/15/19	1005		X	X	X										
	MBGLW8-35.0		3/15/19	1634				X										
	MBGLW12-5.0		3/15/19	0715		X	X	X										
	MBGLW12-20.0		3/15/19	1020				X										
	MBGLW12-25.0		3/15/19	1045		X	X	X										
	MBGLW12-30.0		3/15/19	1105				X										
	HMW31A-15.0		3/15/19	0941				X										
	HMW31A-20.0		3/15/19	1003				X	X									
	HMW31A-22.5		3/15/19	1015		X	X	X										
	HMW31A-25.0		3/15/19	1024		X	X											

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/18/19	<u>[Signature]</u>	03/18/19		
SIGNATURE	TIME	SIGNATURE	TIME		SAMPLE RECEIPT INFORMATION
<u>[Print Name]</u>		<u>[Print Name]</u>			CUSTODY SEALS:
COMPANY	1332	COMPANY	1330		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
RELINQUISHED BY	DATE	RECEIVED BY	DATE		GOOD CONDITION
SIGNATURE	TIME	SIGNATURE	TIME		<input type="checkbox"/> YES <input type="checkbox"/> NO
PRINT NAME		PRINT NAME			TEMPERATURE _____
COMPANY		COMPANY			SHIPMENT METHOD: <input type="checkbox"/> HAND
				COOLER NO.:	<input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
				STORAGE LOCATION:	TURNAROUND TIME:
				See Lab Work Order No. _____	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK
				for Other Contract Requirements	<input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD
					<input type="checkbox"/> 72 HOURS    OTHER _____

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

# Sample Custody Record

Samples Shipped to: AAL



C90318-3 (3)

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____ PROJECT NAME <u>MMB</u> HART CROWSER CONTACT <u>Ray Jensen</u> SAMPLED BY: _____	REQUESTED ANALYSIS <div style="font-family: monospace; font-size: 1.2em;">           TPH-G-            TPH-DX            VOCs            PAHs         </div>	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
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LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX													
	HMW41A-5.0		3/7/19	0655	soil													
	HMW41A-7.5		3/7/19	0905		X	X	X	X									
	HMW41A-10.0		3/7/19	0910				X	X									
	HMW41A-25.0		3/7/19	1005		X	X											

RELINQUISHED BY	DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:	TOTAL NUMBER OF CONTAINERS
<u>[Signature]</u>	3/18/19	<u>[Signature]</u>	03/18/19		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT
SIGNATURE	TIME	SIGNATURE	TIME		
PRINT NAME		PRINT NAME			
COMPANY	1332	COMPANY	1332		
RELINQUISHED BY	DATE	RECEIVED BY	DATE	COOLER NO.:	STORAGE LOCATION:
SIGNATURE	TIME	SIGNATURE	TIME	See Lab Work Order No. _____ for Other Contract Requirements	TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____
PRINT NAME		PRINT NAME			
COMPANY		COMPANY			

March 29, 2019

*Roy Jensen  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, WA 98121*

Dear Mr. Jensen:

Please find enclosed the analytical data report for the *Mercer Megablock 19409-01 (C90325-3)* Project.

Samples were received on *March 25, 2019*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,



Val G. Ivanov, Ph.D.  
Laboratory Manager

---

4078 148 Ave NE ■ Redmond, WA 98052

425.702-8571

*E-mail: aachemlab@yahoo.com*

AAL Job Number: C90325-3  
Client: Hart Crowser, Inc.  
Project Manager: Roy Jensen  
Client Project Name: MMB  
Client Project Number: 19409-01  
Date received: 03/25/19

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L	MTH BLK	LCS	DMW-1S-GW-21	DMW-1S-GW-22	
Matrix	Water	Water	Water	Water	
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19	
MTBE	5.0	nd	nd	nd	
Chloromethane	1.0	nd	nd	nd	
Vinyl chloride(*)	0.2	nd	nd	nd	
Bromomethane	1.0	nd	nd	nd	
Chloroethane	1.0	nd	nd	nd	
Trichlorofluoromethane	1.0	nd	nd	nd	
1,1-Dichloroethene	1.0	nd	nd	nd	
Methylene chloride	1.0	nd	nd	nd	
trans-1,2-Dichloroethene	1.0	nd	nd	nd	
1,1-Dichloroethane	1.0	nd	nd	nd	
2,2-Dichloropropane	1.0	nd	nd	nd	
cis-1,2-Dichloroethene	1.0	nd	nd	nd	
Chloroform	1.0	nd	nd	nd	
1,1,1-Trichloroethane	1.0	nd	nd	nd	
Carbontetrachloride	1.0	nd	nd	nd	
1,1-Dichloropropene	1.0	nd	nd	nd	
Benzene	1.0	nd	85%	1.5	1.8
1,2-Dichloroethane(EDC)	1.0	nd	nd	nd	nd
Trichloroethene	1.0	nd	80%	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd
Toluene	1.0	nd	92%	nd	nd
trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene	1.0	nd	nd	nd	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd	nd	nd	nd
Chlorobenzene	1.0	nd	99%	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Xylenes	1.0	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd
Bromoform	1.0	nd	nd	nd	nd
Isopropylbenzene	1.0	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L	MTH BLK	LCS	DMW-1S-GW-21	DMW-1S-GW-22
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd	nd	nd
Isopropyltoluene	1.0	nd	1.5	2.5
1,4-Dichlorobenzene	1.0	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd	nd	nd
Naphthalene	1.0	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%	90%	88%	87%
Toluene-d8	94%	84%	99%	94%
1,2-Dichloroethane-d4	100%	100%	99%	99%
4-Bromofluorobenzene	106%	96%	109%	103%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L		HMW-3D	HMW-2S	HMW-2D	HMW-31A	HMW-41A
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd	nd	nd	nd	nd
Chloromethane	1.0	nd	nd	nd	nd	nd
Vinyl chloride(*)	0.2	nd	nd	nd	nd	3.6
Bromomethane	1.0	nd	nd	nd	nd	nd
Chloroethane	1.0	nd	nd	nd	nd	nd
Trichlorofluoromethane	1.0	nd	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd
2,2-Dichloropropane	1.0	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1.0	nd	nd	nd	nd	nd
Carbontetrachloride	1.0	nd	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd	nd	nd	nd	nd
Trichloroethene	1.0	nd	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd
Toluene	1.0	1.1	nd	nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd
Tetrachloroethene	1.0	nd	nd	nd	nd	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd	nd	nd	nd	nd
Chlorobenzene	1.0	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd
Xylenes	1.0	nd	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd	nd
Bromoform	1.0	nd	nd	nd	nd	nd
Isopropylbenzene	1.0	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd	nd

AAL Job Number: C90325-3  
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 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L		HMW-3D	HMW-2S	HMW-2D	HMW-31A	HMW-41A
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd	nd	nd	nd	nd
Isopropyltoluene	1.0	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd	nd	nd	nd	nd
Naphthalene	1.0	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%	91%	91%	87%	88%
Toluene-d8	93%	95%	92%	94%	95%
1,2-Dichloroethane-d4	97%	100%	98%	97%	102%
4-Bromofluorobenzene	103%	94%	108%	99%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L		HMW-1S-GW	HMW-1D-GW	HMW-1IB-GW	HMW-2IB-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd	nd	nd	nd
Chloromethane	1.0	nd	nd	nd	nd
Vinyl chloride(*)	0.2	nd	4.0	nd	nd
Bromomethane	1.0	nd	nd	nd	nd
Chloroethane	1.0	nd	nd	nd	nd
Trichlorofluoromethane	1.0	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	1.2	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd
2,2-Dichloropropane	1.0	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	410	22	nd
Chloroform	1.0	nd	nd	nd	nd
1,1,1-Trichloroethane	1.0	nd	nd	nd	nd
Carbontetrachloride	1.0	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd
1,2-Dichloroethane(EDC)	1.0	nd	nd	nd	nd
Trichloroethene	1.0	nd	27	6.7	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	3.4
trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene	1.0	nd	3.4	20	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB)*	0.01	nd	nd	nd	nd
Chlorobenzene	1.0	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Xylenes	1.0	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd
Bromoform	1.0	nd	nd	nd	nd
Isopropylbenzene	1.0	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

8260B, µg/L		HMW-1S-GW	HMW-1D-GW	HMW-1IB-GW	HMW-2IB-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd	nd	nd	nd
Isopropyltoluene	1.0	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd	nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd	nd	nd	nd
Naphthalene	1.0	nd	nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd	nd	nd	nd

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%	86%	93%	92%
Toluene-d8	92%	93%	97%	95%
1,2-Dichloroethane-d4	96%	97%	97%	101%
4-Bromofluorobenzene	105%	98%	97%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results		MS		MSD
8260B, µg/L	HMW-2IA-GW	DMW-1S-GW-21	DMW-1S-GW-21	
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd		
Chloromethane	1.0	nd		
Vinyl chloride(*)	0.2	1.2		
Bromomethane	1.0	nd		
Chloroethane	1.0	nd		
Trichlorofluoromethane	1.0	nd		
1,1-Dichloroethene	1.0	nd		
Methylene chloride	1.0	nd		
trans-1,2-Dichloroethene	1.0	nd		
1,1-Dichloroethane	1.0	nd		
2,2-Dichloropropane	1.0	nd		
cis-1,2-Dichloroethene	1.0	120		
Chloroform	1.0	nd		
1,1,1-Trichloroethane	1.0	nd		
Carbontetrachloride	1.0	nd		
1,1-Dichloropropene	1.0	nd		
Benzene	1.0	nd	87%	95%
1,2-Dichloroethane(EDC)	1.0	nd		
Trichloroethene	1.0	74	85%	86%
1,2-Dichloropropane	1.0	nd		
Dibromomethane	1.0	nd		
Bromodichloromethane	1.0	nd		
cis-1,3-Dichloropropene	1.0	nd		
Toluene	1.0	nd	90%	101%
trans-1,3-Dichloropropene	1.0	nd		
1,1,2-Trichloroethane	1.0	nd		
Tetrachloroethene	1.0	240		
1,3-Dichloropropane	1.0	nd		
Dibromochloromethane	1.0	nd		
1,2-Dibromoethane (EDB)*	0.01	nd		
Chlorobenzene	1.0	nd	98%	110%
1,1,1,2-Tetrachloroethane	1.0	nd		
Ethylbenzene	1.0	nd		
Xylenes	1.0	nd		
Styrene	1.0	nd		
Bromoform	1.0	nd		
Isopropylbenzene	1.0	nd		
1,2,3-Trichloropropane	1.0	nd		
Bromobenzene	1.0	nd		
1,1,2,2-Tetrachloroethane	1.0	nd		
n-Propylbenzene	1.0	nd		
2-Chlorotoluene	1.0	nd		
4-Chlorotoluene	1.0	nd		
1,3,5-Trimethylbenzene	1.0	nd		
tert-Butylbenzene	1.0	nd		
1,2,4-Trimethylbenzene	1.0	nd		
sec-Butylbenzene	1.0	nd		
1,3-Dichlorobenzene	1.0	nd		

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results		MS		MSD
8260B, µg/L	HMW-2IA-GW	DMW-1S-GW-21	DMW-1S-GW-21	
Matrix	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/26/19	03/26/19	03/26/19
MTBE	5.0	nd		
Isopropyltoluene	1.0	nd		
1,4-Dichlorobenzene	1.0	nd		
1,2-Dichlorobenzene	1.0	nd		
n-Butylbenzene	1.0	nd		
1,2-Dibromo-3-Chloropropane	1.0	nd		
1,2,4-Trichlorobenzene	1.0	nd		
Hexachloro-1,3-butadiene	1.0	nd		
Naphthalene	1.0	nd		
1,2,3-Trichlorobenzene	1.0	nd		

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane	89%	93%	88%
Toluene-d8	101%	96%	88%
1,2-Dichloroethane-d4	99%	103%	103%
4-Bromofluorobenzene	102%	101%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results		RPD
8260B, µg/L	DMW-1S-GW-21	
Matrix	Water	Water
Date analyzed	Reporting Limits	03/26/19

MTBE	5.0	
Chloromethane	1.0	
Vinyl chloride(*)	0.2	
Bromomethane	1.0	
Chloroethane	1.0	
Trichlorofluoromethane	1.0	
1,1-Dichloroethene	1.0	
Methylene chloride	1.0	
trans-1,2-Dichloroethene	1.0	
1,1-Dichloroethane	1.0	
2,2-Dichloropropane	1.0	
cis-1,2-Dichloroethene	1.0	
Chloroform	1.0	
1,1,1-Trichloroethane	1.0	
Carbontetrachloride	1.0	
1,1-Dichloropropene	1.0	
Benzene	1.0	9%
1,2-Dichloroethane(EDC)	1.0	
Trichloroethene	1.0	1%
1,2-Dichloropropane	1.0	
Dibromomethane	1.0	
Bromodichloromethane	1.0	
cis-1,3-Dichloropropene	1.0	
Toluene	1.0	12%
trans-1,3-Dichloropropene	1.0	
1,1,2-Trichloroethane	1.0	
Tetrachloroethene	1.0	
1,3-Dichloropropane	1.0	
Dibromochloromethane	1.0	
1,2-Dibromoethane (EDB)*	0.01	
Chlorobenzene	1.0	12%
1,1,1,2-Tetrachloroethane	1.0	
Ethylbenzene	1.0	
Xylenes	1.0	
Styrene	1.0	
Bromoform	1.0	
Isopropylbenzene	1.0	
1,2,3-Trichloropropane	1.0	
Bromobenzene	1.0	
1,1,2,2-Tetrachloroethane	1.0	
n-Propylbenzene	1.0	
2-Chlorotoluene	1.0	
4-Chlorotoluene	1.0	
1,3,5-Trimethylbenzene	1.0	
tert-Butylbenzene	1.0	
1,2,4-Trimethylbenzene	1.0	
sec-Butylbenzene	1.0	
1,3-Dichlorobenzene	1.0	

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results		RPD
8260B, µg/L	DMW-1S-GW-21	
Matrix	Water	Water
Date analyzed	Reporting Limits	03/26/19

MTBE	5.0
Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
1,2-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dibromo-3-Chloropropane	1.0
1,2,4-Trichlorobenzene	1.0
Hexachloro-1,3-butadiene	1.0
Naphthalene	1.0
1,2,3-Trichlorobenzene	1.0

\*-instrument detection limits

Surrogate recoveries

Dibromofluoromethane  
 Toluene-d8  
 1,2-Dichloroethane-d4  
 4-Bromofluorobenzene

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

NWTPH-Dx, mg/L		MTH BLK	DMW-1S-GW-21	DMW-1S-GW-22	HMW-3D	HMW-2S
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19
Date analyzed	Limits	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	117%	123%	107%	94%	98%
o-Terphenyl	130%	124%	112%	101%	105%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

NWTPH-Dx, mg/L		HMW-2D	HMW-31A	HMW-41A	HMW-1S-GW	HMW-1D-GW
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19
Date analyzed	Limits	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	100%	106%	110%	104%	97%
o-Terphenyl	105%	113%	116%	110%	103%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results					Dupl
NWTPH-Dx, mg/L		HMW-1IB-GW	HMW-2IB-GW	HMW-2IA-GW	HMW-2IA-GW
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	03/25/19	03/25/19	03/25/19	03/25/19
Date analyzed	Limits	03/25/19	03/25/19	03/25/19	03/25/19
Kerosene/Jet fuel	0.20	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd

Surrogate recoveries:

Fluorobiphenyl	104%	122%	101%	101%
o-Terphenyl	111%	127%	108%	108%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

<b>NWTPH-Gx</b>		<b>MTH BLK</b>	<b>DMW-1S-GW-21</b>	<b>DMW-1S-GW-22</b>	<b>HMW-3D</b>	<b>HMW-2S</b>
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19

**NWTPH-Gx, mg/L**

Mineral spirits/Stoddard	0.10	nd	nd	nd	nd	nd
Gasoline	0.10	nd	0.35	0.30	nd	nd

Surrogate recoveries:

Trifluorotoluene	92%	89%	98%	94%	96%
Bromofluorobenzene	82%	96%	92%	93%	92%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

NWTPH-Gx		HMW-2D	HMW-31A	HMW-41A	HMW-1S-GW	HMW-1D-GW
Matrix	Water	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/25/19	03/25/19	03/25/19	03/25/19	03/25/19

**NWTPH-Gx, mg/L**

Mineral spirits/Stoddard	0.10	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd

Surrogate recoveries:

Trifluorotoluene	93%	98%	83%	90%	84%
Bromofluorobenzene	91%	89%	73%	92%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results					Dupl
NWTPH-Gx		HMW-11B-GW	HMW-21B-GW	HMW-21A-GW	HMW-21A-GW
Matrix	Water	Water	Water	Water	Water
Date analyzed	Reporting Limits	03/25/19	03/25/19	03/25/19	03/25/19

<u>NWTPH-Gx, mg/L</u>					
Mineral spirits/Stoddard	0.10	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd

Surrogate recoveries:					
Trifluorotoluene		82%	97%	98%	110%
Bromofluorobenzene		97%	98%	98%	93%

Data Qualifiers and Analytical Comments  
 nd - not detected at listed reporting limits  
 na - not analyzed  
 C - coelution with sample peaks  
 Acceptable Recovery limits: 70% TO 130%  
 Acceptable RPD limit: 30%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results

PAH(8270), ug/L		MTH BLK	LCS	DMW-1S-GW-21	DMW-1S-GW-22
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	03/27/19	03/27/19	03/27/19	03/27/19
Date analyzed	Limits	03/27/19	03/27/19	03/27/19	03/27/19
Naphthalene	0.1	nd		nd	nd
1-MethylNaphthalene	0.1	nd		nd	nd
2-MethylNaphthalene	0.1	nd		nd	nd
Acenaphthylene	0.1	nd		nd	nd
Acenaphthene	0.1	nd	94%	nd	nd
Fluorene	0.1	nd		nd	nd
Phenanthrene	0.1	nd		nd	nd
Anthracene	0.1	nd		nd	nd
Fluoranthene	0.1	nd		nd	nd
Pyrene	0.1	nd	98%	nd	nd
Benzo(a)anthracene	0.1	nd		nd	nd
Chrysene	0.1	nd		nd	nd
Benzo(b)fluoranthene	0.1	nd		nd	nd
Benzo(k)fluoranthene	0.1	nd		nd	nd
Benzo(a)pyrene	0.1	nd		nd	nd
Indeno(1,2,3-cd)pyrene	0.1	nd		nd	nd
Dibenzo(ah)anthracene	0.1	nd		nd	nd
Benzo(ghi)perylene	0.1	nd		nd	nd

Surrogate recoveries:

Fluorobiphenyl	116%	110%	96%	126%
o-Terphenyl	98%	95%	96%	97%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%

AAL Job Number: C90325-3  
 Client: Hart Crowser, Inc.  
 Project Manager: Roy Jensen  
 Client Project Name: MMB  
 Client Project Number: 19409-01  
 Date received: 03/25/19

Analytical Results		MS	MSD	RPD
PAH(8270), ug/L		DMW-1S-GW-22	DMW-1S-GW-22	DMW-1S-GW-22
Matrix	Water	Water	Water	Water
Date extracted	Reporting	03/27/19	03/27/19	03/27/19
Date analyzed	Limits	03/27/19	03/27/19	03/27/19
Naphthalene	0.1			
1-Methylnaphthalene	0.1			
2-Methylnaphthalene	0.1			
Acenaphthylene	0.1			
Acenaphthene	0.1	93%	96%	3%
Fluorene	0.1			
Phenanthrene	0.1			
Anthracene	0.1			
Fluoranthene	0.1			
Pyrene	0.1	108%	103%	5%
Benzo(a)anthracene	0.1			
Chrysene	0.1			
Benzo(b)fluoranthene	0.1			
Benzo(k)fluoranthene	0.1			
Benzo(a)pyrene	0.1			
Indeno(1,2,3-cd)pyrene	0.1			
Dibenzo(ah)anthracene	0.1			
Benzo(ghi)perylene	0.1			

Surrogate recoveries:

Fluorobiphenyl	107%	105%
o-Terphenyl	94%	96%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
 na - not analyzed  
 Acceptable Recovery limits: 50% TO 150%  
 Acceptable RPD limit: 50%





# Sample Custody Record

Samples Shipped to: AAL



C90325-3

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940901</u> LAB NUMBER _____						REQUESTED ANALYSIS												NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSING INSTRUCTIONS	
PROJECT NAME <u>MMB</u>						<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; text-orientation: mixed;">TPH-G</div> <div style="writing-mode: vertical-rl; text-orientation: mixed;">Dx</div> <div style="writing-mode: vertical-rl; text-orientation: mixed;">VOCs</div> </div>														
HART CROWSER CONTACT <u>Moy Jensen</u>																				
SAMPLED BY: <u>B. Dozier</u>																				
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX															
	<del>HMW</del>	<del>1S-GW</del>	3/20/19	1320	water	X	X	X												
	HMW	1D-GW	3/20/19	1200	L	X	X	X												
	HMW	1B-GW	3/20/19	1128	L	X	X	X												
	HMW	21B-GW	3/20/19	1034	L	X	X	X												
	HMW	21A-GW	3/20/19	1000	L	X	X	X												
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:												TOTAL NUMBER OF CONTAINERS		
SIGNATURE		TIME	SIGNATURE		TIME															
PRINT NAME		TIME	PRINT NAME		TIME															
COMPANY		TIME	COMPANY		TIME															
RELINQUISHED BY		DATE	RECEIVED BY		DATE	COOLER NO.: _____ STORAGE LOCATION: _____												TURNAROUND TIME:		
SIGNATURE		TIME	SIGNATURE		TIME															
PRINT NAME		TIME	PRINT NAME		TIME															
COMPANY		TIME	COMPANY		TIME															
SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT See Lab Work Order No. _____ for Other Contract Requirements <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS OTHER _____																				

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

April 9, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included is the amended report from the testing of material submitted on February 25, 2020 from the MMB 1940904, F&BI 002353 project. The sample ID prefix has been amended from HMB to HMW per the chain of custody.

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: Hart Crowser A/P (HCR), Becca Dozier  
HCR0305R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Yelena Aravkina, M.S.  
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Eric Young, B.S.

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

March 5, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on February 25, 2020 from the MMB 1940904, F&BI 002353 project. There are 21 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Hart Crowser A/P (HCR), Becca Dozier  
HCR0305R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 25, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB 1940904, F&BI 002353 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002353 -01	HMW-11IB-5
002353 -02	HMW-11IB-10
002353 -03	HMW-11IB-15
002353 -04	HMW-11IB-20
002353 -05	HMW-11IB-25

Mercury in the 6020B matrix spike duplicate and the associated relative percent difference failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

Methylene chloride was detected in the 8260D analysis of sample HMW-11IB-15. The data were flagged as due to laboratory contamination.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20  
Date Received: 02/25/20  
Project: MMB 1940904, F&BI 002353  
Date Extracted: 02/26/20  
Date Analyzed: 02/27/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-11IB-5 002353-01	<5	94
HMW-11IB-10 002353-02	<5	94
HMW-11IB-15 002353-03	<5	92
HMW-11IB-20 002353-04	<5	93
HMW-11IB-25 002353-05	<5	93
Method Blank 00-385 MB	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20  
Date Received: 02/25/20  
Project: MMB 1940904, F&BI 002353  
Date Extracted: 02/26/20  
Date Analyzed: 02/26/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
HMW-11IB-5 002353-01	<50	<250	81
HMW-11IB-10 002353-02	<50	<250	84
HMW-11IB-15 002353-03	<50	<250	87
HMW-11IB-20 002353-04	<50	<250	79
HMW-11IB-25 002353-05	<50	<250	84
Method Blank 00-475 MB	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11IB-5	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	002353-01
Date Analyzed:	02/25/20	Data File:	002353-01.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.14
Cadmium	<1
Chromium	23.1
Lead	28.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-111B-10	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	002353-02
Date Analyzed:	02/25/20	Data File:	002353-02.116
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.43
Cadmium	<1
Chromium	22.8
Lead	2.73
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11IB-15	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	002353-03
Date Analyzed:	02/25/20	Data File:	002353-03.117
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.44
Cadmium	<1
Chromium	14.5
Lead	65.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-111B-20	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	002353-04
Date Analyzed:	02/26/20	Data File:	002353-04.044
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.69
Cadmium	<1
Chromium	31.8
Lead	2.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-111B-25	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	002353-05
Date Analyzed:	02/26/20	Data File:	002353-05.045
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	18.8
Lead	1.23
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB 1940904, F&BI 002353
Date Extracted:	02/25/20	Lab ID:	I0-108 mb2
Date Analyzed:	02/25/20	Data File:	I0-108 mb2.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11IB-5	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	002353-01
Date Analyzed:	03/04/20	Data File:	030411.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11IB-10	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	002353-02
Date Analyzed:	03/02/20	Data File:	030239.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11IB-15	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	002353-03
Date Analyzed:	03/02/20	Data File:	030240.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	123	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.21 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-111B-20	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	002353-04
Date Analyzed:	03/02/20	Data File:	030241.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11IB-25	Client:	Hart Crowser
Date Received:	02/25/20	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	002353-05
Date Analyzed:	03/02/20	Data File:	030242.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB 1940904, F&BI 002353
Date Extracted:	03/02/20	Lab ID:	00-485 mb
Date Analyzed:	03/02/20	Data File:	030237.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20

Date Received: 02/25/20

Project: MMB 1940904, F&BI 002353

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002320-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20

Date Received: 02/25/20

Project: MMB 1940904, F&BI 002353

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002353-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	106	100	64-133	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20

Date Received: 02/25/20

Project: MMB 1940904, F&BI 002353

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002320-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	5.01	83	88	75-125	6
Cadmium	mg/kg (ppm)	10	<1	91	97	75-125	6
Chromium	mg/kg (ppm)	50	27.5	84	90	75-125	7
Lead	mg/kg (ppm)	50	10.8	95	100	75-125	5
Mercury	mg/kg (ppm)	5	<1	97	73 vo	75-125	28 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	80-120
Cadmium	mg/kg (ppm)	10	97	80-120
Chromium	mg/kg (ppm)	50	91	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	93	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20

Date Received: 02/25/20

Project: MMB 1940904, F&BI 002353

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260C DIRECT SPARGE**

Laboratory Code: 002397-10 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	0.046	0.059	25 b
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.005	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.003	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.005	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.005	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/05/20

Date Received: 02/25/20

Project: MMB 1940904, F&BI 002353

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260C DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	103	107	70-130	4
Vinyl chloride	mg/kg (ppm)	0.05	99	101	70-130	2
Chloroethane	mg/kg (ppm)	0.05	99	101	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	98	100	70-130	2
1,1-Dichloroethene	mg/kg (ppm)	0.05	97	99	70-130	2
Methylene chloride	mg/kg (ppm)	0.05	90	93	70-130	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	99	99	70-130	0
1,1-Dichloroethane	mg/kg (ppm)	0.05	102	103	70-130	1
2,2-Dichloropropane	mg/kg (ppm)	0.05	100	103	70-130	3
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	101	102	70-130	1
Chloroform	mg/kg (ppm)	0.05	101	103	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	102	104	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	98	96	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.05	100	103	70-130	3
Benzene	mg/kg (ppm)	0.05	99	99	70-130	0
Trichloroethene	mg/kg (ppm)	0.05	97	94	70-130	3
1,2-Dichloropropane	mg/kg (ppm)	0.05	103	103	70-130	0
Bromodichloromethane	mg/kg (ppm)	0.05	102	103	70-130	1
Toluene	mg/kg (ppm)	0.05	93	91	70-130	2
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	101	99	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.05	103	101	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.05	89	85	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	101	99	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	94	91	70-130	3
Ethylbenzene	mg/kg (ppm)	0.05	93	91	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	99	97	70-130	2
m,p-Xylene	mg/kg (ppm)	0.1	92	90	70-130	2
o-Xylene	mg/kg (ppm)	0.05	94	92	70-130	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	99	99	70-130	0
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	101	101	70-130	0
2-Chlorotoluene	mg/kg (ppm)	0.05	89	90	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.05	88	88	70-130	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	88	88	70-130	0
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	88	85	70-130	3
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	86	84	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	91	91	70-130	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	97	96	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.05	79	82	70-130	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	89	88	70-130	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Yelena Aravkina, M.S.  
Michael Erdahl, B.S.  
Arina Podnozova, B.S.  
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March 6, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on February 26, 2020 from the 19409-04 MMB, F&BI 002397 project. There are 35 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0306R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 26, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 19409-04 MMB, F&BI 002397 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002397 -01	HMW-11S-5
002397 -02	HMW-11S-10
002397 -03	HMW-11S-15
002397 -04	HMW-11S-20
002397 -05	HMW-11S-30
002397 -06	MBB-7-5
002397 -07	MBB-7-10
002397 -08	MBB-7-15
002397 -09	MBB-7-20
002397 -10	MBB-7-25
002397 -11	Trip Blank-0225

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

Methylene chloride was detected in samples HMW-11S-5, MBB-7-5, MBB-7-10, MBB-7-15, and MBB-7-25. The data were flagged as laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20  
Date Received: 02/26/20  
Project: 19409-04 MMB, F&BI 002397  
Date Extracted: 02/27/20  
Date Analyzed: 02/27/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-11S-5 002397-01	<5	94
HMW-11S-10 002397-02	<5	88
HMW-11S-15 002397-03	<5	92
HMW-11S-20 002397-04	<5	94
HMW-11S-30 002397-05	<5	93
MBB-7-5 002397-06	<5	91
MBB-7-10 002397-07	<5	92
MBB-7-15 002397-08	<5	91
MBB-7-20 002397-09	<5	91
MBB-7-25 002397-10	<5	90
Method Blank 00-388 MB	<5	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20  
 Date Received: 02/26/20  
 Project: 19409-04 MMB, F&BI 002397  
 Date Extracted: 02/27/20  
 Date Analyzed: 02/27/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
 Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-11S-5 002397-01	<50	<250	82
HMW-11S-10 002397-02	<50	<250	82
HMW-11S-15 002397-03	<50	<250	93
HMW-11S-20 002397-04	<50	<250	82
HMW-11S-30 002397-05	<50	<250	83
MBB-7-5 002397-06	<50	<250	89
MBB-7-10 002397-07	<50	<250	82
MBB-7-15 002397-08	<50	<250	83
MBB-7-20 002397-09	<50	<250	89
MBB-7-25 002397-10	<50	<250	89
Method Blank 00-505 MB	<50	<250	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S-5	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-01
Date Analyzed:	02/27/20	Data File:	002397-01.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.00
Cadmium	<1
Chromium	23.0
Lead	14.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S-10	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-02
Date Analyzed:	02/27/20	Data File:	002397-02.119
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.86
Cadmium	<1
Chromium	18.5
Lead	11.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S-15	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-03
Date Analyzed:	02/27/20	Data File:	002397-03.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.27
Cadmium	<1
Chromium	17.8
Lead	1.39
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S-20	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-04
Date Analyzed:	02/27/20	Data File:	002397-04.121
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.72
Cadmium	<1
Chromium	19.2
Lead	6.65
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S-30	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-05
Date Analyzed:	02/27/20	Data File:	002397-05.122
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	16.0
Lead	1.33
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-5	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-06
Date Analyzed:	02/27/20	Data File:	002397-06.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.74
Cadmium	<1
Chromium	21.1
Lead	9.26
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-10	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-07
Date Analyzed:	02/27/20	Data File:	002397-07.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.37
Cadmium	<1
Chromium	15.4
Lead	2.14
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-15	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-08
Date Analyzed:	02/27/20	Data File:	002397-08.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.43
Cadmium	<1
Chromium	15.9
Lead	1.46
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-20	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-09
Date Analyzed:	02/28/20	Data File:	002397-09.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	16.4
Lead	1.24
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-25	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-10
Date Analyzed:	02/28/20	Data File:	002397-10.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.12
Cadmium	<1
Chromium	17.4
Lead	1.43
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	I0-117 mb
Date Analyzed:	02/27/20	Data File:	I0-117 mb.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11S-5	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-01
Date Analyzed:	03/02/20	Data File:	030243.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.025 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11S-10	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-02
Date Analyzed:	03/02/20	Data File:	030244.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11S-15	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-03
Date Analyzed:	03/04/20	Data File:	030431.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11S-20	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-04
Date Analyzed:	03/03/20	Data File:	030246.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-11S-30	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-05
Date Analyzed:	03/03/20	Data File:	030247.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-7-5	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-06
Date Analyzed:	03/03/20	Data File:	030248.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.02 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-7-10	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-07
Date Analyzed:	03/03/20	Data File:	030249.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.021 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-7-15	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-08
Date Analyzed:	03/03/20	Data File:	030250.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.025 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-7-20	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-09
Date Analyzed:	03/04/20	Data File:	030435.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-7-25	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	002397-10
Date Analyzed:	03/03/20	Data File:	030252.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.036 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	03/02/20	Lab ID:	00-485 mb
Date Analyzed:	03/02/20	Data File:	030237.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank-0225	Client:	Hart Crowser
Date Received:	02/26/20	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	002397-11
Date Analyzed:	02/27/20	Data File:	022720.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	19409-04 MMB, F&BI 002397
Date Extracted:	02/27/20	Lab ID:	00-482 mb2
Date Analyzed:	02/27/20	Data File:	022714.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	92	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002398-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002397-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	90	100	63-146	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002397-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.72	86	80	75-125	7
Cadmium	mg/kg (ppm)	10	<1	97	96	75-125	1
Chromium	mg/kg (ppm)	50	19.8	78	83	75-125	6
Lead	mg/kg (ppm)	50	12.4	96	100	75-125	4
Mercury	mg/kg (ppm)	5	<1	85	82	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	80	80-120
Cadmium	mg/kg (ppm)	10	96	80-120
Chromium	mg/kg (ppm)	50	92	80-120
Lead	mg/kg (ppm)	50	96	80-120
Mercury	mg/kg (ppm)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260C DIRECT SPARGE**

Laboratory Code: 002397-10 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	0.036	0.044	20
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260C DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	103	107	70-130	4
Vinyl chloride	mg/kg (ppm)	0.05	99	101	70-130	2
Chloroethane	mg/kg (ppm)	0.05	99	101	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	98	100	70-130	2
1,1-Dichloroethene	mg/kg (ppm)	0.05	97	99	70-130	2
Methylene chloride	mg/kg (ppm)	0.05	90	93	70-130	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	99	99	70-130	0
1,1-Dichloroethane	mg/kg (ppm)	0.05	102	103	70-130	1
2,2-Dichloropropane	mg/kg (ppm)	0.05	100	103	70-130	3
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	101	102	70-130	1
Chloroform	mg/kg (ppm)	0.05	101	103	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	102	104	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	98	96	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.05	100	103	70-130	3
Benzene	mg/kg (ppm)	0.05	99	99	70-130	0
Trichloroethene	mg/kg (ppm)	0.05	97	94	70-130	3
1,2-Dichloropropane	mg/kg (ppm)	0.05	103	103	70-130	0
Bromodichloromethane	mg/kg (ppm)	0.05	102	103	70-130	1
Toluene	mg/kg (ppm)	0.05	93	91	70-130	2
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	101	99	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.05	103	101	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.05	89	85	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	101	99	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	94	91	70-130	3
Ethylbenzene	mg/kg (ppm)	0.05	93	91	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	99	97	70-130	2
m,p-Xylene	mg/kg (ppm)	0.1	92	90	70-130	2
o-Xylene	mg/kg (ppm)	0.05	94	92	70-130	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	99	99	70-130	0
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	101	101	70-130	0
2-Chlorotoluene	mg/kg (ppm)	0.05	89	90	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.05	88	88	70-130	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	88	88	70-130	0
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	88	85	70-130	3
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	86	84	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	91	91	70-130	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	97	96	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.05	79	82	70-130	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	89	88	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

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

Laboratory Code: 002402-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	104	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	103	36-166
Chloroethane	ug/L (ppb)	50	<1	101	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	106	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	106	60-136
Methylene chloride	ug/L (ppb)	50	<5	96	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	96	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	94	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	102	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	99	71-127
Chloroform	ug/L (ppb)	50	1.9	97	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	101	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	92	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	110	56-152
Benzene	ug/L (ppb)	50	<0.35	90	76-125
Trichloroethene	ug/L (ppb)	50	<1	88	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	93	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Toluene	ug/L (ppb)	50	<1	103	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	106	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	100	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	104	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	118	70-139
Chlorobenzene	ug/L (ppb)	50	<1	101	77-122
Ethylbenzene	ug/L (ppb)	50	<1	104	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	128	73-137
m,p-Xylene	ug/L (ppb)	100	<2	105	69-135
o-Xylene	ug/L (ppb)	50	<1	109	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	101	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	106	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	103	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	111	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	103	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	100	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	106	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	116	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	117	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	119	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/20

Date Received: 02/26/20

Project: 19409-04 MMB, F&BI 002397

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	95	97	45-156	2
Vinyl chloride	ug/L (ppb)	50	95	97	50-154	2
Chloroethane	ug/L (ppb)	50	92	92	58-146	0
Trichlorofluoromethane	ug/L (ppb)	250	101	95	50-150	6
1,1-Dichloroethene	ug/L (ppb)	50	102	94	67-136	8
Methylene chloride	ug/L (ppb)	50	96	92	39-148	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	94	90	68-128	4
1,1-Dichloroethane	ug/L (ppb)	50	94	90	79-121	4
2,2-Dichloropropane	ug/L (ppb)	50	92	90	55-143	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	96	94	80-123	2
Chloroform	ug/L (ppb)	50	97	93	80-121	4
1,1,1-Trichloroethane	ug/L (ppb)	50	100	96	81-125	4
1,1-Dichloropropene	ug/L (ppb)	50	95	91	77-129	4
Carbon tetrachloride	ug/L (ppb)	50	108	104	75-158	4
Benzene	ug/L (ppb)	50	93	88	69-134	6
Trichloroethene	ug/L (ppb)	50	91	87	79-113	4
1,2-Dichloropropane	ug/L (ppb)	50	97	94	77-123	3
Bromodichloromethane	ug/L (ppb)	50	107	102	81-133	5
Toluene	ug/L (ppb)	50	104	99	72-122	5
1,1,2-Trichloroethane	ug/L (ppb)	50	113	107	75-124	5
1,3-Dichloropropane	ug/L (ppb)	50	109	103	76-126	6
Tetrachloroethene	ug/L (ppb)	50	103	98	76-121	5
Dibromochloromethane	ug/L (ppb)	50	124	119	84-133	4
Chlorobenzene	ug/L (ppb)	50	105	99	83-114	6
Ethylbenzene	ug/L (ppb)	50	105	101	77-124	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	122	118	84-127	3
m,p-Xylene	ug/L (ppb)	100	105	101	81-112	4
o-Xylene	ug/L (ppb)	50	104	101	81-121	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	116	109	66-126	6
1,2,3-Trichloropropane	ug/L (ppb)	50	110	102	67-124	8
2-Chlorotoluene	ug/L (ppb)	50	108	102	77-127	6
4-Chlorotoluene	ug/L (ppb)	50	107	102	78-128	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	110	105	79-122	5
1,3-Dichlorobenzene	ug/L (ppb)	50	106	101	83-113	5
1,4-Dichlorobenzene	ug/L (ppb)	50	103	99	83-107	4
1,2-Dichlorobenzene	ug/L (ppb)	50	103	101	84-112	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	117	113	57-141	3
Hexachlorobutadiene	ug/L (ppb)	50	103	103	53-141	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	106	107	65-136	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 002397

F4B

Samples Shipped to:



**HART CROWSNER**

1 of 1  
02/26/20

V53/B13/001 Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 19401-04 LAB NUMBER \_\_\_\_\_  
PROJECT NAME N/MB  
HART CROWSNER CONTACT N. Goodman  
SAMPLED BY: B. Dozier

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
01	A-E	HMWHS-5	2/25/20	0945	SOIL	NWTPH-GX NWTPH-DX HVOCs+BTEX-8260 MICA 5 Metals	5	
02		HMWHS-10		0950			5	
03		HMWHS-15		1000			5	
04		HMWHS-20		1045			5	
05		HMW-115-30		1055			5	
06		MBB-7-5		1405			5	
07		MBB-7-10		1410			5	
08		MBB-7-15		1415			5	
09		MBB-7-20		1440			5	
10		MBB-7-25		1445			5	
11	AB	Top Bank-0225					2	

RELINQUISHED BY: [Signature] DATE: 2/26/20 TIME: \_\_\_\_\_  
 RECEIVED BY: [Signature] DATE: 2/26/20 TIME: \_\_\_\_\_  
 SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  
 Samples received at 4 °C  
 COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_  
 See Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements

TOTAL NUMBER OF CONTAINERS: 52  
 SAMPLE RECEIPT INFORMATION:  
 CUSTODY SEALS:  YES  NO  N/A  
 GOOD CONDITION:  YES  NO  
 TEMPERATURE: \_\_\_\_\_  
 SHIPMENT METHOD:  HAND  COURIER  
 TURNAROUND TIME:  24 HOURS  1 WEEK  STANDARD  48 HOURS  72 HOURS  OTHER \_\_\_\_\_

White to Lab Yellow to Project Manager Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 9, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on February 27, 2020 from the 601/615 Dexter/MMB 1940904, F&BI 002417 project. There are 80 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0309R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 27, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 601/615 Dexter/MMB 1940904, F&BI 002417 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002417 -01	DMW-4S-5
002417 -02	DMW-4S-10
002417 -03	DMW-4S-15
002417 -04	DMW-4S-20
002417 -05	DMW-4S-25
002417 -06	DMW-4S-30
002417 -07	MBB-8-5
002417 -08	MBB-8-10
002417 -09	MBB-8-15
002417 -10	MBB-8-15 dup
002417 -11	MBB-8-20
002417 -12	MBB-8-25
002417 -13	MBB-9-5
002417 -14	MBB-9-10
002417 -15	MBB-9-15
002417 -16	MBB-9-20
002417 -17	MBB-9-25
002417 -18	MBB-6R-5
002417 -19	MBB-10-5
002417 -20	MBB-10-10
002417 -21	MBB-10-15
002417 -22	MBB-10-20
002417 -23	MBB-10-25
002417 -24	Trip Blank

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene in sample MBB-9-20. The data were flagged accordingly.

The 8260D sample and duplicate relative percent difference (RPD) of o-xylene did not pass the acceptance criteria. The RPD passed the acceptance criteria for the laboratory control sample and laboratory control sample duplicate, therefore the results are likely due to sample inhomogeneity.

The 8260D analysis of sample MBB-8-15 showed the presence of methylene chloride. The data were qualified as laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/28/20

Date Analyzed: 02/28/20 and 03/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
DMW-4S-5 002417-01	<0.02	<0.02	<0.02	<0.06	<5	81
DMW-4S-10 002417-02	<0.02	<0.02	<0.02	<0.06	<5	88
DMW-4S-15 002417-03	<0.02	<0.02	<0.02	<0.06	<5	88
DMW-4S-20 002417-04	<0.02	<0.02	<0.02	<0.06	<5	88
DMW-4S-25 002417-05	<0.02	0.046	0.13	0.25	35	81
DMW-4S-30 002417-06	<0.02	<0.02	<0.02	<0.06	<5	85
MBB-8-5 002417-07	<0.02	<0.02	<0.02	<0.06	<5	87
MBB-8-10 002417-08	<0.02	<0.02	<0.02	<0.06	<5	87
MBB-8-15 002417-09	<0.02	<0.02	<0.02	<0.06	<5	87
MBB-8-15 dup 002417-10	<0.02	<0.02	<0.02	<0.06	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/28/20

Date Analyzed: 02/28/20 and 03/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
MBB-8-20 002417-11	<0.02	<0.02	<0.02	<0.06	<5	88
MBB-8-25 002417-12	<0.02	<0.02	<0.02	<0.06	<5	88
MBB-9-5 002417-13	<0.02	<0.02	<0.02	<0.06	<5	85
MBB-9-10 002417-14	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-9-15 002417-15	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-9-20 002417-16	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-9-25 002417-17	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-10-5 002417-19	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-10-10 002417-20	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-10-15 002417-21	<0.02	<0.02	<0.02	<0.06	<5	81

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/28/20

Date Analyzed: 02/28/20 and 03/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
MBB-10-20 002417-22	<0.02	<0.02	<0.02	<0.06	<5	81
MBB-10-25 002417-23	<0.02	<0.02	<0.02	<0.06	<5	81
Method Blank 00-388 MB	<0.02	<0.02	<0.02	<0.06	<5	94
Method Blank 00-389 MB	<0.02	<0.02	<0.02	<0.06	<5	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/28/20

Date Analyzed: 02/28/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES  
USING METHOD 8021B**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Surrogate (% Recovery)</u> Limit (52-124)
Trip Blank 002417-24	<1	<1	<1	<3	86
Method Blank 00-386 MB	<1	<1	<1	<3	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/27/20

Date Analyzed: 02/27/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
DMW-4S-5 002417-01	<50	<250	81
DMW-4S-10 002417-02	<50	<250	82
DMW-4S-15 002417-03	<50	<250	81
DMW-4S-20 002417-04	<50	<250	81
DMW-4S-25 002417-05	<50	<250	82
DMW-4S-30 002417-06	<50	<250	90
MBB-8-5 002417-07	<50	<250	82
MBB-8-10 002417-08	<50	<250	83
MBB-8-15 002417-09	<50	<250	83
MBB-8-15 dup 002417-10	<50	<250	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/27/20

Date Analyzed: 02/27/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB-8-20 002417-11	<50	<250	82
MBB-8-25 002417-12	<50	<250	83
MBB-9-5 002417-13	<50	320	81
MBB-9-10 002417-14	<50	<250	82
MBB-9-15 002417-15	<50	<250	81
MBB-9-20 002417-16	<50	<250	84
MBB-9-25 002417-17	<50	<250	83
MBB-10-5 002417-19	<50	<250	83
MBB-10-10 002417-20	<50	<250	83
MBB-10-15 002417-21	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

Date Extracted: 02/27/20

Date Analyzed: 02/27/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB-10-20 002417-22	<50	<250	87
MBB-10-25 002417-23	<50	<250	91
Method Blank 00-479 MB	<50	<250	86
Method Blank 00-506 MB	<50	<250	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-01
Date Analyzed:	03/02/20	Data File:	002417-01.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.91
Cadmium	<1
Chromium	30.3
Lead	10.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-02
Date Analyzed:	03/02/20	Data File:	002417-02.040
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.88
Cadmium	<1
Chromium	19.8
Lead	2.00
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-03
Date Analyzed:	03/03/20	Data File:	002417-03.046
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.39
Cadmium	<1
Chromium	19.8
Lead	1.86
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-04
Date Analyzed:	03/03/20	Data File:	002417-04.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.29
Cadmium	<1
Chromium	14.3
Lead	1.23
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-05
Date Analyzed:	03/03/20	Data File:	002417-05.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.39
Cadmium	<1
Chromium	17.5
Lead	1.49
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S-30	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-06
Date Analyzed:	03/02/20	Data File:	002417-06.138
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.18
Cadmium	<1
Chromium	13.1
Lead	1.20
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-07
Date Analyzed:	03/02/20	Data File:	002417-07.139
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	21.9
Cadmium	<1
Chromium	18.2
Lead	12.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-08
Date Analyzed:	03/02/20	Data File:	002417-08.140
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.75
Cadmium	<1
Chromium	13.2
Lead	1.22
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-09
Date Analyzed:	03/02/20	Data File:	002417-09.141
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.70
Cadmium	<1
Chromium	19.2
Lead	1.26
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-15 dup	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-10
Date Analyzed:	03/02/20	Data File:	002417-10.148
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.60
Cadmium	<1
Chromium	15.3
Lead	1.23
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-11
Date Analyzed:	03/02/20	Data File:	002417-11.149
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.60
Cadmium	<1
Chromium	14.3
Lead	1.30
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-12
Date Analyzed:	03/02/20	Data File:	002417-12.150
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.13
Cadmium	<1
Chromium	16.3
Lead	1.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-13
Date Analyzed:	03/02/20	Data File:	002417-13.151
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.58
Cadmium	<1
Chromium	16.7
Lead	13.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-14
Date Analyzed:	03/02/20	Data File:	002417-14.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.94
Cadmium	<1
Chromium	18.8
Lead	2.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-15
Date Analyzed:	03/02/20	Data File:	002417-15.153
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.72
Cadmium	<1
Chromium	14.7
Lead	1.22
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-16
Date Analyzed:	03/02/20	Data File:	002417-16.154
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.70
Cadmium	<1
Chromium	18.1
Lead	1.24
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-17
Date Analyzed:	03/02/20	Data File:	002417-17.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.27
Cadmium	<1
Chromium	17.3
Lead	1.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-19
Date Analyzed:	03/02/20	Data File:	002417-19.163
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.76
Cadmium	<1
Chromium	17.3
Lead	1.72
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-20
Date Analyzed:	03/02/20	Data File:	002417-20.164
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.32
Cadmium	<1
Chromium	25.5
Lead	1.89
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-21
Date Analyzed:	03/02/20	Data File:	002417-21.165
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.65
Cadmium	<1
Chromium	17.1
Lead	1.46
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-22
Date Analyzed:	03/02/20	Data File:	002417-22.166
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.40
Cadmium	<1
Chromium	15.0
Lead	1.19
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-23
Date Analyzed:	03/02/20	Data File:	002417-23.167
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.51
Cadmium	<1
Chromium	20.8
Lead	1.57
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	I0-124 mb
Date Analyzed:	03/02/20	Data File:	I0-124 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	I0-125 mb
Date Analyzed:	03/02/20	Data File:	I0-125 mb.088
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-01
Date Analyzed:	02/28/20	Data File:	022829.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-02
Date Analyzed:	02/28/20	Data File:	022830.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-03
Date Analyzed:	02/28/20	Data File:	022831.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-04
Date Analyzed:	02/28/20	Data File:	022832.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-05
Date Analyzed:	02/28/20	Data File:	022833.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.016
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-4S-30	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-06
Date Analyzed:	02/28/20	Data File:	022834.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-07
Date Analyzed:	02/28/20	Data File:	022835.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	107	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-08
Date Analyzed:	02/28/20	Data File:	022836.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-09
Date Analyzed:	02/28/20	Data File:	022837.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.030 lc j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-15 dup	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-10
Date Analyzed:	02/28/20	Data File:	022838.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-11
Date Analyzed:	02/28/20	Data File:	022839.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-8-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-12
Date Analyzed:	02/28/20	Data File:	022840.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-9-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-13
Date Analyzed:	02/28/20	Data File:	022841.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-9-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-14
Date Analyzed:	02/28/20	Data File:	022842.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-9-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-15
Date Analyzed:	02/28/20	Data File:	022843.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-9-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-16
Date Analyzed:	03/04/20	Data File:	030428.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-9-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-17
Date Analyzed:	02/28/20	Data File:	022845.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-10-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-19
Date Analyzed:	02/28/20	Data File:	022847.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-10-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-20
Date Analyzed:	02/28/20	Data File:	022848.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-10-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-21
Date Analyzed:	03/03/20	Data File:	030319.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-10-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-22
Date Analyzed:	03/03/20	Data File:	030320.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-10-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	002417-23
Date Analyzed:	03/03/20	Data File:	030321.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	02/28/20	Lab ID:	00-484 mb
Date Analyzed:	02/28/20	Data File:	022828.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/03/20	Lab ID:	00-499 mb
Date Analyzed:	03/03/20	Data File:	030314.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-24
Date Analyzed:	03/02/20	Data File:	030249.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.04
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	00-489 mb
Date Analyzed:	03/02/20	Data File:	030212.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-5	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-01 1/5
Date Analyzed:	03/02/20	Data File:	030218.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	95	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	0.025
Pyrene	0.023
Benz(a)anthracene	0.012
Chrysene	0.015
Benzo(a)pyrene	0.010
Benzo(b)fluoranthene	0.015
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-10	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-02 1/5
Date Analyzed:	03/02/20	Data File:	030220.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-15	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-03 1/5
Date Analyzed:	03/02/20	Data File:	030221.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	77	31	163
Benzo(a)anthracene-d12	91	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-20	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-04 1/5
Date Analyzed:	03/02/20	Data File:	030222.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	72	31	163
Benzo(a)anthracene-d12	87	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-25	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-05 1/5
Date Analyzed:	03/02/20	Data File:	030223.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	71	31	163
Benzo(a)anthracene-d12	82	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.014
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S-30	Client:	Hart Crowser
Date Received:	02/27/20	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	002417-06 1/5
Date Analyzed:	03/02/20	Data File:	030224.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	72	31	163
Benzo(a)anthracene-d12	85	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	601/615 Dexter/MMB 1940904
Date Extracted:	03/02/20	Lab ID:	00-512 mb 1/5
Date Analyzed:	03/02/20	Data File:	030217.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES, AND TPH AS GASOLINE  
USING METHOD 8021B AND NWTPH-G<sub>x</sub>**

Laboratory Code: 002398-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	91	66-121
Toluene	mg/kg (ppm)	0.5	96	72-128
Ethylbenzene	mg/kg (ppm)	0.5	100	69-132
Xylenes	mg/kg (ppm)	1.5	100	69-131
Gasoline	mg/kg (ppm)	20	110	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES, AND TPH AS GASOLINE  
USING METHOD 8021B AND NWTPH-G<sub>x</sub>**

Laboratory Code: 002417-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	69-120
Toluene	mg/kg (ppm)	0.5	90	70-117
Ethylbenzene	mg/kg (ppm)	0.5	92	65-123
Xylenes	mg/kg (ppm)	1.5	90	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,  
AND XYLENES  
USING EPA METHOD 8021B**

Laboratory Code: 002442-01 (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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	102	65-118
Toluene	ug/L (ppb)	50	103	72-122
Ethylbenzene	ug/L (ppb)	50	104	73-126
Xylenes	ug/L (ppb)	150	104	74-118

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002401-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	1,100	82	92	73-135	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

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Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002417-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	88	88	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002417-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.78	75	80	75-125	6
Cadmium	mg/kg (ppm)	10	<1	96	103	75-125	7
Chromium	mg/kg (ppm)	50	28.1	79	94	75-125	17
Lead	mg/kg (ppm)	50	9.30	88	96	75-125	9
Mercury	mg/kg (ppm)	5	<1	93	101	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	85	80-120
Cadmium	mg/kg (ppm)	10	106	80-120
Chromium	mg/kg (ppm)	50	108	80-120
Lead	mg/kg (ppm)	50	115	80-120
Mercury	mg/kg (ppm)	5	112	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002417-23 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	81	82	75-125	1
Cadmium	mg/kg (ppm)	10	<5	97	96	75-125	1
Chromium	mg/kg (ppm)	50	18.9	85	82	75-125	4
Lead	mg/kg (ppm)	50	<5	97	96	75-125	1
Mercury	mg/kg (ppm)	5	<5	82	95	75-125	15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	82	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	101	80-120
Lead	mg/kg (ppm)	50	108	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

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Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 002417-20 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02 j	<0.02 j	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	97	103	58-137	6
Vinyl chloride	mg/kg (ppm)	0.05	90	97	60-136	7
Chloroethane	mg/kg (ppm)	0.05	92	101	65-132	9
Trichlorofluoromethane	mg/kg (ppm)	0.05	95	103	66-133	8
1,1-Dichloroethene	mg/kg (ppm)	0.05	89	93	70-130	4
Methylene chloride	mg/kg (ppm)	0.05	91	96	52-150	5
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	94	93	70-130	1
1,1-Dichloroethane	mg/kg (ppm)	0.05	95	94	70-130	1
2,2-Dichloropropane	mg/kg (ppm)	0.05	92	93	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	94	93	70-130	1
Chloroform	mg/kg (ppm)	0.05	94	93	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	93	92	70-130	1
1,1-Dichloropropene	mg/kg (ppm)	0.05	98	92	70-130	6
Carbon tetrachloride	mg/kg (ppm)	0.05	92	91	70-130	1
Benzene	mg/kg (ppm)	0.05	96	91	70-130	5
Trichloroethene	mg/kg (ppm)	0.05	98	92	70-130	6
1,2-Dichloropropane	mg/kg (ppm)	0.05	98	90	70-130	9
Bromodichloromethane	mg/kg (ppm)	0.05	98	94	70-130	4
Toluene	mg/kg (ppm)	0.05	98	88	70-130	11
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	99	93	70-130	6
1,3-Dichloropropane	mg/kg (ppm)	0.05	98	92	70-130	6
Tetrachloroethene	mg/kg (ppm)	0.05	94	83	70-130	12
Dibromochloromethane	mg/kg (ppm)	0.05	101	99	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	93	86	70-130	8
Ethylbenzene	mg/kg (ppm)	0.05	95	85	70-130	11
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	102	97	70-130	5
m,p-Xylene	mg/kg (ppm)	0.1	95	86	70-130	10
o-Xylene	mg/kg (ppm)	0.05	98	89	70-130	10
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	96	93	70-130	3
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	97	96	70-130	1
2-Chlorotoluene	mg/kg (ppm)	0.05	94	84	70-130	11
4-Chlorotoluene	mg/kg (ppm)	0.05	92	83	70-130	10
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	94	84	70-130	11
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	92	84	70-130	9
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	90	83	70-130	8
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	92	86	70-130	7
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	96	96	70-130	0
Hexachlorobutadiene	mg/kg (ppm)	0.05	95	82	70-130	15
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	90	89	65-131	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 002445-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02 j	<0.02 j	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	0.031	145 nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	0.11	167 nm
o-Xylene	mg/kg (ppm)	0.0067	0.073	166 vo
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.020	0.40	181 b
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	108	94	58-137	14
Vinyl chloride	mg/kg (ppm)	0.05	100	89	60-136	12
Chloroethane	mg/kg (ppm)	0.05	105	90	65-132	15
Trichlorofluoromethane	mg/kg (ppm)	0.05	100	90	66-133	11
1,1-Dichloroethene	mg/kg (ppm)	0.05	100	88	70-130	13
Methylene chloride	mg/kg (ppm)	0.05	124	125	52-150	1
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	103	92	70-130	11
1,1-Dichloroethane	mg/kg (ppm)	0.05	102	97	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	104	95	70-130	9
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	102	97	70-130	5
Chloroform	mg/kg (ppm)	0.05	100	96	70-130	4
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	102	93	70-130	9
1,1-Dichloropropene	mg/kg (ppm)	0.05	88	93	70-130	6
Carbon tetrachloride	mg/kg (ppm)	0.05	99	91	70-130	8
Benzene	mg/kg (ppm)	0.05	97	98	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	89	94	70-130	5
1,2-Dichloropropane	mg/kg (ppm)	0.05	104	104	70-130	0
Bromodichloromethane	mg/kg (ppm)	0.05	101	102	70-130	1
Toluene	mg/kg (ppm)	0.05	93	96	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	95	102	70-130	7
1,3-Dichloropropane	mg/kg (ppm)	0.05	97	103	70-130	6
Tetrachloroethene	mg/kg (ppm)	0.05	86	91	70-130	6
Dibromochloromethane	mg/kg (ppm)	0.05	98	102	70-130	4
Chlorobenzene	mg/kg (ppm)	0.05	94	95	70-130	1
Ethylbenzene	mg/kg (ppm)	0.05	96	94	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	101	98	70-130	3
m,p-Xylene	mg/kg (ppm)	0.1	96	94	70-130	2
o-Xylene	mg/kg (ppm)	0.05	99	94	70-130	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	89	95	70-130	7
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	88	94	70-130	7
2-Chlorotoluene	mg/kg (ppm)	0.05	96	94	70-130	2
4-Chlorotoluene	mg/kg (ppm)	0.05	95	94	70-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	95	91	70-130	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	96	92	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	95	91	70-130	4
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	98	92	70-130	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.05	83	74	70-130	11
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	96	85	65-131	12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

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

Laboratory Code: 002464-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	74	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	79	36-166
Chloroethane	ug/L (ppb)	50	<1	85	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	90	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	89	60-136
Methylene chloride	ug/L (ppb)	50	<5	87	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	90	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	89	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	97	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	71-127
Chloroform	ug/L (ppb)	50	<1	92	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	94	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	89	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	101	56-152
Benzene	ug/L (ppb)	50	<0.35	87	76-125
Trichloroethene	ug/L (ppb)	50	<1	86	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	91	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Toluene	ug/L (ppb)	50	2.0	97	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
Chlorobenzene	ug/L (ppb)	50	<1	96	77-122
Ethylbenzene	ug/L (ppb)	50	<1	98	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	112	73-137
m,p-Xylene	ug/L (ppb)	100	2.2	99	69-135
o-Xylene	ug/L (ppb)	50	1.3	99	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	99	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	99	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	1.9	101	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	95	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	98	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

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Project: 601/615 Dexter/MMB 1940904, F&BI 002417

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	89	83	45-156	7
Vinyl chloride	ug/L (ppb)	50	92	84	50-154	9
Chloroethane	ug/L (ppb)	50	90	86	58-146	5
Trichlorofluoromethane	ug/L (ppb)	250	94	91	50-150	3
1,1-Dichloroethene	ug/L (ppb)	50	93	91	67-136	2
Methylene chloride	ug/L (ppb)	50	89	90	39-148	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	88	89	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	90	90	79-121	0
2,2-Dichloropropane	ug/L (ppb)	50	98	96	55-143	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	92	94	80-123	2
Chloroform	ug/L (ppb)	50	93	93	80-121	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	81-125	1
1,1-Dichloropropene	ug/L (ppb)	50	92	93	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	103	105	75-158	2
Benzene	ug/L (ppb)	50	90	91	69-134	1
Trichloroethene	ug/L (ppb)	50	89	90	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	96	98	77-123	2
Bromodichloromethane	ug/L (ppb)	50	105	106	81-133	1
Toluene	ug/L (ppb)	50	98	101	72-122	3
1,1,2-Trichloroethane	ug/L (ppb)	50	108	110	75-124	2
1,3-Dichloropropane	ug/L (ppb)	50	104	107	76-126	3
Tetrachloroethene	ug/L (ppb)	50	98	100	76-121	2
Dibromochloromethane	ug/L (ppb)	50	120	121	84-133	1
Chlorobenzene	ug/L (ppb)	50	99	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	100	102	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	115	114	84-127	1
m,p-Xylene	ug/L (ppb)	100	100	102	81-112	2
o-Xylene	ug/L (ppb)	50	100	99	81-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	109	112	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	103	107	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	101	105	77-127	4
4-Chlorotoluene	ug/L (ppb)	50	102	106	78-128	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	106	79-122	1
1,3-Dichlorobenzene	ug/L (ppb)	50	100	101	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	100	83-107	2
1,2-Dichlorobenzene	ug/L (ppb)	50	98	98	84-112	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	116	112	57-141	4
Hexachlorobutadiene	ug/L (ppb)	50	101	96	53-141	5
1,2,3-Trichlorobenzene	ug/L (ppb)	50	100	96	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/20

Date Received: 02/27/20

Project: 601/615 Dexter/MMB 1940904, F&BI 002417

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 002417-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	77	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	81	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	90	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	83	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	85	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.023	96	16-160
Pyrene	mg/kg (ppm)	0.17	0.021	94	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	0.011	92	23-144
Chrysene	mg/kg (ppm)	0.17	0.014	85	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.014	83	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	76	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.0097	89	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	75	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	72	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	63	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	85	84	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	93	90	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	90	89	54-123	1
Fluorene	mg/kg (ppm)	0.17	101	95	56-127	6
Phenanthrene	mg/kg (ppm)	0.17	90	92	55-122	2
Anthracene	mg/kg (ppm)	0.17	87	87	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	92	90	54-129	2
Pyrene	mg/kg (ppm)	0.17	97	96	53-127	1
Benz(a)anthracene	mg/kg (ppm)	0.17	93	90	51-115	3
Chrysene	mg/kg (ppm)	0.17	96	93	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	82	80	56-123	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	83	85	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	78	79	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	73	84	49-148	14
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	72	82	50-141	13
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	70	79	52-131	12

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

002417  
 SAMPLE CHAIN OF CUSTODY ME 02/27/20  
 Page # 1 of 3/BITV  
 VS4/

Report To Marissa Goodman

Company Hart Cruser

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) [Signature]

PROJECT NAME

601/615 Dexter / MMR

PO #

PH0904

REMARKS

INVOICE TO

TURNAROUND TIME  
 Standard Turnaround  
 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 Jars	ANALYSES REQUESTED										Notes
						TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	MTCAS Metals	PAHs		
DMW-4S-5	01AE	2/26/20	16:52	SOIL	5	X	X	X	X	X	X	X	X	X	(X) per ME 2/27/20	
DMW-4S-10	02		11:12			X	X	X	X	X	X	X	X	X		
DMW-4S-15	03		11:21			X	X	X	X	X	X	X	X	X		
DMW-4S-20	04		11:33			X	X	X	X	X	X	X	X	X		
DMW-4S-25	05		11:41			X	X	X	X	X	X	X	X	X		
DMW-4S-30	06		11:54			X	X	X	X	X	X	X	X	X		
															Samples received at 4:00	

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Marissa Goodman</u>	<u>Hart Cruser</u>	<u>2/27/20</u>	<u>0900</u>
<u>[Signature]</u>	<u>VINT</u>	<u>FBI</u>	<u>2/27/20</u>	<u>10:00</u>
Received by:				

002417

Report To H. Goodman

Company HC

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLE CHAIN OF CUSTODY ME 02/27/20

Page # 2 of 3

TURNAROUND TIME

Standard Turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Dispose after 30 days

Archive Samples

Other

SAMPLERS (signature)	PROJECT NAME	PO #
<u>[Signature]</u>	<u>WBB</u>	<u>1448904</u>
REMARKS	INVOICE TO	

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	HVOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM		MTCAs Met
WBB-8-5	07-AE	02/26/20	0900	soil	5	X	X	X	X	X	X	X	X	MTCAs Met
WBB-8-10	08		0920		1	X	X	X	X	X	X	X	X	
WBB-8-15	09		0924		1	X	X	X	X	X	X	X	X	
WBB-8-15a (dup)	10		0925		1	X	X	X	X	X	X	X	X	
WBB-8-20	11		0945		1	X	X	X	X	X	X	X	X	
WBB-8-25	12		0946		1	X	X	X	X	X	X	X	X	
WBB-9-5	13		1020		1	X	X	X	X	X	X	X	X	
WBB-9-10	14		1025		1	X	X	X	X	X	X	X	X	
WBB-9-15	15		1030		1	X	X	X	X	X	X	X	X	
WBB-9-20	16		1045		1	X	X	X	X	X	X	X	X	

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>Wanda Goodman</u>		<u>Hart Lumber</u>		<u>2/27/20</u>	<u>0900</u>
Received by: <u>[Signature]</u>		<u>WNTA</u>		<u>FBI</u>		<u>2/27/20</u>	<u>10:50</u>
Relinquished by: _____		_____		_____		_____	_____
Received by: _____		_____		_____		_____	_____
Relinquished by: _____		_____		_____		_____	_____
Received by: _____		_____		_____		_____	_____
Relinquished by: _____		_____		_____		_____	_____

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

Samples received at 400

002417

SAMPLE CHAIN OF CUSTODY

ME 02/27/20

VS4/BLY

Report To K. Goodman

Company HC

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (Signature) [Signature]

PROJECT NAME

MMB

PO #

1949204

REMARKS

INVOICE TO

Page # 3 of 3

TURNAROUND TIME

Standard Turnaround  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 Jars	ANALYSES REQUESTED							Notes	
						TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	MVOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM		Micas Method
MBB-9-25	174E	105-D	2/26/20	soil	5	X	X	X	X	X	X	X	X	MVOCs ONLY for 8260C
MBB-6R-5	18	1145				X	X	X	X	X	X	X	X	
MBB-10-5	19	1420				X	X	X	X	X	X	X	X	
MBB-10-10	20	1435				X	X	X	X	X	X	X	X	
MBB-10-15	21	1440				X	X	X	X	X	X	X	X	
MBB-10-20	22	1455				X	X	X	X	X	X	X	X	
MBB-10-25	23	1500				X	X	X	X	X	X	X	X	
TRIP blank-0226 AB	24													

Friedman & Bruya, Inc.  
 3012 16<sup>th</sup> Avenue West  
 Seattle, WA 98119-3029  
 Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		Manssa Goodman		Fast Lander		2/27/20	0900
<u>[Signature]</u>		VINTA		FBI		2/27/20	10:08
Received by:		Samples received at					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 13, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on February 28, 2020 from the MMB, F&BI 002445 project. There are 147 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0313R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 28, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 002445 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002445 -01	MBB-4-5
002445 -02	MBB-4-10
002445 -03	MBB-4-10a
002445 -04	MBB-4-15
002445 -05	MBB-4-20
002445 -06	MBB-4-25
002445 -07	MBB-4-30
002445 -08	MBB-3-5
002445 -09	MBB-3-10
002445 -10	MBB-3-15
002445 -11	MBB-3-12
002445 -12	MBB-3-20
002445 -13	MBB-3-25
002445 -14	MBB-3-30
002445 -15	MBB-3-35
002445 -16	MBB-3-40
002445 -17	MBB-2-5
002445 -18	MBB-2-10
002445 -19	MBB-2-15
002445 -20	MBB-2-20
002445 -21	MBB-2-20a
002445 -22	MBB-2-25
002445 -23	MBB-2-30
002445 -24	MBB-1-5
002445 -25	MBB-1-10
002445 -26	MBB-1-15
002445 -27	MBB-1-20
002445 -28	MBB-1-25
002445 -29	MBB-1-30
002445 -30	HMW-9D-5
002445 -31	HMW-9D-10
002445 -32	HMW-9D-15
002445 -33	HMW-9D-20
002445 -34	HMW-9D-25
002445 -35	MBB-8-GW
002445 -36	MBB-10-GW

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE (continued)

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002445 -37	DMW-3IA-5
002445 -38	DMW-3IA-10
002445 -39	DMW-3IA-15
002445 -40	DMW-3IA-20
002445 -41	DMW-3IA-25
002445 -42	Trip Blank-0227-1
002445 -43	Trip Blank-0227-2

A 6020B internal standard failed the acceptance criteria for sample MBB-8-GW. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

Several 8260D compounds in samples MBB-4-20, MBB-3-10, and MBB-1-20 exceeded the calibration range. The samples were reextracted with methanol, diluted, and reanalyzed. Both data sets were reported.

Methylene chloride was detected in the 8260D analysis of samples MBB-3-5, MBB-1-5, and MBB-1-10. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/05/20  
Date Analyzed: 03/06/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-8-GW 002445-35	<100	87
MBB-10-GW 002445-36	130	92
Method Blank 00-394 MB	<100	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20 and 03/04/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
MBB-4-5 002445-01	<5	94
MBB-4-10 002445-02	<5	100
MBB-4-10a 002445-03	7.3	103
MBB-4-15 002445-04	<5	93
MBB-4-20 002445-05 1/5	210	110
MBB-4-25 002445-06	<5	93
MBB-3-5 002445-08	<5	93
MBB-3-10 002445-09 1/5	350	117
MBB-3-15 002445-10	<5	97
MBB-3-20 002445-12	<5	92
MBB-3-25 002445-13	52	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20 and 03/04/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 58-139)
MBB-2-5 002445-17	<5	93
MBB-2-10 002445-18	<5	100
MBB-2-15 002445-19	<5	104
MBB-2-20 002445-20	<5	104
MBB-2-20a 002445-21	<5	94
MBB-2-25 002445-22	<5	93
MBB-1-5 002445-24	<5	98
MBB-1-10 002445-25	<5	93
MBB-1-15 002445-26	7.7	103
MBB-1-20 002445-27 1/5	570	147
MBB-1-25 002445-28	<5	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20 and 03/04/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW-9D-5 002445-30	<5	99
HMW-9D-10 002445-31	<5	102
HMW-9D-15 002445-32	<5	93
HMW-9D-20 002445-33	<5	95
HMW-9D-25 002445-34	<5	102
DMW-3IA-5 002445-37	<5	101
DMW-3IA-10 002445-38	<5	101
DMW-3IA-15 002445-39	<5	87
DMW-3IA-20 002445-40	<5	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20 and 03/04/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 58-139)
DMW-3IA-25 002445-41	<5	94
Method Blank 00-392 MB	<5	91
Method Blank 00-393 MB	<5	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445  
 Date Extracted: 03/02/20  
 Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
MBB-4-5 002445-01	<50	<250	90
MBB-4-10 002445-02	<50	<250	79
MBB-4-10a 002445-03	<50	<250	90
MBB-4-15 002445-04	<50	<250	90
MBB-4-20 002445-05	140	<250	89
MBB-4-25 002445-06	<50	<250	89
MBB-3-5 002445-08	<50	<250	90
MBB-3-10 002445-09	<50	<250	89
MBB-3-15 002445-10	<50	<250	89
MBB-3-20 002445-12	<50	<250	88
MBB-3-25 002445-13	<50	<250	89
MBB-2-5 002445-17	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445  
 Date Extracted: 03/02/20  
 Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
 Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
MBB-2-10 002445-18	<50	<250	89
MBB-2-15 002445-19	<50	<250	89
MBB-2-20 002445-20	<50	<250	89
MBB-2-20a 002445-21	<50	<250	89
MBB-2-25 002445-22	<50	<250	89
MBB-1-5 002445-24	<50	<250	88
MBB-1-10 002445-25	<50	<250	89
MBB-1-15 002445-26	<50	<250	90
MBB-1-20 002445-27	<50	<250	89
MBB-1-25 002445-28	<50	<250	88
HMW-9D-5 002445-30	<50	<250	89
HMW-9D-10 002445-31	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445  
 Date Extracted: 03/02/20  
 Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-9D-15 002445-32	<50	<250	96
HMW-9D-20 002445-33	<50	<250	89
HMW-9D-25 002445-34	<50	<250	89
DMW-3IA-5 002445-37	<50	<250	90
DMW-3IA-10 002445-38	<50	<250	97
DMW-3IA-15 002445-39	<50	<250	88
DMW-3IA-20 002445-40	<50	<250	89
DMW-3IA-25 002445-41	<50	<250	90
Method Blank 00-515 MB	<50	<250	87
Method Blank 00-516 MB	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002445  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 47-140)
MBB-10-GW 002445-36	96	<250	114
Method Blank 00-518 MB	<50	<250	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-01
Date Analyzed:	03/05/20	Data File:	002445-01.140
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.44
Cadmium	<1
Chromium	28.2
Lead	5.37
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-02
Date Analyzed:	03/05/20	Data File:	002445-02.143
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.39
Cadmium	<1
Chromium	12.3
Lead	1.15
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-10a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-03
Date Analyzed:	03/05/20	Data File:	002445-03.144
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.28
Cadmium	<1
Chromium	14.4
Lead	1.18
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-04
Date Analyzed:	03/05/20	Data File:	002445-04.145
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.16
Cadmium	<1
Chromium	12.9
Lead	1.15
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-05
Date Analyzed:	03/05/20	Data File:	002445-05.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.44
Cadmium	<1
Chromium	13.2
Lead	3.42
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-06
Date Analyzed:	03/05/20	Data File:	002445-06.147
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.47
Cadmium	<1
Chromium	14.5
Lead	1.51
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-08
Date Analyzed:	03/05/20	Data File:	002445-08.148
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.27
Cadmium	<1
Chromium	34.8
Lead	2.88
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-09
Date Analyzed:	03/05/20	Data File:	002445-09.151
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.65
Cadmium	<1
Chromium	13.6
Lead	2.30
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-10
Date Analyzed:	03/05/20	Data File:	002445-10.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	12.1
Lead	1.07
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-12
Date Analyzed:	03/05/20	Data File:	002445-12.153
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.74
Cadmium	<1
Chromium	9.91
Lead	1.04
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-13
Date Analyzed:	03/05/20	Data File:	002445-13.154
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.52
Cadmium	<1
Chromium	15.1
Lead	1.69
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-17
Date Analyzed:	03/05/20	Data File:	002445-17.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.50
Cadmium	<1
Chromium	45.9
Lead	4.09
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-18
Date Analyzed:	03/05/20	Data File:	002445-18.156
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.53
Cadmium	<1
Chromium	11.2
Lead	1.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-19
Date Analyzed:	03/05/20	Data File:	002445-19.157
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.27
Cadmium	<1
Chromium	12.2
Lead	1.54
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-20
Date Analyzed:	03/05/20	Data File:	002445-20.158
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.21
Cadmium	<1
Chromium	11.7
Lead	1.12
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-20a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-21
Date Analyzed:	03/05/20	Data File:	002445-21.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.29
Cadmium	<1
Chromium	10.7
Lead	1.15
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-22
Date Analyzed:	03/05/20	Data File:	002445-22.160
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	12.0
Lead	1.12
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-24
Date Analyzed:	03/05/20	Data File:	002445-24.163
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.38
Cadmium	<1
Chromium	36.7
Lead	4.94
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-25
Date Analyzed:	03/05/20	Data File:	002445-25.164
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.69
Cadmium	<1
Chromium	15.8
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-26
Date Analyzed:	03/05/20	Data File:	002445-26.165
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.29
Cadmium	<1
Chromium	14.1
Lead	1.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-27
Date Analyzed:	03/05/20	Data File:	002445-27.168
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.23
Cadmium	<1
Chromium	11.7
Lead	1.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-28
Date Analyzed:	03/05/20	Data File:	002445-28.171
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.56
Cadmium	<1
Chromium	15.6
Lead	1.38
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-30
Date Analyzed:	03/05/20	Data File:	002445-30.172
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Cadmium	<1
Chromium	13.6
Lead	2.80
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-31
Date Analyzed:	03/05/20	Data File:	002445-31.175
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.38
Cadmium	<1
Chromium	12.4
Lead	2.17
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-32
Date Analyzed:	03/05/20	Data File:	002445-32.176
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	15.3
Cadmium	<1
Chromium	18.2
Lead	10.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-33
Date Analyzed:	03/05/20	Data File:	002445-33.177
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.55
Cadmium	<1
Chromium	16.0
Lead	2.59
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-34
Date Analyzed:	03/05/20	Data File:	002445-34.178
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.46
Cadmium	<1
Chromium	12.3
Lead	1.25
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-3IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-37
Date Analyzed:	03/05/20	Data File:	002445-37.179
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.24
Cadmium	<1
Chromium	14.4
Lead	1.59
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-3IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-38
Date Analyzed:	03/05/20	Data File:	002445-38.180
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.46
Cadmium	<1
Chromium	15.5
Lead	1.45
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-3IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-39
Date Analyzed:	03/05/20	Data File:	002445-39.181
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.47
Cadmium	<1
Chromium	12.5
Lead	1.22
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-3IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-40
Date Analyzed:	03/05/20	Data File:	002445-40.182
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.32
Cadmium	<1
Chromium	13.0
Lead	1.26
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-3IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-41
Date Analyzed:	03/05/20	Data File:	002445-41.183
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.24
Cadmium	<1
Chromium	21.1
Lead	1.96
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	I0-133 mb2
Date Analyzed:	03/05/20	Data File:	I0-133 mb2.079
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	I0-134 mb2
Date Analyzed:	03/05/20	Data File:	I0-134 mb2.166
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-35
Date Analyzed:	03/05/20	Data File:	002445-35.132
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.5
Cadmium	<1
Chromium	118 J
Lead	7.82
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-8-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-35 x10
Date Analyzed:	03/06/20	Data File:	002445-35 x10.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Chromium	192
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-10-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-36
Date Analyzed:	03/05/20	Data File:	002445-36.133
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.32
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	I0-138 mb
Date Analyzed:	03/05/20	Data File:	I0-138 mb.082
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-10-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-36
Date Analyzed:	03/06/20	Data File:	002445-36.229
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.22
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	I0-139 mb
Date Analyzed:	03/06/20	Data File:	I0-139 mb.228
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-8-GW f	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	002445-35
Date Analyzed:	03/05/20	Data File:	002445-35.092
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002445
Date Extracted:	03/05/20	Lab ID:	I0-140 mb
Date Analyzed:	03/05/20	Data File:	I0-140 mb.089
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-01
Date Analyzed:	03/03/20	Data File:	030322.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-02
Date Analyzed:	03/03/20	Data File:	030323.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.0052
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	0.011
1,1-Dichloroethane	<0.005	o-Xylene	0.0072
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.022
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-10a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-03
Date Analyzed:	03/03/20	Data File:	030324.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.025
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	0.035
1,1-Dichloroethane	<0.005	o-Xylene	0.015
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.11
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-04
Date Analyzed:	03/03/20	Data File:	030325.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-05
Date Analyzed:	03/05/20	Data File:	030521.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	513 ip	50	150
4-Bromofluorobenzene	153 ip	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.68 ve
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	1.9 ve
1,1-Dichloroethane	<0.005	o-Xylene	1.3 ve
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	1.0 ve
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	0.066	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	0.51 ve	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-4-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-06
Date Analyzed:	03/03/20	Data File:	030326.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.0060
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-3-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-08
Date Analyzed:	03/03/20	Data File:	030327.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.024 ca lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-3-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-09
Date Analyzed:	03/05/20	Data File:	030522.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	189 ip	50	150
4-Bromofluorobenzene	120	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.45 ve
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	1.5 ve
1,1-Dichloroethane	<0.005	o-Xylene	0.72 ve
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.83 ve
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	0.017	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	0.11	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-3-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/12/20	Lab ID:	002445-10
Date Analyzed:	03/12/20	Data File:	031207.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-3-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-12
Date Analyzed:	03/04/20	Data File:	030440.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-3-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-13
Date Analyzed:	03/04/20	Data File:	030441.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	108	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.021
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	0.030
1,1-Dichloroethane	<0.005	o-Xylene	0.015
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.096
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-17
Date Analyzed:	03/04/20	Data File:	030442.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-18
Date Analyzed:	03/04/20	Data File:	030443.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-19
Date Analyzed:	03/04/20	Data File:	030444.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-20
Date Analyzed:	03/04/20	Data File:	030445.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-20a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-21
Date Analyzed:	03/04/20	Data File:	030446.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-2-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-22
Date Analyzed:	03/04/20	Data File:	030447.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	110	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-1-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-24
Date Analyzed:	03/04/20	Data File:	030448.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.020 lc j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-1-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-25
Date Analyzed:	03/04/20	Data File:	030449.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	111	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.023 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-1-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-26
Date Analyzed:	03/09/20	Data File:	030913.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	50	150
Toluene-d8	86	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-1-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-27
Date Analyzed:	03/05/20	Data File:	030524.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	151 ip	50	150
4-Bromofluorobenzene	113	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	0.15
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	0.042
1,1-Dichloroethane	<0.005	o-Xylene	0.030
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.22 ve
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-1-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-28
Date Analyzed:	03/05/20	Data File:	030450.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9D-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-30
Date Analyzed:	03/05/20	Data File:	030451.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9D-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-31
Date Analyzed:	03/05/20	Data File:	030452.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.027 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9D-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-32
Date Analyzed:	03/05/20	Data File:	030453.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9D-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-33
Date Analyzed:	03/05/20	Data File:	030454.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9D-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-34
Date Analyzed:	03/04/20	Data File:	030439.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.022 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-3IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-37
Date Analyzed:	03/05/20	Data File:	030515.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-3IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-38
Date Analyzed:	03/05/20	Data File:	030516.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-3IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-39
Date Analyzed:	03/05/20	Data File:	030517.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-3IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-40
Date Analyzed:	03/05/20	Data File:	030518.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-3IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	002445-41
Date Analyzed:	03/05/20	Data File:	030519.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	00-499 mb
Date Analyzed:	03/03/20	Data File:	030314.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/03/20	Lab ID:	00-498 mb
Date Analyzed:	03/03/20	Data File:	030315.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/12/20	Lab ID:	00-609 mb
Date Analyzed:	03/12/20	Data File:	031211.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-4-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/06/20	Lab ID:	002445-05
Date Analyzed:	03/10/20	Data File:	031017.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	97	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5	1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05	Tetrachloroethene	<0.025
Chloroethane	<0.5	Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5	Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05	Ethylbenzene	0.15
Methylene chloride	<0.5	1,1,1,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05	m,p-Xylene	0.51
1,1-Dichloroethane	<0.05	o-Xylene	0.18
2,2-Dichloropropane	<0.05	1,1,2,2-Tetrachloroethane	<0.05
cis-1,2-Dichloroethene	<0.05	1,2,3-Trichloropropane	<0.05
Chloroform	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	1,2,4-Trimethylbenzene	1.2
Carbon tetrachloride	<0.05	1,3-Dichlorobenzene	<0.05
Benzene	<0.03	1,4-Dichlorobenzene	<0.05
Trichloroethene	<0.02	1,2-Dichlorobenzene	<0.05
1,2-Dichloropropane	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Bromodichloromethane	<0.05	Hexachlorobutadiene	<0.25
Toluene	<0.05	1,2,3-Trichlorobenzene	<0.25
1,1,2-Trichloroethane	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-3-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/06/20	Lab ID:	002445-09
Date Analyzed:	03/10/20	Data File:	031018.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	111	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5	1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05	Tetrachloroethene	<0.025
Chloroethane	<0.5	Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5	Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05	Ethylbenzene	0.82
Methylene chloride	<0.5	1,1,1,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05	m,p-Xylene	2.5
1,1-Dichloroethane	<0.05	o-Xylene	0.50
2,2-Dichloropropane	<0.05	1,1,2,2-Tetrachloroethane	<0.05
cis-1,2-Dichloroethene	<0.05	1,2,3-Trichloropropane	<0.05
Chloroform	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	1,2,4-Trimethylbenzene	5.9
Carbon tetrachloride	<0.05	1,3-Dichlorobenzene	<0.05
Benzene	<0.03	1,4-Dichlorobenzene	<0.05
Trichloroethene	<0.02	1,2-Dichlorobenzene	<0.05
1,2-Dichloropropane	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Bromodichloromethane	<0.05	Hexachlorobutadiene	<0.25
Toluene	0.093	1,2,3-Trichlorobenzene	<0.25
1,1,2-Trichloroethane	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-1-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/06/20	Lab ID:	002445-27
Date Analyzed:	03/10/20	Data File:	031019.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	145
Toluene-d8	102	55	145
4-Bromofluorobenzene	108	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5	1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05	Tetrachloroethene	<0.025
Chloroethane	<0.5	Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5	Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05	Ethylbenzene	0.72
Methylene chloride	<0.5	1,1,1,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05	m,p-Xylene	0.21
1,1-Dichloroethane	<0.05	o-Xylene	0.13
2,2-Dichloropropane	<0.05	1,1,2,2-Tetrachloroethane	<0.05
cis-1,2-Dichloroethene	<0.05	1,2,3-Trichloropropane	<0.05
Chloroform	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	1,2,4-Trimethylbenzene	1.9
Carbon tetrachloride	<0.05	1,3-Dichlorobenzene	<0.05
Benzene	<0.03	1,4-Dichlorobenzene	<0.05
Trichloroethene	<0.02	1,2-Dichlorobenzene	<0.05
1,2-Dichloropropane	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Bromodichloromethane	<0.05	Hexachlorobutadiene	<0.25
Toluene	<0.05	1,2,3-Trichlorobenzene	<0.25
1,1,2-Trichloroethane	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/06/20	Lab ID:	00-561 mb2
Date Analyzed:	03/06/20	Data File:	030615.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	62	145
Toluene-d8	92	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5	1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05	Tetrachloroethene	<0.025
Chloroethane	<0.5	Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5	Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05	Ethylbenzene	<0.05
Methylene chloride	<0.5	1,1,1,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05	m,p-Xylene	<0.1
1,1-Dichloroethane	<0.05	o-Xylene	<0.05
2,2-Dichloropropane	<0.05	1,1,2,2-Tetrachloroethane	<0.05
cis-1,2-Dichloroethene	<0.05	1,2,3-Trichloropropane	<0.05
Chloroform	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	1,2,4-Trimethylbenzene	<0.05
Carbon tetrachloride	<0.05	1,3-Dichlorobenzene	<0.05
Benzene	<0.03	1,4-Dichlorobenzene	<0.05
Trichloroethene	<0.02	1,2-Dichlorobenzene	<0.05
1,2-Dichloropropane	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Bromodichloromethane	<0.05	Hexachlorobutadiene	<0.25
Toluene	<0.05	1,2,3-Trichlorobenzene	<0.25
1,1,2-Trichloroethane	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-8-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-35
Date Analyzed:	03/02/20	Data File:	030250.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.25	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-10-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-36
Date Analyzed:	03/02/20	Data File:	030251.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.88	Tetrachloroethene	98
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	0.86	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	0.27	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	130	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	59	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank-0227-1	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-42
Date Analyzed:	03/02/20	Data File:	030252.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank-0227-2	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-43
Date Analyzed:	03/03/20	Data File:	030253.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	00-489 mb
Date Analyzed:	03/02/20	Data File:	030212.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-01 1/5
Date Analyzed:	03/03/20	Data File:	030307.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	93	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-02 1/5
Date Analyzed:	03/03/20	Data File:	030230.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	85	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.011
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-10a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-03 1/5
Date Analyzed:	03/03/20	Data File:	030231.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	71	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-04 1/5
Date Analyzed:	03/03/20	Data File:	030232.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	82	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-05 1/5
Date Analyzed:	03/03/20	Data File:	030233.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	79	31	163
Benzo(a)anthracene-d12	92	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.74
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-06 1/5
Date Analyzed:	03/03/20	Data File:	030314.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	66	31	163
Benzo(a)anthracene-d12	86	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-08 1/5
Date Analyzed:	03/03/20	Data File:	030315.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	67	31	163
Benzo(a)anthracene-d12	85	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-09 1/5
Date Analyzed:	03/03/20	Data File:	030316.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	86	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-10 1/5
Date Analyzed:	03/03/20	Data File:	030317.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	65	31	163
Benzo(a)anthracene-d12	81	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-12 1/5
Date Analyzed:	03/03/20	Data File:	030321.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	69	31	163
Benzo(a)anthracene-d12	84	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-13 1/5
Date Analyzed:	03/03/20	Data File:	030322.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	75	31	163
Benzo(a)anthracene-d12	93	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.092
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-17 1/5
Date Analyzed:	03/03/20	Data File:	030323.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	64	31	163
Benzo(a)anthracene-d12	74	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-18 1/5
Date Analyzed:	03/03/20	Data File:	030324.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	70	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-19 1/5
Date Analyzed:	03/03/20	Data File:	030325.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	85	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-20 1/5
Date Analyzed:	03/03/20	Data File:	030326.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	81	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-20a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-21 1/5
Date Analyzed:	03/03/20	Data File:	030327.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	67	31	163
Benzo(a)anthracene-d12	85	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-22 1/5
Date Analyzed:	03/03/20	Data File:	030328.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	70	31	163
Benzo(a)anthracene-d12	84	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-24 1/5
Date Analyzed:	03/03/20	Data File:	030329.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	73	31	163
Benzo(a)anthracene-d12	84	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-25 1/5
Date Analyzed:	03/03/20	Data File:	030330.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	71	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-26 1/5
Date Analyzed:	03/03/20	Data File:	030331.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	75	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-27 1/5
Date Analyzed:	03/03/20	Data File:	030332.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	71	31	163
Benzo(a)anthracene-d12	94	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.024
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	002445-28 1/5
Date Analyzed:	03/04/20	Data File:	030333.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	73	31	163
Benzo(a)anthracene-d12	86	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	00-514 mb 1/5
Date Analyzed:	03/03/20	Data File:	030306.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	91	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002445
Date Extracted:	03/02/20	Lab ID:	00-512 mb 1/5
Date Analyzed:	03/02/20	Data File:	030217.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002413-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	108	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002445-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002445-28 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002445-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	90	88	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002445-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	55	91	91	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	112	61-133	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002445-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	2.15	83	87	75-125	5
Cadmium	mg/kg (ppm)	10	<1	92	95	75-125	3
Chromium	mg/kg (ppm)	50	24.9	81	88	75-125	8
Lead	mg/kg (ppm)	50	4.72	100	105	75-125	5
Mercury	mg/kg (ppm)	5	<1	98	101	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	92	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	97	80-120
Lead	mg/kg (ppm)	50	102	80-120
Mercury	mg/kg (ppm)	5	102	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002445-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.15	91	88	75-125	3
Cadmium	mg/kg (ppm)	10	<1	102	97	75-125	5
Chromium	mg/kg (ppm)	50	10.8	95	92	75-125	3
Lead	mg/kg (ppm)	50	1.20	104	100	75-125	4
Mercury	mg/kg (ppm)	5	<1	90	101	75-125	12

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	92	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002447-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.79	89	87	75-125	2
Cadmium	ug/L (ppb)	5	<1	94	94	75-125	0
Chromium	ug/L (ppb)	20	<1	91	92	75-125	1
Lead	ug/L (ppb)	10	<1	83	81	75-125	2
Mercury	ug/L (ppb)	5	<1	85	85	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 002445-36 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	3.11	97	94	75-125	3
Cadmium	ug/L (ppb)	5	<1	94	93	75-125	1
Chromium	ug/L (ppb)	20	<1	98	96	75-125	2
Lead	ug/L (ppb)	10	<1	87	84	75-125	4
Mercury	ug/L (ppb)	5	<1	89	87	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120
Cadmium	ug/L (ppb)	5	94	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	92	80-120
Mercury	ug/L (ppb)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	94	94	80-120	0
Cadmium	ug/L (ppb)	5	91	91	80-120	0
Chromium	ug/L (ppb)	20	101	97	80-120	4
Lead	ug/L (ppb)	10	95	93	80-120	2
Mercury	ug/L (ppb)	5	87	89	80-120	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 002445-34 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	96	98	58-137	2
Vinyl chloride	mg/kg (ppm)	0.05	92	93	60-136	1
Chloroethane	mg/kg (ppm)	0.05	94	95	65-132	1
Trichlorofluoromethane	mg/kg (ppm)	0.05	93	95	66-133	2
1,1-Dichloroethene	mg/kg (ppm)	0.05	92	94	70-130	2
Methylene chloride	mg/kg (ppm)	0.05	120	120	52-150	0
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	98	99	70-130	1
1,1-Dichloroethane	mg/kg (ppm)	0.05	100	102	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.05	93	101	70-130	8
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	100	102	70-130	2
Chloroform	mg/kg (ppm)	0.05	100	100	70-130	0
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	97	99	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	96	95	70-130	1
Carbon tetrachloride	mg/kg (ppm)	0.05	95	97	70-130	2
Benzene	mg/kg (ppm)	0.05	100	99	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	96	95	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.05	104	103	70-130	1
Bromodichloromethane	mg/kg (ppm)	0.05	103	101	70-130	2
Toluene	mg/kg (ppm)	0.05	101	97	70-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	101	98	70-130	3
1,3-Dichloropropane	mg/kg (ppm)	0.05	102	100	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.05	96	92	70-130	4
Dibromochloromethane	mg/kg (ppm)	0.05	102	99	70-130	3
Chlorobenzene	mg/kg (ppm)	0.05	100	95	70-130	5
Ethylbenzene	mg/kg (ppm)	0.05	102	96	70-130	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	104	102	70-130	2
m,p-Xylene	mg/kg (ppm)	0.1	103	97	70-130	6
o-Xylene	mg/kg (ppm)	0.05	105	99	70-130	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	92	92	70-130	0
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	91	92	70-130	1
2-Chlorotoluene	mg/kg (ppm)	0.05	102	95	70-130	7
4-Chlorotoluene	mg/kg (ppm)	0.05	102	95	70-130	7
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	102	95	70-130	7
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	102	97	70-130	5
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	103	95	70-130	8
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	102	96	70-130	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	85	87	70-130	2
Hexachlorobutadiene	mg/kg (ppm)	0.05	99	90	70-130	10
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	102	99	65-131	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 002445-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	0.010	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	0.0049	0.031	145 vo
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	0.0099	0.11	167 vo
o-Xylene	mg/kg (ppm)	0.0067	0.073	166 vo
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.020	0.40	181 vo
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	108	94	58-137	14
Vinyl chloride	mg/kg (ppm)	0.05	100	89	60-136	12
Chloroethane	mg/kg (ppm)	0.05	105	90	65-132	15
Trichlorofluoromethane	mg/kg (ppm)	0.05	100	90	66-133	11
1,1-Dichloroethene	mg/kg (ppm)	0.05	100	88	70-130	13
Methylene chloride	mg/kg (ppm)	0.05	124	125	52-150	1
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	103	92	70-130	11
1,1-Dichloroethane	mg/kg (ppm)	0.05	102	97	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	104	95	70-130	9
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	102	97	70-130	5
Chloroform	mg/kg (ppm)	0.05	100	96	70-130	4
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	102	93	70-130	9
1,1-Dichloropropene	mg/kg (ppm)	0.05	88	93	70-130	6
Carbon tetrachloride	mg/kg (ppm)	0.05	99	91	70-130	8
Benzene	mg/kg (ppm)	0.05	97	98	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	89	94	70-130	5
1,2-Dichloropropane	mg/kg (ppm)	0.05	104	104	70-130	0
Bromodichloromethane	mg/kg (ppm)	0.05	101	102	70-130	1
Toluene	mg/kg (ppm)	0.05	93	96	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	95	102	70-130	7
1,3-Dichloropropane	mg/kg (ppm)	0.05	97	103	70-130	6
Tetrachloroethene	mg/kg (ppm)	0.05	86	91	70-130	6
Dibromochloromethane	mg/kg (ppm)	0.05	98	102	70-130	4
Chlorobenzene	mg/kg (ppm)	0.05	94	95	70-130	1
Ethylbenzene	mg/kg (ppm)	0.05	96	94	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	101	98	70-130	3
m,p-Xylene	mg/kg (ppm)	0.1	96	94	70-130	2
o-Xylene	mg/kg (ppm)	0.05	99	94	70-130	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	89	95	70-130	7
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	88	94	70-130	7
2-Chlorotoluene	mg/kg (ppm)	0.05	96	94	70-130	2
4-Chlorotoluene	mg/kg (ppm)	0.05	95	94	70-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	95	91	70-130	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	96	92	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	95	91	70-130	4
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	98	92	70-130	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.05	83	74	70-130	11
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	96	85	65-131	12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003160-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

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Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	82	83	70-130	1
Vinyl chloride	mg/kg (ppm)	0.05	85	87	70-130	2
Chloroethane	mg/kg (ppm)	0.05	82	84	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	83	86	70-130	4
1,1-Dichloroethene	mg/kg (ppm)	0.05	84	88	70-130	5
Methylene chloride	mg/kg (ppm)	0.05	72	75	70-130	4
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	84	89	70-130	6
1,1-Dichloroethane	mg/kg (ppm)	0.05	86	90	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	86	90	70-130	5
Chloroform	mg/kg (ppm)	0.05	90	92	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	85	87	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	95	98	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	85	88	70-130	3
Benzene	mg/kg (ppm)	0.05	90	92	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	99	103	70-130	4
1,2-Dichloropropane	mg/kg (ppm)	0.05	102	103	70-130	1
Bromodichloromethane	mg/kg (ppm)	0.05	103	104	70-130	1
Toluene	mg/kg (ppm)	0.05	99	102	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	106	109	70-130	3
1,3-Dichloropropane	mg/kg (ppm)	0.05	109	112	70-130	3
Tetrachloroethene	mg/kg (ppm)	0.05	98	103	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	104	106	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	100	105	70-130	5
Ethylbenzene	mg/kg (ppm)	0.05	97	101	70-130	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	87	91	70-130	4
m,p-Xylene	mg/kg (ppm)	0.1	98	102	70-130	4
o-Xylene	mg/kg (ppm)	0.05	93	97	70-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	107	111	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	106	111	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	106	110	70-130	4
4-Chlorotoluene	mg/kg (ppm)	0.05	110	114	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	104	107	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	105	109	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	106	108	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	104	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	101	106	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	100	102	70-130	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	95	101	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003160-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

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Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	82	83	70-130	1
Vinyl chloride	mg/kg (ppm)	0.05	85	87	70-130	2
Chloroethane	mg/kg (ppm)	0.05	82	84	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	83	86	70-130	4
1,1-Dichloroethene	mg/kg (ppm)	0.05	84	88	70-130	5
Methylene chloride	mg/kg (ppm)	0.05	72	75	70-130	4
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	84	89	70-130	6
1,1-Dichloroethane	mg/kg (ppm)	0.05	86	90	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	86	90	70-130	5
Chloroform	mg/kg (ppm)	0.05	90	92	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	85	87	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	95	98	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	85	88	70-130	3
Benzene	mg/kg (ppm)	0.05	90	92	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	99	103	70-130	4
1,2-Dichloropropane	mg/kg (ppm)	0.05	102	103	70-130	1
Bromodichloromethane	mg/kg (ppm)	0.05	103	104	70-130	1
Toluene	mg/kg (ppm)	0.05	99	102	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	106	109	70-130	3
1,3-Dichloropropane	mg/kg (ppm)	0.05	109	112	70-130	3
Tetrachloroethene	mg/kg (ppm)	0.05	98	103	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	104	106	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	100	105	70-130	5
Ethylbenzene	mg/kg (ppm)	0.05	97	101	70-130	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	87	91	70-130	4
m,p-Xylene	mg/kg (ppm)	0.1	98	102	70-130	4
o-Xylene	mg/kg (ppm)	0.05	93	97	70-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	107	111	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	106	111	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	106	110	70-130	4
4-Chlorotoluene	mg/kg (ppm)	0.05	110	114	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	104	107	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	105	109	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	106	108	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	104	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	101	106	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	100	102	70-130	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	95	101	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

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Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 003098-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	2.5	<0.5	46	44	10-126	4
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	49	47	10-138	4
Chloroethane	mg/kg (ppm)	2.5	<0.5	60	57	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	63	61	10-176	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	73	73	10-160	0
Methylene chloride	mg/kg (ppm)	2.5	<0.5	82	81	10-156	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	77	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	82	81	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	38	37	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	85	83	25-135	2
Chloroform	mg/kg (ppm)	2.5	<0.05	86	85	21-145	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	86	85	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	81	80	17-140	1
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	90	89	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	81	81	29-129	0
Trichloroethene	mg/kg (ppm)	2.5	0.061	96	102	21-139	6
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	86	86	30-135	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	90	92	23-155	2
Toluene	mg/kg (ppm)	2.5	<0.05	88	88	35-130	0
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	99	97	10-205	2
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	95	95	31-137	0
Tetrachloroethene	mg/kg (ppm)	2.5	0.74	66 b	67 b	20-133	2 b
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	98	99	28-150	1
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	89	89	32-129	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	89	89	32-137	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	100	98	31-143	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	89	88	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	91	89	33-134	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	76	68	28-140	11
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	98	97	25-144	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	91	92	31-134	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	91	31-136	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	93	10-182	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	87	87	30-131	0
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	87	29-129	2
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	88	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	98	98	11-161	0
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	83	82	10-142	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	94	91	20-144	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chloromethane	mg/kg (ppm)	2.5	71	27-133
Vinyl chloride	mg/kg (ppm)	2.5	76	22-139
Chloroethane	mg/kg (ppm)	2.5	91	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	91	10-196
1,1-Dichloroethene	mg/kg (ppm)	2.5	103	47-128
Methylene chloride	mg/kg (ppm)	2.5	107	42-132
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	104	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	98	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	118	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	103	72-127
Chloroform	mg/kg (ppm)	2.5	101	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	109	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	89	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	114	60-139
Benzene	mg/kg (ppm)	2.5	90	68-114
Trichloroethene	mg/kg (ppm)	2.5	84	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	90	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	92	72-130
Toluene	mg/kg (ppm)	2.5	101	66-126
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	101	75-113
1,3-Dichloropropane	mg/kg (ppm)	2.5	94	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	101	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	102	74-125
Chlorobenzene	mg/kg (ppm)	2.5	99	76-111
Ethylbenzene	mg/kg (ppm)	2.5	105	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	122	69-135
m,p-Xylene	mg/kg (ppm)	5	105	78-122
o-Xylene	mg/kg (ppm)	2.5	110	77-124
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	103	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	104	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	100	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	107	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	97	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	113	58-138
Hexachlorobutadiene	mg/kg (ppm)	2.5	113	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

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

Laboratory Code: 002464-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	74	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	79	36-166
Chloroethane	ug/L (ppb)	50	<1	85	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	90	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	89	60-136
Methylene chloride	ug/L (ppb)	50	<5	87	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	90	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	89	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	97	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	71-127
Chloroform	ug/L (ppb)	50	<1	92	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	94	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	89	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	101	56-152
Benzene	ug/L (ppb)	50	<0.35	87	76-125
Trichloroethene	ug/L (ppb)	50	<1	86	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	91	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Toluene	ug/L (ppb)	50	2.0	97	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
Chlorobenzene	ug/L (ppb)	50	<1	96	77-122
Ethylbenzene	ug/L (ppb)	50	<1	98	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	112	73-137
m,p-Xylene	ug/L (ppb)	100	2.2	99	69-135
o-Xylene	ug/L (ppb)	50	1.3	99	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	99	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	99	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	1.9	101	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	95	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	98	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	89	83	45-156	7
Vinyl chloride	ug/L (ppb)	50	92	84	50-154	9
Chloroethane	ug/L (ppb)	50	90	86	58-146	5
Trichlorofluoromethane	ug/L (ppb)	250	94	91	50-150	3
1,1-Dichloroethene	ug/L (ppb)	50	93	91	67-136	2
Methylene chloride	ug/L (ppb)	50	89	90	39-148	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	88	89	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	90	90	79-121	0
2,2-Dichloropropane	ug/L (ppb)	50	98	96	55-143	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	92	94	80-123	2
Chloroform	ug/L (ppb)	50	93	93	80-121	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	81-125	1
1,1-Dichloropropene	ug/L (ppb)	50	92	93	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	103	105	75-158	2
Benzene	ug/L (ppb)	50	90	91	69-134	1
Trichloroethene	ug/L (ppb)	50	89	90	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	96	98	77-123	2
Bromodichloromethane	ug/L (ppb)	50	105	106	81-133	1
Toluene	ug/L (ppb)	50	98	101	72-122	3
1,1,2-Trichloroethane	ug/L (ppb)	50	108	110	75-124	2
1,3-Dichloropropane	ug/L (ppb)	50	104	107	76-126	3
Tetrachloroethene	ug/L (ppb)	50	98	100	76-121	2
Dibromochloromethane	ug/L (ppb)	50	120	121	84-133	1
Chlorobenzene	ug/L (ppb)	50	99	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	100	102	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	115	114	84-127	1
m,p-Xylene	ug/L (ppb)	100	100	102	81-112	2
o-Xylene	ug/L (ppb)	50	100	99	81-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	109	112	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	103	107	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	101	105	77-127	4
4-Chlorotoluene	ug/L (ppb)	50	102	106	78-128	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	106	79-122	1
1,3-Dichlorobenzene	ug/L (ppb)	50	100	101	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	100	83-107	2
1,2-Dichlorobenzene	ug/L (ppb)	50	98	98	84-112	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	116	112	57-141	4
Hexachlorobutadiene	ug/L (ppb)	50	101	96	53-141	5
1,2,3-Trichlorobenzene	ug/L (ppb)	50	100	96	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 002417-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	77	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	81	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	90	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	83	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	85	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.023	96	16-160
Pyrene	mg/kg (ppm)	0.17	0.021	94	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	0.011	92	23-144
Chrysene	mg/kg (ppm)	0.17	0.014	85	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.014	83	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	76	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.0097	89	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	75	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	72	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	63	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS/D	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	85	84	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	93	90	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	90	89	54-123	1
Fluorene	mg/kg (ppm)	0.17	101	95	56-127	6
Phenanthrene	mg/kg (ppm)	0.17	90	92	55-122	2
Anthracene	mg/kg (ppm)	0.17	87	87	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	92	90	54-129	2
Pyrene	mg/kg (ppm)	0.17	97	96	53-127	1
Benz(a)anthracene	mg/kg (ppm)	0.17	93	90	51-115	3
Chrysene	mg/kg (ppm)	0.17	96	93	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	82	80	56-123	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	83	85	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	78	79	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	73	84	49-148	14
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	72	82	50-141	13
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	70	79	52-131	12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 02/28/20

Project: MMB, F&BI 002445

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 002445-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	73	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	82	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	78	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	82	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	80	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	81	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	89	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	90	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	86	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	83	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	77	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	77	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	84	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	59	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	55	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	47	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	85	84	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	94	91	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	91	89	54-123	2
Fluorene	mg/kg (ppm)	0.17	93	94	56-127	1
Phenanthrene	mg/kg (ppm)	0.17	91	91	55-122	0
Anthracene	mg/kg (ppm)	0.17	87	86	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	96	96	54-129	0
Pyrene	mg/kg (ppm)	0.17	94	92	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	93	94	51-115	1
Chrysene	mg/kg (ppm)	0.17	97	96	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	81	80	56-123	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	84	82	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	80	80	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	83	84	49-148	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	84	84	50-141	0
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	78	78	52-131	0

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 002445

Samples Shipped to: F#8

**ME** 02/28/20

10 FAX # 4 M6

**HART CROWSER**

US 57 v R12/ATY

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 194D904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MNB

HART CROWSER CONTACT H. Goodman

SAMPLED BY: B. Doster

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
01A-E	MBB4-5	2127120	0855	5011	
02	MBB4-10		0845		
03	MBB4-10a		0846		
04	MBB4-15		0855		
05	MBB4-20		0910		
06	MBB4-25		0915		
07	MBB4-30		0930		
08	MBB3-5		1015		
09	MBB3-10		1025		
10	MBB3-15		1045		
11	MBB3-12		1035		
12	MBB3-20		1050		

RECEIVED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<u>[Signature]</u>	2/28/20	9:30	<u>[Signature]</u>	2/28/20	

RELIQUISHED BY: [Signature] DATE: 2/28/20 TIME: 9:30

PRINT NAME: H. Goodman COMPANY: \_\_\_\_\_

PRINT NAME: [Signature] COMPANY: \_\_\_\_\_

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

See Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements

NO. OF CONTAINERS: 5

OBSERVATIONS/COMMENTS/COMPOSITING INSTRUCTIONS:

Hold for analysis

Hold for analysis

Hold for analysis

TOTAL NUMBER OF CONTAINERS: \_\_\_\_\_

SAMPLE RECEIPT INFORMATION

CUSTODY SEALS:  YES  NO  N/A

GOOD CONDITION:  YES  NO

TEMPERATURE: \_\_\_\_\_

SHIPMENT METHOD:  HAND  COURIER  OVERNIGHT

TURNAROUND TIME:  24 HOURS  1 WEEK  STANDARD  48 HOURS  72 HOURS  OTHER \_\_\_\_\_



# Sample Custody Record

Samples Shipped to: F&B 002445

**HART CROWSER**  
 NE 02/28/20 30 ft KBD 84 MG  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB <u>19490904</u>		LAB NUMBER						
PROJECT NAME <u>MMB</u>		HART CROWSER CONTACT <u>M. Goodman</u>						
SAMPLED BY: <u>B. Dobler</u> + <u>A. Nakahara</u> + <u>J. Burnette</u>								
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
25 A-E	MMB1-10		2/27/20	1520	Soil	NWTPH-Dx NWTPH-Gx HVACs + BTEX-8260 MICA METALS PHTS	5	
26	MMB1-15			1530		X X X X X	1	
27	MMB1-20			1535		X X X X X	1	
28	MMB1-25			1545		X X X X X	1	
29	MMB1-30			1555		X X X X X	1	Hold for analysis
30	MMW-9D-5			0850		X X X X X	1	
31	MMW-9D-10			0917		X X X X X	1	
32	MMW-9D-15			0920		X X X X X	1	
33	MMW-9D-20			0925		X X X X X	1	
34	MMW-9D-25			0927		X X X X X	1	
35 A-E	MMB-8-GW			1230	Water	X X X X X	1	hold for analysis
36 A-E	MMB-10-GW			1700	Water	X X X X X	1	
RELINQUISHED BY <u>MSA</u>		DATE	RECEIVED BY	DATE	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:		
		2/28/20	<u>[Signature]</u>	2/28/20		Samples received at <u>4</u> °C		
SIGNATURE <u>[Signature]</u>		TIME	COMPANY	TIME		COOLER NO.:		
PRINT NAME <u>M. Goodman</u>		0900	<u>[Signature]</u>			STORAGE LOCATION:		
PRINT NAME <u>M. Goodman</u>			<u>[Signature]</u>			See Lab Work Order No. _____		
COMPANY			<u>[Signature]</u>			for Other Contract Requirements		
SIGNATURE		DATE	RECEIVED BY	DATE		TURNAROUND TIME:		
PRINT NAME		TIME	COMPANY	TIME		<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS <input type="checkbox"/> OTHER _____		
TOTAL NUMBER OF CONTAINERS		SAMPLE RECEIPT INFORMATION <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> OVERNIGHT <input type="checkbox"/> COURIER						

White to Lab      Yellow to Project Manager      Pink to Sample Custodian

# Sample Custody Record

002445

Samples Shipped to: FAR



ME 02/28/20  
5 of 5  
4 of 4 MG

VSS/WWJ / ABB / BIC  
Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 1940904 LAB NUMBER \_\_\_\_\_

PROJECT NAME 601/615 Dexter (Merex Mega Block)

HART CROWSER CONTACT Wanessa Goodman

SAMPLED BY: Carrie McCabe

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
37A E	DMM-3IA-5		2/27/20	10:18	Soil
38	DMM-35A-1D			10:34	
39	DMM-31A-15			10:44	
40	DMM-31A-20			10:54	
41	DMM-31A-25			11:07	
42A B	Tip Blank-0227 (1)				
43A B	Tip Blank-0227 (2)				

REQUESTED ANALYSIS	NO. OF CONTAINERS
NWTPH-Dx	5
NWTPH-Gx	5
HVOCs 8260	5
BTEX	5
MTCAS-Metals	5

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  
Samples received at 400

SEE Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements

TURNAROUND TIME:  
 24 HOURS     1 WEEK  
 48 HOURS     STANDARD  
 72 HOURS    OTHER \_\_\_\_\_

TOTAL NUMBER OF CONTAINERS: \_\_\_\_\_

SAMPLE RECEIPT INFORMATION  
 CUSTODY SEALS:  YES     NO     N/A  
 GOOD CONDITION:  YES     NO  
 TEMPERATURE: \_\_\_\_\_  
 SHIPMENT METHOD:  HAND     OVERNIGHT  
 COURIER

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 11, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on February 28, 2020 from the MMB, F&BI 002468 project. There are 101 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0311R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 28, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 002468 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
002468 -01	HMW5IB-5
002468 -02	HMW5IB-10
002468 -03	HMW5IB-15
002468 -04	HMW5IB-20
002468 -05	HMW5IB-25
002468 -06	HMW5IB-30
002468 -07	HMW5IB-35
002468 -08	HMW7IB-5
002468 -09	HMW7IB-10
002468 -10	HMW7IB-15
002468 -11	HMW7IB-20
002468 -12	HMW7IB-25
002468 -13	HMW7IB-25a
002468 -14	HMW9IA-5
002468 -15	HMW9IA-10
002468 -16	HMW9IA-15
002468 -17	HMW9IA-20
002468 -18	HMW9IA-25
002468 -19	HMW9IB-5
002468 -20	HMW9IB-13
002468 -21	HMW9IB-15
002468 -22	HMW9IB-20
002468 -23	HMW9IB-25
002468 -24	Trip blank 0228
002468 -25	DMW-5IA-5
002468 -26	DMW-5IA-10
002468 -27	DMW-5IA-15
002468 -28	DMW-5IA-20
002468 -29	DMW-5IA-25
002468 -30	MBB-9-GW

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

Methylene chloride was detected in the 8260D analysis of samples HMW9IB-15, HMW9IB-25. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/05/20  
Date Analyzed: 03/06/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-9-GW 002468-30	<100	92
Method Blank 00-394 MB	<100	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/03/20  
Date Analyzed: 03/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW5IB-5 002468-01	<5	92
HMW5IB-10 002468-02	<5	92
HMW5IB-15 002468-03	<5	90
HMW5IB-20 002468-04	<5	91
HMW5IB-25 002468-05	<5	92
HMW7IB-5 002468-08	<5	92
HMW7IB-10 002468-09	<5	92
HMW7IB-15 002468-10	<5	92
HMW7IB-20 002468-11	<5	90
HMW7IB-25 002468-12	<5	92
HMW7IB-25a 002468-13	<5	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/03/20  
Date Analyzed: 03/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW9IA-5 002468-14	<5	88
HMW9IA-10 002468-15	<5	91
HMW9IA-15 002468-16	<5	98
HMW9IA-20 002468-17	<5	97
HMW9IA-25 002468-18	<5	96
HMW9IB-5 002468-19	<5	97
HMW9IB-13 002468-20	<5	99
HMW9IB-15 002468-21	<5	98
HMW9IB-20 002468-22	<5	96
HMW9IB-25 002468-23	<5	100
DMW-5IA-5 002468-25	<5	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/03/20  
Date Analyzed: 03/03/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
DMW-5IA-10 002468-26	<5	96
DMW-5IA-15 002468-27	<5	99
DMW-5IA-20 002468-28	<5	98
DMW-5IA-25 002468-29	<5	98
Method Blank 00-395 MB	<5	97
Method Blank 00-396 MB	<5	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468  
 Date Extracted: 03/02/20  
 Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW5IB-5 002468-01	<50	<250	89
HMW5IB-10 002468-02	<50	<250	88
HMW5IB-15 002468-03	<50	<250	89
HMW5IB-20 002468-04	<50	<250	89
HMW5IB-25 002468-05	<50	<250	99
HMW7IB-5 002468-08	69 x	760	89
HMW7IB-10 002468-09	94 x	860	91
HMW7IB-15 002468-10	<50	<250	91
HMW7IB-20 002468-11	<50	440	90
HMW7IB-25 002468-12	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468  
 Date Extracted: 03/02/20  
 Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW7IB-25a 002468-13	<50	<250	88
HMW9IA-5 002468-14	<50	<250	90
HMW9IA-10 002468-15	<50	<250	89
HMW9IA-15 002468-16	<50	<250	89
HMW9IA-20 002468-17	<50	<250	99
HMW9IA-25 002468-18	<50	<250	90
HMW9IB-5 002468-19	<50	1,100	98
HMW9IB-13 002468-20	<50	<250	90
HMW9IB-15 002468-21	<50	<250	98
HMW9IB-20 002468-22	<50	<250	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 56-165)
HMW9IB-25 002468-23	<50	<250	89
DMW-5IA-5 002468-25	<50	<250	88
DMW-5IA-10 002468-26	<50	<250	89
DMW-5IA-15 002468-27	<50	<250	91
DMW-5IA-20 002468-28	<50	<250	89
DMW-5IA-25 002468-29	<50	<250	89
Method Blank 00-516 MB	<50	<250	89
Method Blank 00-520 MB	<50	<250	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
Date Received: 02/28/20  
Project: MMB, F&BI 002468  
Date Extracted: 03/02/20  
Date Analyzed: 03/02/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 47-140)
MBB-9-GW 002468-30	220 x	290 x	119
Method Blank 00-518 MB	<50	<250	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW5IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-01
Date Analyzed:	03/04/20	Data File:	002468-01.128
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.55
Cadmium	<1
Chromium	12.2
Lead	1.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW5IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-02
Date Analyzed:	03/04/20	Data File:	002468-02.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.31
Cadmium	<1
Chromium	16.0
Lead	1.18
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW5IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-03
Date Analyzed:	03/04/20	Data File:	002468-03.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.26
Cadmium	<1
Chromium	16.9
Lead	1.06
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW5IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-04
Date Analyzed:	03/04/20	Data File:	002468-04.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.03
Cadmium	<1
Chromium	12.5
Lead	1.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW5IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-05
Date Analyzed:	03/04/20	Data File:	002468-05.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	11.3
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-08
Date Analyzed:	03/04/20	Data File:	002468-08.141
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	15.3
Cadmium	<1
Chromium	22.4
Lead	17.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-09
Date Analyzed:	03/04/20	Data File:	002468-09.142
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.8
Cadmium	<1
Chromium	18.4
Lead	25.2
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-10
Date Analyzed:	03/04/20	Data File:	002468-10.145
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	19.9
Cadmium	<1
Chromium	18.3
Lead	18.2
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-11
Date Analyzed:	03/04/20	Data File:	002468-11.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	25.6
Cadmium	<1
Chromium	19.1
Lead	18.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-12
Date Analyzed:	03/04/20	Data File:	002468-12.147
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.13
Cadmium	<1
Chromium	18.9
Lead	6.75
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW7IB-25a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-13
Date Analyzed:	03/04/20	Data File:	002468-13.148
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.49
Cadmium	<1
Chromium	25.9
Lead	7.93
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-14
Date Analyzed:	03/04/20	Data File:	002468-14.149
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.07
Cadmium	<1
Chromium	15.0
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-15
Date Analyzed:	03/04/20	Data File:	002468-15.150
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.41
Cadmium	<1
Chromium	11.3
Lead	2.52
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-16
Date Analyzed:	03/04/20	Data File:	002468-16.151
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.62
Cadmium	<1
Chromium	16.9
Lead	14.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-17
Date Analyzed:	03/04/20	Data File:	002468-17.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.74
Cadmium	<1
Chromium	13.2
Lead	1.32
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-18
Date Analyzed:	03/04/20	Data File:	002468-18.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.23
Cadmium	<1
Chromium	13.1
Lead	1.20
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-19
Date Analyzed:	03/04/20	Data File:	002468-19.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.75
Cadmium	<1
Chromium	17.3
Lead	7.89
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IB-13	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-20
Date Analyzed:	03/04/20	Data File:	002468-20.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.64
Cadmium	<1
Chromium	10.9
Lead	1.90
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-21
Date Analyzed:	03/04/20	Data File:	002468-21.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	17.8
Cadmium	<1
Chromium	18.5
Lead	11.3
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	002468-22
Date Analyzed:	03/04/20	Data File:	002468-22.127
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.60
Cadmium	<1
Chromium	13.6
Lead	1.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW9IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-23
Date Analyzed:	03/05/20	Data File:	002468-23.194
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.26
Cadmium	<1
Chromium	14.5
Lead	1.39
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-25
Date Analyzed:	03/05/20	Data File:	002468-25.199
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.73
Cadmium	<1
Chromium	15.6
Lead	2.33
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-26
Date Analyzed:	03/06/20	Data File:	002468-26.200
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.00
Cadmium	<1
Chromium	20.7
Lead	2.56
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-27
Date Analyzed:	03/06/20	Data File:	002468-27.201
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.54
Cadmium	<1
Chromium	12.0
Lead	1.20
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-28
Date Analyzed:	03/06/20	Data File:	002468-28.202
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.76
Cadmium	<1
Chromium	19.2
Lead	1.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-29
Date Analyzed:	03/06/20	Data File:	002468-29.203
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.35
Cadmium	<1
Chromium	12.1
Lead	1.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	I0-128 mb
Date Analyzed:	03/04/20	Data File:	I0-128 mb.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	I0-130 mb2
Date Analyzed:	03/05/20	Data File:	I0-130 mb2.167
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-9-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-30
Date Analyzed:	03/05/20	Data File:	002468-30.134
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.59
Cadmium	<1
Chromium	12.0
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	I0-138 mb
Date Analyzed:	03/05/20	Data File:	I0-138 mb.082
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-9-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-30
Date Analyzed:	03/06/20	Data File:	002468-30.230
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.37
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	I0-139 mb
Date Analyzed:	03/06/20	Data File:	I0-139 mb.228
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW5IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-01
Date Analyzed:	03/05/20	Data File:	030527.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW5IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-02
Date Analyzed:	03/05/20	Data File:	030528.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	110	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW5IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-03
Date Analyzed:	03/05/20	Data File:	030529.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW5IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-04
Date Analyzed:	03/05/20	Data File:	030530.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW5IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-05
Date Analyzed:	03/05/20	Data File:	030531.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-08
Date Analyzed:	03/05/20	Data File:	030538.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	107	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-09
Date Analyzed:	03/05/20	Data File:	030539.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	109	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-10
Date Analyzed:	03/05/20	Data File:	030540.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-11
Date Analyzed:	03/09/20	Data File:	030929.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.024 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-12
Date Analyzed:	03/05/20	Data File:	030542.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW7IB-25a	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-13
Date Analyzed:	03/05/20	Data File:	030543.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-14
Date Analyzed:	03/05/20	Data File:	030544.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	90	50	150
4-Bromofluorobenzene	87	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-15
Date Analyzed:	03/05/20	Data File:	030545.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-16
Date Analyzed:	03/05/20	Data File:	030546.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-17
Date Analyzed:	03/05/20	Data File:	030547.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-18
Date Analyzed:	03/05/20	Data File:	030548.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-19
Date Analyzed:	03/09/20	Data File:	030930.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IB-13	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-20
Date Analyzed:	03/05/20	Data File:	030550.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-21
Date Analyzed:	03/09/20	Data File:	030931.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.032 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-22
Date Analyzed:	03/09/20	Data File:	030932.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW9IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-23
Date Analyzed:	03/05/20	Data File:	030553.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	107	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.032 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-5IA-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-25
Date Analyzed:	03/05/20	Data File:	030554.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-5IA-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-26
Date Analyzed:	03/05/20	Data File:	030555.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-5IA-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-27
Date Analyzed:	03/06/20	Data File:	030556.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-5IA-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-28
Date Analyzed:	03/06/20	Data File:	030557.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	112	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-5IA-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	002468-29
Date Analyzed:	03/06/20	Data File:	030558.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	111	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002468
Date Extracted:	03/05/20	Lab ID:	00-503 mb
Date Analyzed:	03/05/20	Data File:	030508.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002468
Date Extracted:	03/04/20	Lab ID:	00-501 mb
Date Analyzed:	03/04/20	Data File:	030413.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	114	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip blank 0228	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-24
Date Analyzed:	03/03/20	Data File:	030324.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-9-GW	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-30
Date Analyzed:	03/03/20	Data File:	030325.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	00-489 mb
Date Analyzed:	03/02/20	Data File:	030212.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW5IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-01 1/5
Date Analyzed:	03/02/20	Data File:	030225.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	163
Benzo(a)anthracene-d12	93	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW5IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-02 1/5
Date Analyzed:	03/02/20	Data File:	030226.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	93	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW5IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-03 1/5
Date Analyzed:	03/02/20	Data File:	030227.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	94	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW5IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-04 1/5
Date Analyzed:	03/02/20	Data File:	030228.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	79	31	163
Benzo(a)anthracene-d12	93	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW5IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-05 1/5
Date Analyzed:	03/03/20	Data File:	030229.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	74	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW7IB-5	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-08 1/25
Date Analyzed:	03/04/20	Data File:	030340.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89 d	31	163
Benzo(a)anthracene-d12	96 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	0.055
Fluorene	<0.05
Phenanthrene	0.31
Anthracene	0.050
Fluoranthene	0.26
Pyrene	0.30
Benz(a)anthracene	0.085
Chrysene	0.13
Benzo(a)pyrene	0.068
Benzo(b)fluoranthene	0.099
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW7IB-10	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-09 1/25
Date Analyzed:	03/04/20	Data File:	030339.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91 d	31	163
Benzo(a)anthracene-d12	100 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.079
Anthracene	<0.05
Fluoranthene	0.18
Pyrene	0.21
Benz(a)anthracene	0.060
Chrysene	0.088
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.072
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW7IB-15	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-10 1/25
Date Analyzed:	03/04/20	Data File:	030338.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88 d	31	163
Benzo(a)anthracene-d12	101 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.12
Anthracene	0.057
Fluoranthene	1.3
Pyrene	1.4
Benz(a)anthracene	0.76
Chrysene	0.75
Benzo(a)pyrene	0.29
Benzo(b)fluoranthene	0.59
Benzo(k)fluoranthene	0.17
Indeno(1,2,3-cd)pyrene	0.051
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW7IB-20	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-11 1/25
Date Analyzed:	03/04/20	Data File:	030337.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88 d	31	163
Benzo(a)anthracene-d12	100 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.065
Anthracene	<0.05
Fluoranthene	0.16
Pyrene	0.16
Benz(a)anthracene	0.052
Chrysene	0.085
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.074
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW7IB-25	Client:	Hart Crowser
Date Received:	02/28/20	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	002468-12 1/25
Date Analyzed:	03/04/20	Data File:	030334.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87 d	31	163
Benzo(a)anthracene-d12	92 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.18
Anthracene	0.13
Fluoranthene	0.26
Pyrene	0.24
Benz(a)anthracene	0.088
Chrysene	0.12
Benzo(a)pyrene	0.054
Benzo(b)fluoranthene	0.066
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 002468
Date Extracted:	03/02/20	Lab ID:	00-512 mb 1/5
Date Analyzed:	03/02/20	Data File:	030217.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 002413-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	108	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003014-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

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

Laboratory Code: 002468-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002445-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	55	91	91	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
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**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 002468-11 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	340	89	89	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	112	61-133	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002468-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.43	91	93	75-125	2
Cadmium	mg/kg (ppm)	10	<1	100	99	75-125	1
Chromium	mg/kg (ppm)	50	11.3	91	90	75-125	1
Lead	mg/kg (ppm)	50	1.02	97	94	75-125	3
Mercury	mg/kg (ppm)	5	<1	93	89	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120
Cadmium	mg/kg (ppm)	10	98	80-120
Chromium	mg/kg (ppm)	50	98	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	99	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002468-23 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.18	85	86	75-125	1
Cadmium	mg/kg (ppm)	10	<1	96	96	75-125	0
Chromium	mg/kg (ppm)	50	13.4	87	92	75-125	6
Lead	mg/kg (ppm)	50	1.29	98	99	75-125	1
Mercury	mg/kg (ppm)	5	<1	86	91	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	87	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	94	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	99	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002447-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.79	89	87	75-125	2
Cadmium	ug/L (ppb)	5	<1	94	94	75-125	0
Chromium	ug/L (ppb)	20	<1	91	92	75-125	1
Lead	ug/L (ppb)	10	<1	83	81	75-125	2
Mercury	ug/L (ppb)	5	<1	85	85	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 002445-36 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	3.11	97	94	75-125	3
Cadmium	ug/L (ppb)	5	<1	94	93	75-125	1
Chromium	ug/L (ppb)	20	<1	98	96	75-125	2
Lead	ug/L (ppb)	10	<1	87	84	75-125	4
Mercury	ug/L (ppb)	5	<1	89	87	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120
Cadmium	ug/L (ppb)	5	94	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	92	80-120
Mercury	ug/L (ppb)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003030-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	97	103	58-137	6
Vinyl chloride	mg/kg (ppm)	0.05	93	98	60-136	5
Chloroethane	mg/kg (ppm)	0.05	94	99	65-132	5
Trichlorofluoromethane	mg/kg (ppm)	0.05	91	98	66-133	7
1,1-Dichloroethene	mg/kg (ppm)	0.05	91	99	70-130	8
Methylene chloride	mg/kg (ppm)	0.05	94	105	52-150	11
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	96	104	70-130	8
1,1-Dichloroethane	mg/kg (ppm)	0.05	99	105	70-130	6
2,2-Dichloropropane	mg/kg (ppm)	0.05	95	95	70-130	0
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	102	107	70-130	5
Chloroform	mg/kg (ppm)	0.05	100	104	70-130	4
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	95	101	70-130	6
1,1-Dichloropropene	mg/kg (ppm)	0.05	90	93	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	94	99	70-130	5
Benzene	mg/kg (ppm)	0.05	96	97	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	91	90	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.05	103	99	70-130	4
Bromodichloromethane	mg/kg (ppm)	0.05	103	99	70-130	4
Toluene	mg/kg (ppm)	0.05	90	89	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	98	96	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.05	103	94	70-130	9
Tetrachloroethene	mg/kg (ppm)	0.05	87	85	70-130	2
Dibromochloromethane	mg/kg (ppm)	0.05	103	101	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	96	93	70-130	3
Ethylbenzene	mg/kg (ppm)	0.05	94	95	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	99	108	70-130	9
m,p-Xylene	mg/kg (ppm)	0.1	97	96	70-130	1
o-Xylene	mg/kg (ppm)	0.05	98	102	70-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	94	90	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	91	90	70-130	1
2-Chlorotoluene	mg/kg (ppm)	0.05	95	88	70-130	8
4-Chlorotoluene	mg/kg (ppm)	0.05	97	88	70-130	10
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	97	89	70-130	9
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	101	94	70-130	7
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	101	93	70-130	8
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	96	70-130	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	83	87	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	96	86	70-130	11
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	104	96	65-131	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

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Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003061-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	94	100	58-137	6
Vinyl chloride	mg/kg (ppm)	0.05	90	94	60-136	4
Chloroethane	mg/kg (ppm)	0.05	93	99	65-132	6
Trichlorofluoromethane	mg/kg (ppm)	0.05	92	96	66-133	4
1,1-Dichloroethene	mg/kg (ppm)	0.05	95	96	70-130	1
Methylene chloride	mg/kg (ppm)	0.05	95	98	52-150	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	99	101	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	100	103	70-130	3
2,2-Dichloropropane	mg/kg (ppm)	0.05	96	105	70-130	9
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	100	103	70-130	3
Chloroform	mg/kg (ppm)	0.05	100	102	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	98	100	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	93	95	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.05	96	99	70-130	3
Benzene	mg/kg (ppm)	0.05	98	99	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	94	92	70-130	2
1,2-Dichloropropane	mg/kg (ppm)	0.05	101	101	70-130	0
Bromodichloromethane	mg/kg (ppm)	0.05	101	99	70-130	2
Toluene	mg/kg (ppm)	0.05	97	94	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	98	96	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.05	99	95	70-130	4
Tetrachloroethene	mg/kg (ppm)	0.05	93	90	70-130	3
Dibromochloromethane	mg/kg (ppm)	0.05	102	102	70-130	0
Chlorobenzene	mg/kg (ppm)	0.05	98	96	70-130	2
Ethylbenzene	mg/kg (ppm)	0.05	100	95	70-130	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	108	106	70-130	2
m,p-Xylene	mg/kg (ppm)	0.1	102	98	70-130	4
o-Xylene	mg/kg (ppm)	0.05	104	101	70-130	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	91	92	70-130	1
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	90	89	70-130	1
2-Chlorotoluene	mg/kg (ppm)	0.05	97	95	70-130	2
4-Chlorotoluene	mg/kg (ppm)	0.05	99	95	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	99	96	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	101	98	70-130	3
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	102	97	70-130	5
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	98	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	83	87	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	93	95	70-130	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	98	103	65-131	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

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

Laboratory Code: 002464-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	74	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	79	36-166
Chloroethane	ug/L (ppb)	50	<1	85	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	90	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	89	60-136
Methylene chloride	ug/L (ppb)	50	<5	87	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	90	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	89	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	97	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	71-127
Chloroform	ug/L (ppb)	50	<1	92	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	94	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	89	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	101	56-152
Benzene	ug/L (ppb)	50	<0.35	87	76-125
Trichloroethene	ug/L (ppb)	50	<1	86	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	91	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Toluene	ug/L (ppb)	50	2.0	97	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
Chlorobenzene	ug/L (ppb)	50	<1	96	77-122
Ethylbenzene	ug/L (ppb)	50	<1	98	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	112	73-137
m,p-Xylene	ug/L (ppb)	100	2.2	99	69-135
o-Xylene	ug/L (ppb)	50	1.3	99	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	99	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	99	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	1.9	101	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	95	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	98	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20

Date Received: 02/28/20

Project: MMB, F&BI 002468

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	89	83	45-156	7
Vinyl chloride	ug/L (ppb)	50	92	84	50-154	9
Chloroethane	ug/L (ppb)	50	90	86	58-146	5
Trichlorofluoromethane	ug/L (ppb)	250	94	91	50-150	3
1,1-Dichloroethene	ug/L (ppb)	50	93	91	67-136	2
Methylene chloride	ug/L (ppb)	50	89	90	39-148	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	88	89	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	90	90	79-121	0
2,2-Dichloropropane	ug/L (ppb)	50	98	96	55-143	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	92	94	80-123	2
Chloroform	ug/L (ppb)	50	93	93	80-121	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	81-125	1
1,1-Dichloropropene	ug/L (ppb)	50	92	93	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	103	105	75-158	2
Benzene	ug/L (ppb)	50	90	91	69-134	1
Trichloroethene	ug/L (ppb)	50	89	90	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	96	98	77-123	2
Bromodichloromethane	ug/L (ppb)	50	105	106	81-133	1
Toluene	ug/L (ppb)	50	98	101	72-122	3
1,1,2-Trichloroethane	ug/L (ppb)	50	108	110	75-124	2
1,3-Dichloropropane	ug/L (ppb)	50	104	107	76-126	3
Tetrachloroethene	ug/L (ppb)	50	98	100	76-121	2
Dibromochloromethane	ug/L (ppb)	50	120	121	84-133	1
Chlorobenzene	ug/L (ppb)	50	99	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	100	102	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	115	114	84-127	1
m,p-Xylene	ug/L (ppb)	100	100	102	81-112	2
o-Xylene	ug/L (ppb)	50	100	99	81-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	109	112	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	103	107	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	101	105	77-127	4
4-Chlorotoluene	ug/L (ppb)	50	102	106	78-128	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	106	79-122	1
1,3-Dichlorobenzene	ug/L (ppb)	50	100	101	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	100	83-107	2
1,2-Dichlorobenzene	ug/L (ppb)	50	98	98	84-112	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	116	112	57-141	4
Hexachlorobutadiene	ug/L (ppb)	50	101	96	53-141	5
1,2,3-Trichlorobenzene	ug/L (ppb)	50	100	96	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/11/20  
 Date Received: 02/28/20  
 Project: MMB, F&BI 002468

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
 SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 002417-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	77	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	81	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	90	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	83	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	85	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.023	96	16-160
Pyrene	mg/kg (ppm)	0.17	0.021	94	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	0.011	92	23-144
Chrysene	mg/kg (ppm)	0.17	0.014	85	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.014	83	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	76	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.0097	89	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	75	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	72	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	63	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	85	84	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	93	90	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	90	89	54-123	1
Fluorene	mg/kg (ppm)	0.17	101	95	56-127	6
Phenanthrene	mg/kg (ppm)	0.17	90	92	55-122	2
Anthracene	mg/kg (ppm)	0.17	87	87	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	92	90	54-129	2
Pyrene	mg/kg (ppm)	0.17	97	96	53-127	1
Benz(a)anthracene	mg/kg (ppm)	0.17	93	90	51-115	3
Chrysene	mg/kg (ppm)	0.17	96	93	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	82	80	56-123	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	83	85	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	78	79	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	73	84	49-148	14
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	72	82	50-141	13
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	70	79	52-131	12

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

002468  
**Sample Custody Record**

Samples Shipped to: \_\_\_\_\_

**HART CROWSER**

ME 02/28/20 1 of 3  
 RTY/VSS/AI3/vwl  
 Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB 1942924 LAB NUMBER \_\_\_\_\_  
 PROJECT NAME WHP  
 HART CROWSER CONTACT H. Goodhuan  
B. Dzejav  
 SAMPLED BY: B. Dzejav

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/COMPOSITING INSTRUCTIONS
01	A-HWUSTIB-5	258/20	0905	soil	X	NWT PH-GK NWT PH-DO HOCs + BTEX MCA 5 Metals PAHs	5	Hold for analysis Hold for analysis
02	HWUSTIB-10		0915		X			
03	HWUSTIB-15		0920		X			
04	HWUSTIB-20		0925		X			
05	HWUSTIB-25		0930		X			
06	HWUSTIB-30		0935		X			
07	HWUSTIB-35		0955		X			
08	HWUSTIB-5		1355		X			
09	HWUSTIB-10		1400		X			
10	HWUSTIB-15		1405		X			
11	HWUSTIB-20		1415		X			
12	HWUSTIB-25		1420		X			
RELINQUISHED BY <u>[Signature]</u>		DATE <u>2/26/20</u>	RECEIVED BY <u>[Signature]</u>	DATE <u>2/28/20</u>	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:			
PRINT NAME <u>[Signature]</u>	TIME <u>1840</u>	PRINT NAME <u>[Signature]</u>	TIME <u>1840</u>	COOLER NO.:				STORAGE LOCATION:
SIGNATURE		DATE	RECEIVED BY		DATE	SEE Lab Work Order No. _____ for Other Contract Requirements		
PRINT NAME		TIME	PRINT NAME		TIME	TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____		
COMPANY			COMPANY			TOTAL NUMBER OF CONTAINERS <u>60</u>		
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/> DYES <input type="checkbox"/> DYES <input type="checkbox"/> DYES GOOD CONDITION: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO TEMPERATURE: _____ SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT		
SIGNATURE		DATE	RECEIVED BY		DATE	Samples received at <u>3</u> °C		
PRINT NAME		TIME	PRINT NAME		TIME	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS		
COMPANY			COMPANY					

White to Lab      Yellow to Project Manager      Pink to Sample Custodian

002468  
**Sample Custody Record**

Samples Shipped to: \_\_\_\_\_

**HART CROWSER**  
 ME 09/28/20  
 253  
 ASU/ISS/HB3/vw1

Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB <u>1940904</u>		LAB NUMBER _____						
PROJECT NAME <u>MMB</u>		HART CROWSER CONTACT <u>M. Goodman + B. Dzierz</u>						
SAMPLED BY: <u>B. Dzierz + A. Nekrasova</u>								
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/COMPOSTING INSTRUCTIONS
13A	HMWD9TDB-25a		01/28/20	1421	soil	<input checked="" type="checkbox"/> NUTPH-6x <input checked="" type="checkbox"/> NUTPH-Dx <input checked="" type="checkbox"/> HVCs+BTEX <input checked="" type="checkbox"/> MTCA5 Metals <input checked="" type="checkbox"/> PATHS	5	5 PATHS on hold per MC 3/2/2006
14	HMWD9TDB-5			0925				
15	HMWD9TDB-10			0935				
16	HMWD9TDB-15			0945				
17	HMWD9TDB-20			1000				
18	HMWD9TDB-25			1005				
19	HMWD9TDB-5			1210				
20	HMWD9TDB-13			1240				
21	HMWD9TDB-15			1245				
22	HMWD9TDB-20			1250				
23	HMWD9TDB-25			1255				
24 A-B	HMWD9TDB-25							Samples received at 3 °C
RELINQUISHED BY <u>[Signature]</u>		DATE	RECEIVED BY <u>[Signature]</u>		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:		
SIGNATURE		DATE	SIGNATURE		DATE	COOLER NO.: _____ STORAGE LOCATION: _____		
PRINT NAME		DATE	PRINT NAME		DATE	See Lab Work Order No. _____ for Other Contract Requirements		
COMPANY		DATE	COMPANY		DATE	TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS <input type="checkbox"/> OTHER _____		
RELINQUISHED BY		DATE	RECEIVED BY		DATE	TOTAL NUMBER OF CONTAINERS		
SIGNATURE		DATE	SIGNATURE		DATE	SAMPLE RECEIPT INFORMATION		
PRINT NAME		DATE	PRINT NAME		DATE	CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/> GOOD CONDITION <input type="checkbox"/> YES <input type="checkbox"/> NO		
COMPANY		DATE	COMPANY		DATE	TEMPERATURE SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> OVERNIGHT <input type="checkbox"/> COURIER		

White to Lab      Yellow to Project Manager      Pink to Sample Custodian

# Sample Custody Record

002468

Samples Shipped to:



ME 02/28/20 308-3  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB 19409-04 LAB NUMBER \_\_\_\_\_

PROJECT NAME 1001/015 Dexter / MMB

HART CROWSER CONTACT M. Goodwin + B. Dexter

SAMPLED BY: Conne McNamee & J. Blomquist

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS								NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS	
						NWTPH-Gx	NWTPH-Dx	HMACs + BTEX 8260	MTCS Metals							
25A-E	DMW-52A-5		2/28/20	10:11	SOIL	X	X	X	X						5	
26	DMW-52A-10			10:33		X	X	X	X						1	
27	DMW-52A-15			10:44		X	X	X	X						1	
28	DMW-52A-20			11:02		X	X	X	X						1	
29	DMW-52A-25			11:13		X	X	X	X						1	
30	A-G MBB-Q-GW			12:28	water	X	X	X	X						7	turbidity ~ 100 NTU Total Dissolved Solids ~ 500 mg/L
REQUISITIONED BY: <u>[Signature]</u> DATE: <u>2/28/20</u>						RECEIVED BY: <u>FRANK TASSER</u> DATE: <u>2/28/20</u>						SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:				
PRINT NAME: <u>FRANK TASSER</u> TIME: <u>1647</u>						PRINT NAME: <u>[Signature]</u> TIME: <u>1840</u>						COOLER NO.:				
COMPANY: _____						COMPANY: _____						STORAGE LOCATION:				
SIGNATURE: _____						SIGNATURE: _____						TURNAROUND TIME:				
PRINT NAME: _____						PRINT NAME: _____						<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____				

Samples received at 3 °C

TOTAL NUMBER OF CONTAINERS: 32

SAMPLE RECEIPT INFORMATION

YES     NO     N/A  
 CUSTODY SEALS:

YES     NO  
 GOOD CONDITION:

YES     NO  
 TEMPERATURE:

HAND     OVERNIGHT  
 SHIPMENT METHOD:

COURIER  
 TURNAROUND TIME:

24 HOURS     1 WEEK  
 48 HOURS     STANDARD  
 72 HOURS    OTHER \_\_\_\_\_

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 12, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 3, 2020 from the MMB, F&BI 003022 project. There are 111 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Hart Crowser A/P (HCR), Becca Dozier  
HCR0312R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 3, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 003022 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003022 -01	HMW-9S-5
003022 -02	HMW-9S-14
003022 -03	HMW-9S-17
003022 -04	HMW-9S-20
003022 -05	HMW-9S-25
003022 -06	HMW-6D-5
003022 -07	HMW-6D-10
003022 -08	HMW-6D-15
003022 -09	HMW-6D-25
003022 -10	HMW-6D-30
003022 -11	HMW-6D-30-Dup
003022 -12	HMW-6IA-5
003022 -13	HMW-6IA-10
003022 -14	HMW-6IA-15
003022 -15	HMW-6IA-20
003022 -16	HMW-6IA-30
003022 -17	HMW-8IB-5
003022 -18	HMW-8IB-10
003022 -19	HMW-8IB-15
003022 -20	HMW-8IB-20
003022 -21	HMW-8IB-25
003022 -22	HMW-8IB-25a
003022 -23	MBB-5-5
003022 -24	MBB-5-10
003022 -25	MBB-5-15
003022 -26	MBB-5-20
003022 -27	MBB-5-25
003022 -28	DMW-2S-05
003022 -29	DMW-2S-10
003022 -30	DMW-2S-15
003022 -31	DMW-2S-20
003022 -32	DMW-2S-25
003022 -33	Tripblank0302

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

Methylene chloride was detected in the 8260D analysis of samples HMW-6D-25, HMW-8IB-5, HMW-8IB-15, HMW-8IB-25, MBB-5-25, and DMW-2S-05. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022  
Date Extracted: 03/04/20  
Date Analyzed: 03/05/20 and 03/06/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW-9S-5 003022-01	<5	95
HMW-9S-14 003022-02	<5	95
HMW-9S-17 003022-03	<5	97
HMW-9S-20 003022-04	<5	97
HMW-9S-25 003022-05	<5	98
HMW-6D-5 003022-06	<5	96
HMW-6D-10 003022-07	<5	96
HMW-6D-15 003022-08	<5	95
HMW-6D-25 003022-09	<5	98
HMW-6D-30 003022-10	<5	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022  
Date Extracted: 03/04/20  
Date Analyzed: 03/05/20 and 03/06/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW-6D-30-Dup 003022-11	<5	97
HMW-6IA-5 003022-12	<5	98
HMW-6IA-10 003022-13	<5	100
HMW-6IA-15 003022-14	<5	97
HMW-6IA-20 003022-15	<5	98
HMW-6IA-30 003022-16	<5	98
HMW-8IB-5 003022-17	<5	100
HMW-8IB-10 003022-18	<5	100
HMW-8IB-15 003022-19	<5	101
HMW-8IB-20 003022-20	<5	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022  
Date Extracted: 03/04/20  
Date Analyzed: 03/05/20 and 03/06/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HMW-8IB-25 003022-21	<5	93
HMW-8IB-25a 003022-22	<5	92
MBB-5-5 003022-23	<5	94
MBB-5-10 003022-24	<5	93
MBB-5-15 003022-25	<5	93
MBB-5-20 003022-26	<5	94
MBB-5-25 003022-27	<5	94
DMW-2S-05 003022-28	<5	94
DMW-2S-10 003022-29 1/5	83	103
DMW-2S-15 003022-30	<5	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022  
Date Extracted: 03/04/20  
Date Analyzed: 03/05/20 and 03/06/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
DMW-2S-20 003022-31	<5	94
DMW-2S-25 003022-32	<5	96
Method Blank 00-398 MB	<5	97
Method Blank 00-399 MB	<5	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/03/20  
 Project: MMB, F&BI 003022  
 Date Extracted: 03/03/20  
 Date Analyzed: 03/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
 Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-9S-5 003022-01	<50	<250	89
HMW-9S-14 003022-02	<50	<250	88
HMW-9S-17 003022-03	<50	<250	88
HMW-9S-20 003022-04	<50	<250	87
HMW-9S-25 003022-05	<50	<250	87
HMW-6D-5 003022-06	<50	500	87
HMW-6D-10 003022-07	<50	440	88
HMW-6D-15 003022-08	<50	470	89
HMW-6D-25 003022-09	<50	490	90
HMW-6D-30 003022-10	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/03/20  
 Project: MMB, F&BI 003022  
 Date Extracted: 03/03/20  
 Date Analyzed: 03/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
 Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-6D-30-Dup 003022-11	<50	<250	88
HMW-6IA-5 003022-12	<50	<250	90
HMW-6IA-10 003022-13	67 x	670	89
HMW-6IA-15 003022-14	61 x	600	88
HMW-6IA-20 003022-15	<50	450	88
HMW-6IA-30 003022-16	<50	<250	89
HMW-8IB-5 003022-17	68 x	520	89
HMW-8IB-10 003022-18	<50	480	88
HMW-8IB-15 003022-19	58 x	590	89
HMW-8IB-20 003022-20	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/03/20  
 Project: MMB, F&BI 003022  
 Date Extracted: 03/03/20  
 Date Analyzed: 03/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-8IB-25 003022-21	<50	<250	89
HMW-8IB-25a 003022-22	<50	<250	88
MBB-5-5 003022-23	<50	<250	89
MBB-5-10 003022-24	<50	<250	89
MBB-5-15 003022-25	<50	<250	88
MBB-5-20 003022-26	<50	<250	88
MBB-5-25 003022-27	<50	<250	89
DMW-2S-05 003022-28	<50	<250	88
DMW-2S-10 003022-29	<50	<250	89
DMW-2S-15 003022-30	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022  
Date Extracted: 03/03/20  
Date Analyzed: 03/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
DMW-2S-20 003022-31	<50	<250	89
DMW-2S-25 003022-32	<50	<250	89
Method Blank 00-527 MB	<50	<250	87
Method Blank 00-528 MB	<50	<250	89
Method Blank 00-521 MB	<50	<250	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-01
Date Analyzed:	03/06/20	Data File:	003022-01.204
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.64
Cadmium	<1
Chromium	15.8
Lead	5.91
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S-14	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-02
Date Analyzed:	03/06/20	Data File:	003022-02.205
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	14.5
Cadmium	<1
Chromium	19.2
Lead	14.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S-17	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-03
Date Analyzed:	03/06/20	Data File:	003022-03.206
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	17.7
Cadmium	<1
Chromium	14.3
Lead	17.3
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-04
Date Analyzed:	03/06/20	Data File:	003022-04.207
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.30
Cadmium	<1
Chromium	11.3
Lead	1.17
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-05
Date Analyzed:	03/06/20	Data File:	003022-05.208
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.36
Cadmium	<1
Chromium	13.9
Lead	1.52
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-06
Date Analyzed:	03/06/20	Data File:	003022-06.211
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	16.4
Cadmium	<1
Chromium	17.8
Lead	21.8
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-07
Date Analyzed:	03/06/20	Data File:	003022-07.212
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	21.8
Cadmium	<1
Chromium	20.2
Lead	23.6
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-08
Date Analyzed:	03/06/20	Data File:	003022-08.213
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	24.4
Cadmium	<1
Chromium	21.3
Lead	21.3
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-09
Date Analyzed:	03/06/20	Data File:	003022-09.214
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	18.0
Cadmium	<1
Chromium	26.4
Lead	16.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-10
Date Analyzed:	03/06/20	Data File:	003022-10.215
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.61
Cadmium	<1
Chromium	14.4
Lead	1.69
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D-30-Dup	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-11
Date Analyzed:	03/06/20	Data File:	003022-11.216
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.42
Cadmium	<1
Chromium	10.8
Lead	1.44
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IA-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-12
Date Analyzed:	03/06/20	Data File:	003022-12.217
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	15.6
Cadmium	<1
Chromium	18.1
Lead	20.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-61A-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-13
Date Analyzed:	03/06/20	Data File:	003022-13.218
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.6
Cadmium	<1
Chromium	19.2
Lead	16.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-61A-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-14
Date Analyzed:	03/06/20	Data File:	003022-14.219
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	18.6
Cadmium	<1
Chromium	16.0
Lead	20.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-61A-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-15
Date Analyzed:	03/06/20	Data File:	003022-15.045
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	18.3
Cadmium	<1
Chromium	30.2
Lead	13.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-61A-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-16
Date Analyzed:	03/06/20	Data File:	003022-16.048
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.10
Cadmium	<1
Chromium	19.9
Lead	4.88
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-17
Date Analyzed:	03/06/20	Data File:	003022-17.051
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	21.4
Cadmium	<1
Chromium	20.8
Lead	24.8
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-18
Date Analyzed:	03/06/20	Data File:	003022-18.052
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	19.5
Cadmium	<1
Chromium	18.3
Lead	19.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-19
Date Analyzed:	03/06/20	Data File:	003022-19.053
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	17.1
Cadmium	<1
Chromium	19.3
Lead	19.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-20
Date Analyzed:	03/06/20	Data File:	003022-20.054
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.86
Cadmium	<1
Chromium	14.9
Lead	5.00
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-21
Date Analyzed:	03/06/20	Data File:	003022-21.055
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.12
Cadmium	<1
Chromium	15.1
Lead	1.38
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB-25a	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-22
Date Analyzed:	03/06/20	Data File:	003022-22.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.06
Cadmium	<1
Chromium	17.9
Lead	1.49
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-23
Date Analyzed:	03/06/20	Data File:	003022-23.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	23.2
Cadmium	<1
Chromium	20.1
Lead	17.6
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-24
Date Analyzed:	03/06/20	Data File:	003022-24.058
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.56
Cadmium	<1
Chromium	17.7
Lead	531 ve
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-24 x5
Date Analyzed:	03/09/20	Data File:	003022-24 x5.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	591
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-25
Date Analyzed:	03/06/20	Data File:	003022-25.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.81
Cadmium	<1
Chromium	14.8
Lead	1.57
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-26
Date Analyzed:	03/06/20	Data File:	003022-26.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.34
Cadmium	<1
Chromium	12.6
Lead	1.24
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-27
Date Analyzed:	03/06/20	Data File:	003022-27.064
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.51
Cadmium	<1
Chromium	15.2
Lead	1.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-2S-05	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-28
Date Analyzed:	03/06/20	Data File:	003022-28.065
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.41
Cadmium	<1
Chromium	20.2
Lead	2.19
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-2S-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-29
Date Analyzed:	03/06/20	Data File:	003022-29.066
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.22
Cadmium	<1
Chromium	15.0
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-2S-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-30
Date Analyzed:	03/06/20	Data File:	003022-30.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.44
Cadmium	<1
Chromium	17.8
Lead	1.91
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-2S-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-31
Date Analyzed:	03/06/20	Data File:	003022-31.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.46
Cadmium	<1
Chromium	17.3
Lead	1.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-2S-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	003022-32
Date Analyzed:	03/06/20	Data File:	003022-32.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.20
Cadmium	<1
Chromium	14.5
Lead	1.19
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	I0-130 mb2
Date Analyzed:	03/05/20	Data File:	I0-130 mb2.167
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003022
Date Extracted:	03/05/20	Lab ID:	I0-131 mb2
Date Analyzed:	03/06/20	Data File:	I0-131 mb2.042
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9S-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-01
Date Analyzed:	03/06/20	Data File:	030613.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9S-14	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-02
Date Analyzed:	03/06/20	Data File:	030628.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9S-17	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-03
Date Analyzed:	03/06/20	Data File:	030616.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9S-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-04
Date Analyzed:	03/06/20	Data File:	030617.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-9S-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-05
Date Analyzed:	03/06/20	Data File:	030618.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-06
Date Analyzed:	03/06/20	Data File:	030619.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	110	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-07
Date Analyzed:	03/06/20	Data File:	030620.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-08
Date Analyzed:	03/06/20	Data File:	030621.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	108	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-09
Date Analyzed:	03/06/20	Data File:	030639.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.028 lc j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-10
Date Analyzed:	03/06/20	Data File:	030624.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6D-30-Dup	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-11
Date Analyzed:	03/06/20	Data File:	030625.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IA-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-12
Date Analyzed:	03/06/20	Data File:	030626.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	112	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IA-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-13
Date Analyzed:	03/06/20	Data File:	030627.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	108	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-61A-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-14
Date Analyzed:	03/06/20	Data File:	030615.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-61A-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-15
Date Analyzed:	03/06/20	Data File:	030637.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-61A-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-16
Date Analyzed:	03/06/20	Data File:	030638.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	111	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-17
Date Analyzed:	03/09/20	Data File:	030925.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.024 lc j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-18
Date Analyzed:	03/06/20	Data File:	030640.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-19
Date Analyzed:	03/06/20	Data File:	030641.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	117	50	150
4-Bromofluorobenzene	79	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.037 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-20
Date Analyzed:	03/06/20	Data File:	030642.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	89	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-21
Date Analyzed:	03/06/20	Data File:	030643.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	114	50	150
4-Bromofluorobenzene	117	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.024 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-8IB-25a	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-22
Date Analyzed:	03/06/20	Data File:	030644.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-5-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-23
Date Analyzed:	03/06/20	Data File:	030645.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-5-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-24
Date Analyzed:	03/06/20	Data File:	030646.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-5-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-25
Date Analyzed:	03/06/20	Data File:	030647.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	80	50	150
Toluene-d8	116	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-5-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-26
Date Analyzed:	03/06/20	Data File:	030648.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	75	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-5-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-27
Date Analyzed:	03/09/20	Data File:	030926.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.021 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-2S-05	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-28
Date Analyzed:	03/09/20	Data File:	030927.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.029 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-2S-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-29
Date Analyzed:	03/06/20	Data File:	030622.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	50	150
Toluene-d8	487 ip	50	150
4-Bromofluorobenzene	358 ip	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.31 ve
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-2S-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-30
Date Analyzed:	03/09/20	Data File:	030928.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-2S-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-31
Date Analyzed:	03/09/20	Data File:	030911.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	92	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DMW-2S-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	003022-32
Date Analyzed:	03/09/20	Data File:	030912.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	00-562 mb
Date Analyzed:	03/06/20	Data File:	030610.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003022
Date Extracted:	03/06/20	Lab ID:	00-580 mb
Date Analyzed:	03/06/20	Data File:	030609.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0302	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/04/20	Lab ID:	003022-33
Date Analyzed:	03/06/20	Data File:	030619.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	00-496 mb
Date Analyzed:	03/04/20	Data File:	030409.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-06 1/25
Date Analyzed:	03/05/20	Data File:	030431.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92 d	31	163
Benzo(a)anthracene-d12	101 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.099
Anthracene	<0.05
Fluoranthene	0.21
Pyrene	0.24
Benz(a)anthracene	0.085
Chrysene	0.13
Benzo(a)pyrene	0.076
Benzo(b)fluoranthene	0.11
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-07 1/25
Date Analyzed:	03/05/20	Data File:	030428.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93 d	31	163
Benzo(a)anthracene-d12	96 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.30
Anthracene	<0.05
Fluoranthene	0.24
Pyrene	0.27
Benz(a)anthracene	0.083
Chrysene	0.11
Benzo(a)pyrene	0.064
Benzo(b)fluoranthene	0.088
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-08 1/25
Date Analyzed:	03/05/20	Data File:	030429.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92 d	31	163
Benzo(a)anthracene-d12	94 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.14
Anthracene	<0.05
Fluoranthene	0.18
Pyrene	0.21
Benz(a)anthracene	0.066
Chrysene	0.092
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.066
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-09 1/25
Date Analyzed:	03/05/20	Data File:	030430.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97 d	31	163
Benzo(a)anthracene-d12	102 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.23
Anthracene	0.077
Fluoranthene	0.29
Pyrene	0.29
Benz(a)anthracene	0.071
Chrysene	0.10
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.080
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-10 1/5
Date Analyzed:	03/04/20	Data File:	030423.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	71	31	163
Benzo(a)anthracene-d12	92	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-12 1/25
Date Analyzed:	03/04/20	Data File:	030427.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88 d	31	163
Benzo(a)anthracene-d12	93 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.11
Anthracene	<0.05
Fluoranthene	0.14
Pyrene	0.15
Benz(a)anthracene	0.051
Chrysene	0.072
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.058
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-13 1/25
Date Analyzed:	03/04/20	Data File:	030426.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84 d	31	163
Benzo(a)anthracene-d12	94 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.23
Anthracene	<0.05
Fluoranthene	0.20
Pyrene	0.22
Benz(a)anthracene	0.082
Chrysene	0.10
Benzo(a)pyrene	0.060
Benzo(b)fluoranthene	0.086
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-14 1/25
Date Analyzed:	03/04/20	Data File:	030425.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95 d	31	163
Benzo(a)anthracene-d12	103 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.11
Anthracene	<0.05
Fluoranthene	0.27
Pyrene	0.28
Benz(a)anthracene	0.089
Chrysene	0.12
Benzo(a)pyrene	0.065
Benzo(b)fluoranthene	0.080
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-15 1/25
Date Analyzed:	03/04/20	Data File:	030424.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83 d	31	163
Benzo(a)anthracene-d12	83 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.11
Anthracene	<0.05
Fluoranthene	0.14
Pyrene	0.14
Benz(a)anthracene	<0.05
Chrysene	0.065
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA-30	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-16 1/5
Date Analyzed:	03/04/20	Data File:	030407.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	74	31	163
Benzo(a)anthracene-d12	91	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB-5	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-17 1/25
Date Analyzed:	03/05/20	Data File:	030435.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84 d	31	163
Benzo(a)anthracene-d12	92 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.32
Anthracene	<0.05
Fluoranthene	0.25
Pyrene	0.27
Benz(a)anthracene	0.086
Chrysene	0.12
Benzo(a)pyrene	0.066
Benzo(b)fluoranthene	0.094
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB-10	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-18 1/25
Date Analyzed:	03/05/20	Data File:	030432.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90 d	31	163
Benzo(a)anthracene-d12	100 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	0.050
Fluorene	<0.05
Phenanthrene	0.40
Anthracene	0.061
Fluoranthene	0.29
Pyrene	0.37
Benz(a)anthracene	0.11
Chrysene	0.14
Benzo(a)pyrene	0.085
Benzo(b)fluoranthene	0.11
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB-15	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-19 1/25
Date Analyzed:	03/05/20	Data File:	030433.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98 d	31	163
Benzo(a)anthracene-d12	99 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	0.058
Fluorene	<0.05
Phenanthrene	0.70
Anthracene	0.090
Fluoranthene	0.34
Pyrene	0.36
Benz(a)anthracene	0.093
Chrysene	0.12
Benzo(a)pyrene	0.063
Benzo(b)fluoranthene	0.090
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB-20	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-20 1/25
Date Analyzed:	03/05/20	Data File:	030434.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90 d	31	163
Benzo(a)anthracene-d12	98 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.055
Anthracene	<0.05
Fluoranthene	0.056
Pyrene	0.074
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB-25	Client:	Hart Crowser
Date Received:	03/03/20	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	003022-21 1/5
Date Analyzed:	03/04/20	Data File:	030408.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	75	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003022
Date Extracted:	03/03/20	Lab ID:	00-522 mb 1/5
Date Analyzed:	03/03/20	Data File:	030308.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	94	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003022-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

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

Laboratory Code: 003022-21 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

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

Laboratory Code: 003022-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	90	90	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/03/20  
Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003022-21 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	90	94	63-146	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003014-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	96	102	64-133	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/03/20  
 Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002468-23 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.18	85	86	75-125	1
Cadmium	mg/kg (ppm)	10	<1	96	96	75-125	0
Chromium	mg/kg (ppm)	50	13.4	87	92	75-125	6
Lead	mg/kg (ppm)	50	1.29	98	99	75-125	1
Mercury	mg/kg (ppm)	5	<1	86	91	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	87	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	94	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	99	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/03/20  
 Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003022-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	16.6	78	83	75-125	6
Cadmium	mg/kg (ppm)	10	<1	95	95	75-125	0
Chromium	mg/kg (ppm)	50	27.5	94	91	75-125	3
Lead	mg/kg (ppm)	50	12.2	95	93	75-125	2
Mercury	mg/kg (ppm)	5	<1	96	97	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	97	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	101	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003022-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	111	108	58-137	3
Vinyl chloride	mg/kg (ppm)	0.05	104	102	60-136	2
Chloroethane	mg/kg (ppm)	0.05	106	103	65-132	3
Trichlorofluoromethane	mg/kg (ppm)	0.05	103	100	66-133	3
1,1-Dichloroethene	mg/kg (ppm)	0.05	102	99	70-130	3
Methylene chloride	mg/kg (ppm)	0.05	98	96	52-150	2
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	103	101	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	102	102	70-130	0
2,2-Dichloropropane	mg/kg (ppm)	0.05	107	105	70-130	2
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	102	102	70-130	0
Chloroform	mg/kg (ppm)	0.05	100	101	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	103	101	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	92	95	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	102	99	70-130	3
Benzene	mg/kg (ppm)	0.05	100	99	70-130	1
Trichloroethene	mg/kg (ppm)	0.05	94	95	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.05	105	99	70-130	6
Bromodichloromethane	mg/kg (ppm)	0.05	103	101	70-130	2
Toluene	mg/kg (ppm)	0.05	97	96	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	101	95	70-130	6
1,3-Dichloropropane	mg/kg (ppm)	0.05	102	96	70-130	6
Tetrachloroethene	mg/kg (ppm)	0.05	95	93	70-130	2
Dibromochloromethane	mg/kg (ppm)	0.05	106	101	70-130	5
Chlorobenzene	mg/kg (ppm)	0.05	100	98	70-130	2
Ethylbenzene	mg/kg (ppm)	0.05	102	100	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	104	106	70-130	2
m,p-Xylene	mg/kg (ppm)	0.1	104	101	70-130	3
o-Xylene	mg/kg (ppm)	0.05	106	104	70-130	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	97	90	70-130	7
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	95	87	70-130	9
2-Chlorotoluene	mg/kg (ppm)	0.05	102	99	70-130	3
4-Chlorotoluene	mg/kg (ppm)	0.05	103	100	70-130	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	103	101	70-130	2
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	105	100	70-130	5
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	102	100	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	103	100	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	90	81	70-130	11
Hexachlorobutadiene	mg/kg (ppm)	0.05	103	98	70-130	5
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	105	101	65-131	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003022-11 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	110	115	58-137	4
Vinyl chloride	mg/kg (ppm)	0.05	105	110	60-136	5
Chloroethane	mg/kg (ppm)	0.05	110	113	65-132	3
Trichlorofluoromethane	mg/kg (ppm)	0.05	113	115	66-133	2
1,1-Dichloroethene	mg/kg (ppm)	0.05	109	109	70-130	0
Methylene chloride	mg/kg (ppm)	0.05	110	108	52-150	2
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	110	112	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	113	109	70-130	4
2,2-Dichloropropane	mg/kg (ppm)	0.05	113	121	70-130	7
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	113	110	70-130	3
Chloroform	mg/kg (ppm)	0.05	111	109	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	113	114	70-130	1
1,1-Dichloropropene	mg/kg (ppm)	0.05	97	94	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	112	112	70-130	0
Benzene	mg/kg (ppm)	0.05	101	99	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	93	88	70-130	6
1,2-Dichloropropane	mg/kg (ppm)	0.05	103	95	70-130	8
Bromodichloromethane	mg/kg (ppm)	0.05	102	97	70-130	5
Toluene	mg/kg (ppm)	0.05	95	96	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	98	98	70-130	0
1,3-Dichloropropane	mg/kg (ppm)	0.05	99	94	70-130	5
Tetrachloroethene	mg/kg (ppm)	0.05	89	88	70-130	1
Dibromochloromethane	mg/kg (ppm)	0.05	103	102	70-130	1
Chlorobenzene	mg/kg (ppm)	0.05	98	90	70-130	9
Ethylbenzene	mg/kg (ppm)	0.05	102	94	70-130	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	108	120	70-130	11
m,p-Xylene	mg/kg (ppm)	0.1	102	94	70-130	8
o-Xylene	mg/kg (ppm)	0.05	106	105	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	92	92	70-130	0
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	92	90	70-130	2
2-Chlorotoluene	mg/kg (ppm)	0.05	94	81	70-130	15
4-Chlorotoluene	mg/kg (ppm)	0.05	96	79	70-130	19
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	96	83	70-130	15
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	99	85	70-130	15
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	99	83	70-130	18
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	102	92	70-130	10
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	89	102	70-130	14
Hexachlorobutadiene	mg/kg (ppm)	0.05	94	75	70-130	22 vo
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	99	100	65-131	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

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

Laboratory Code: 003021-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	94	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	100	36-166
Chloroethane	ug/L (ppb)	50	<1	104	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	113	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	114	60-136
Methylene chloride	ug/L (ppb)	50	<5	131	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	108	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	104	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	116	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	112	71-127
Chloroform	ug/L (ppb)	50	<1	107	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	115	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	122	56-152
Benzene	ug/L (ppb)	50	<0.35	100	76-125
Trichloroethene	ug/L (ppb)	50	<1	98	66-135
1,2-Dichloropropane	ug/L (ppb)	50	7.2	105	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	113	61-150
Toluene	ug/L (ppb)	50	<1	102	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	106	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	100	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	101	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	116	70-139
Chlorobenzene	ug/L (ppb)	50	<1	101	77-122
Ethylbenzene	ug/L (ppb)	50	<1	104	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	124	73-137
m,p-Xylene	ug/L (ppb)	100	<2	105	69-135
o-Xylene	ug/L (ppb)	50	<1	108	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	1.1	101	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	108	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	104	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	113	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	104	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	120	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	116	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	115	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

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Project: MMB, F&BI 003022

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	90	88	45-156	2
Vinyl chloride	ug/L (ppb)	50	94	94	50-154	0
Chloroethane	ug/L (ppb)	50	95	94	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	106	104	50-150	2
1,1-Dichloroethene	ug/L (ppb)	50	108	97	67-136	11
Methylene chloride	ug/L (ppb)	50	103	101	39-148	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	99	98	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	100	99	79-121	1
2,2-Dichloropropane	ug/L (ppb)	50	103	102	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	105	102	80-123	3
Chloroform	ug/L (ppb)	50	103	102	80-121	1
1,1,1-Trichloroethane	ug/L (ppb)	50	105	104	81-125	1
1,1-Dichloropropene	ug/L (ppb)	50	101	101	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	113	111	75-158	2
Benzene	ug/L (ppb)	50	99	99	69-134	0
Trichloroethene	ug/L (ppb)	50	97	99	79-113	2
1,2-Dichloropropane	ug/L (ppb)	50	105	106	77-123	1
Bromodichloromethane	ug/L (ppb)	50	114	115	81-133	1
Toluene	ug/L (ppb)	50	101	101	72-122	0
1,1,2-Trichloroethane	ug/L (ppb)	50	112	113	75-124	1
1,3-Dichloropropane	ug/L (ppb)	50	106	107	76-126	1
Tetrachloroethene	ug/L (ppb)	50	100	100	76-121	0
Dibromochloromethane	ug/L (ppb)	50	119	120	84-133	1
Chlorobenzene	ug/L (ppb)	50	102	102	83-114	0
Ethylbenzene	ug/L (ppb)	50	102	103	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	118	116	84-127	2
m,p-Xylene	ug/L (ppb)	100	103	103	81-112	0
o-Xylene	ug/L (ppb)	50	103	102	81-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	110	109	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	104	104	67-124	0
2-Chlorotoluene	ug/L (ppb)	50	102	101	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	103	102	78-128	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	105	79-122	0
1,3-Dichlorobenzene	ug/L (ppb)	50	101	101	83-113	0
1,4-Dichlorobenzene	ug/L (ppb)	50	100	100	83-107	0
1,2-Dichlorobenzene	ug/L (ppb)	50	101	100	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	112	109	57-141	3
Hexachlorobutadiene	ug/L (ppb)	50	103	103	53-141	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	105	104	65-136	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/03/20

Project: MMB, F&BI 003022

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 003014-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	77	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	83	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	79	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	81	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	79	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	78	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	83	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	78	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	80	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	80	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	70	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	70	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	74	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	65	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	65	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	60	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	84	87	58-121	4
Acenaphthylene	mg/kg (ppm)	0.17	92	94	54-121	2
Acenaphthene	mg/kg (ppm)	0.17	88	89	54-123	1
Fluorene	mg/kg (ppm)	0.17	92	94	56-127	2
Phenanthrene	mg/kg (ppm)	0.17	89	91	55-122	2
Anthracene	mg/kg (ppm)	0.17	88	90	50-120	2
Fluoranthene	mg/kg (ppm)	0.17	96	97	54-129	1
Pyrene	mg/kg (ppm)	0.17	88	91	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	92	95	51-115	3
Chrysene	mg/kg (ppm)	0.17	94	96	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	78	82	56-123	5
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	79	84	54-131	6
Benzo(a)pyrene	mg/kg (ppm)	0.17	81	85	51-118	5
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	80	81	49-148	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	78	78	50-141	0
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	72	74	52-131	3

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003022

Samples Shipped to: F&B



**HART CROWSNER**  
 ME 03/03/20 1054  
 1011/US5/RT4  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581  
 Hart Crowsner, Inc.

JOB 1940904 LAB NUMBER \_\_\_\_\_  
 PROJECT NAME MMB  
 HART CROWSER CONTACT M. Goodman  
B. Dozier  
 SAMPLED BY: AN+BD+JB

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
01A-E	Hmw-qs-5		3/24/20	0825	Soil
02	Hmw-qs-14			0850	
03	Hmw-qs-17			0855	
04	Hmw-qs-20			0900	
05	Hmw-qs-25			0910	
06	Hmw-6D-5			0945	
07	Hmw-6D-10			0955	
08	Hmw-6D-15			1000	
09	Hmw-6D-25			1015	
10	Hmw-6D-30			1020	
11	Hmw-6D-30-Dup			1130	
12	Hmw-6D-5			1505	

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS
01A-E	Hmw-qs-5		3/24/20	0825	Soil	NWTPH-DK NWTPH-GK HVOCS+BTX-8260 MTCAs Metals PAHs
02	Hmw-qs-14			0850		
03	Hmw-qs-17			0855		
04	Hmw-qs-20			0900		
05	Hmw-qs-25			0910		
06	Hmw-6D-5			0945		
07	Hmw-6D-10			0955		
08	Hmw-6D-15			1000		
09	Hmw-6D-25			1015		
10	Hmw-6D-30			1020		
11	Hmw-6D-30-Dup			1130		
12	Hmw-6D-5			1505		

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

NO. OF CONTAINERS: \_\_\_\_\_

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

TURNAROUND TIME:  
 24 HOURS     1 WEEK  
 48 HOURS     STANDARD  
 72 HOURS    OTHER \_\_\_\_\_

SAMPLE RECEIPT INFORMATION  
 CUSTODY SEALS:  YES     NO     N/A  
 GOOD CONDITION:  YES     NO  
 TEMPERATURE: \_\_\_\_\_  
 SHIPMENT METHOD:  HAND     OVERNIGHT  
 COURIER

TOTAL NUMBER OF CONTAINERS: 50

See Lab Work Order No. \_\_\_\_\_  
for Other Contract Requirements

Samples received at 40C

White to Lab    Yellow to Project Manager    Pink to Sample Custodian



# Sample Custody Record 003022

Samples Shipped to: F&B



Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

**HART CROWSNER**

JOB 1940904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MMB

HART CROWSNER CONTACT M. Goodman

SAMPLED BY: B. Dozier

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
17A-E	HMUS8TPB-5		3/2/20	1015	SOIL
18	HMUS8TPB-10			1020	
19	HMUS8TPB-15			1030	
20	HMUS8TPB-20			1035	
21	HMUS8TPB-25			1040	
22	HMUS8TPB-25a			1041	
23	MBBS-5			1520	
24	MBBS-10			1525	
25	MBBS-15			1530	
26	MBBS-20			1540	
27	MBBS-25			1550	

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS
17A-E	HMUS8TPB-5		3/2/20	1015	SOIL	<input checked="" type="checkbox"/> NWTPH-Dx <input checked="" type="checkbox"/> NWTPH-Gx <input checked="" type="checkbox"/> HVOG+BTEX <input checked="" type="checkbox"/> MTCAS Metals <input checked="" type="checkbox"/> PAH
18	HMUS8TPB-10			1020		
19	HMUS8TPB-15			1030		
20	HMUS8TPB-20			1035		
21	HMUS8TPB-25			1040		
22	HMUS8TPB-25a			1041		
23	MBBS-5			1520		
24	MBBS-10			1525		
25	MBBS-15			1530		
26	MBBS-20			1540		
27	MBBS-25			1550		

RECEIVED BY: [Signature] DATE: 3/3/20 TIME: 10:10

RECEIVED BY: FBI DATE: 3/3/20 TIME: 10:10

RELINQUISHED BY: [Signature] DATE: 3/3/20 TIME: 10:10

SIGNATURE: \_\_\_\_\_ TIME: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_ COMPANY: \_\_\_\_\_

COMPANY: \_\_\_\_\_

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

See Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements

NO. OF CONTAINERS: \_\_\_\_\_

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

TOTAL NUMBER OF CONTAINERS: 5

SAMPLE RECEIPT INFORMATION:  
CUSTODY SEALS:  YES  NO  N/A  
GOOD CONDITION:  YES  NO  
TEMPERATURE: \_\_\_\_\_  
SHIPMENT METHOD:  HAND  COURIER  OVERNIGHT

TURNAROUND TIME:  
 24 HOURS  1 WEEK  
 48 HOURS  STANDARD  
 72 HOURS  OTHER \_\_\_\_\_

Samples received at 4°C

White to Lab Yellow to Project Manager Pink to Sample Custodian



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 12, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 4, 2020 from the 1940904, F&BI 003038 project. There are 93 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Hart Crowser A/P (HCR), Becca Dozier  
HCR0312R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 4, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003038 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003038 -01	HMW-6IB-5
003038 -02	HMW-6IB-10
003038 -03	HMW-6IB-10a
003038 -04	HMW-6IB-15
003038 -05	HMW-6IB-20
003038 -06	HMW-6IB-25
003038 -07	MBB-14-5
003038 -08	MBB-14-10
003038 -09	MBB-14-15
003038 -10	MBB-14-20
003038 -11	MBB-14-25
003038 -12	RO-0086410-0303
003038 -13	RO-0088599-0303
003038 -14	RO-0085584-0303
003038 -15	MBB-6-5
003038 -16	MBB-6-10
003038 -17	MBB-6-15
003038 -18	MBB-6-20
003038 -19	MBB-6-25
003038 -20	HMW10S-5
003038 -21	HMW-10S-10
003038 -22	HMW-10S-10a
003038 -23	HMW-10S-15
003038 -24	HMW-10S-20
003038 -25	HMW-10S-25
003038 -26	MBB-1-GW
003038 -27	MBB-2-GW
003038 -28	Trip Blank 0303

The 8260D calibration standard failed the acceptance criteria for hexachlorobutadiene. The data were flagged accordingly.

An 8270E pyrene calibration standard failed the acceptance criteria. The affected data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/09/20  
Date Analyzed: 03/10/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-6IB-5 003038-01	<5	92
HMW-6IB-10 003038-02	<5	93
HMW-6IB-10a 003038-03	<5	92
HMW-6IB-15 003038-04	<5	92
HMW-6IB-20 003038-05	<5	93
HMW-6IB-25 003038-06	<5	92
RO-0086410-0303 003038-12	<5	92
RO-0088599-0303 003038-13	6.3	94
RO-0085584-0303 003038-14	<5	92
MBB-6-5 003038-15	<5	91
MBB-6-10 003038-16	<5	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/09/20  
Date Analyzed: 03/10/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-6-15 003038-17	<5	90
MBB-6-20 003038-18	<5	90
MBB-6-25 003038-19	<5	90
HMW10S-5 003038-20	<5	91
HMW-10S-10 003038-21	<5	90
HMW-10S-10a 003038-22	<5	90
HMW-10S-15 003038-23	<5	90
HMW-10S-20 003038-24	<5	89
HMW-10S-25 003038-25	<5	89
Method Blank 00-546 MB	<5	92
Method Blank 00-547 MB	<5	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/09/20  
Date Analyzed: 03/09/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MBB-1-GW 003038-26	<100	99
MBB-2-GW 003038-27	160	72
Method Blank 00-545 MB	<100	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/05/20  
Date Analyzed: 03/05/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MBB-1-GW 003038-26	<50	<250	108
MBB-2-GW 003038-27	130 x	<250	95
Method Blank 00-530 MB2	<50	<250	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
 Date Received: 03/04/20  
 Project: 1940904, F&BI 003038  
 Date Extracted: 03/04/20  
 Date Analyzed: 03/04/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-6IB-5 003038-01	64 x	740	96
HMW-6IB-10 003038-02	<50	350	89
HMW-6IB-10a 003038-03	<50	660	95
HMW-6IB-15 003038-04	59	720	95
HMW-6IB-20 003038-05	<50	600	93
HMW-6IB-25 003038-06	<50	<250	95
MBB-14-5 003038-07	<50	<250	94
MBB-14-10 003038-08	<50	<250	96
MBB-14-15 003038-09	<50	<250	89
MBB-14-20 003038-10	<50	<250	96
MBB-14-25 003038-11	<50	<250	95
RO-0086410-0303 003038-12	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/04/20  
Date Analyzed: 03/04/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
RO-0088599-0303 003038-13	<50	<250	98
RO-0085584-0303 003038-14	<50	<250	95
MBB-6-5 003038-15	<50	<250	89
MBB-6-10 003038-16	<50	<250	98
MBB-6-15 003038-17	<50	<250	96
MBB-6-20 003038-18	<50	<250	95
MBB-6-25 003038-19	<50	<250	96
HMW10S-5 003038-20	<50	<250	94
HMW-10S-10 003038-21	<50	<250	90
HMW-10S-10a 003038-22	<50	<250	96
HMW-10S-15 003038-23	<50	<250	94
HMW-10S-20 003038-24	<50	<250	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20  
Date Received: 03/04/20  
Project: 1940904, F&BI 003038  
Date Extracted: 03/04/20  
Date Analyzed: 03/04/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-10S-25 003038-25	<50	<250	95
Method Blank 00-534 MB	<50	<250	105
Method Blank 00-535 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-01
Date Analyzed:	03/06/20	Data File:	003038-01.220
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.4
Cadmium	<1
Chromium	17.8
Lead	18.2
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-02
Date Analyzed:	03/06/20	Data File:	003038-02.223
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	15.9
Cadmium	<1
Chromium	20.6
Lead	26.3
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-10a	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-03
Date Analyzed:	03/06/20	Data File:	003038-03.224
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	14.9
Cadmium	<1
Chromium	29.3
Lead	16.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-04
Date Analyzed:	03/06/20	Data File:	003038-04.225
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	22.2
Cadmium	<1
Chromium	19.6
Lead	19.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-05
Date Analyzed:	03/09/20	Data File:	003038-05.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	25.6
Cadmium	<1
Chromium	20.5
Lead	18.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-06
Date Analyzed:	03/09/20	Data File:	003038-06.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.23
Cadmium	<1
Chromium	20.3
Lead	2.08
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	RO-0086410-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-12
Date Analyzed:	03/09/20	Data File:	003038-12.088
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.26
Barium	46.7
Cadmium	<1
Chromium	38.0
Lead	3.22
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	RO-0088599-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-13
Date Analyzed:	03/09/20	Data File:	003038-13.089
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.89
Barium	51.8
Cadmium	<1
Chromium	24.2
Lead	5.91
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	RO-0085584-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-14
Date Analyzed:	03/09/20	Data File:	003038-14.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.90
Barium	47.8
Cadmium	<1
Chromium	18.0
Lead	3.99
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-15
Date Analyzed:	03/09/20	Data File:	003038-15.091
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	21.2
Cadmium	<1
Chromium	22.7
Lead	20.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-16
Date Analyzed:	03/09/20	Data File:	003038-16.092
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.18
Cadmium	<1
Chromium	44.8
Lead	14.8
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-17
Date Analyzed:	03/09/20	Data File:	003038-17.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.84
Cadmium	<1
Chromium	17.8
Lead	1.40
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-18
Date Analyzed:	03/09/20	Data File:	003038-18.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.08
Cadmium	<1
Chromium	16.9
Lead	1.61
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-19
Date Analyzed:	03/09/20	Data File:	003038-19.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.60
Cadmium	<1
Chromium	15.8
Lead	1.44
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW10S-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-20
Date Analyzed:	03/09/20	Data File:	003038-20.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.83
Cadmium	<1
Chromium	17.8
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-21
Date Analyzed:	03/09/20	Data File:	003038-21.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.51
Cadmium	<1
Chromium	13.6
Lead	1.45
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S-10a	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-22
Date Analyzed:	03/09/20	Data File:	003038-22.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.42
Cadmium	<1
Chromium	15.0
Lead	1.41
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-23
Date Analyzed:	03/09/20	Data File:	003038-23.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.51
Cadmium	<1
Chromium	16.0
Lead	1.38
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-24
Date Analyzed:	03/09/20	Data File:	003038-24.102
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.32
Cadmium	<1
Chromium	17.3
Lead	1.55
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-25
Date Analyzed:	03/09/20	Data File:	003038-25.103
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.57
Cadmium	<1
Chromium	18.0
Lead	1.16
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	I0-137 mb
Date Analyzed:	03/05/20	Data File:	I0-137 mb.080
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	I0-137 mb2
Date Analyzed:	03/09/20	Data File:	I0-137 mb2.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-1-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-26
Date Analyzed:	03/05/20	Data File:	003038-26.135
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.02
Cadmium	<1
Chromium	4.06
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-2-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-27
Date Analyzed:	03/05/20	Data File:	003038-27.136
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	1.65
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	I0-138 mb
Date Analyzed:	03/05/20	Data File:	I0-138 mb.082
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-01
Date Analyzed:	03/09/20	Data File:	030915.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-02
Date Analyzed:	03/09/20	Data File:	030916.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-10a	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-03
Date Analyzed:	03/09/20	Data File:	030917.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-04
Date Analyzed:	03/09/20	Data File:	030918.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-05
Date Analyzed:	03/09/20	Data File:	030919.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-6IB-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-06
Date Analyzed:	03/09/20	Data File:	030920.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	RO-0086410-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-12
Date Analyzed:	03/09/20	Data File:	030921.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	RO-0088599-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-13
Date Analyzed:	03/09/20	Data File:	030922.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	RO-0085584-0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	003038-14
Date Analyzed:	03/09/20	Data File:	030923.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-6-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-15
Date Analyzed:	03/10/20	Data File:	031009.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-6-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-16
Date Analyzed:	03/10/20	Data File:	031010.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	87	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-6-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-17
Date Analyzed:	03/10/20	Data File:	031011.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-6-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-18
Date Analyzed:	03/10/20	Data File:	031012.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-6-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-19
Date Analyzed:	03/10/20	Data File:	031013.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW10S-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-20
Date Analyzed:	03/10/20	Data File:	031014.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10S-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-21
Date Analyzed:	03/10/20	Data File:	031016.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10S-10a	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-22
Date Analyzed:	03/10/20	Data File:	031017.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10S-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-23
Date Analyzed:	03/10/20	Data File:	031018.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10S-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-24
Date Analyzed:	03/10/20	Data File:	031020.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10S-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	003038-25
Date Analyzed:	03/10/20	Data File:	031021.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	00-579 mb
Date Analyzed:	03/06/20	Data File:	030636.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/06/20	Lab ID:	00-562 mb
Date Analyzed:	03/06/20	Data File:	030610.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/09/20	Lab ID:	00-564 mb
Date Analyzed:	03/09/20	Data File:	030910.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-1-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-26
Date Analyzed:	03/06/20	Data File:	030620.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	0.40
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	0.29	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-2-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-27
Date Analyzed:	03/06/20	Data File:	030621.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	57	121
Toluene-d8	92	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	2.0
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	0.94
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	0.71
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	2.8	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.24	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 0303	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-28
Date Analyzed:	03/06/20	Data File:	030622.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	57	121
Toluene-d8	92	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	00-496 mb2
Date Analyzed:	03/04/20	Data File:	030410.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-01 1/25
Date Analyzed:	03/06/20	Data File:	030619.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89 d	31	163
Benzo(a)anthracene-d12	94 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.14
Anthracene	<0.05
Fluoranthene	0.17
Pyrene	0.22 ca
Benz(a)anthracene	0.068
Chrysene	0.087
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.060
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-02 1/25
Date Analyzed:	03/06/20	Data File:	030620.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94 d	31	163
Benzo(a)anthracene-d12	96 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.21
Anthracene	<0.05
Fluoranthene	0.20
Pyrene	0.22 ca
Benz(a)anthracene	0.068
Chrysene	0.088
Benzo(a)pyrene	0.051
Benzo(b)fluoranthene	0.068
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-04 1/25
Date Analyzed:	03/06/20	Data File:	030617.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94 d	31	163
Benzo(a)anthracene-d12	103 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.11
Anthracene	<0.05
Fluoranthene	0.22
Pyrene	0.28 ca
Benz(a)anthracene	0.084
Chrysene	0.10
Benzo(a)pyrene	0.057
Benzo(b)fluoranthene	0.069
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-05 1/25
Date Analyzed:	03/06/20	Data File:	030618.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88 d	31	163
Benzo(a)anthracene-d12	99 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.095
Anthracene	<0.05
Fluoranthene	0.12
Pyrene	0.15 ca
Benz(a)anthracene	<0.05
Chrysene	0.071
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.057
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-06 1/5
Date Analyzed:	03/04/20	Data File:	030417.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	69	31	163
Benzo(a)anthracene-d12	87	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-14-5	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-07 1/25
Date Analyzed:	03/06/20	Data File:	030616.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93 d	31	163
Benzo(a)anthracene-d12	96 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.090
Anthracene	<0.05
Fluoranthene	0.11
Pyrene	0.12 ca
Benz(a)anthracene	<0.05
Chrysene	0.058
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-14-10	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-08 1/5
Date Analyzed:	03/04/20	Data File:	030419.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	163
Benzo(a)anthracene-d12	95	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.028
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.015
Anthracene	<0.01
Fluoranthene	0.016
Pyrene	0.018
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-14-15	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-09 1/5
Date Analyzed:	03/04/20	Data File:	030420.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-14-20	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-10 1/5
Date Analyzed:	03/04/20	Data File:	030421.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	73	31	163
Benzo(a)anthracene-d12	96	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-14-25	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	003038-11 1/5
Date Analyzed:	03/04/20	Data File:	030422.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	163
Benzo(a)anthracene-d12	106	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.010
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/04/20	Lab ID:	00-531 mb 1/5
Date Analyzed:	03/04/20	Data File:	030406.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	163
Benzo(a)anthracene-d12	98	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-1-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-26 1/2
Date Analyzed:	03/05/20	Data File:	030509.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	160
Benzo(a)anthracene-d12	87	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-2-GW	Client:	Hart Crowser
Date Received:	03/04/20	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	003038-27 1/2
Date Analyzed:	03/05/20	Data File:	030510.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	160
Benzo(a)anthracene-d12	104	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003038
Date Extracted:	03/05/20	Lab ID:	00-540 mb
Date Analyzed:	03/05/20	Data File:	030508.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	160
Benzo(a)anthracene-d12	110	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003130-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003038-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003141-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	111	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	112	63-142	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003038-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	500	85	94	63-146	10

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003032-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	20,000	52 b	51 b	73-135	2 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94 b	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003038-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	19.1	74 b	115 b	75-125	43 b
Barium	mg/kg (ppm)	50	83.7	108 b	78 b	75-125	32 b
Cadmium	mg/kg (ppm)	10	<1	96	86	75-125	11
Chromium	mg/kg (ppm)	50	16.9	97	81	75-125	18
Lead	mg/kg (ppm)	50	16.3	99	89	75-125	11
Mercury	mg/kg (ppm)	5	<1	105	95	75-125	10
Selenium	mg/kg (ppm)	5	<1	94	89	75-125	5
Silver	mg/kg (ppm)	10	<1	94	87	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	89	80-120
Barium	mg/kg (ppm)	50	99	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	101	80-120
Lead	mg/kg (ppm)	50	108	80-120
Mercury	mg/kg (ppm)	5	108	80-120
Selenium	mg/kg (ppm)	5	101	80-120
Silver	mg/kg (ppm)	10	98	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002447-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.79	89	87	75-125	2
Cadmium	ug/L (ppb)	5	<1	94	94	75-125	0
Chromium	ug/L (ppb)	20	<1	91	92	75-125	1
Lead	ug/L (ppb)	10	<1	83	81	75-125	2
Mercury	ug/L (ppb)	5	<1	85	85	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003022-11 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	110	115	58-137	4
Vinyl chloride	mg/kg (ppm)	0.05	105	110	60-136	5
Chloroethane	mg/kg (ppm)	0.05	110	113	65-132	3
Trichlorofluoromethane	mg/kg (ppm)	0.05	113	115	66-133	2
1,1-Dichloroethene	mg/kg (ppm)	0.05	109	109	70-130	0
Methylene chloride	mg/kg (ppm)	0.05	110	108	52-150	2
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	110	112	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	113	109	70-130	4
2,2-Dichloropropane	mg/kg (ppm)	0.05	113	121	70-130	7
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	113	110	70-130	3
Chloroform	mg/kg (ppm)	0.05	111	109	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	113	114	70-130	1
1,1-Dichloropropene	mg/kg (ppm)	0.05	97	94	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	112	112	70-130	0
Benzene	mg/kg (ppm)	0.05	101	99	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	93	88	70-130	6
1,2-Dichloropropane	mg/kg (ppm)	0.05	103	95	70-130	8
Bromodichloromethane	mg/kg (ppm)	0.05	102	97	70-130	5
Toluene	mg/kg (ppm)	0.05	95	96	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	98	98	70-130	0
1,3-Dichloropropane	mg/kg (ppm)	0.05	99	94	70-130	5
Tetrachloroethene	mg/kg (ppm)	0.05	89	88	70-130	1
Dibromochloromethane	mg/kg (ppm)	0.05	103	102	70-130	1
Chlorobenzene	mg/kg (ppm)	0.05	98	90	70-130	9
Ethylbenzene	mg/kg (ppm)	0.05	102	94	70-130	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	108	120	70-130	11
m,p-Xylene	mg/kg (ppm)	0.1	102	94	70-130	8
o-Xylene	mg/kg (ppm)	0.05	106	105	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	92	92	70-130	0
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	92	90	70-130	2
2-Chlorotoluene	mg/kg (ppm)	0.05	94	81	70-130	15
4-Chlorotoluene	mg/kg (ppm)	0.05	96	79	70-130	19
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	96	83	70-130	15
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	99	85	70-130	15
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	99	83	70-130	18
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	102	92	70-130	10
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	89	102	70-130	14
Hexachlorobutadiene	mg/kg (ppm)	0.05	94	75	70-130	22 vo
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	99	100	65-131	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003038-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	84	97	58-137	14
Vinyl chloride	mg/kg (ppm)	0.05	81	93	60-136	14
Chloroethane	mg/kg (ppm)	0.05	83	94	65-132	12
Trichlorofluoromethane	mg/kg (ppm)	0.05	87	96	66-133	10
1,1-Dichloroethene	mg/kg (ppm)	0.05	85	92	70-130	8
Methylene chloride	mg/kg (ppm)	0.05	79	85	52-150	7
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	89	97	70-130	9
1,1-Dichloroethane	mg/kg (ppm)	0.05	92	97	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	89	102	70-130	14
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	94	99	70-130	5
Chloroform	mg/kg (ppm)	0.05	96	99	70-130	3
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	90	99	70-130	10
1,1-Dichloropropene	mg/kg (ppm)	0.05	92	91	70-130	1
Carbon tetrachloride	mg/kg (ppm)	0.05	90	97	70-130	7
Benzene	mg/kg (ppm)	0.05	95	95	70-130	0
Trichloroethene	mg/kg (ppm)	0.05	95	94	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.05	98	100	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.05	103	102	70-130	1
Toluene	mg/kg (ppm)	0.05	95	91	70-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	102	98	70-130	4
1,3-Dichloropropane	mg/kg (ppm)	0.05	103	104	70-130	1
Tetrachloroethene	mg/kg (ppm)	0.05	92	90	70-130	2
Dibromochloromethane	mg/kg (ppm)	0.05	104	103	70-130	1
Chlorobenzene	mg/kg (ppm)	0.05	98	98	70-130	0
Ethylbenzene	mg/kg (ppm)	0.05	97	98	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	104	100	70-130	4
m,p-Xylene	mg/kg (ppm)	0.1	98	99	70-130	1
o-Xylene	mg/kg (ppm)	0.05	102	101	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	96	98	70-130	2
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	94	97	70-130	3
2-Chlorotoluene	mg/kg (ppm)	0.05	96	97	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.05	99	99	70-130	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	98	98	70-130	0
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	99	100	70-130	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	99	99	70-130	0
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	100	99	70-130	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	85	89	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	95	94	70-130	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	99	98	65-131	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

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Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003038-23 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	94	91	58-137	3
Vinyl chloride	mg/kg (ppm)	0.05	91	88	60-136	3
Chloroethane	mg/kg (ppm)	0.05	93	90	65-132	3
Trichlorofluoromethane	mg/kg (ppm)	0.05	96	93	66-133	3
1,1-Dichloroethene	mg/kg (ppm)	0.05	97	93	70-130	4
Methylene chloride	mg/kg (ppm)	0.05	101	94	52-150	7
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	106	104	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	101	99	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.05	110	109	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	108	105	70-130	3
Chloroform	mg/kg (ppm)	0.05	104	103	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	106	103	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.05	92	93	70-130	1
Carbon tetrachloride	mg/kg (ppm)	0.05	105	102	70-130	3
Benzene	mg/kg (ppm)	0.05	99	99	70-130	0
Trichloroethene	mg/kg (ppm)	0.05	95	95	70-130	0
1,2-Dichloropropane	mg/kg (ppm)	0.05	100	98	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.05	103	103	70-130	0
Toluene	mg/kg (ppm)	0.05	96	97	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	99	98	70-130	1
1,3-Dichloropropane	mg/kg (ppm)	0.05	97	95	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.05	99	99	70-130	0
Dibromochloromethane	mg/kg (ppm)	0.05	107	107	70-130	0
Chlorobenzene	mg/kg (ppm)	0.05	100	99	70-130	1
Ethylbenzene	mg/kg (ppm)	0.05	101	100	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	112	113	70-130	1
m,p-Xylene	mg/kg (ppm)	0.1	104	102	70-130	2
o-Xylene	mg/kg (ppm)	0.05	108	107	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	92	90	70-130	2
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	88	84	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	97	94	70-130	3
4-Chlorotoluene	mg/kg (ppm)	0.05	98	94	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	101	97	70-130	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	108	102	70-130	6
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	107	102	70-130	5
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	108	103	70-130	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	91	87	70-130	4
Hexachlorobutadiene	mg/kg (ppm)	0.05	114	106	70-130	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	116	109	65-131	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

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

Laboratory Code: 003021-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	94	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	100	36-166
Chloroethane	ug/L (ppb)	50	<1	104	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	113	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	114	60-136
Methylene chloride	ug/L (ppb)	50	<5	131	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	108	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	104	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	116	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	112	71-127
Chloroform	ug/L (ppb)	50	<1	107	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	115	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	122	56-152
Benzene	ug/L (ppb)	50	<0.35	100	76-125
Trichloroethene	ug/L (ppb)	50	<1	98	66-135
1,2-Dichloropropane	ug/L (ppb)	50	7.2	105	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	113	61-150
Toluene	ug/L (ppb)	50	<1	102	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	106	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	100	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	101	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	116	70-139
Chlorobenzene	ug/L (ppb)	50	<1	101	77-122
Ethylbenzene	ug/L (ppb)	50	<1	104	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	124	73-137
m,p-Xylene	ug/L (ppb)	100	<2	105	69-135
o-Xylene	ug/L (ppb)	50	<1	108	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	1.1	101	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	108	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	104	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	113	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	104	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	120	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	116	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	115	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	90	88	45-156	2
Vinyl chloride	ug/L (ppb)	50	94	94	50-154	0
Chloroethane	ug/L (ppb)	50	95	94	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	106	104	50-150	2
1,1-Dichloroethene	ug/L (ppb)	50	108	97	67-136	11
Methylene chloride	ug/L (ppb)	50	103	101	39-148	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	99	98	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	100	99	79-121	1
2,2-Dichloropropane	ug/L (ppb)	50	103	102	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	105	102	80-123	3
Chloroform	ug/L (ppb)	50	103	102	80-121	1
1,1,1-Trichloroethane	ug/L (ppb)	50	105	104	81-125	1
1,1-Dichloropropene	ug/L (ppb)	50	101	101	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	113	111	75-158	2
Benzene	ug/L (ppb)	50	99	99	69-134	0
Trichloroethene	ug/L (ppb)	50	97	99	79-113	2
1,2-Dichloropropane	ug/L (ppb)	50	105	106	77-123	1
Bromodichloromethane	ug/L (ppb)	50	114	115	81-133	1
Toluene	ug/L (ppb)	50	101	101	72-122	0
1,1,2-Trichloroethane	ug/L (ppb)	50	112	113	75-124	1
1,3-Dichloropropane	ug/L (ppb)	50	106	107	76-126	1
Tetrachloroethene	ug/L (ppb)	50	100	100	76-121	0
Dibromochloromethane	ug/L (ppb)	50	119	120	84-133	1
Chlorobenzene	ug/L (ppb)	50	102	102	83-114	0
Ethylbenzene	ug/L (ppb)	50	102	103	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	118	116	84-127	2
m,p-Xylene	ug/L (ppb)	100	103	103	81-112	0
o-Xylene	ug/L (ppb)	50	103	102	81-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	110	109	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	104	104	67-124	0
2-Chlorotoluene	ug/L (ppb)	50	102	101	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	103	102	78-128	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	105	79-122	0
1,3-Dichlorobenzene	ug/L (ppb)	50	101	101	83-113	0
1,4-Dichlorobenzene	ug/L (ppb)	50	100	100	83-107	0
1,2-Dichlorobenzene	ug/L (ppb)	50	101	100	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	112	109	57-141	3
Hexachlorobutadiene	ug/L (ppb)	50	103	103	53-141	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	105	104	65-136	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 003038-06 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	75	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	84	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	81	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	81	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	81	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	80	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	84	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	89	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	84	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	86	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	68	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	71	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	72	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	80	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	80	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	78	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	84	84	58-121	0
Acenaphthylene	mg/kg (ppm)	0.17	91	91	54-121	0
Acenaphthene	mg/kg (ppm)	0.17	87	88	54-123	1
Fluorene	mg/kg (ppm)	0.17	90	91	56-127	1
Phenanthrene	mg/kg (ppm)	0.17	89	88	55-122	1
Anthracene	mg/kg (ppm)	0.17	86	86	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	91	91	54-129	0
Pyrene	mg/kg (ppm)	0.17	91	92	53-127	1
Benz(a)anthracene	mg/kg (ppm)	0.17	88	90	51-115	2
Chrysene	mg/kg (ppm)	0.17	90	93	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	80	80	56-123	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	77	81	54-131	5
Benzo(a)pyrene	mg/kg (ppm)	0.17	80	80	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	77	72	49-148	7
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	75	71	50-141	5
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	72	68	52-131	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/12/20

Date Received: 03/04/20

Project: 1940904, F&BI 003038

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	84	85	57-114	1
Acenaphthylene	ug/L (ppb)	1	95	95	65-119	0
Acenaphthene	ug/L (ppb)	1	91	90	66-118	1
Fluorene	ug/L (ppb)	1	92	93	64-125	1
Phenanthrene	ug/L (ppb)	1	95	94	67-120	1
Anthracene	ug/L (ppb)	1	97	96	65-122	1
Fluoranthene	ug/L (ppb)	1	98	95	65-127	3
Pyrene	ug/L (ppb)	1	97	100	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	101	100	60-118	1
Chrysene	ug/L (ppb)	1	101	100	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	87	82	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	1	85	85	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	94	93	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	93	86	36-142	8
Dibenz(a,h)anthracene	ug/L (ppb)	1	85	84	37-133	1
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	84	34-135	4

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003038

Samples Shipped to: F&R



**HART CROWSNER**

1 of 3 ME 03/04/20

Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 1940904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MMB

HART CROWSNER CONTACT M. Goodman

B. D. Dyer

SAMPLED BY: AN

REQUESTED ANALYSIS

NwTPH-A  
NwTPH-6x  
HVOCS + BTEX  
PAHs  
MTCAs metals

NO. OF CONTAINERS

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

B24/US4/AE3/0003

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:						TOTAL NUMBER OF CONTAINERS
01A-E	Hmw-6TB-5		3/3/20	0900	Soil	X	X	X	X	X	X	5
02	Hmw-6TB-10			0905		X	X	X	X	X	X	
03	Hmw-6TB-16a			0908		X	X	X	X	X	X	
04	Hmw-6TB-15			0915		X	X	X	X	X	X	
05	Hmw-6TB-20			0920		X	X	X	X	X	X	
06	Hmw-6TB-25			0925		X	X	X	X	X	X	
07	MBB-14-5			1520		X	X	X	X	X	X	
08	MBB-14-10			1530		X	X	X	X	X	X	
09	MBB-14-15			1532		X	X	X	X	X	X	
10	MBB-14-20			1535		X	X	X	X	X	X	
11	MBB-14-25			1545		X	X	X	X	X	X	
RELINQUISHED BY		DATE	RECEIVED BY		DATE	COOLER NO.: _____ STORAGE LOCATION: _____ See Lab Work Order No. _____ for Other Contract Requirements						Samples received at <u>4</u>
<u>M. Dyer</u>		3/4/20	<u>MMB</u>		3/4/20							
SIGNATURE		TIME	SIGNATURE		TIME							
<u>M. Goodman</u>			<u>MMB</u>									
PRINT NAME		COMPANY	PRINT NAME		COMPANY							
<u>M. Goodman</u>		<u>0915</u>	<u>MMB</u>		<u>9:35 AM</u>							
RELINQUISHED BY		DATE	RECEIVED BY		DATE							
SIGNATURE		TIME	SIGNATURE		TIME							
PRINT NAME		COMPANY	PRINT NAME		COMPANY							
COMPANY			COMPANY									

# Sample Custody Record 003038

Samples Shipped to: F&B



## HART CROWSNER

2 of 3

ME 03/04/20

Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

JOB 1940904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MMB

HART CROWSER CONTACT M. Goodman

SAMPLED BY: B. Deza

AN + BD + JRB

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS
12	A-E	RO-1088591-0303	3/3/20	1620	soil	NWTPH-Gx NWTPH-Dx HVOCS+BTEX BZ60 MTCA 5 Metals PAHs RCRA Metals	5
13		RO-1088591-0303		1645			
14		RO-1088591-0303		1700			
15		MMB-6-5		0905			
16		MMB-6-10		0910			
17		MMB-6-15		0915			
18		MMB-6-20		0920			
19		MMB-6-25		0925			
20		MMW-10S-5		1050			
21		MMW-10S-10		1100			
22		MMW-10S-10a		1101			
23		MMW-10S-15		1105			

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

BIU/vs4/AT3/vw3

Samples received at 4:00

TOTAL NUMBER OF CONTAINERS 60

SAMPLE RECEIPT INFORMATION  
 CUSTODY SEALS:  YES  NO  N/A  
 GOOD CONDITION:  YES  NO  
 TEMPERATURE:  HAND  COUPLIER  
 SHIPMENT METHOD:  HAND  COUPLIER  
 SHIPMENT METHOD:  HAND  COUPLIER

TURNAROUND TIME:  
 24 HOURS  1 WEEK  
 48 HOURS  STANDARD  
 72 HOURS OTHER \_\_\_\_\_



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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Seattle, WA 98119-2029  
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fbi@isomedia.com  
www.friedmanandbruya.com

March 13, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 5, 2020 from the MMB, F&BI 003079 project. There are 43 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Hart Crowser A/P (HCR), Becca Dozier  
HCR0313R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 5, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 003079 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003079 -01	MBB-3-GW
003079 -02	MBB-7-GW
003079 -03	MBB-11-15
003079 -04	MBB-11-20
003079 -05	MBB-11-25
003079 -06	MBB-12-15
003079 -07	MBB-12-20
003079 -08	MBB-12-25
003079 -09	MBB-13-15
003079 -10	MBB-13-20
003079 -11	MBB-13-25
003079 -12	MBB-13-25a
003079 -13	MBB-15-5
003079 -14	MBB-15-10
003079 -15	MBB-15-15
003079 -16	MBB-15-20
003079 -17	MBB-15-25
003079 -18	Trip Blank 0304

1,1,1,2-Tetrachloroethane in the 8260D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the samples, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 03/05/20  
Project: MMB, F&BI 003079  
Date Extracted: 03/10/20  
Date Analyzed: 03/10/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MBB-3-GW 003079-01	720	107
MBB-7-GW 003079-02	<100	92
Method Blank 00-548 MB	<100	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 03/05/20  
Project: MMB, F&BI 003079  
Date Extracted: 03/05/20  
Date Analyzed: 03/05/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB-15-5 003079-13	<50	<250	90
MBB-15-10 003079-14	<50	<250	94
MBB-15-15 003079-15	<50	<250	99
MBB-15-20 003079-16	<50	<250	99
MBB-15-25 003079-17	<50	<250	91
Method Blank 00-541 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
Date Received: 03/05/20  
Project: MMB, F&BI 003079  
Date Extracted: 03/06/20  
Date Analyzed: 03/06/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MBB-3-GW 003079-01	150 x	<250	115
MBB-7-GW 003079-02	<50	<250	120
Method Blank 00-582 MB	<50	<250	113

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-7-GW f	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/06/20	Lab ID:	003079-02
Date Analyzed:	03/06/20	Data File:	003079-02.074
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003079
Date Extracted:	03/06/20	Lab ID:	I0-140 mb2
Date Analyzed:	03/09/20	Data File:	I0-140 mb2.030
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-3-GW	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-01
Date Analyzed:	03/09/20	Data File:	003079-01.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-7-GW	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-02
Date Analyzed:	03/09/20	Data File:	003079-02.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.09
Cadmium	<1
Chromium	12.4
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	I0-138 mb
Date Analyzed:	03/05/20	Data File:	I0-138 mb.082
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-11-15	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-03
Date Analyzed:	03/09/20	Data File:	003079-03.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	5.52
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-11-20	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-04
Date Analyzed:	03/09/20	Data File:	003079-04.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	5.51
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-11-25	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-05
Date Analyzed:	03/09/20	Data File:	003079-05.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	15.4
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-12-15	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-06
Date Analyzed:	03/09/20	Data File:	003079-06.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	3.23
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-12-20	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-07
Date Analyzed:	03/09/20	Data File:	003079-07.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	9.00
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-12-25	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-08
Date Analyzed:	03/09/20	Data File:	003079-08.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	1.56
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-13-15	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-09
Date Analyzed:	03/09/20	Data File:	003079-09.079
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	7.71
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-13-20	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-10
Date Analyzed:	03/09/20	Data File:	003079-10.080
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	9.54
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-13-25	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-11
Date Analyzed:	03/09/20	Data File:	003079-11.081
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	1.55
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-13-25a	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-12
Date Analyzed:	03/09/20	Data File:	003079-12.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	1.51
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	I0-135 mb2
Date Analyzed:	03/05/20	Data File:	I0-135 mb2.086
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-15-5	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-13 1/5
Date Analyzed:	03/05/20	Data File:	030521.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	163
Benzo(a)anthracene-d12	97	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-15-10	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-14 1/5
Date Analyzed:	03/05/20	Data File:	030522.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	31	163
Benzo(a)anthracene-d12	98	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-15-15	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-15 1/5
Date Analyzed:	03/06/20	Data File:	030610.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	163
Benzo(a)anthracene-d12	99	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-15-20	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-16 1/5
Date Analyzed:	03/06/20	Data File:	030611.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	80	31	163
Benzo(a)anthracene-d12	101	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-15-25	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-17 1/5
Date Analyzed:	03/06/20	Data File:	030612.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	79	31	163
Benzo(a)anthracene-d12	94	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	00-538 mb 1/5
Date Analyzed:	03/05/20	Data File:	030516.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	31	163
Benzo(a)anthracene-d12	103	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-3-GW	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-01 1/2
Date Analyzed:	03/05/20	Data File:	030520.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	31	160
Benzo(a)anthracene-d12	83	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	2.2
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	00-540 mb
Date Analyzed:	03/05/20	Data File:	030508.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	160
Benzo(a)anthracene-d12	110	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-3-GW	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-01
Date Analyzed:	03/09/20	Data File:	030955.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	21
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	27
1,1-Dichloroethane	<0.2	o-Xylene	14
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	17
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	25	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	28	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-7-GW	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-02
Date Analyzed:	03/09/20	Data File:	030956.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	9.4
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	7.3	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	1.9	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 0304	Client:	Hart Crowser
Date Received:	03/05/20	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	003079-18
Date Analyzed:	03/09/20	Data File:	030957.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003079
Date Extracted:	03/05/20	Lab ID:	00-502 mb2
Date Analyzed:	03/05/20	Data File:	030512.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003079-02 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	106	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 03/05/20  
 Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003073-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	92	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	108	63-142	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	94	94	80-120	0
Cadmium	ug/L (ppb)	5	91	91	80-120	0
Chromium	ug/L (ppb)	20	101	97	80-120	4
Lead	ug/L (ppb)	10	95	93	80-120	2
Mercury	ug/L (ppb)	5	87	89	80-120	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003057-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	10	17.2	84 b	72 b	75-125	15 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	10	93	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 03/05/20  
 Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 002447-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.79	89	87	75-125	2
Cadmium	ug/L (ppb)	5	<1	94	94	75-125	0
Chromium	ug/L (ppb)	20	<1	91	92	75-125	1
Lead	ug/L (ppb)	10	<1	83	81	75-125	2
Mercury	ug/L (ppb)	5	<1	85	85	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	100	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20  
 Date Received: 03/05/20  
 Project: MMB, F&BI 003079

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL  
 SAMPLES FOR PAHS BY EPA METHOD 8270E SIM**

Laboratory Code: 003063-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	81	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	93	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	86	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	90	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	87	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	89	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	98	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	94	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	95	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	91	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	82	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	84	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	91	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	72	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	71	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	64	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	89	85	58-121	5
Acenaphthylene	mg/kg (ppm)	0.17	97	94	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	92	90	54-123	2
Fluorene	mg/kg (ppm)	0.17	93	90	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	94	93	55-122	1
Anthracene	mg/kg (ppm)	0.17	93	90	50-120	3
Fluoranthene	mg/kg (ppm)	0.17	98	97	54-129	1
Pyrene	mg/kg (ppm)	0.17	96	93	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	97	97	51-115	0
Chrysene	mg/kg (ppm)	0.17	97	97	55-129	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	82	82	56-123	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	86	84	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	84	83	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	87	77	49-148	12
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	87	76	50-141	13
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	86	74	52-131	15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	84	85	57-114	1
Acenaphthylene	ug/L (ppb)	1	95	95	65-119	0
Acenaphthene	ug/L (ppb)	1	91	90	66-118	1
Fluorene	ug/L (ppb)	1	92	93	64-125	1
Phenanthrene	ug/L (ppb)	1	95	94	67-120	1
Anthracene	ug/L (ppb)	1	97	96	65-122	1
Fluoranthene	ug/L (ppb)	1	98	95	65-127	3
Pyrene	ug/L (ppb)	1	97	100	62-130	3
Benz(a)anthracene	ug/L (ppb)	1	101	100	60-118	1
Chrysene	ug/L (ppb)	1	101	100	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	87	82	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	1	85	85	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	94	93	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	93	86	36-142	8
Dibenz(a,h)anthracene	ug/L (ppb)	1	85	84	37-133	1
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	84	34-135	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

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

Laboratory Code: 003041-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	87	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	94	36-166
Chloroethane	ug/L (ppb)	50	<1	99	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	103	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	106	60-136
Methylene chloride	ug/L (ppb)	50	<5	105	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	105	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	101	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	120	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	105	71-127
Chloroform	ug/L (ppb)	50	<1	104	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	113	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	93	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	122	56-152
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Trichloroethene	ug/L (ppb)	50	<1	87	66-135
1,2-Dichloropropane	ug/L (ppb)	50	6.9	92	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Toluene	ug/L (ppb)	50	<1	101	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	94	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	99	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
Chlorobenzene	ug/L (ppb)	50	<1	99	77-122
Ethylbenzene	ug/L (ppb)	50	<1	105	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	127	73-137
m,p-Xylene	ug/L (ppb)	100	<2	106	69-135
o-Xylene	ug/L (ppb)	50	<1	110	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	110	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	104	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	108	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	104	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	113	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	105	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	125	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	116	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	116	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/13/20

Date Received: 03/05/20

Project: MMB, F&BI 003079

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	91	95	45-156	4
Vinyl chloride	ug/L (ppb)	50	96	100	50-154	4
Chloroethane	ug/L (ppb)	50	103	105	58-146	2
Trichlorofluoromethane	ug/L (ppb)	250	108	107	50-150	1
1,1-Dichloroethene	ug/L (ppb)	50	111	109	67-136	2
Methylene chloride	ug/L (ppb)	50	111	109	39-148	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	111	108	68-128	3
1,1-Dichloroethane	ug/L (ppb)	50	104	101	79-121	3
2,2-Dichloropropane	ug/L (ppb)	50	124	125	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	110	106	80-123	4
Chloroform	ug/L (ppb)	50	106	103	80-121	3
1,1,1-Trichloroethane	ug/L (ppb)	50	114	114	81-125	0
1,1-Dichloropropene	ug/L (ppb)	50	96	93	77-129	3
Carbon tetrachloride	ug/L (ppb)	50	122	124	75-158	2
Benzene	ug/L (ppb)	50	94	91	69-134	3
Trichloroethene	ug/L (ppb)	50	90	86	79-113	5
1,2-Dichloropropane	ug/L (ppb)	50	94	91	77-123	3
Bromodichloromethane	ug/L (ppb)	50	102	98	81-133	4
Toluene	ug/L (ppb)	50	105	100	72-122	5
1,1,2-Trichloroethane	ug/L (ppb)	50	107	99	75-124	8
1,3-Dichloropropane	ug/L (ppb)	50	99	91	76-126	8
Tetrachloroethene	ug/L (ppb)	50	106	101	76-121	5
Dibromochloromethane	ug/L (ppb)	50	115	109	84-133	5
Chlorobenzene	ug/L (ppb)	50	103	98	83-114	5
Ethylbenzene	ug/L (ppb)	50	109	104	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	129 vo	128 vo	84-127	1
m,p-Xylene	ug/L (ppb)	100	110	105	81-112	5
o-Xylene	ug/L (ppb)	50	112	110	81-121	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	111	107	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	105	102	67-124	3
2-Chlorotoluene	ug/L (ppb)	50	109	108	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	107	103	78-128	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	113	113	79-122	0
1,3-Dichlorobenzene	ug/L (ppb)	50	105	101	83-113	4
1,4-Dichlorobenzene	ug/L (ppb)	50	102	99	83-107	3
1,2-Dichlorobenzene	ug/L (ppb)	50	106	104	84-112	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	120	124	57-141	3
Hexachlorobutadiene	ug/L (ppb)	50	115	117	53-141	2
1,2,3-Trichlorobenzene	ug/L (ppb)	50	112	114	65-136	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003079

Samples Shipped to: F&B

**HART CROWSER**  
 ME 03/05/80 2 of 2  
 vwi / BTy Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB 1940904 LAB NUMBER \_\_\_\_\_  
 PROJECT NAME MWB  
 HART CROWSER CONTACT K. Goodman  
B. Dyer  
 SAMPLED BY: APB

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/COMPOSITING INSTRUCTIONS
12	MBB-13-25a		3/4	1332	Soil	NH <sub>4</sub> TPH-Dx PARTS Pb HVOCs FBTEX-8260	1	
13	MBB-15-5			1335			1	
14	MBB-15-10			1340			1	
15	MBB-15-15			1350			1	
16	MBB-15-20			1400			1	
17	MBB-15-25			1405			2	
18	FBP bleed 0304		3/4					
								Samples received at <u>4</u> °C

RELINQUISHED BY WDR DATE 3/5/20 RECEIVED BY Quinn DATE 3/5/20  
 SIGNATURE WDR TIME \_\_\_\_\_ SIGNATURE Quinn TIME \_\_\_\_\_  
 PRINT NAME WDR COMPANY \_\_\_\_\_ PRINT NAME \_\_\_\_\_ COMPANY \_\_\_\_\_  
 RELINQUISHED BY \_\_\_\_\_ DATE \_\_\_\_\_ RECEIVED BY FB1 DATE 10:10 AM  
 SIGNATURE \_\_\_\_\_ TIME \_\_\_\_\_ SIGNATURE \_\_\_\_\_ TIME \_\_\_\_\_  
 PRINT NAME \_\_\_\_\_ COMPANY \_\_\_\_\_ PRINT NAME \_\_\_\_\_ COMPANY \_\_\_\_\_

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS: \_\_\_\_\_  
 COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

See Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements  
 TOTAL NUMBER OF CONTAINERS: 4  
 SAMPLE RECEIPT INFORMATION:  
 YES  NO  N/A  
 GOOD CONDITION  NO  
 YES  NO  
 TEMPERATURE \_\_\_\_\_ SHIPMENT METHOD:  HAND  COURIER  OVERNIGHT  
 TURNAROUND TIME:  
 24 HOURS  1 WEEK  
 48 HOURS  STANDARD  
 72 HOURS OTHER \_\_\_\_\_

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 17, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 6, 2020 from the MMB, F&BI 003120 project. There are 48 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0317R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 6, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 003120 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003120 -01	MBB-4-GW
003120 -02	MBB-5-GW
003120 -03	MBB-6-GW
003120 -04	HMW-10D-5
003120 -05	HMW-10D-10
003120 -06	HMW-10D-15
003120 -07	HMW-10D-15a
003120 -08	HMW-10D-20
003120 -09	HMW-10D-25
003120 -10	Trip Blank0305

Methylene chloride was detected in the 8260D analysis of samples HMW-10D-15 and HMW-10D-15a. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003120  
Date Extracted: 03/12/20  
Date Analyzed: 03/13/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-10D-5 003120-04	<5	86
HMW-10D-10 003120-05	<5	84
HMW-10D-15 003120-06	<5	85
HMW-10D-15a 003120-07	<5	84
HMW-10D-20 003120-08	<5	90
HMW-10D-25 003120-09	<5	76
Method Blank 00-553 MB	<5	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003120  
Date Extracted: 03/10/20  
Date Analyzed: 03/10/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-4-GW 003120-01	180	94
MBB-5-GW 003120-02	240	89
MBB-6-GW 003120-03	180	89
Method Blank 00-548 MB	<100	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003120  
Date Extracted: 03/06/20  
Date Analyzed: 03/06/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
HMW-10D-5 003120-04	<50	<250	103
HMW-10D-10 003120-05	<50	<250	109
HMW-10D-15 003120-06	<50	<250	105
HMW-10D-15a 003120-07	<50	<250	107
HMW-10D-20 003120-08	<50	<250	105
HMW-10D-25 003120-09	<50	<250	99
Method Blank 00-583 MB	<50	<250	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003120  
Date Extracted: 03/09/20  
Date Analyzed: 03/09/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MBB-4-GW 003120-01	100 x	<250	107
MBB-5-GW 003120-02	150 x	<250	118
MBB-6-GW 003120-03	69 x	<250	120
Method Blank 00-590 MB	<50	<250	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-5-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/12/20	Lab ID:	003120-02
Date Analyzed:	03/12/20	Data File:	003120-02.104
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.01
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003120
Date Extracted:	03/12/20	Lab ID:	I0-150 mb
Date Analyzed:	03/12/20	Data File:	I0-150 mb.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-4-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/11/20	Lab ID:	003120-01
Date Analyzed:	03/12/20	Data File:	003120-01.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.23
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-5-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/11/20	Lab ID:	003120-02
Date Analyzed:	03/12/20	Data File:	003120-02.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.15
Cadmium	<1
Chromium	4.55
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-6-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/11/20	Lab ID:	003120-03
Date Analyzed:	03/12/20	Data File:	003120-03.116
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.11
Cadmium	<1
Chromium	3.35
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003120
Date Extracted:	03/11/20	Lab ID:	I0-147 mb
Date Analyzed:	03/12/20	Data File:	I0-147 mb.035
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-5	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-04
Date Analyzed:	03/10/20	Data File:	003120-04.087
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.76
Cadmium	<1
Chromium	15.2
Lead	1.40
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-10	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-05
Date Analyzed:	03/10/20	Data File:	003120-05.088
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.78
Cadmium	<1
Chromium	14.1
Lead	1.38
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-15	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-06
Date Analyzed:	03/10/20	Data File:	003120-06.091
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.87
Cadmium	<1
Chromium	15.4
Lead	1.62
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-15a	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-07
Date Analyzed:	03/10/20	Data File:	003120-07.092
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.81
Cadmium	<1
Chromium	17.4
Lead	1.64
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-20	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-08
Date Analyzed:	03/10/20	Data File:	003120-08.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.31
Cadmium	<1
Chromium	15.0
Lead	1.48
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D-25	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-09
Date Analyzed:	03/10/20	Data File:	003120-09.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.80
Cadmium	<1
Chromium	20.7
Lead	1.95
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	I0-142 mb2
Date Analyzed:	03/10/20	Data File:	I0-142 mb2.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-5	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-04
Date Analyzed:	03/10/20	Data File:	031022.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-10	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-05
Date Analyzed:	03/10/20	Data File:	031023.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-15	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-06
Date Analyzed:	03/10/20	Data File:	031024.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.030 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-15a	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-07
Date Analyzed:	03/10/20	Data File:	031025.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	0.024 lc	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-20	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-08
Date Analyzed:	03/12/20	Data File:	031220.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-10D-25	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-09
Date Analyzed:	03/12/20	Data File:	031222.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003120
Date Extracted:	03/12/20	Lab ID:	00-609 mb
Date Analyzed:	03/12/20	Data File:	031211.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	00-564 mb2
Date Analyzed:	03/10/20	Data File:	031015.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	87	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025 ca
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-4-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-01
Date Analyzed:	03/12/20	Data File:	031159.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	1.3
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	2.6
1,1-Dichloroethane	<0.2	o-Xylene	1.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	2.7
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	1.8	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	4.7	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-5-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-02
Date Analyzed:	03/12/20	Data File:	031160.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	7.7	Tetrachloroethene	130
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	0.61	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	110	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	0.13	1,4-Dichlorobenzene	<0.2
Trichloroethene	37	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	14	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-6-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-03
Date Analyzed:	03/12/20	Data File:	031161.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.30	Tetrachloroethene	5.5
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	3.4	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	1.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	49	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank0305	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-10
Date Analyzed:	03/12/20	Data File:	031165.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	00-572 mb
Date Analyzed:	03/11/20	Data File:	031138.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	91	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MBB-4-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	003120-01 1/2
Date Analyzed:	03/10/20	Data File:	031006.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	77	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003120
Date Extracted:	03/10/20	Lab ID:	00-592 mb
Date Analyzed:	03/10/20	Data File:	031005.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003195-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	5	6	18

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003079-02 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	106	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003064-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	98	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	112	92	63-142	20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003120-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.01	100	98	75-125	2
Cadmium	ug/L (ppb)	5	<1	97	95	75-125	2
Chromium	ug/L (ppb)	20	<1	99	97	75-125	2
Lead	ug/L (ppb)	10	<1	91	90	75-125	1
Mercury	ug/L (ppb)	5	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003125-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	2.03	82	76	75-125	8
Cadmium	mg/kg (ppm)	10	<1	100	98	75-125	2
Chromium	mg/kg (ppm)	50	13.8	80	88	75-125	10
Lead	mg/kg (ppm)	50	1.81	96	94	75-125	2
Mercury	mg/kg (ppm)	5	<1	97	96	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120
Cadmium	mg/kg (ppm)	10	96	80-120
Chromium	mg/kg (ppm)	50	95	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003166-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.19	86	80	75-125	7
Cadmium	ug/L (ppb)	5	<1	97	93	75-125	4
Chromium	ug/L (ppb)	20	3.87	99	96	75-125	3
Lead	ug/L (ppb)	10	3.62	94	91	75-125	3
Mercury	ug/L (ppb)	5	<1	97	96	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	102	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003038-23 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	94	91	58-137	3
Vinyl chloride	mg/kg (ppm)	0.05	91	88	60-136	3
Chloroethane	mg/kg (ppm)	0.05	93	90	65-132	3
Trichlorofluoromethane	mg/kg (ppm)	0.05	96	93	66-133	3
1,1-Dichloroethene	mg/kg (ppm)	0.05	97	93	70-130	4
Methylene chloride	mg/kg (ppm)	0.05	101	94	52-150	7
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	106	104	70-130	2
1,1-Dichloroethane	mg/kg (ppm)	0.05	101	99	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.05	110	109	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	108	105	70-130	3
Chloroform	mg/kg (ppm)	0.05	104	103	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	106	103	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.05	92	93	70-130	1
Carbon tetrachloride	mg/kg (ppm)	0.05	105	102	70-130	3
Benzene	mg/kg (ppm)	0.05	99	99	70-130	0
Trichloroethene	mg/kg (ppm)	0.05	95	95	70-130	0
1,2-Dichloropropane	mg/kg (ppm)	0.05	100	98	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.05	103	103	70-130	0
Toluene	mg/kg (ppm)	0.05	96	97	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	99	98	70-130	1
1,3-Dichloropropane	mg/kg (ppm)	0.05	97	95	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.05	99	99	70-130	0
Dibromochloromethane	mg/kg (ppm)	0.05	107	107	70-130	0
Chlorobenzene	mg/kg (ppm)	0.05	100	99	70-130	1
Ethylbenzene	mg/kg (ppm)	0.05	101	100	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	112	113	70-130	1
m,p-Xylene	mg/kg (ppm)	0.1	104	102	70-130	2
o-Xylene	mg/kg (ppm)	0.05	108	107	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	92	90	70-130	2
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	88	84	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	97	94	70-130	3
4-Chlorotoluene	mg/kg (ppm)	0.05	98	94	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	101	97	70-130	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	108	102	70-130	6
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	107	102	70-130	5
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	108	103	70-130	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	91	87	70-130	4
Hexachlorobutadiene	mg/kg (ppm)	0.05	114	106	70-130	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	116	109	65-131	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003160-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	82	83	70-130	1
Vinyl chloride	mg/kg (ppm)	0.05	85	87	70-130	2
Chloroethane	mg/kg (ppm)	0.05	82	84	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	83	86	70-130	4
1,1-Dichloroethene	mg/kg (ppm)	0.05	84	88	70-130	5
Methylene chloride	mg/kg (ppm)	0.05	72	75	70-130	4
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	84	89	70-130	6
1,1-Dichloroethane	mg/kg (ppm)	0.05	86	90	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	86	90	70-130	5
Chloroform	mg/kg (ppm)	0.05	90	92	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	85	87	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	95	98	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	85	88	70-130	3
Benzene	mg/kg (ppm)	0.05	90	92	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	99	103	70-130	4
1,2-Dichloropropane	mg/kg (ppm)	0.05	102	103	70-130	1
Bromodichloromethane	mg/kg (ppm)	0.05	103	104	70-130	1
Toluene	mg/kg (ppm)	0.05	99	102	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	106	109	70-130	3
1,3-Dichloropropane	mg/kg (ppm)	0.05	109	112	70-130	3
Tetrachloroethene	mg/kg (ppm)	0.05	98	103	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	104	106	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	100	105	70-130	5
Ethylbenzene	mg/kg (ppm)	0.05	97	101	70-130	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	87	91	70-130	4
m,p-Xylene	mg/kg (ppm)	0.1	98	102	70-130	4
o-Xylene	mg/kg (ppm)	0.05	93	97	70-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	107	111	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	106	111	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	106	110	70-130	4
4-Chlorotoluene	mg/kg (ppm)	0.05	110	114	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	104	107	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	105	109	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	106	108	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	104	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	101	106	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	100	102	70-130	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	95	101	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

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

Laboratory Code: 003114-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	95	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	100	36-166
Chloroethane	ug/L (ppb)	50	<1	101	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	98	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	98	60-136
Methylene chloride	ug/L (ppb)	50	<5	94	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	91	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	90	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	78	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	90	71-127
Chloroform	ug/L (ppb)	50	<1	90	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	90	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	86	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	95	56-152
Benzene	ug/L (ppb)	50	<0.35	86	76-125
Trichloroethene	ug/L (ppb)	50	<1	83	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	85	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	92	61-150
Toluene	ug/L (ppb)	50	<1	97	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	97	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	94	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	106	70-139
Chlorobenzene	ug/L (ppb)	50	<1	95	77-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	98	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	104	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	99	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	98	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	102	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	104	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	110	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	102	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	108	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	113	103	45-156	9
Vinyl chloride	ug/L (ppb)	50	117	109	50-154	7
Chloroethane	ug/L (ppb)	50	112	104	58-146	7
Trichlorofluoromethane	ug/L (ppb)	250	114	106	50-150	7
1,1-Dichloroethene	ug/L (ppb)	50	108	104	67-136	4
Methylene chloride	ug/L (ppb)	50	104	102	39-148	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	101	99	68-128	2
1,1-Dichloroethane	ug/L (ppb)	50	103	99	79-121	4
2,2-Dichloropropane	ug/L (ppb)	50	104	94	55-143	10
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	97	80-123	5
Chloroform	ug/L (ppb)	50	103	99	80-121	4
1,1,1-Trichloroethane	ug/L (ppb)	50	106	100	81-125	6
1,1-Dichloropropene	ug/L (ppb)	50	103	100	77-129	3
Carbon tetrachloride	ug/L (ppb)	50	113	104	75-158	8
Benzene	ug/L (ppb)	50	103	100	69-134	3
Trichloroethene	ug/L (ppb)	50	101	100	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	106	105	77-123	1
Bromodichloromethane	ug/L (ppb)	50	114	114	81-133	0
Toluene	ug/L (ppb)	50	101	100	72-122	1
1,1,2-Trichloroethane	ug/L (ppb)	50	106	107	75-124	1
1,3-Dichloropropane	ug/L (ppb)	50	106	109	76-126	3
Tetrachloroethene	ug/L (ppb)	50	100	99	76-121	1
Dibromochloromethane	ug/L (ppb)	50	117	116	84-133	1
Chlorobenzene	ug/L (ppb)	50	101	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	102	100	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	113	109	84-127	4
m,p-Xylene	ug/L (ppb)	100	102	101	81-112	1
o-Xylene	ug/L (ppb)	50	102	98	81-121	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	108	109	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	99	101	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	100	99	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	101	101	78-128	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	103	100	79-122	3
1,3-Dichlorobenzene	ug/L (ppb)	50	105	101	83-113	4
1,4-Dichlorobenzene	ug/L (ppb)	50	102	100	83-107	2
1,2-Dichlorobenzene	ug/L (ppb)	50	105	101	84-112	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	107	104	57-141	3
Hexachlorobutadiene	ug/L (ppb)	50	99	95	53-141	4
1,2,3-Trichlorobenzene	ug/L (ppb)	50	104	100	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/17/20

Date Received: 03/06/20

Project: MMB, F&BI 003120

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	74	75	57-114	1
Acenaphthylene	ug/L (ppb)	1	77	78	65-119	1
Acenaphthene	ug/L (ppb)	1	77	79	66-118	3
Fluorene	ug/L (ppb)	1	80	82	64-125	2
Phenanthrene	ug/L (ppb)	1	81	82	67-120	1
Anthracene	ug/L (ppb)	1	84	84	65-122	0
Fluoranthene	ug/L (ppb)	1	86	88	65-127	2
Pyrene	ug/L (ppb)	1	80	83	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	90	93	60-118	3
Chrysene	ug/L (ppb)	1	88	89	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	80	76	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	81	85	62-125	5
Benzo(a)pyrene	ug/L (ppb)	1	81	81	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	80	82	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	83	37-133	0
Benzo(g,h,i)perylene	ug/L (ppb)	1	81	83	34-135	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003120

Samples Shipped to: F&B



**HART CROWSNER**

1 of 1

ME 03/06/20

Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

LAB NUMBER

VW2/AT4/VS1

JOB 1940904

PROJECT NAME MMB

HART CROWSNER CONTACT M. Goodman

SAMPLED BY: A. Nakahara, B. Dozier, J. Randerhake

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
01 A-H	MMB4-GW		3/5/20	1032	hd
02 A-G	MMB5-GW			1315	
03 A-G	MMB6-GW			1333	
04 A-E	MMW-10D-5			0945	soil
05	MMW-10D-10			0955	
06	MMW-10D-15			0958	
07	MMW-10D-15a			1003	
08	MMW-10D-20			1010	
09	MMW-10D-25			1020	
10 A-B	Sample tank 0305				hd

LAB NO.	DATE	TIME	MATRIX	REQUESTED ANALYSIS
01	3/6/20	10:28	hd	NWTPH-Gx NWTPH-Dx HVOCs/BTEX/Bz/Bo MTCAS Metals PAHS
02	3/6/20	10:28	hd	
03	3/6/20	10:28	hd	
04	3/6/20	10:28	hd	

NO. OF CONTAINERS

8 Total metals only  
7 Total and dissolved metals  
7 Total metals only

SAMPLES RECEIVED AT 400

TOTAL NUMBER OF CONTAINERS 21

SAMPLE RECEIPT INFORMATION

CUSTOMY SEALS:  YES  NO  N/A

GOOD CONDITION:  YES  NO

TEMPERATURE:  HAND  COVERNIGHT

SHIPMENT METHOD:  COURIER

TURNAROUND TIME:  24 HOURS  1 WEEK  STANDARD  48 HOURS  72 HOURS  OTHER

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 16, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 6, 2020 from the MMB, F&BI 003138 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0316R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 6, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 003138 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003138 -01	MMB12-GW
003138 -02	MMB15-GW
003138 -03	Tripblank0306

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/16/20  
Date Received: 03/06/20  
Project: MMB, F&BI 003138  
Date Extracted: 03/09/20  
Date Analyzed: 03/09/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MMB15-GW 003138-02	360 x	<250	135
Method Blank 00-589 MB	<50	<250	147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MMB12-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003138
Date Extracted:	03/12/20	Lab ID:	003138-01
Date Analyzed:	03/12/20	Data File:	003138-01.108
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	14.4
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003138
Date Extracted:	03/12/20	Lab ID:	I0-150 mb
Date Analyzed:	03/12/20	Data File:	I0-150 mb.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB12-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003138
Date Extracted:	03/11/20	Lab ID:	003138-01
Date Analyzed:	03/12/20	Data File:	003138-01.091
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	15.8
Cadmium	<1
Chromium	2.14
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 003138
Date Extracted:	03/11/20	Lab ID:	I0-147 mb
Date Analyzed:	03/12/20	Data File:	I0-147 mb.035
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	MMB15-GW	Client:	Hart Crowser
Date Received:	03/06/20	Project:	MMB, F&BI 003138
Date Extracted:	03/10/20	Lab ID:	003138-02 1/2
Date Analyzed:	03/10/20	Data File:	031008.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	77	31	160
Benzo(a)anthracene-d12	98	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	0.25
Fluorene	0.098
Phenanthrene	0.18
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 003138
Date Extracted:	03/10/20	Lab ID:	00-592 mb
Date Analyzed:	03/10/20	Data File:	031005.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	160
Benzo(a)anthracene-d12	91	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/16/20

Date Received: 03/06/20

Project: MMB, F&BI 003138

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	112	63-142	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/16/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003138

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003120-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.01	100	98	75-125	2
Cadmium	ug/L (ppb)	5	<1	97	95	75-125	2
Chromium	ug/L (ppb)	20	<1	99	97	75-125	2
Lead	ug/L (ppb)	10	<1	91	90	75-125	1
Mercury	ug/L (ppb)	5	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/16/20  
 Date Received: 03/06/20  
 Project: MMB, F&BI 003138

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003166-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.19	86	80	75-125	7
Cadmium	ug/L (ppb)	5	<1	97	93	75-125	4
Chromium	ug/L (ppb)	20	3.87	99	96	75-125	3
Lead	ug/L (ppb)	10	3.62	94	91	75-125	3
Mercury	ug/L (ppb)	5	<1	97	96	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	102	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/16/20

Date Received: 03/06/20

Project: MMB, F&BI 003138

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	74	75	57-114	1
Acenaphthylene	ug/L (ppb)	1	77	78	65-119	1
Acenaphthene	ug/L (ppb)	1	77	79	66-118	3
Fluorene	ug/L (ppb)	1	80	82	64-125	2
Phenanthrene	ug/L (ppb)	1	81	82	67-120	1
Anthracene	ug/L (ppb)	1	84	84	65-122	0
Fluoranthene	ug/L (ppb)	1	86	88	65-127	2
Pyrene	ug/L (ppb)	1	80	83	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	90	93	60-118	3
Chrysene	ug/L (ppb)	1	88	89	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	80	76	55-135	5
Benzo(k)fluoranthene	ug/L (ppb)	1	81	85	62-125	5
Benzo(a)pyrene	ug/L (ppb)	1	81	81	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	80	82	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	83	37-133	0
Benzo(g,h,i)perylene	ug/L (ppb)	1	81	83	34-135	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003138

Samples Shipped to: \_\_\_\_\_

**HART CROWSER**  
 ME 03/06/20 ASD/ow1

Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB 1940904		LAB NUMBER _____						
PROJECT NAME MMB		HART CROWSER CONTACT P. Goodman +						
SAMPLED BY: B. DORRIS + A. Nedykhalova		B. DORRIS						
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
01A.8	MBB12-6W		3/6/20	1335	Had	WPH-DX HAB MCAS Metals	2	
02.1	MBB15-6W		3/6/20	1630	Had		2	
03	TFPbdenK0306		3/6/20				2	
RELINQUISHED BY		DATE	RECEIVED BY		DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:		
SIGNATURE [Signature]		3/6/20	SIGNATURE [Signature]			STORAGE LOCATION:		
PRINT NAME B. DORRIS		TIME	PRINT NAME [Signature]		TIME	COOLER NO.:		
COMPANY		DATE	COMPANY		DATE	STORAGE REQUIREMENTS:		
SIGNATURE		DATE	SIGNATURE		DATE	See Lab Work Order No. _____ for Other Contract Requirements		
PRINT NAME		DATE	PRINT NAME		DATE	TURNAROUND TIME:		
COMPANY		DATE	COMPANY		DATE	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS    OTHER _____		
RELINQUISHED BY		DATE	RECEIVED BY		DATE	TOTAL NUMBER OF CONTAINERS		
SIGNATURE [Signature]		3/6/20	SIGNATURE [Signature]			SAMPLE RECEIPT INFORMATION		
PRINT NAME B. DORRIS		TIME	PRINT NAME [Signature]		TIME	CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE: _____ SHIPMENT METHOD: <input type="checkbox"/> CHAND <input type="checkbox"/> OVERNIGHT <input type="checkbox"/> COURIER		
COMPANY		DATE	COMPANY		DATE	Samples received at <u>4</u> °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

March 19, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 10, 2020 from the 1940904, F&BI 003160 project. There are 32 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0319R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 10, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003160 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003160 -01	MBB-13-GW
003160 -02	MBB-13-GWa
003160 -03	HMW-1D-GW-0309
003160 -04	RO0088177-0309
003160 -05	RO0087057-0309
003160 -06	Trip Blank-0309

The high concentration of cis-1,2-dichloroethene in sample HMW-1D-GW-0309 carried over into sample Trip Blank-0309. The data were flagged accordingly. There was insufficient sample for reanalysis.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20  
Date Received: 03/10/20  
Project: 1940904, F&BI 003160  
Date Extracted: 03/16/20 and 03/17/20  
Date Analyzed: 03/16/20 and 03/17/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 58-139)
RO0088177-0309 003160-04	<5	88
RO0087057-0309 003160-05	69	123
Method Blank 00-558 MB	<5	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20  
Date Received: 03/10/20  
Project: 1940904, F&BI 003160  
Date Extracted: 03/16/20  
Date Analyzed: 03/16/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-1D-GW-0309 003160-03	140	97
Method Blank 00-557 MB	<100	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20  
Date Received: 03/10/20  
Project: 1940904, F&BI 003160  
Date Extracted: 03/11/20  
Date Analyzed: 03/11/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
HMW-1D-GW-0309 003160-03	94 x	<250	101
Method Blank 00-602 MB	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20  
Date Received: 03/10/20  
Project: 1940904, F&BI 003160  
Date Extracted: 03/11/20  
Date Analyzed: 03/11/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
RO0088177-0309 003160-04	<50	<250	100
RO0087057-0309 003160-05	<50	<250	104
Method Blank 00-603 MB	<50	<250	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	RO0088177-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-04
Date Analyzed:	03/12/20	Data File:	003160-04.119
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.42
Barium	29.6
Cadmium	<1
Chromium	16.4
Lead	1.69
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	RO0087057-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-05
Date Analyzed:	03/12/20	Data File:	003160-05.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.05
Barium	39.6
Cadmium	<1
Chromium	22.3
Lead	3.71
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	I0-151 mb
Date Analyzed:	03/12/20	Data File:	I0-151 mb.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-13-GW	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-01
Date Analyzed:	03/12/20	Data File:	003160-01.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	41.2
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	I0-150 mb
Date Analyzed:	03/12/20	Data File:	I0-150 mb.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-13-GW	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/11/20	Lab ID:	003160-01
Date Analyzed:	03/12/20	Data File:	003160-01.092
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	38.1
Cadmium	<1
Chromium	1.33
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-1D-GW-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/11/20	Lab ID:	003160-03
Date Analyzed:	03/12/20	Data File:	003160-03.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.59
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003160
Date Extracted:	03/11/20	Lab ID:	I0-147 mb
Date Analyzed:	03/12/20	Data File:	I0-147 mb.035
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	RO0088177-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-04
Date Analyzed:	03/12/20	Data File:	031215.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	RO0087057-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-05
Date Analyzed:	03/12/20	Data File:	031217.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	0.018
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	00-609 mb
Date Analyzed:	03/12/20	Data File:	031211.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.05	1,3-Dichloropropane	<0.005
Vinyl chloride	<0.005	Tetrachloroethene	<0.025
Chloroethane	<0.05	Dibromochloromethane	<0.005
Trichlorofluoromethane	<0.05	Chlorobenzene	<0.005
1,1-Dichloroethene	<0.005	Ethylbenzene	<0.005
Methylene chloride	<0.02 j	1,1,1,2-Tetrachloroethane	<0.005
trans-1,2-Dichloroethene	<0.001	m,p-Xylene	<0.01
1,1-Dichloroethane	<0.005	o-Xylene	<0.005
2,2-Dichloropropane	<0.005	1,1,2,2-Tetrachloroethane	<0.005
cis-1,2-Dichloroethene	<0.005	1,2,3-Trichloropropane	<0.005
Chloroform	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	1,2,4-Trimethylbenzene	<0.005
Carbon tetrachloride	<0.005	1,3-Dichlorobenzene	<0.005
Benzene	<0.003	1,4-Dichlorobenzene	<0.005
Trichloroethene	<0.03	1,2-Dichlorobenzene	<0.005
1,2-Dichloropropane	<0.001	1,2-Dibromo-3-chloropropane	<0.05
Bromodichloromethane	<0.005	Hexachlorobutadiene	<0.025
Toluene	<0.005	1,2,3-Trichlorobenzene	<0.025
1,1,2-Trichloroethane	<0.005		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-1D-GW-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-03
Date Analyzed:	03/12/20	Data File:	031259.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	1.7	Tetrachloroethene	19
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	3.1	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	1.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	870 ve	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	100	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-1D-GW-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-03 1/100
Date Analyzed:	03/16/20	Data File:	031640.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<20	1,3-Dichloropropane	<20
Vinyl chloride	<6	Tetrachloroethene	21
Chloroethane	<20	Dibromochloromethane	<20
Trichlorofluoromethane	<20 j	Chlorobenzene	<20
1,1-Dichloroethene	<20	Ethylbenzene	<20
Methylene chloride	<500	1,1,1,2-Tetrachloroethane	<20
trans-1,2-Dichloroethene	<20	m,p-Xylene	<40
1,1-Dichloroethane	<20	o-Xylene	<20
2,2-Dichloropropane	<20	1,1,2,2-Tetrachloroethane	<20
cis-1,2-Dichloroethene	910	1,2,3-Trichloropropane	<4.0 j
Chloroform	<20	2-Chlorotoluene	<20
1,1,1-Trichloroethane	<20	4-Chlorotoluene	<20
1,1-Dichloropropene	<20	1,2,4-Trimethylbenzene	<20
Carbon tetrachloride	<20	1,3-Dichlorobenzene	<20
Benzene	<20	1,4-Dichlorobenzene	<20
Trichloroethene	110	1,2-Dichlorobenzene	<20
1,2-Dichloropropane	<20	1,2-Dibromo-3-chloropropane	<75 j
Bromodichloromethane	<20	Hexachlorobutadiene	<20
Toluene	<20	1,2,3-Trichlorobenzene	<20
1,1,2-Trichloroethane	<20		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank-0309	Client:	Hart Crowser
Date Received:	03/10/20	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	003160-06
Date Analyzed:	03/12/20	Data File:	031260.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	84	63	127
4-Bromofluorobenzene	92	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	1.4 c	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003160
Date Extracted:	03/12/20	Lab ID:	00-578 mb2
Date Analyzed:	03/12/20	Data File:	031210.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	94	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

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

Laboratory Code: 003160-05 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	46	30	42 hr

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003206-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	105	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	104	63-142	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003160-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	102	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003193-21 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	80	87	75-125	8
Barium	mg/kg (ppm)	50	53.2	90 b	117 b	75-125	26 b
Cadmium	mg/kg (ppm)	10	<5	95	98	75-125	3
Chromium	mg/kg (ppm)	50	12.2	84	88	75-125	5
Lead	mg/kg (ppm)	50	<5	96	98	75-125	2
Mercury	mg/kg (ppm)	5	<5	92	82	75-125	11
Selenium	mg/kg (ppm)	5	<5	86	92	75-125	7
Silver	mg/kg (ppm)	10	<5	93	99	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120
Barium	mg/kg (ppm)	50	99	80-120
Cadmium	mg/kg (ppm)	10	97	80-120
Chromium	mg/kg (ppm)	50	99	80-120
Lead	mg/kg (ppm)	50	102	80-120
Mercury	mg/kg (ppm)	5	96	80-120
Selenium	mg/kg (ppm)	5	93	80-120
Silver	mg/kg (ppm)	10	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003120-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.01	100	98	75-125	2
Cadmium	ug/L (ppb)	5	<1	97	95	75-125	2
Chromium	ug/L (ppb)	20	<1	99	97	75-125	2
Lead	ug/L (ppb)	10	<1	91	90	75-125	1
Mercury	ug/L (ppb)	5	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003166-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.19	86	80	75-125	7
Cadmium	ug/L (ppb)	5	<1	97	93	75-125	4
Chromium	ug/L (ppb)	20	3.87	99	96	75-125	3
Lead	ug/L (ppb)	10	3.62	94	91	75-125	3
Mercury	ug/L (ppb)	5	<1	97	96	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	97	80-120
Chromium	ug/L (ppb)	20	102	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 003160-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Methylene chloride	mg/kg (ppm)	<0.02	<0.02	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	0.05	82	83	70-130	1
Vinyl chloride	mg/kg (ppm)	0.05	85	87	70-130	2
Chloroethane	mg/kg (ppm)	0.05	82	84	70-130	2
Trichlorofluoromethane	mg/kg (ppm)	0.05	83	86	70-130	4
1,1-Dichloroethene	mg/kg (ppm)	0.05	84	88	70-130	5
Methylene chloride	mg/kg (ppm)	0.05	72	75	70-130	4
trans-1,2-Dichloroethene	mg/kg (ppm)	0.05	84	89	70-130	6
1,1-Dichloroethane	mg/kg (ppm)	0.05	86	90	70-130	5
2,2-Dichloropropane	mg/kg (ppm)	0.05	82	83	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.05	86	90	70-130	5
Chloroform	mg/kg (ppm)	0.05	90	92	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.05	85	87	70-130	2
1,1-Dichloropropene	mg/kg (ppm)	0.05	95	98	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.05	85	88	70-130	3
Benzene	mg/kg (ppm)	0.05	90	92	70-130	2
Trichloroethene	mg/kg (ppm)	0.05	99	103	70-130	4
1,2-Dichloropropane	mg/kg (ppm)	0.05	102	103	70-130	1
Bromodichloromethane	mg/kg (ppm)	0.05	103	104	70-130	1
Toluene	mg/kg (ppm)	0.05	99	102	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.05	106	109	70-130	3
1,3-Dichloropropane	mg/kg (ppm)	0.05	109	112	70-130	3
Tetrachloroethene	mg/kg (ppm)	0.05	98	103	70-130	5
Dibromochloromethane	mg/kg (ppm)	0.05	104	106	70-130	2
Chlorobenzene	mg/kg (ppm)	0.05	100	105	70-130	5
Ethylbenzene	mg/kg (ppm)	0.05	97	101	70-130	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.05	87	91	70-130	4
m,p-Xylene	mg/kg (ppm)	0.1	98	102	70-130	4
o-Xylene	mg/kg (ppm)	0.05	93	97	70-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.05	107	111	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	0.05	106	111	70-130	5
2-Chlorotoluene	mg/kg (ppm)	0.05	106	110	70-130	4
4-Chlorotoluene	mg/kg (ppm)	0.05	110	114	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.05	104	107	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	0.05	105	109	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	0.05	106	108	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.05	101	104	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.05	101	106	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.05	100	102	70-130	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.05	95	101	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

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

Laboratory Code: 003192-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<2	130	25-166
Vinyl chloride	ug/L (ppb)	50	<0.04	134	36-166
Chloroethane	ug/L (ppb)	50	<0.2	131	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<0.2	122	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<0.2	121	60-136
Methylene chloride	ug/L (ppb)	50	<1	109	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	106	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<0.2	102	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<0.2	110	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	102	71-127
Chloroform	ug/L (ppb)	50	<0.2	100	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<0.2	105	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<0.2	94	69-133
Carbon tetrachloride	ug/L (ppb)	50	<0.2	111	56-152
Benzene	ug/L (ppb)	50	<0.1	94	76-125
Trichloroethene	ug/L (ppb)	50	<0.2	88	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<0.2	92	78-125
Bromodichloromethane	ug/L (ppb)	50	<0.2	99	61-150
Toluene	ug/L (ppb)	50	<0.2	102	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<0.2	100	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<0.2	96	71-128
Tetrachloroethene	ug/L (ppb)	50	<0.2	105	10-226
Dibromochloromethane	ug/L (ppb)	50	<0.2	112	70-139
Chlorobenzene	ug/L (ppb)	50	<0.2	102	77-122
Ethylbenzene	ug/L (ppb)	50	<0.2	105	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	124	73-137
m,p-Xylene	ug/L (ppb)	100	<0.4	106	69-135
o-Xylene	ug/L (ppb)	50	<0.2	110	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	107	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<0.2	99	53-150
2-Chlorotoluene	ug/L (ppb)	50	<0.2	103	66-127
4-Chlorotoluene	ug/L (ppb)	50	<0.2	100	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<0.2	108	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<0.2	108	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<0.2	106	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<0.2	112	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<2	117	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<0.2	115	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<0.2	121	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/20

Date Received: 03/10/20

Project: 1940904, F&BI 003160

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	119	110	45-156	8
Vinyl chloride	ug/L (ppb)	50	123	117	50-154	5
Chloroethane	ug/L (ppb)	50	122	117	58-146	4
Trichlorofluoromethane	ug/L (ppb)	250	115	113	50-150	2
1,1-Dichloroethene	ug/L (ppb)	50	113	113	67-136	0
Methylene chloride	ug/L (ppb)	50	108	100	39-148	8
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	97	68-128	6
1,1-Dichloroethane	ug/L (ppb)	50	104	94	79-121	10
2,2-Dichloropropane	ug/L (ppb)	50	117	101	55-143	15
cis-1,2-Dichloroethene	ug/L (ppb)	50	101	95	80-123	6
Chloroform	ug/L (ppb)	50	102	95	80-121	7
1,1,1-Trichloroethane	ug/L (ppb)	50	109	98	81-125	11
1,1-Dichloropropene	ug/L (ppb)	50	93	91	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	114	104	75-158	9
Benzene	ug/L (ppb)	50	93	91	69-134	2
Trichloroethene	ug/L (ppb)	50	89	89	79-113	0
1,2-Dichloropropane	ug/L (ppb)	50	94	91	77-123	3
Bromodichloromethane	ug/L (ppb)	50	100	96	81-133	4
Toluene	ug/L (ppb)	50	104	100	72-122	4
1,1,2-Trichloroethane	ug/L (ppb)	50	102	101	75-124	1
1,3-Dichloropropane	ug/L (ppb)	50	98	98	76-126	0
Tetrachloroethene	ug/L (ppb)	50	103	101	76-121	2
Dibromochloromethane	ug/L (ppb)	50	111	110	84-133	1
Chlorobenzene	ug/L (ppb)	50	101	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	108	101	77-124	7
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	127	115	84-127	10
m,p-Xylene	ug/L (ppb)	100	108	103	81-112	5
o-Xylene	ug/L (ppb)	50	112	104	81-121	7
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	109	106	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	102	97	67-124	5
2-Chlorotoluene	ug/L (ppb)	50	105	100	77-127	5
4-Chlorotoluene	ug/L (ppb)	50	101	99	78-128	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	109	103	79-122	6
1,3-Dichlorobenzene	ug/L (ppb)	50	106	105	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	103	103	83-107	0
1,2-Dichlorobenzene	ug/L (ppb)	50	111	106	84-112	5
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	124	112	57-141	10
Hexachlorobutadiene	ug/L (ppb)	50	110	104	53-141	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	110	108	65-136	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
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(206) 285-8282  
fbi@isomedia.com  
www.friedmanandbruya.com

January 12, 2021

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the amended results from the testing of material submitted on March 12, 2020 from the 1940904, F&BI 003203 project. The case narrative was updated.

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: Becca Dozier  
HCR0320R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
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March 20, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 12, 2020 from the 1940904, F&BI 003203 project. There are 36 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0320R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 12, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003203 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003203 -01	HMW-1IB-GW-0310
003203 -02	HMW-4IA
003203 -03	Tripblank0310
003203 -04	HMW-1S
003203 -05	HMW-8IB
003203 -06	HMW-11S
003203 -07	Tripblank0311

A 6020B internal standard failed the acceptance criteria for sample HMW-1S. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

1,1,2,2-Tetrachloroethane exceeded the acceptance criteria in the 8260D matrix spike sample. The compound was not detected, therefore the data were acceptable.

The NWTPH-Dx concentration reported in sample HMW-11S was primarily due to two discrete peaks. A pattern of peaks indicating a middle distillate product, such as diesel fuel #2, was not observed. The data were qualified accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20  
Date Received: 03/12/20  
Project: 1940904, F&BI 003203  
Date Extracted: 03/16/20  
Date Analyzed: 03/16/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-1IB-GW-0310 003203-01	<100	93
HMW-4IA 003203-02	<100	87
HMW-1S 003203-04	<100	90
HMW-8IB 003203-05	<100	91
HMW-11S 003203-06	<100	87
Method Blank 00-642 MB	<100	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20  
Date Received: 03/12/20  
Project: 1940904, F&BI 003203  
Date Extracted: 03/13/20  
Date Analyzed: 03/13/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-1IB-GW-0310 003203-01 1/1.2	<60	<300	102
HMW-4IA 003203-02	<50	<250	101
HMW-1S 003203-04	200 x	<250	96
HMW-8IB 003203-05	<50	<250	87
HMW-11S 003203-06	620 x	<250	83
Method Blank 00-632 MB2	<50	<250	146

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-1IB-GW-0310	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-01
Date Analyzed:	03/13/20	Data File:	003203-01.074
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-41A	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-02
Date Analyzed:	03/13/20	Data File:	003203-02.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.03
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-1S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-04
Date Analyzed:	03/13/20	Data File:	003203-04.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	13.5
Cadmium	<1
Chromium	<5 J
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-1S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-04 x10
Date Analyzed:	03/13/20	Data File:	003203-04 x10.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Chromium	<50
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-8IB	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-05
Date Analyzed:	03/13/20	Data File:	003203-05.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.7
Cadmium	<1
Chromium	25.3
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-11S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-06
Date Analyzed:	03/13/20	Data File:	003203-06.080
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.14
Cadmium	<1
Chromium	5.81
Lead	1.65
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	I0-153 mb
Date Analyzed:	03/13/20	Data File:	I0-153 mb.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-1S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/17/20	Lab ID:	003203-04
Date Analyzed:	03/17/20	Data File:	003203-04.184
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	15.6 ca
Cadmium	<1
Chromium	10.5 J
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-1S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/17/20	Lab ID:	003203-04 x10
Date Analyzed:	03/19/20	Data File:	003203-04 x10.069
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	12.3
Chromium	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-8IB	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/17/20	Lab ID:	003203-05
Date Analyzed:	03/19/20	Data File:	003203-05.070
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.67
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-11S f	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/18/20	Lab ID:	003203-06
Date Analyzed:	03/18/20	Data File:	003203-06.149
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.57
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003203
Date Extracted:	03/18/20	Lab ID:	I0-165 mb
Date Analyzed:	03/18/20	Data File:	I0-165 mb.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003203
Date Extracted:	03/17/20	Lab ID:	I0-156 mb2
Date Analyzed:	03/17/20	Data File:	I0-156 mb2.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<5
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-11B-GW-0310	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-01
Date Analyzed:	03/14/20	Data File:	031354.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	108	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	13
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	16	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	5.6	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-4IA	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-02
Date Analyzed:	03/14/20	Data File:	031355.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.41	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0310	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-03
Date Analyzed:	03/14/20	Data File:	031356.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-1S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-04
Date Analyzed:	03/14/20	Data File:	031357.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-8IB	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-05
Date Analyzed:	03/14/20	Data File:	031358.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.22	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-11S	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-06
Date Analyzed:	03/14/20	Data File:	031359.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	0.20	1,2,3-Trichloropropane	<0.04 j
Chloroform	0.26	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0311	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	003203-07
Date Analyzed:	03/14/20	Data File:	031360.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003203
Date Extracted:	03/13/20	Lab ID:	00-615 mb
Date Analyzed:	03/13/20	Data File:	031338.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.11 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-4IA	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/12/20	Lab ID:	003203-02 1/2
Date Analyzed:	03/13/20	Data File:	031313.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	109	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-8IB	Client:	Hart Crowser
Date Received:	03/12/20	Project:	1940904, F&BI 003203
Date Extracted:	03/12/20	Lab ID:	003203-05 1/2
Date Analyzed:	03/13/20	Data File:	031314.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	31	160
Benzo(a)anthracene-d12	104	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003203
Date Extracted:	03/12/20	Lab ID:	00-631 mb
Date Analyzed:	03/13/20	Data File:	031305.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	160
Benzo(a)anthracene-d12	108	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

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

Laboratory Code: 003197-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	3,900	233 b	196 b	53-117	17 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	104	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 003197-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	26,000	108 b	1 b	50-150	196 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	92	108	63-142	16

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003197-03 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	110	111	75-125	1
Cadmium	ug/L (ppb)	5	<10	98	95	75-125	3
Chromium	ug/L (ppb)	20	<50	95	92	75-125	3
Lead	ug/L (ppb)	10	<10	98	97	75-125	1
Mercury	ug/L (ppb)	5	<10	93	94	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	87	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	92	80-120
Mercury	ug/L (ppb)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003177-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	106	108	75-125	2
Cadmium	ug/L (ppb)	5	<1	96	96	75-125	0
Chromium	ug/L (ppb)	20	<5	95	98	75-125	3
Lead	ug/L (ppb)	10	<1	93	92	75-125	1
Mercury	ug/L (ppb)	5	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	99	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003167-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	116	118	75-125	2
Cadmium	ug/L (ppb)	5	<1	99	97	75-125	2
Chromium	ug/L (ppb)	20	<5	102	96	75-125	6
Lead	ug/L (ppb)	10	<1	95	95	75-125	0
Mercury	ug/L (ppb)	5	<1	94	98	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	96	80-120
Cadmium	ug/L (ppb)	5	98	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	98	80-120
Mercury	ug/L (ppb)	5	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

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

Laboratory Code: 003203-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<2	97	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	101	61-139
Chloroethane	ug/L (ppb)	50	<0.2	98	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<0.2	98	65-137
1,1-Dichloroethene	ug/L (ppb)	50	<0.2	103	71-123
Methylene chloride	ug/L (ppb)	50	<5	94	61-126
trans-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	101	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<0.2	104	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<0.2	77	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	16	113 b	63-126
Chloroform	ug/L (ppb)	50	<0.2	103	77-117
1,1,1-Trichloroethane	ug/L (ppb)	50	<0.2	103	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<0.2	107	67-121
Carbon tetrachloride	ug/L (ppb)	50	<0.2	100	70-132
Benzene	ug/L (ppb)	50	<0.2	100	75-114
Trichloroethene	ug/L (ppb)	50	5.6	103	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<0.2	101	80-111
Bromodichloromethane	ug/L (ppb)	50	<0.2	100	78-117
Toluene	ug/L (ppb)	50	<0.2	103	73-117
1,1,2-Trichloroethane	ug/L (ppb)	50	<0.2	112	81-116
1,3-Dichloropropane	ug/L (ppb)	50	<0.2	112	80-113
Tetrachloroethene	ug/L (ppb)	50	13	96 b	40-155
Dibromochloromethane	ug/L (ppb)	50	<0.2	103	69-129
Chlorobenzene	ug/L (ppb)	50	<0.2	103	75-115
Ethylbenzene	ug/L (ppb)	50	<0.2	104	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	109	76-130
m,p-Xylene	ug/L (ppb)	100	<0.4	109	63-128
o-Xylene	ug/L (ppb)	50	<0.2	109	64-129
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	124 vo	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<0.04	123	62-125
2-Chlorotoluene	ug/L (ppb)	50	<0.2	100	40-159
4-Chlorotoluene	ug/L (ppb)	50	<0.2	100	76-122
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<0.2	105	59-136
1,3-Dichlorobenzene	ug/L (ppb)	50	<0.2	95	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<0.2	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<0.2	103	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<0.11	125	69-129
Hexachlorobutadiene	ug/L (ppb)	50	<0.2	94	53-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<0.2	116	59-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	91	91	62-130	0
Vinyl chloride	ug/L (ppb)	50	94	95	70-128	1
Chloroethane	ug/L (ppb)	50	90	91	66-149	1
Trichlorofluoromethane	ug/L (ppb)	50	95	95	65-138	0
1,1-Dichloroethene	ug/L (ppb)	50	94	93	72-121	1
Methylene chloride	ug/L (ppb)	50	86	87	63-132	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	93	93	76-118	0
1,1-Dichloroethane	ug/L (ppb)	50	96	97	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	86	91	62-141	6
cis-1,2-Dichloroethene	ug/L (ppb)	50	97	99	76-119	2
Chloroform	ug/L (ppb)	50	97	97	78-117	0
1,1,1-Trichloroethane	ug/L (ppb)	50	96	96	80-116	0
1,1-Dichloropropene	ug/L (ppb)	50	104	104	78-119	0
Carbon tetrachloride	ug/L (ppb)	50	95	96	72-128	1
Benzene	ug/L (ppb)	50	98	98	75-116	0
Trichloroethene	ug/L (ppb)	50	105	105	72-119	0
1,2-Dichloropropane	ug/L (ppb)	50	103	104	79-121	1
Bromodichloromethane	ug/L (ppb)	50	102	103	76-120	1
Toluene	ug/L (ppb)	50	103	104	79-115	1
1,1,2-Trichloroethane	ug/L (ppb)	50	102	108	78-120	6
1,3-Dichloropropane	ug/L (ppb)	50	105	109	81-111	4
Tetrachloroethene	ug/L (ppb)	50	97	97	78-109	0
Dibromochloromethane	ug/L (ppb)	50	103	107	63-140	4
Chlorobenzene	ug/L (ppb)	50	103	103	80-113	0
Ethylbenzene	ug/L (ppb)	50	102	102	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	100	104	76-125	4
m,p-Xylene	ug/L (ppb)	100	105	106	81-112	1
o-Xylene	ug/L (ppb)	50	103	106	81-117	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	97	105	79-118	8
1,2,3-Trichloropropane	ug/L (ppb)	50	100	107	74-116	7
2-Chlorotoluene	ug/L (ppb)	50	104	103	79-112	1
4-Chlorotoluene	ug/L (ppb)	50	105	105	80-116	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	106	105	81-121	1
1,3-Dichlorobenzene	ug/L (ppb)	50	97	98	80-115	1
1,4-Dichlorobenzene	ug/L (ppb)	50	100	99	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	101	79-115	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	92	104	62-133	12
Hexachlorobutadiene	ug/L (ppb)	50	99	99	70-116	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	101	74-122	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/20

Date Received: 03/12/20

Project: 1940904, F&BI 003203

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	74	77	57-114	4
Acenaphthylene	ug/L (ppb)	1	81	81	65-119	0
Acenaphthene	ug/L (ppb)	1	77	80	66-118	4
Fluorene	ug/L (ppb)	1	82	87	64-125	6
Phenanthrene	ug/L (ppb)	1	81	84	67-120	4
Anthracene	ug/L (ppb)	1	85	90	65-122	6
Fluoranthene	ug/L (ppb)	1	85	88	65-127	3
Pyrene	ug/L (ppb)	1	82	85	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	89	92	60-118	3
Chrysene	ug/L (ppb)	1	87	90	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	80	82	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	81	84	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	79	84	36-142	6
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	91	37-133	9
Benzo(g,h,i)perylene	ug/L (ppb)	1	74	77	34-135	4

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record 003203

Samples Shipped to: F&B

JOB <u>1990964</u>		LAB NUMBER _____													
PROJECT NAME <u>WMB</u>		HART CROWSER CONTACT <u>M. Goodman + B. DeJes</u>													
SAMPLED BY: <u>B. DeJes, B. Lythe, J. Brandeffer</u>															
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS				NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS				
						NWTPH-Gx	NWTPH-Dx	HVOCs + BTEX	MICA Metals - Total	MICA Metals - Div		PAHs			
<del>0446</del>	HMWD-15		3/11/20	11:15	Had	X	X	X	X	X		7			
05A-H	HMWD-8IB			16:42		X	X	X	X	X		8			
06A-G	HMWD-11S			14:25		X	X	X	X	X		7	7 could not yield still in presence Poly for lab analysis		
07A-B	Triphenylborate					X						2			
Samples received at <u>4</u> °C															
RELINQUISHED BY <u>M. Goodman</u>						RECEIVED BY <u>B. DeJes</u>						TOTAL NUMBER OF CONTAINERS			
SIGNATURE <u>M. Goodman</u>		DATE <u>3/12/20</u>		SIGNATURE <u>B. DeJes</u>		DATE <u>3/12/20</u>		TIME <u>08:45</u>		TIME <u>08:45</u>		TIME <u>08:45</u>		TIME <u>08:45</u>	
PRINT NAME <u>M. Goodman</u>		TIME		PRINT NAME <u>B. DeJes</u>		TIME		COMPANY <u>F&amp;B</u>		COMPANY <u>F&amp;B</u>		COMPANY <u>F&amp;B</u>		COMPANY <u>F&amp;B</u>	
RELINQUISHED BY		DATE		RECEIVED BY		DATE		COOLER NO.:		STORAGE LOCATION:		TURNAROUND TIME:		SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> GOVERNMENT	
SIGNATURE		TIME		SIGNATURE		TIME		See Lab Work Order No. _____		for Other Contract Requirements		<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 48 HOURS <input type="checkbox"/> 72 HOURS <input checked="" type="checkbox"/> STANDARD OTHER _____		<input type="checkbox"/> 1 WEEK <input checked="" type="checkbox"/> STANDARD OTHER _____	
PRINT NAME		TIME		PRINT NAME		TIME		SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:		SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:		SAMPLE RECEIPT INFORMATION		CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	
COMPANY		TIME		COMPANY		TIME		GOOD CONDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO		TEMPERATURE		SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> GOVERNMENT		TEMPERATURE	

White to Lab      Yellow to Project Manager      Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 23, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 13, 2020 from the 1940904, F&BI 003233 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0323R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 13, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003233 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003233 -01	HMW-2S
003233 -02	HMW-2IA
003233 -03	HMW-2D
003233 -04	HMW-2IB
003233 -05	HMW-7IB
003233 -06	Tripblank0312

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20  
Date Received: 03/13/20  
Project: 1940904, F&BI 003233  
Date Extracted: 03/16/20  
Date Analyzed: 03/17/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-2S 003233-01	<100	90
HMW-2IA 003233-02	160	90
HMW-2D 003233-03	<100	90
HMW-2IB 003233-04	<100	89
HMW-7IB 003233-05	<100	88
Method Blank 00-642 MB	<100	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20  
Date Received: 03/13/20  
Project: 1940904, F&BI 003233  
Date Extracted: 03/16/20  
Date Analyzed: 03/16/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-2S 003233-01	56 x	<260	85
HMW-2IA 003233-02	<51	<250	79
HMW-2D 003233-03	86 x	<250	82
HMW-2IB 003233-04	<51	<260	86
HMW-7IB 003233-05	<52	<260	94
Method Blank 00-636 MB	<50	<250	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-2S	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	003233-01
Date Analyzed:	03/18/20	Data File:	003233-01.161
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	7.48
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-2IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	003233-02
Date Analyzed:	03/19/20	Data File:	003233-02.155
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.10
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-2D	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	003233-03
Date Analyzed:	03/19/20	Data File:	003233-03.156
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.36
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-2IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	003233-04
Date Analyzed:	03/19/20	Data File:	003233-04.157
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.49
Cadmium	<1
Chromium	1.09
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-7IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	003233-05
Date Analyzed:	03/19/20	Data File:	003233-05.158
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.36
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003233
Date Extracted:	03/18/20	Lab ID:	I0-162 mb2
Date Analyzed:	03/18/20	Data File:	I0-162 mb2.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-2S	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-01
Date Analyzed:	03/13/20	Data File:	031340.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	93	63	127
4-Bromofluorobenzene	89	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.26	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	0.20	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-2IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-02
Date Analyzed:	03/13/20	Data File:	031341.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	57	121
Toluene-d8	92	63	127
4-Bromofluorobenzene	89	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	1.1	Tetrachloroethene	250 ve
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	2.1	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	0.32	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	180 ve	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	65	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-2IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-02 1/10
Date Analyzed:	03/16/20	Data File:	031639.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<20	1,3-Dichloropropane	<2
Vinyl chloride	<2	Tetrachloroethene	210
Chloroethane	<2	Dibromochloromethane	<2
Trichlorofluoromethane	<2 j	Chlorobenzene	<2
1,1-Dichloroethene	1.5	Ethylbenzene	<2
Methylene chloride	<50	1,1,1,2-Tetrachloroethane	<2
trans-1,2-Dichloroethene	<2	m,p-Xylene	<4
1,1-Dichloroethane	<2	o-Xylene	<2
2,2-Dichloropropane	<2	1,1,2,2-Tetrachloroethane	<2
cis-1,2-Dichloroethene	180	1,2,3-Trichloropropane	<0.3 j
Chloroform	<2	2-Chlorotoluene	<2
1,1,1-Trichloroethane	<2	4-Chlorotoluene	<2
1,1-Dichloropropene	<2	1,2,4-Trimethylbenzene	<2
Carbon tetrachloride	<2	1,3-Dichlorobenzene	<2
Benzene	<2	1,4-Dichlorobenzene	<2
Trichloroethene	69	1,2-Dichlorobenzene	<2
1,2-Dichloropropane	<2	1,2-Dibromo-3-chloropropane	<8 j
Bromodichloromethane	<2	Hexachlorobutadiene	<2
Toluene	<2	1,2,3-Trichlorobenzene	<2
1,1,2-Trichloroethane	<2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-2D	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-03
Date Analyzed:	03/16/20	Data File:	031635.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	1.1	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-2IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-04
Date Analyzed:	03/16/20	Data File:	031636.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	0.38
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	0.59	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-7IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-05
Date Analyzed:	03/13/20	Data File:	031344.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	93	63	127
4-Bromofluorobenzene	93	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0312	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	003233-06
Date Analyzed:	03/13/20	Data File:	031345.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	90	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003233
Date Extracted:	03/13/20	Lab ID:	00-615 mb
Date Analyzed:	03/13/20	Data File:	031338.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-7IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003233
Date Extracted:	03/17/20	Lab ID:	003233-05 1/2
Date Analyzed:	03/19/20	Data File:	031904.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003233
Date Extracted:	03/17/20	Lab ID:	00-679 mb2
Date Analyzed:	03/18/20	Data File:	031803.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003197-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	3,900	233 b	196 b	53-117	17 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	104	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	76	84	63-142	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	96	100	80-120	4
Cadmium	ug/L (ppb)	5	97	97	80-120	0
Chromium	ug/L (ppb)	20	98	97	80-120	1
Lead	ug/L (ppb)	10	96	96	80-120	0
Mercury	ug/L (ppb)	5	96	99	80-120	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

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

Laboratory Code: 003203-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<2	97	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	101	61-139
Chloroethane	ug/L (ppb)	50	<0.2	98	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<0.2	98	65-137
1,1-Dichloroethene	ug/L (ppb)	50	<0.2	103	71-123
Methylene chloride	ug/L (ppb)	50	<5	94	61-126
trans-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	101	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<0.2	104	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<0.2	77	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	16	113 b	63-126
Chloroform	ug/L (ppb)	50	<0.2	103	77-117
1,1,1-Trichloroethane	ug/L (ppb)	50	<0.2	103	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<0.2	107	67-121
Carbon tetrachloride	ug/L (ppb)	50	<0.2	100	70-132
Benzene	ug/L (ppb)	50	<0.2	100	75-114
Trichloroethene	ug/L (ppb)	50	5.6	103	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<0.2	101	80-111
Bromodichloromethane	ug/L (ppb)	50	<0.2	100	78-117
Toluene	ug/L (ppb)	50	<0.2	103	73-117
1,1,2-Trichloroethane	ug/L (ppb)	50	<0.2	112	81-116
1,3-Dichloropropane	ug/L (ppb)	50	<0.2	112	80-113
Tetrachloroethene	ug/L (ppb)	50	13	96 b	40-155
Dibromochloromethane	ug/L (ppb)	50	<0.2	103	69-129
Chlorobenzene	ug/L (ppb)	50	<0.2	103	75-115
Ethylbenzene	ug/L (ppb)	50	<0.2	104	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	109	76-130
m,p-Xylene	ug/L (ppb)	100	<0.4	109	63-128
o-Xylene	ug/L (ppb)	50	<0.2	109	64-129
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	124 vo	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<0.03	123	62-125
2-Chlorotoluene	ug/L (ppb)	50	<0.2	100	40-159
4-Chlorotoluene	ug/L (ppb)	50	<0.2	100	76-122
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<0.2	105	59-136
1,3-Dichlorobenzene	ug/L (ppb)	50	<0.2	95	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<0.2	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<0.2	103	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<0.8	125	69-129
Hexachlorobutadiene	ug/L (ppb)	50	<0.2	94	53-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<0.2	116	59-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	91	91	62-130	0
Vinyl chloride	ug/L (ppb)	50	94	95	70-128	1
Chloroethane	ug/L (ppb)	50	90	91	66-149	1
Trichlorofluoromethane	ug/L (ppb)	50	95	95	65-138	0
1,1-Dichloroethene	ug/L (ppb)	50	94	93	72-121	1
Methylene chloride	ug/L (ppb)	50	86	87	63-132	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	93	93	76-118	0
1,1-Dichloroethane	ug/L (ppb)	50	96	97	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	86	91	62-141	6
cis-1,2-Dichloroethene	ug/L (ppb)	50	97	99	76-119	2
Chloroform	ug/L (ppb)	50	97	97	78-117	0
1,1,1-Trichloroethane	ug/L (ppb)	50	96	96	80-116	0
1,1-Dichloropropene	ug/L (ppb)	50	104	104	78-119	0
Carbon tetrachloride	ug/L (ppb)	50	95	96	72-128	1
Benzene	ug/L (ppb)	50	98	98	75-116	0
Trichloroethene	ug/L (ppb)	50	105	105	72-119	0
1,2-Dichloropropane	ug/L (ppb)	50	103	104	79-121	1
Bromodichloromethane	ug/L (ppb)	50	102	103	76-120	1
Toluene	ug/L (ppb)	50	103	104	79-115	1
1,1,2-Trichloroethane	ug/L (ppb)	50	102	108	78-120	6
1,3-Dichloropropane	ug/L (ppb)	50	105	109	81-111	4
Tetrachloroethene	ug/L (ppb)	50	97	97	78-109	0
Dibromochloromethane	ug/L (ppb)	50	103	107	63-140	4
Chlorobenzene	ug/L (ppb)	50	103	103	80-113	0
Ethylbenzene	ug/L (ppb)	50	102	102	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	100	104	76-125	4
m,p-Xylene	ug/L (ppb)	100	105	106	81-112	1
o-Xylene	ug/L (ppb)	50	103	106	81-117	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	97	105	79-118	8
1,2,3-Trichloropropane	ug/L (ppb)	50	100	107	74-116	7
2-Chlorotoluene	ug/L (ppb)	50	104	103	79-112	1
4-Chlorotoluene	ug/L (ppb)	50	105	105	80-116	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	106	105	81-121	1
1,3-Dichlorobenzene	ug/L (ppb)	50	97	98	80-115	1
1,4-Dichlorobenzene	ug/L (ppb)	50	100	99	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	101	79-115	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	92	104	62-133	12
Hexachlorobutadiene	ug/L (ppb)	50	99	99	70-116	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	101	74-122	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20

Date Received: 03/13/20

Project: 1940904, F&BI 003233

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

Laboratory Code: 003244-90 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	0.64	72 b	73 b	10-172	1 b
Acenaphthylene	ug/L (ppb)	1	<0.04	97	99	38-137	2
Acenaphthene	ug/L (ppb)	1	0.85	85 b	82 b	20-150	4 b
Fluorene	ug/L (ppb)	1	5.0	149 b	103 b	10-181	37 b
Phenanthrene	ug/L (ppb)	1	1.8	90 b	83 b	58-109	8 b
Anthracene	ug/L (ppb)	1	<0.04	88	92	47-114	4
Fluoranthene	ug/L (ppb)	1	<0.04	96	95	10-171	1
Pyrene	ug/L (ppb)	1	<0.04	81	89	63-107	9
Benz(a)anthracene	ug/L (ppb)	1	<0.04	95 vo	96 vo	60-93	1
Chrysene	ug/L (ppb)	1	<0.04	86	89	60-102	3
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.04	89	83	62-91	7
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.04	86	86	51-98	0
Benzo(a)pyrene	ug/L (ppb)	1	<0.04	88 vo	87 vo	60-86	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.04	65	67	10-98	3
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.04	64	62	10-97	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.04	55	56	10-102	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	72	76	57-114	5
Acenaphthylene	ug/L (ppb)	1	79	82	65-119	4
Acenaphthene	ug/L (ppb)	1	78	81	66-118	4
Fluorene	ug/L (ppb)	1	80	82	64-125	2
Phenanthrene	ug/L (ppb)	1	82	82	67-120	0
Anthracene	ug/L (ppb)	1	85	86	65-122	1
Fluoranthene	ug/L (ppb)	1	81	81	65-127	0
Pyrene	ug/L (ppb)	1	92	93	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	96	92	60-118	4
Chrysene	ug/L (ppb)	1	90	90	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	83	81	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	87	90	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	83	85	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	91	93	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	95	102	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	91	97	34-135	6

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

003233  
00233  
MP



**HART CROWSIER**

ME 03/13/20

Hart Crowsier, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

Samples Shipped to:

JOB 1940964 LAB NUMBER \_\_\_\_\_

PROJECT NAME MWB

HART CROWSIER CONTACT M. Goodman

SAMPLED BY: B. Dzier & A. Bakken

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
01 AG	HMW-25		3/12/20	1033	Had
02	HMW-25A			1327	
03	HMW-2D			1012	
04 AF	HMW-2IB			1334	
05 AH	HMW-75B			1636	
06 AB	Tip blank 0312				

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS
						NWTPH-6X
						NWTPH-DX
						HVOCs + BTEX
						MCA Metals - Total
						MCA Metals - Pb
						PAHs

NO. OF CONTAINERS: 7

OBSERVATIONS/COMMENTS/COMPOSITING INSTRUCTIONS: AI4/A05/uv2

COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS: \_\_\_\_\_

TURNAROUND TIME:  24 HOURS  1 WEEK  STANDARD  48 HOURS  72 HOURS  OTHER \_\_\_\_\_

SHIPMENT METHOD:  HAND  COURIER  OVERNIGHT

TEMPERATURE: \_\_\_\_\_

GOOD CONDITION:  YES  NO

CUSTOMY SEALS:  YES  NO

SAMPLE RECEIPT INFORMATION:  YES  NO

TOTAL NUMBER OF CONTAINERS: 37

Samples received at 4 °C

White to Lab Yellow to Project Manager Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 24, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 13, 2020 from the 1940904, F&BI 003245 project. There are 25 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0324R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 13, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003245 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003245 -01	HMW-3IA
003245 -02	HMW-3D
003245 -03	HMW-6IA
003245 -04	HMW-6IB
003245 -05	Tripblank0313

Benz(a)anthracene and benzo(a)pyrene exceeded the acceptance criteria in the 8270E matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

1,3-Dichloropropane in the 8260D laboratory control samples exceeded the acceptance criteria. The analyte was not detected in the samples, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/13/20  
Project: 1940904, F&BI 003245  
Date Extracted: 03/16/20  
Date Analyzed: 03/17/20 and 03/19/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-3IA 003245-01	190	103
HMW-3D 003245-02	<100	96
HMW-6IA 003245-03	<100	87
HMW-6IB 003245-04	<100	86
Method Blank 00-642 MB	<100	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/13/20  
Project: 1940904, F&BI 003245  
Date Extracted: 03/16/20  
Date Analyzed: 03/16/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-3IA 003245-01	150 x	<250	98
HMW-3D 003245-02	480 x	<250	108
HMW-6IA 003245-03	160 x	<250	108
HMW-6IB 003245-04	83 x	<250	94
Method Blank 00-636 MB	<50	<250	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-31A	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/18/20	Lab ID:	003245-01
Date Analyzed:	03/19/20	Data File:	003245-01.169
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.57
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-3D	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/18/20	Lab ID:	003245-02
Date Analyzed:	03/19/20	Data File:	003245-02.170
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.69
Cadmium	<1
Chromium	2.29
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/18/20	Lab ID:	003245-03
Date Analyzed:	03/19/20	Data File:	003245-03.178
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.84
Cadmium	<1
Chromium	9.31
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/18/20	Lab ID:	003245-04
Date Analyzed:	03/19/20	Data File:	003245-04.179
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.55
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003245
Date Extracted:	03/18/20	Lab ID:	I0-162 mb2
Date Analyzed:	03/18/20	Data File:	I0-162 mb2.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/17/20	Lab ID:	003245-03 1/2
Date Analyzed:	03/19/20	Data File:	031905.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85	31	160
Benzo(a)anthracene-d12	104	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/17/20	Lab ID:	003245-04 1/2
Date Analyzed:	03/19/20	Data File:	031906.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	31	160
Benzo(a)anthracene-d12	102	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003245
Date Extracted:	03/17/20	Lab ID:	00-679 mb2
Date Analyzed:	03/18/20	Data File:	031803.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-3IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	003245-01
Date Analyzed:	03/16/20	Data File:	031616.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	1.4	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-3D	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	003245-02
Date Analyzed:	03/16/20	Data File:	031617.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-6IA	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	003245-03
Date Analyzed:	03/16/20	Data File:	031618.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-6IB	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	003245-04
Date Analyzed:	03/16/20	Data File:	031619.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0313	Client:	Hart Crowser
Date Received:	03/13/20	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	003245-05
Date Analyzed:	03/16/20	Data File:	031620.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003245
Date Extracted:	03/16/20	Lab ID:	00-621 mb
Date Analyzed:	03/16/20	Data File:	031615.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

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

Laboratory Code: 003197-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	3,900	233 b	196 b	53-117	17 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	104	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	76	84	63-142	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	96	100	80-120	4
Cadmium	ug/L (ppb)	5	97	97	80-120	0
Chromium	ug/L (ppb)	20	98	97	80-120	1
Lead	ug/L (ppb)	10	96	96	80-120	0
Mercury	ug/L (ppb)	5	96	99	80-120	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

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

Laboratory Code: 003244-90 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	0.64	72 b	73 b	10-172	1 b
Acenaphthylene	ug/L (ppb)	1	<0.04	97	99	38-137	2
Acenaphthene	ug/L (ppb)	1	0.85	85 b	82 b	20-150	4 b
Fluorene	ug/L (ppb)	1	5.0	149 b	103 b	10-181	37 b
Phenanthrene	ug/L (ppb)	1	1.8	90 b	83 b	58-109	8 b
Anthracene	ug/L (ppb)	1	<0.04	88	92	47-114	4
Fluoranthene	ug/L (ppb)	1	<0.04	96	95	10-171	1
Pyrene	ug/L (ppb)	1	<0.04	81	89	63-107	9
Benz(a)anthracene	ug/L (ppb)	1	<0.04	95 vo	96 vo	60-93	1
Chrysene	ug/L (ppb)	1	<0.04	86	89	60-102	3
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.04	89	83	62-91	7
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.04	86	86	51-98	0
Benzo(a)pyrene	ug/L (ppb)	1	<0.04	88 vo	87 vo	60-86	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.04	65	67	10-98	3
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.04	64	62	10-97	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.04	55	56	10-102	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	72	76	57-114	5
Acenaphthylene	ug/L (ppb)	1	79	82	65-119	4
Acenaphthene	ug/L (ppb)	1	78	81	66-118	4
Fluorene	ug/L (ppb)	1	80	82	64-125	2
Phenanthrene	ug/L (ppb)	1	82	82	67-120	0
Anthracene	ug/L (ppb)	1	85	86	65-122	1
Fluoranthene	ug/L (ppb)	1	81	81	65-127	0
Pyrene	ug/L (ppb)	1	92	93	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	96	92	60-118	4
Chrysene	ug/L (ppb)	1	90	90	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	83	81	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	87	90	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	83	85	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	91	93	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	95	102	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	91	97	34-135	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

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

Laboratory Code: 003244-90 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	<10	103	106	57-129	3
Vinyl chloride	ug/L (ppb)	50	<0.2	110	112	61-139	2
Chloroethane	ug/L (ppb)	50	<1	109	113	55-149	4
Trichlorofluoromethane	ug/L (ppb)	50	<1	109	111	65-137	2
1,1-Dichloroethene	ug/L (ppb)	50	<1	112	116	71-123	4
Methylene chloride	ug/L (ppb)	50	<5	100	103	61-126	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	108	111	72-122	3
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	106	79-113	3
2,2-Dichloropropane	ug/L (ppb)	50	<1	93	97	48-157	4
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	109	111	63-126	2
Chloroform	ug/L (ppb)	50	<1	102	104	77-117	2
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	107	112	75-121	5
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	101	67-121	1
Carbon tetrachloride	ug/L (ppb)	50	<1	105	110	70-132	5
Benzene	ug/L (ppb)	50	1.3	99	100	75-114	1
Trichloroethene	ug/L (ppb)	50	<1	99	99	73-122	0
1,2-Dichloropropane	ug/L (ppb)	50	3.4	99	101	80-111	2
Bromodichloromethane	ug/L (ppb)	50	<1	96	96	78-117	0
Toluene	ug/L (ppb)	50	2.3	98	99	73-117	1
1,1,2-Trichloroethane	ug/L (ppb)	50	2.5	99	102	81-116	3
1,3-Dichloropropane	ug/L (ppb)	50	<1	93	93	80-113	0
Tetrachloroethene	ug/L (ppb)	50	<1	92	93	40-155	1
Dibromochloromethane	ug/L (ppb)	50	<1	96	96	69-129	0
Chlorobenzene	ug/L (ppb)	50	<1	101	103	75-115	2
Ethylbenzene	ug/L (ppb)	50	1.3	103	106	66-124	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	103	111	76-130	7
m,p-Xylene	ug/L (ppb)	100	2.2	108	111	63-128	3
o-Xylene	ug/L (ppb)	50	<1	111	115	64-129	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	95	96	77-120	1
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	96	98	62-125	2
2-Chlorotoluene	ug/L (ppb)	50	<1	100	100	40-159	0
4-Chlorotoluene	ug/L (ppb)	50	<1	100	100	76-122	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	105	106	59-136	1
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	95	96	77-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	98	75-110	0
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	97	99	70-120	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	13	81 b	86 b	69-129	6 b
Hexachlorobutadiene	ug/L (ppb)	50	<1	82	87	53-136	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	86	93	59-130	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

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

Laboratory Code: 003245-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Chloromethane	ug/L (ppb)	50	<2	83	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	87	61-139
Chloroethane	ug/L (ppb)	50	<0.2	84	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<0.2	89	65-137
1,1-Dichloroethene	ug/L (ppb)	50	<0.2	88	71-123
Methylene chloride	ug/L (ppb)	50	<5	81	61-126
trans-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	88	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<0.2	90	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<0.2	80	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<0.2	92	63-126
Chloroform	ug/L (ppb)	50	<0.2	93	77-117
1,1,1-Trichloroethane	ug/L (ppb)	50	<0.2	89	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<0.2	100	67-121
Carbon tetrachloride	ug/L (ppb)	50	<0.2	89	70-132
Benzene	ug/L (ppb)	50	1.4	95	75-114
Trichloroethene	ug/L (ppb)	50	<0.2	103	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<0.2	99	80-111
Bromodichloromethane	ug/L (ppb)	50	<0.2	102	78-117
Toluene	ug/L (ppb)	50	<0.2	99	73-117
1,1,2-Trichloroethane	ug/L (ppb)	50	<0.2	107	81-116
1,3-Dichloropropane	ug/L (ppb)	50	<0.2	109	80-113
Tetrachloroethene	ug/L (ppb)	50	<0.2	94	40-155
Dibromochloromethane	ug/L (ppb)	50	<0.2	105	69-129
Chlorobenzene	ug/L (ppb)	50	<0.2	101	75-115
Ethylbenzene	ug/L (ppb)	50	<0.2	97	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	97	76-130
m,p-Xylene	ug/L (ppb)	100	<0.4	101	63-128
o-Xylene	ug/L (ppb)	50	<0.2	100	64-129
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	105	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<0.03	106	62-125
2-Chlorotoluene	ug/L (ppb)	50	<0.2	96	40-159
4-Chlorotoluene	ug/L (ppb)	50	<0.2	99	76-122
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<0.2	99	59-136
1,3-Dichlorobenzene	ug/L (ppb)	50	<0.2	92	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<0.2	95	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<0.2	96	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<0.8	96	69-129
Hexachlorobutadiene	ug/L (ppb)	50	<0.2	90	53-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<0.2	92	59-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/13/20

Project: 1940904, F&BI 003245

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	96	88	62-130	9
Vinyl chloride	ug/L (ppb)	50	100	91	70-128	9
Chloroethane	ug/L (ppb)	50	94	86	66-149	9
Trichlorofluoromethane	ug/L (ppb)	50	98	92	65-138	6
1,1-Dichloroethene	ug/L (ppb)	50	96	90	72-121	6
Methylene chloride	ug/L (ppb)	50	87	80	63-132	8
trans-1,2-Dichloroethene	ug/L (ppb)	50	95	88	76-118	8
1,1-Dichloroethane	ug/L (ppb)	50	97	90	77-119	7
2,2-Dichloropropane	ug/L (ppb)	50	88	76	62-141	15
cis-1,2-Dichloroethene	ug/L (ppb)	50	100	93	76-119	7
Chloroform	ug/L (ppb)	50	99	93	78-117	6
1,1,1-Trichloroethane	ug/L (ppb)	50	98	90	80-116	9
1,1-Dichloropropene	ug/L (ppb)	50	106	101	78-119	5
Carbon tetrachloride	ug/L (ppb)	50	98	90	72-128	9
Benzene	ug/L (ppb)	50	100	96	75-116	4
Trichloroethene	ug/L (ppb)	50	106	104	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	103	101	79-121	2
Bromodichloromethane	ug/L (ppb)	50	105	104	76-120	1
Toluene	ug/L (ppb)	50	103	99	79-115	4
1,1,2-Trichloroethane	ug/L (ppb)	50	109	108	78-120	1
1,3-Dichloropropane	ug/L (ppb)	50	113 vo	114 vo	81-111	1
Tetrachloroethene	ug/L (ppb)	50	98	95	78-109	3
Dibromochloromethane	ug/L (ppb)	50	110	108	63-140	2
Chlorobenzene	ug/L (ppb)	50	105	102	80-113	3
Ethylbenzene	ug/L (ppb)	50	102	97	83-111	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	103	97	76-125	6
m,p-Xylene	ug/L (ppb)	100	105	101	81-112	4
o-Xylene	ug/L (ppb)	50	105	98	81-117	7
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	112	109	79-118	3
1,2,3-Trichloropropane	ug/L (ppb)	50	111	110	74-116	1
2-Chlorotoluene	ug/L (ppb)	50	104	101	79-112	3
4-Chlorotoluene	ug/L (ppb)	50	105	104	80-116	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	102	81-121	3
1,3-Dichlorobenzene	ug/L (ppb)	50	99	96	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	101	98	77-112	3
1,2-Dichlorobenzene	ug/L (ppb)	50	103	98	79-115	5
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	101	96	62-133	5
Hexachlorobutadiene	ug/L (ppb)	50	99	91	70-116	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	99	92	74-122	7

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
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March 24, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 17, 2020 from the 1940904, F&BI 003271 project. There are 25 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0324R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003271 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003271 -01	HMW-11IB
003271 -02	HMW-1100IB
003271 -03	HMW-6D
003271 -04	HMW-10S
003271 -05	HMW-10D
003271 -06	Tripblank0316

Benz(a)anthracene and benzo(a)pyrene exceeded the acceptance criteria in the 8270E matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

Several compounds in the 8260D laboratory control sample, matrix spike, and matrix spike duplicate exceeded the acceptance criteria. The analytes were not detected in the samples, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/17/20  
Project: 1940904, F&BI 003271  
Date Extracted: 03/17/20  
Date Analyzed: 03/18/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-11IB 003271-01	<100	93
HMW-1100IB 003271-02	<100	91
HMW-6D 003271-03	<100	94
HMW-10S 003271-04	<100	93
HMW-10D 003271-05	<100	92
Method Blank 00-645 MB	<100	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/17/20  
Project: 1940904, F&BI 003271  
Date Extracted: 03/18/20  
Date Analyzed: 03/18/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-11IB 003271-01	74 x	<250	101
HMW-1100IB 003271-02	64 x	<250	106
HMW-6D 003271-03	<50	<250	114
HMW-10S 003271-04	66 x	<250	120
HMW-10D 003271-05	<50	<250	111
Method Blank 00-698 MB	<50	<250	111

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-111B	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	003271-01
Date Analyzed:	03/18/20	Data File:	003271-01.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-1100IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	003271-02
Date Analyzed:	03/18/20	Data File:	003271-02.179
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-6D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	003271-03
Date Analyzed:	03/19/20	Data File:	003271-03.180
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.53
Cadmium	<1
Chromium	1.40
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10S	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	003271-04
Date Analyzed:	03/18/20	Data File:	003271-04.181
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-10D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	003271-05
Date Analyzed:	03/19/20	Data File:	003271-05.181
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.22
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003271
Date Extracted:	03/18/20	Lab ID:	I0-166 mb
Date Analyzed:	03/18/20	Data File:	I0-166 mb.113
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-6D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-03 1/2
Date Analyzed:	03/19/20	Data File:	031908.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85	31	160
Benzo(a)anthracene-d12	105	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	00-679 mb2
Date Analyzed:	03/18/20	Data File:	031803.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	76	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-11IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-01
Date Analyzed:	03/18/20	Data File:	031826.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	6.9
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	3.6	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.26	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	2.5	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-1100IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-02
Date Analyzed:	03/18/20	Data File:	031827.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	6.8
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	3.4	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.23	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	2.3	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-6D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-03
Date Analyzed:	03/18/20	Data File:	031828.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.42	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	0.42	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.64	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-10S	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-04
Date Analyzed:	03/18/20	Data File:	031829.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.26	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-10D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-05
Date Analyzed:	03/18/20	Data File:	031830.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	0.34	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0316	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	003271-06
Date Analyzed:	03/18/20	Data File:	031831.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003271
Date Extracted:	03/17/20	Lab ID:	00-627 mb
Date Analyzed:	03/18/20	Data File:	031823.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003268-09 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	7,700	8,200	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	99	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	113	114	63-142	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003271-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<5	108	109	75-125	1
Cadmium	ug/L (ppb)	5	<1	90	91	75-125	1
Chromium	ug/L (ppb)	20	<1	93	94	75-125	1
Lead	ug/L (ppb)	10	<1	85	87	75-125	2
Mercury	ug/L (ppb)	5	<1	84	86	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120
Cadmium	ug/L (ppb)	5	95	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

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

Laboratory Code: 003244-90 1/2 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	0.64	72 b	73 b	10-172	1 b
Acenaphthylene	ug/L (ppb)	1	<0.04	97	99	38-137	2
Acenaphthene	ug/L (ppb)	1	0.85	85 b	82 b	20-150	4 b
Fluorene	ug/L (ppb)	1	5.0	149 b	103 b	10-181	37 b
Phenanthrene	ug/L (ppb)	1	1.8	90 b	83 b	58-109	8 b
Anthracene	ug/L (ppb)	1	<0.04	88	92	47-114	4
Fluoranthene	ug/L (ppb)	1	<0.04	96	95	10-171	1
Pyrene	ug/L (ppb)	1	<0.04	81	89	63-107	9
Benz(a)anthracene	ug/L (ppb)	1	<0.04	95 vo	96 vo	60-93	1
Chrysene	ug/L (ppb)	1	<0.04	86	89	60-102	3
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.04	89	83	62-91	7
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.04	86	86	51-98	0
Benzo(a)pyrene	ug/L (ppb)	1	<0.04	88 vo	87 vo	60-86	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.04	65	67	10-98	3
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.04	64	62	10-97	3
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.04	55	56	10-102	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	72	76	57-114	5
Acenaphthylene	ug/L (ppb)	1	79	82	65-119	4
Acenaphthene	ug/L (ppb)	1	78	81	66-118	4
Fluorene	ug/L (ppb)	1	80	82	64-125	2
Phenanthrene	ug/L (ppb)	1	82	82	67-120	0
Anthracene	ug/L (ppb)	1	85	86	65-122	1
Fluoranthene	ug/L (ppb)	1	81	81	65-127	0
Pyrene	ug/L (ppb)	1	92	93	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	96	92	60-118	4
Chrysene	ug/L (ppb)	1	90	90	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	83	81	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	87	90	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	83	85	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	91	93	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	95	102	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	91	97	34-135	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

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

Laboratory Code: 003271-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chloromethane	ug/L (ppb)	50	<10	151	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	156	36-166
Chloroethane	ug/L (ppb)	50	<1	139	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	137	44-165
1,1-Dichloroethene	ug/L (ppb)	50	<1	138 vo	60-136
Methylene chloride	ug/L (ppb)	50	<5	135 vo	67-132
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	125	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	125	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	98	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	3.6	113	71-127
Chloroform	ug/L (ppb)	50	<1	116	65-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	114	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	104	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	116	56-152
Benzene	ug/L (ppb)	50	<0.35	108	76-125
Trichloroethene	ug/L (ppb)	50	2.5	101	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	108	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	114	61-150
Toluene	ug/L (ppb)	50	<1	94	76-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	107	68-131
1,3-Dichloropropane	ug/L (ppb)	50	<1	100	71-128
Tetrachloroethene	ug/L (ppb)	50	6.9	97	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	121	70-139
Chlorobenzene	ug/L (ppb)	50	<1	98	77-122
Ethylbenzene	ug/L (ppb)	50	<1	103	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	100	69-135
o-Xylene	ug/L (ppb)	50	<1	97	60-140
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	89	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	90	65-130
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	94	59-146
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	95	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
Hexachlorobutadiene	ug/L (ppb)	50	<1	86	60-143
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	96	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003271

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	100	144	45-156	36 vo
Vinyl chloride	ug/L (ppb)	50	105	147	50-154	33 vo
Chloroethane	ug/L (ppb)	50	98	129	58-146	27 vo
Trichlorofluoromethane	ug/L (ppb)	250	100	128	50-150	25 vo
1,1-Dichloroethene	ug/L (ppb)	50	107	117	67-136	9
Methylene chloride	ug/L (ppb)	50	102	113	39-148	10
trans-1,2-Dichloroethene	ug/L (ppb)	50	98	107	68-128	9
1,1-Dichloroethane	ug/L (ppb)	50	107	110	79-121	3
2,2-Dichloropropane	ug/L (ppb)	50	85	93	55-143	9
cis-1,2-Dichloroethene	ug/L (ppb)	50	99	108	80-123	9
Chloroform	ug/L (ppb)	50	106	111	80-121	5
1,1,1-Trichloroethane	ug/L (ppb)	50	100	110	81-125	10
1,1-Dichloropropene	ug/L (ppb)	50	105	106	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	107	116	75-158	8
Benzene	ug/L (ppb)	50	103	102	69-134	1
Trichloroethene	ug/L (ppb)	50	104	102	79-113	2
1,2-Dichloropropane	ug/L (ppb)	50	114	105	77-123	8
Bromodichloromethane	ug/L (ppb)	50	118	112	81-133	5
Toluene	ug/L (ppb)	50	110	96	72-122	14
1,1,2-Trichloroethane	ug/L (ppb)	50	125 vo	107	75-124	16
1,3-Dichloropropane	ug/L (ppb)	50	118	100	76-126	17
Tetrachloroethene	ug/L (ppb)	50	105	99	76-121	6
Dibromochloromethane	ug/L (ppb)	50	133	119	84-133	11
Chlorobenzene	ug/L (ppb)	50	101	98	83-114	3
Ethylbenzene	ug/L (ppb)	50	99	94	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	105	106	84-127	1
m,p-Xylene	ug/L (ppb)	100	100	97	81-112	3
o-Xylene	ug/L (ppb)	50	96	94	81-121	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	115	101	66-126	13
1,2,3-Trichloropropane	ug/L (ppb)	50	106	94	67-124	12
2-Chlorotoluene	ug/L (ppb)	50	103	92	77-127	11
4-Chlorotoluene	ug/L (ppb)	50	107	95	78-128	12
1,2,4-Trimethylbenzene	ug/L (ppb)	50	101	97	79-122	4
1,3-Dichlorobenzene	ug/L (ppb)	50	102	101	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	99	83-107	1
1,2-Dichlorobenzene	ug/L (ppb)	50	97	98	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	99	109	57-141	10
Hexachlorobutadiene	ug/L (ppb)	50	82	94	53-141	14
1,2,3-Trichlorobenzene	ug/L (ppb)	50	88	102	65-136	15

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

003271



ME 3/17/20

Hart Crowsner, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121

Samples Shipped to:

**HART CROWSNER**

Office: 206.324.9530 • Fax 206.328.5581

JOB 194D904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MMB

HART CROWSNER CONTACT M. Goodman

SAMPLED BY: B. Dezier

B. Dezier

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	TESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
01	A-G	HMW-11DB	3/16/20	1112	H2O	NWTPH-6x NWTPH-Dx HVCs+BTEX PAHs MTCAMetals- MTCAMetals-	7	
02	A-G	HMW-1100DB		1113			7	
03	A-H	HMW-6D		1040			7	
04	A-H	HMW-10S		1420			7	
05	A-G	HMW-10D		1627			7	
06	A-B	TriphenylBOD316					2	
RELINQUISHED BY		DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:			
<u>[Signature]</u>		3/17/20	<u>[Signature]</u>	3/17/20	COOLER NO.: _____ STORAGE LOCATION: _____			
SIGNATURE		TIME	SIGNATURE	TIME	TURNAROUND TIME:			
<u>[Signature]</u>		0810	<u>[Signature]</u>	1030	<input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS <input type="checkbox"/> OTHER _____			
PRINT NAME		TIME	PRINT NAME	TIME	TOTAL NUMBER OF CONTAINERS			
COMPANY			COMPANY		SAMPLE RECEIPT INFORMATION CUSTODY SEALS: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A GOOD CONDITION: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO TEMPERATURE: <u>4°C</u> SHIPMENT METHOD: <input checked="" type="checkbox"/> BRAND <input type="checkbox"/> GOVERNMENT <input type="checkbox"/> COURIER			

White to Lab    Yellow to Project Manager    Pink to Sample Custodian

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 24, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on March 17, 2020 from the 1940904, F&BI 003285 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0324R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 003285 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003285 -01	HMW-5IB
003285 -02	HMW-9D
003285 -03	HMW-900D
003285 -04	HMW-9S
003285 -05	Tripblank0317

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/17/20  
Project: 1940904, F&BI 003285  
Date Extracted: 03/19/20  
Date Analyzed: 03/19/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-5IB 003285-01	<100	90
HMW-9D 003285-02	<100	93
HMW-900D 003285-03	<100	95
HMW-9S 003285-04	<100	91
Method Blank 00-649 MB2	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20  
Date Received: 03/17/20  
Project: 1940904, F&BI 003285  
Date Extracted: 03/18/20  
Date Analyzed: 03/18/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-5IB 003285-01	<50	<250	117
HMW-9D 003285-02	230 x	<250	114
HMW-900D 003285-03	210 x	<250	113
HMW-9S 003285-04	61 x	<250	121
Method Blank 00-700 MB	<50	<250	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-5IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-01
Date Analyzed:	03/18/20	Data File:	003285-01.189
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-02
Date Analyzed:	03/19/20	Data File:	003285-02.182
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.95
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-900D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-03
Date Analyzed:	03/19/20	Data File:	003285-03.183
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.82
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9S	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-04
Date Analyzed:	03/18/20	Data File:	003285-04.192
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	I0-166 mb
Date Analyzed:	03/18/20	Data File:	I0-166 mb.113
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-5IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-01
Date Analyzed:	03/19/20	Data File:	031945.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	76	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-9D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-02
Date Analyzed:	03/19/20	Data File:	031942.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	123	63	127
4-Bromofluorobenzene	75	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.97	Tetrachloroethene	0.89
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	5.1	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	0.21	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.42	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-900D	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-03
Date Analyzed:	03/19/20	Data File:	031943.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	111	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.81	Tetrachloroethene	0.81
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	4.1	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.28	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-9S	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-04
Date Analyzed:	03/19/20	Data File:	031944.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	57	121
Toluene-d8	127	63	127
4-Bromofluorobenzene	79	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank0317	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	003285-05
Date Analyzed:	03/19/20	Data File:	031941.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	82	57	121
Toluene-d8	93	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003285
Date Extracted:	03/18/20	Lab ID:	00-697 mb
Date Analyzed:	03/19/20	Data File:	031914.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.03 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	HMW-5IB	Client:	Hart Crowser
Date Received:	03/17/20	Project:	1940904, F&BI 003285
Date Extracted:	03/19/20	Lab ID:	003285-01 1/2
Date Analyzed:	03/20/20	Data File:	032009.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	160
Benzo(a)anthracene-d12	93	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 003285
Date Extracted:	03/19/20	Lab ID:	00-706 mb
Date Analyzed:	03/20/20	Data File:	032007.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	160
Benzo(a)anthracene-d12	102	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003294-05 1/5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<500	<500	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	98	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	112	112	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003271-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.14	108	109	75-125	1
Cadmium	ug/L (ppb)	5	<1	90	91	75-125	1
Chromium	ug/L (ppb)	20	<1	93	94	75-125	1
Lead	ug/L (ppb)	10	<1	85	87	75-125	2
Mercury	ug/L (ppb)	5	<1	84	86	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120
Cadmium	ug/L (ppb)	5	95	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

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

Laboratory Code: 003285-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Chloromethane	ug/L (ppb)	<2	<2	nm
Vinyl chloride	ug/L (ppb)	<0.2	<0.2	nm
Chloroethane	ug/L (ppb)	<0.2	<0.2	nm
Trichlorofluoromethane	ug/L (ppb)	<0.2	<0.2	nm
1,1-Dichloroethene	ug/L (ppb)	<0.2	<0.2	nm
Methylene chloride	ug/L (ppb)	<5	<5	nm
trans-1,2-Dichloroethene	ug/L (ppb)	<0.2	<0.2	nm
1,1-Dichloroethane	ug/L (ppb)	<0.2	<0.2	nm
2,2-Dichloropropane	ug/L (ppb)	<0.2	<0.2	nm
cis-1,2-Dichloroethene	ug/L (ppb)	<0.2	<0.2	nm
Chloroform	ug/L (ppb)	<0.2	<0.2	nm
1,1,1-Trichloroethane	ug/L (ppb)	<0.2	<0.2	nm
1,1-Dichloropropene	ug/L (ppb)	<0.2	<0.2	nm
Carbon tetrachloride	ug/L (ppb)	<0.2	<0.2	nm
Benzene	ug/L (ppb)	<0.2	<0.2	nm
Trichloroethene	ug/L (ppb)	<0.2	<0.2	nm
1,2-Dichloropropane	ug/L (ppb)	<0.2	<0.2	nm
Bromodichloromethane	ug/L (ppb)	<0.2	<0.2	nm
Toluene	ug/L (ppb)	<0.2	<0.2	nm
1,1,2-Trichloroethane	ug/L (ppb)	<0.2	<0.2	nm
1,3-Dichloropropane	ug/L (ppb)	<0.2	<0.2	nm
Tetrachloroethene	ug/L (ppb)	<0.2	<0.2	nm
Dibromochloromethane	ug/L (ppb)	<0.2	<0.2	nm
Chlorobenzene	ug/L (ppb)	<0.2	<0.2	nm
Ethylbenzene	ug/L (ppb)	<0.2	<0.2	nm
1,1,1,2-Tetrachloroethane	ug/L (ppb)	<0.2	<0.2	nm
m,p-Xylene	ug/L (ppb)	<0.4	<0.4	nm
o-Xylene	ug/L (ppb)	<0.2	<0.2	nm
1,1,2,2-Tetrachloroethane	ug/L (ppb)	<0.2	<0.2	nm
1,2,3-Trichloropropane	ug/L (ppb)	<0.03	<0.03	nm
2-Chlorotoluene	ug/L (ppb)	<0.2	<0.2	nm
4-Chlorotoluene	ug/L (ppb)	<0.2	<0.2	nm
1,2,4-Trimethylbenzene	ug/L (ppb)	<0.2	<0.2	nm
1,3-Dichlorobenzene	ug/L (ppb)	<0.2	0.26	nm
1,4-Dichlorobenzene	ug/L (ppb)	<0.2	0.27	nm
1,2-Dichlorobenzene	ug/L (ppb)	<0.2	0.23	nm
1,2-Dibromo-3-chloropropane	ug/L (ppb)	<0.8	<0.8	nm
Hexachlorobutadiene	ug/L (ppb)	<0.2	0.41	nm
1,2,3-Trichlorobenzene	ug/L (ppb)	<0.2	0.59	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	110	122	45-156	10
Vinyl chloride	ug/L (ppb)	50	117	125	50-154	7
Chloroethane	ug/L (ppb)	50	111	114	58-146	3
Trichlorofluoromethane	ug/L (ppb)	250	106	115	50-150	8
1,1-Dichloroethene	ug/L (ppb)	50	109	118	67-136	8
Methylene chloride	ug/L (ppb)	50	102	93	39-148	9
trans-1,2-Dichloroethene	ug/L (ppb)	50	97	89	68-128	9
1,1-Dichloroethane	ug/L (ppb)	50	100	89	79-121	12
2,2-Dichloropropane	ug/L (ppb)	50	103	90	55-143	13
cis-1,2-Dichloroethene	ug/L (ppb)	50	94	88	80-123	7
Chloroform	ug/L (ppb)	50	97	90	80-121	7
1,1,1-Trichloroethane	ug/L (ppb)	50	99	92	81-125	7
1,1-Dichloropropene	ug/L (ppb)	50	90	89	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	106	99	75-158	7
Benzene	ug/L (ppb)	50	90	86	69-134	5
Trichloroethene	ug/L (ppb)	50	88	87	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	91	88	77-123	3
Bromodichloromethane	ug/L (ppb)	50	89	98	81-133	10
Toluene	ug/L (ppb)	50	98	89	72-122	10
1,1,2-Trichloroethane	ug/L (ppb)	50	103	99	75-124	4
1,3-Dichloropropane	ug/L (ppb)	50	93	93	76-126	0
Tetrachloroethene	ug/L (ppb)	50	99	94	76-121	5
Dibromochloromethane	ug/L (ppb)	50	117	113	84-133	3
Chlorobenzene	ug/L (ppb)	50	93	93	83-114	0
Ethylbenzene	ug/L (ppb)	50	93	92	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	109	102	84-127	7
m,p-Xylene	ug/L (ppb)	100	94	92	81-112	2
o-Xylene	ug/L (ppb)	50	95	92	81-121	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	97	101	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	90	94	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	89	91	77-127	2
4-Chlorotoluene	ug/L (ppb)	50	89	93	78-128	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	95	93	79-122	2
1,3-Dichlorobenzene	ug/L (ppb)	50	95	98	83-113	3
1,4-Dichlorobenzene	ug/L (ppb)	50	95	96	83-107	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	96	84-112	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	112	105	57-141	6
Hexachlorobutadiene	ug/L (ppb)	50	94	91	53-141	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	98	65-136	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/20

Date Received: 03/17/20

Project: 1940904, F&BI 003285

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	81	78	57-114	4
Acenaphthylene	ug/L (ppb)	1	85	86	65-119	1
Acenaphthene	ug/L (ppb)	1	84	85	66-118	1
Fluorene	ug/L (ppb)	1	88	91	64-125	3
Phenanthrene	ug/L (ppb)	1	87	87	67-120	0
Anthracene	ug/L (ppb)	1	92	92	65-122	0
Fluoranthene	ug/L (ppb)	1	94	98	65-127	4
Pyrene	ug/L (ppb)	1	84	84	62-130	0
Benz(a)anthracene	ug/L (ppb)	1	93	96	60-118	3
Chrysene	ug/L (ppb)	1	89	91	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	83	85	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	87	90	62-125	3
Benzo(a)pyrene	ug/L (ppb)	1	87	90	58-127	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	93	98	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	96	97	37-133	1
Benzo(g,h,i)perylene	ug/L (ppb)	1	93	94	34-135	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

009285

Samples Shipped to:



Hart Crowser, Inc.  
 3131 Elliott Avenue, Suite 600  
 Seattle, Washington 98121  
 Office: 206.324.9530 • Fax 206.328.5581

JOB <u>194D904</u>		LAB NUMBER _____					
PROJECT NAME <u>MHB</u>		HART CROWSER CONTACT <u>M. Goodman</u>					
SAMPLED BY: <u>B. DeJeter</u>		LAB NUMBER <u>1742</u>					
LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUIRED ANALYSIS	NO. OF CONTAINERS
01A-H	HMWD-5TB		3/17	1332	H2D	NWTPH-Gx NWTPH-Dx HVOG+BTEX PATHS MTCAMetals-T MTCAMetals-D	6
02A-G	HMWD-9D		3/17	1359			7
03	HMWD-900D		3/17	1404			7
04	HMWD-9S		3/17	0959			7
05A-B	FTPhanK0317		3/17				2
Samples received at <u>14</u> °C							
RELINQUISHED BY <u>[Signature]</u>		DATE <u>3/17</u>		RECEIVED BY <u>[Signature]</u>		DATE <u>3/17</u>	
SIGNATURE <u>[Signature]</u>		TIME _____		SIGNATURE <u>[Signature]</u>		TIME _____	
PRINT NAME <u>Andrew DeJeter</u>		COMPANY _____		PRINT NAME <u>Maureen</u>		COMPANY _____	
RELINQUISHED BY _____		DATE <u>1742</u>		RECEIVED BY _____		DATE <u>1742</u>	
SIGNATURE _____		TIME _____		SIGNATURE _____		TIME _____	
PRINT NAME _____		COMPANY _____		PRINT NAME _____		COMPANY _____	
SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:				COOLER NO.:			
STORAGE LOCATION:				STORAGE LOCATION:			
See Lab Work Order No. _____ for Other Contract Requirements				TOTAL NUMBER OF CONTAINERS <u>31</u>			
SAMPLE RECEIPT INFORMATION				OBSERVATIONS/COMMENTS/COMPOSITING INSTRUCTIONS			
CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A				GOOD CONDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO			
SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT				TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input type="checkbox"/> STANDARD <input type="checkbox"/> 72 HOURS <input type="checkbox"/> OTHER _____			

White to Lab Yellow to Project Manager Pink to Sample Custodian

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

December 10, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the amended results from the testing of material submitted on March 20, 2020 from the 1940904 MMB, F&BI 003357 project. The cis-1,2-dichloroethene concentration in the 8260D full strength analysis of sample HMW-9IB was corrected. The width of the peak caused it to fall outside of the integration window due to the high concentration of cis-1,2-dichloroethene present in the sample.

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: Becca Dozier  
HCR0330R.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  
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fbi@isomedia.com  
www.friedmanandbruya.com

March 30, 2020

Marissa Goodman, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Goodman :

Included are the results from the testing of material submitted on March 20, 2020 from the 1940904 MMB, F&BI 003357 project. There are 27 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0330R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 20, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904 MMB, F&BI 003357 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
003357 -01	HMW-9IB
003357 -02	HMW-9IA
003357 -03	DMW-5IA
003357 -04	DMW-4S
003357 -05	Tripblank03

The NWTPH-Gx detection in HMW-9IB is due to individual peaks inconsistent with a standard gasoline pattern. The detection is likely due to the individual VOCs identified in the 8260D analysis.

The dissolved metals sample DMW-51A was filtered at Friedman and Bruya on March 23, 2020 at 15:45.

Several 8260D compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20  
Date Received: 03/20/20  
Project: 1940904 MMB, F&BI 003357  
Date Extracted: 03/20/20  
Date Analyzed: 03/27/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 51-134)
HMW-9IB 003357-01	580 x	102
HMW-9IA 003357-02	<100	96
DMW-5IA 003357-03	<100	98
DMW-4S 003357-04	670	112
Method Blank 00-651 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20  
Date Received: 03/20/20  
Project: 1940904 MMB, F&BI 003357  
Date Extracted: 03/23/20  
Date Analyzed: 03/23/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-9IB 003357-01	60 x	<250	113
HMW-9IA 003357-02	<50	<250	108
DMW-5IA 003357-03	760 x	<250	120
DMW-4S 003357-04	790 x	<250	90
Method Blank 00-736 MB	<50	<250	108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DMW-5IA f	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/27/20	Lab ID:	003357-03
Date Analyzed:	03/27/20	Data File:	003357-03.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.21
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Hart Crowser
Date Received:	NA	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/27/20	Lab ID:	I0-187 mb
Date Analyzed:	03/27/20	Data File:	I0-187 mb.038
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-9IB	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/25/20	Lab ID:	003357-01
Date Analyzed:	03/25/20	Data File:	003357-01.064
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.07
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-91A	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/25/20	Lab ID:	003357-02
Date Analyzed:	03/25/20	Data File:	003357-02.065
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.00
Cadmium	<1
Chromium	3.63
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-5IA	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/25/20	Lab ID:	003357-03
Date Analyzed:	03/25/20	Data File:	003357-03.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.56
Cadmium	<1
Chromium	8.70
Lead	1.09
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DMW-4S	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/25/20	Lab ID:	003357-04
Date Analyzed:	03/25/20	Data File:	003357-04.069
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.76
Cadmium	<1
Chromium	1.74
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/25/20	Lab ID:	I0-179 mb
Date Analyzed:	03/25/20	Data File:	I0-179 mb.050
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-9IB	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-01
Date Analyzed:	03/24/20	Data File:	032446.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	1,800 ve	Tetrachloroethene	730 ve
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	13	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	8.3	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	4,300 ve	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	430 ve	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.23	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-9IB	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-01 1/100
Date Analyzed:	03/25/20	Data File:	032519.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<200	1,3-Dichloropropane	<20
Vinyl chloride	1,900	Tetrachloroethene	660
Chloroethane	<20 j	Dibromochloromethane	<20
Trichlorofluoromethane	<20 j	Chlorobenzene	<20
1,1-Dichloroethene	<20	Ethylbenzene	<20
Methylene chloride	<500	1,1,1,2-Tetrachloroethane	<20
trans-1,2-Dichloroethene	<20	m,p-Xylene	<40
1,1-Dichloroethane	<20	o-Xylene	<20
2,2-Dichloropropane	<20	1,1,2,2-Tetrachloroethane	<20
cis-1,2-Dichloroethene	9,100	1,2,3-Trichloropropane	<4 j
Chloroform	<20	2-Chlorotoluene	<20
1,1,1-Trichloroethane	<20	4-Chlorotoluene	<20
1,1-Dichloropropene	<20	1,2,4-Trimethylbenzene	<20
Carbon tetrachloride	<20	1,3-Dichlorobenzene	<20
Benzene	<20	1,4-Dichlorobenzene	<20
Trichloroethene	420	1,2-Dichlorobenzene	<20
1,2-Dichloropropane	<20	1,2-Dibromo-3-chloropropane	<80 j
Bromodichloromethane	<20	Hexachlorobutadiene	<20
Toluene	<20	1,2,3-Trichlorobenzene	<20
1,1,2-Trichloroethane	<20		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-9IA	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-02
Date Analyzed:	03/24/20	Data File:	032421.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	50	150
Toluene-d8	108	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	0.95	Tetrachloroethene	0.42
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	3.7	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	0.23	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DMW-5IA	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-03
Date Analyzed:	03/24/20	Data File:	032422.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.64	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DMW-4S	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-04
Date Analyzed:	03/24/20	Data File:	032423.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	5.5
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	2.3
1,1-Dichloroethane	<0.2	o-Xylene	0.65
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	7.1
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	0.26	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Tripblank03	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	003357-05
Date Analyzed:	03/24/20	Data File:	032424.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/20/20	Lab ID:	00-711 mb
Date Analyzed:	03/20/20	Data File:	032039.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Chloromethane	<2	1,3-Dichloropropane	<0.2
Vinyl chloride	<0.2	Tetrachloroethene	<0.2
Chloroethane	<0.2 j	Dibromochloromethane	<0.2
Trichlorofluoromethane	<0.2 j	Chlorobenzene	<0.2
1,1-Dichloroethene	<0.2	Ethylbenzene	<0.2
Methylene chloride	<5	1,1,1,2-Tetrachloroethane	<0.2
trans-1,2-Dichloroethene	<0.2	m,p-Xylene	<0.4
1,1-Dichloroethane	<0.2	o-Xylene	<0.2
2,2-Dichloropropane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,3-Trichloropropane	<0.04 j
Chloroform	<0.2	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	1,2,4-Trimethylbenzene	<0.2
Carbon tetrachloride	<0.2	1,3-Dichlorobenzene	<0.2
Benzene	<0.2	1,4-Dichlorobenzene	<0.2
Trichloroethene	<0.2	1,2-Dichlorobenzene	<0.2
1,2-Dichloropropane	<0.2	1,2-Dibromo-3-chloropropane	<0.8 j
Bromodichloromethane	<0.2	Hexachlorobutadiene	<0.2
Toluene	<0.2	1,2,3-Trichlorobenzene	<0.2
1,1,2-Trichloroethane	<0.2		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	DMW-4S	Client:	Hart Crowser
Date Received:	03/20/20	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/23/20	Lab ID:	003357-04 1/2
Date Analyzed:	03/25/20	Data File:	032507.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904 MMB, F&BI 003357
Date Extracted:	03/23/20	Lab ID:	00-737 mb
Date Analyzed:	03/23/20	Data File:	032315.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	160
Benzo(a)anthracene-d12	113	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 003307-02 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	102	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	120	112	63-142	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 003357-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	9.21	99	96	75-125	3
Cadmium	ug/L (ppb)	5	<1	98	97	75-125	1
Chromium	ug/L (ppb)	20	<1	105	106	75-125	1
Lead	ug/L (ppb)	10	<1	97	95	75-125	2
Mercury	ug/L (ppb)	5	<1	97	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	100	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 003372-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.03	100	105	75-125	5
Cadmium	ug/L (ppb)	5	<1	97	98	75-125	1
Chromium	ug/L (ppb)	20	<1	86	85	75-125	1
Lead	ug/L (ppb)	10	<1	92	94	75-125	2
Mercury	ug/L (ppb)	5	<1	95	99	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	93	80-120
Cadmium	ug/L (ppb)	5	98	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	94	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

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

Laboratory Code: 003356-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Chloromethane	ug/L (ppb)	50	<10	100	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	102	61-139
Chloroethane	ug/L (ppb)	50	<1	100	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	101	65-137
1,1-Dichloroethene	ug/L (ppb)	50	<1	101	71-123
Methylene chloride	ug/L (ppb)	50	<5	95	61-126
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	98	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	32 vo	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	1.9	102	63-126
Chloroform	ug/L (ppb)	50	2.0	102	77-117
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	105	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	97	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	102	70-132
Benzene	ug/L (ppb)	50	<0.35	95	75-114
Trichloroethene	ug/L (ppb)	50	2.3	94	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	98	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	99	78-117
Toluene	ug/L (ppb)	50	<1	91	73-117
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	98	81-116
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	80-113
Tetrachloroethene	ug/L (ppb)	50	8.8	93	40-155
Dibromochloromethane	ug/L (ppb)	50	<1	99	69-129
Chlorobenzene	ug/L (ppb)	50	<1	89	75-115
Ethylbenzene	ug/L (ppb)	50	<1	17 vo	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	103	76-130
m,p-Xylene	ug/L (ppb)	100	<2	97	63-128
o-Xylene	ug/L (ppb)	50	<1	103	64-129
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	99	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	96	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	92	76-122
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	96	59-136
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	92	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	91	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	95	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	100	69-129
Hexachlorobutadiene	ug/L (ppb)	50	<1	82	53-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	97	59-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	ug/L (ppb)	50	99	96	62-130	3
Vinyl chloride	ug/L (ppb)	50	102	100	70-128	2
Chloroethane	ug/L (ppb)	50	101	97	66-149	4
Trichlorofluoromethane	ug/L (ppb)	50	104	100	65-138	4
1,1-Dichloroethene	ug/L (ppb)	50	105	102	72-121	3
Methylene chloride	ug/L (ppb)	50	97	93	63-132	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	100	76-118	3
1,1-Dichloroethane	ug/L (ppb)	50	104	102	77-119	2
2,2-Dichloropropane	ug/L (ppb)	50	95	91	62-141	4
cis-1,2-Dichloroethene	ug/L (ppb)	50	104	103	76-119	1
Chloroform	ug/L (ppb)	50	102	101	78-117	1
1,1,1-Trichloroethane	ug/L (ppb)	50	106	103	80-116	3
1,1-Dichloropropene	ug/L (ppb)	50	100	100	78-119	0
Carbon tetrachloride	ug/L (ppb)	50	104	101	72-128	3
Benzene	ug/L (ppb)	50	97	98	75-116	1
Trichloroethene	ug/L (ppb)	50	95	97	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	100	101	79-121	1
Bromodichloromethane	ug/L (ppb)	50	101	101	76-120	0
Toluene	ug/L (ppb)	50	100	100	79-115	0
1,1,2-Trichloroethane	ug/L (ppb)	50	99	102	78-120	3
1,3-Dichloropropane	ug/L (ppb)	50	97	100	81-111	3
Tetrachloroethene	ug/L (ppb)	50	99	101	78-109	2
Dibromochloromethane	ug/L (ppb)	50	105	106	63-140	1
Chlorobenzene	ug/L (ppb)	50	97	98	80-113	1
Ethylbenzene	ug/L (ppb)	50	102	102	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	108	106	76-125	2
m,p-Xylene	ug/L (ppb)	100	103	104	81-112	1
o-Xylene	ug/L (ppb)	50	107	108	81-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	100	102	79-118	2
1,2,3-Trichloropropane	ug/L (ppb)	50	99	98	74-116	1
2-Chlorotoluene	ug/L (ppb)	50	103	101	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	99	98	80-116	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	105	81-121	0
1,3-Dichlorobenzene	ug/L (ppb)	50	98	97	80-115	1
1,4-Dichlorobenzene	ug/L (ppb)	50	96	97	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	98	79-115	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	102	103	62-133	1
Hexachlorobutadiene	ug/L (ppb)	50	99	99	70-116	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	100	102	74-122	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/20

Date Received: 03/20/20

Project: 1940904 MMB, F&BI 003357

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	76	77	57-114	1
Acenaphthylene	ug/L (ppb)	1	82	82	65-119	0
Acenaphthene	ug/L (ppb)	1	81	82	66-118	1
Fluorene	ug/L (ppb)	1	87	87	64-125	0
Phenanthrene	ug/L (ppb)	1	84	85	67-120	1
Anthracene	ug/L (ppb)	1	88	89	65-122	1
Fluoranthene	ug/L (ppb)	1	93	95	65-127	2
Pyrene	ug/L (ppb)	1	90	92	62-130	2
Benz(a)anthracene	ug/L (ppb)	1	93	96	60-118	3
Chrysene	ug/L (ppb)	1	89	92	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	79	81	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	80	83	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	86	87	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	89	91	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	86	37-133	4
Benzo(g,h,i)perylene	ug/L (ppb)	1	84	87	34-135	4

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

Samples Shipped to: \_\_\_\_\_

003357



**HART CROWSER**

ME 03-20-20

Office: 206.324.9530 • Fax 206.328.5581

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121

JOB 194D904 LAB NUMBER \_\_\_\_\_

PROJECT NAME MWB

HART CROWSER CONTACT H. Goodman +

B. Dozier

SAMPLED BY: J. Higgins + B. Lytle

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
01 A-6	HMW-9IB	3/19/2013	1322	Had	
02	HMW-9IA		1651		
03	DMW-5IA		1800		
04 A-H	DMW-4S		1558		
05 A-B	TriphenylK03				

REQUESTED ANALYSIS									
NWTPH-6x	X	X	X	X	X	X	X	X	X
NWTPH-Dx	X	X	X	X	X	X	X	X	X
HVO <sub>6</sub> HTEX <sub>6</sub>	X	X	X	X	X	X	X	X	X
PATHS	X	X	X	X	X	X	X	X	X
MTCAMetals-10	X	X	X	X	X	X	X	X	X
MTCAMetals-10	X	X	X	X	X	X	X	X	X

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:  
 COOLER NO.: \_\_\_\_\_ STORAGE LOCATION: \_\_\_\_\_  
 See Lab Work Order No. \_\_\_\_\_ for Other Contract Requirements

NO. OF CONTAINERS  
 OBSERVATIONS/COMMENTS/ B'OS  
 COMPOSITING INSTRUCTIONS  
 MWB  
 ATC

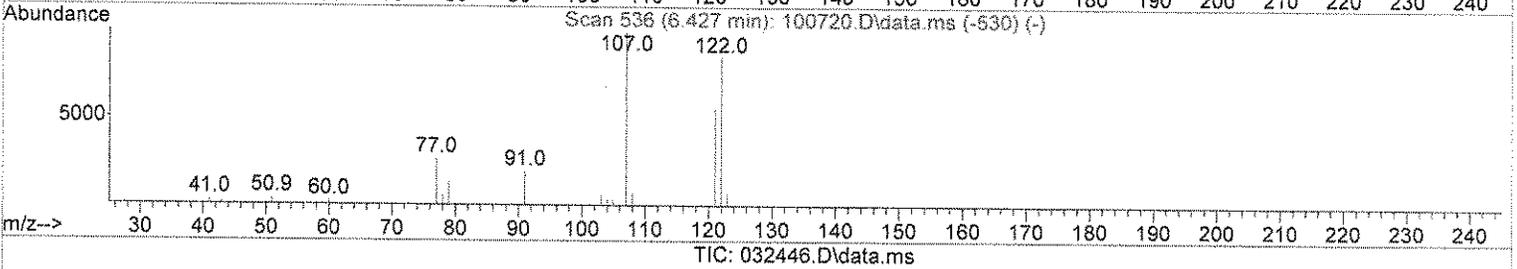
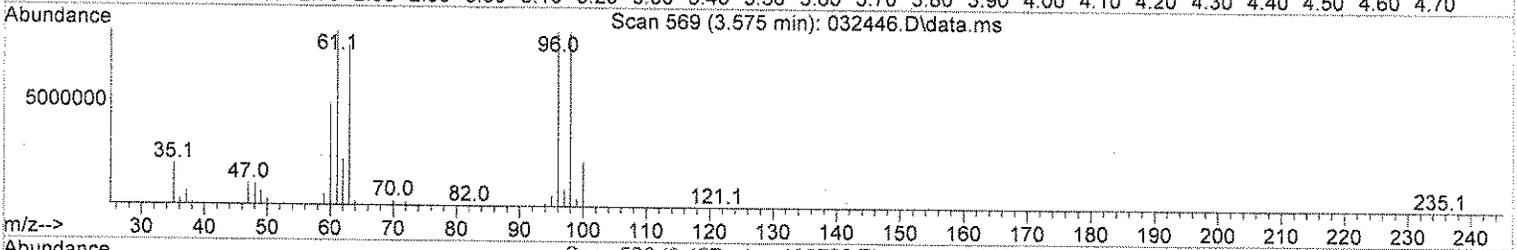
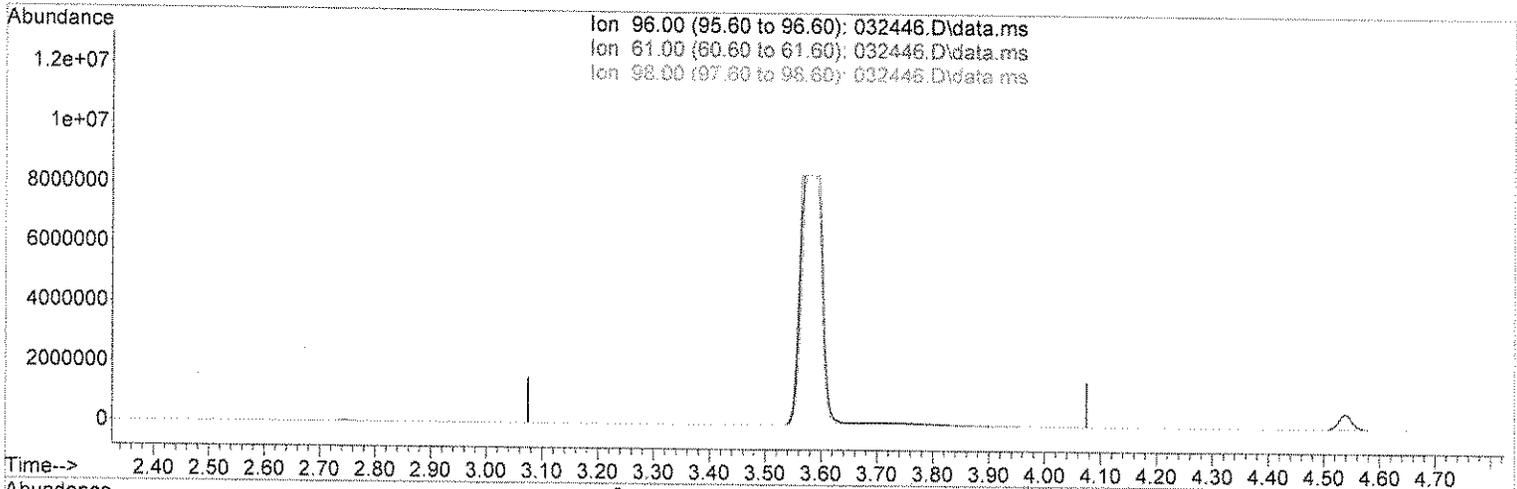
TOTAL NUMBER OF CONTAINERS 3  
 SAMPLE RECEIPT INFORMATION  
 CUSTODY SEALS:  YES  NO  N/A  
 GOOD CONDITION:  YES  NO  
 TEMPERATURE: \_\_\_\_\_  
 SHIPMENT METHOD:  HAND  COURIER  OVERNIGHT  
 TURNAROUND TIME:  24 HOURS  1 WEEK  48 HOURS  STANDARD  72 HOURS OTHER \_\_\_\_\_  
 Samples received at 4 °C  
3 BD

White to Lab Yellow to Project Manager Pink to Sample Custodian

Quantitation Report (Qedit)

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Mar 25 08:29:18 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M



(22) cis-1,2-Dichloroethene (TMP)

3.575min (-3.575) 0.000 ppb

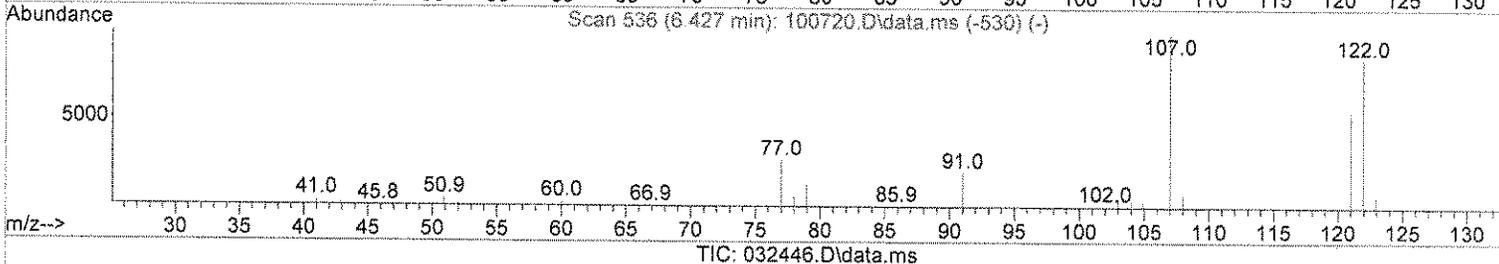
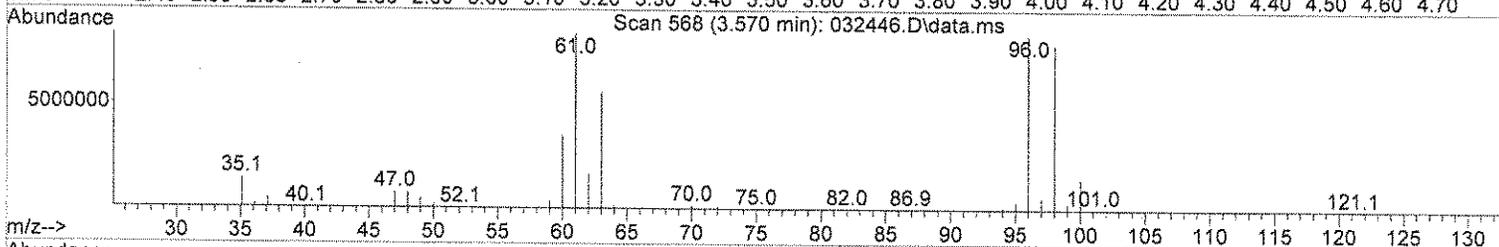
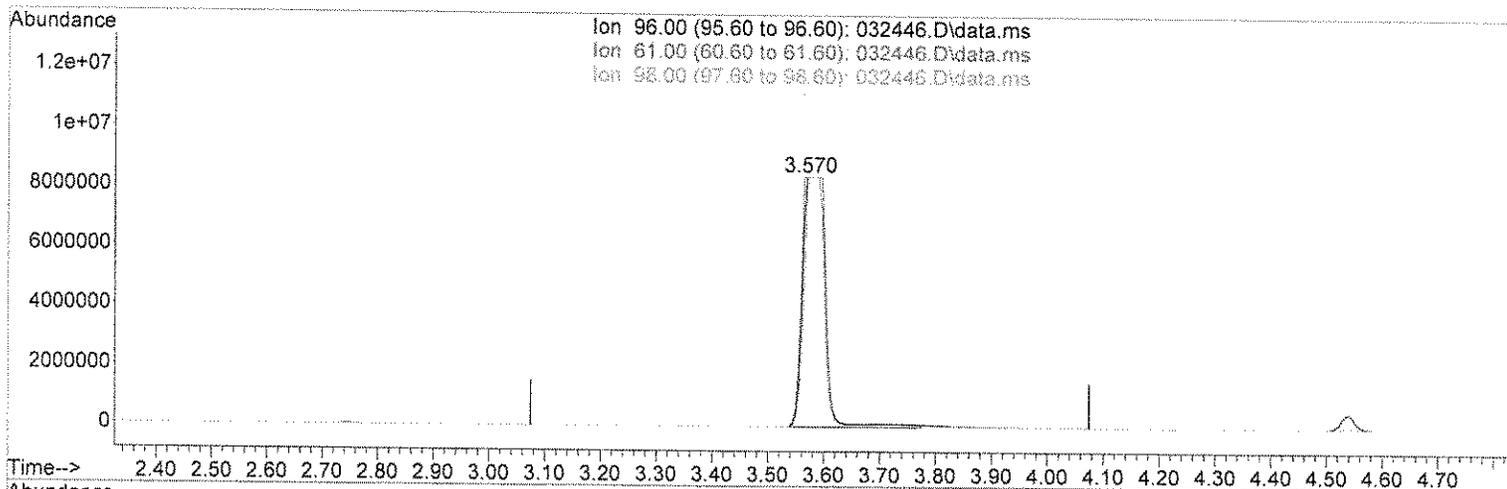
response 0

Ion	Exp%	Act%
96.00	100.00	0.00
61.00	160.20	0.00#
98.00	64.30	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Mar 25 08:29:18 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M



TIC: 032446.D\data.ms

(22) cis-1,2-Dichloroethene (TMP)

3.570min (-0.005) 4341.224 ppb m

response 23602096

Ion	Exp%	Act%
96.00	100.00	100.00
61.00	160.20	100.00#
98.00	64.30	95.21#
0.00	0.00	0.00

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Mar 25 08:29:18 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)			
-----									
Internal Standards									
1) Fluorobenzene	4.54	96	865571	50.000	ppb	0.00			
39) Chlorobenzene-d5	7.19	117	558560	50.000	ppb	0.00			
56) 1,4-Dichlorobenzene-d4	9.40	152	361788	50.000	ppb	0.00			
System Monitoring Compounds									
3) Dibromofluoromethane	3.98	113	257056	49.308	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	98.62%			
30) 1,2-Dichloroethane-d4	4.25	102	34250	45.059	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	90.12%			
35) Toluene-d8	5.90	98	777064	46.952	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	93.90%			
57) 4-Bromofluorobenzene	8.29	95	277497	48.432	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	96.86%			
Target Compounds									
							Qvalue		
2) Ethanol	0.00		0	N.D.					
4) Dichlorodifluoromethane	0.00		0	N.D.					
5) Chloromethane	1.19	50	131	0.023	ppb	#	42		
6) Vinyl chloride	1.26	62	9997009	1797.834	ppb		98		
7) Bromomethane	0.00		0	N.D.					
8) Chloroethane	0.00		0	N.D.					
9) Trichlorofluoromethane	0.00		0	N.D.					
10) 2-Propanol	0.00		0	N.D.					
11) Acetone	2.17	58	892	7.429	ppb	#	54		
12) 1,1-Dichloroethene	2.12	96	60717	13.080	ppb	#	76		
13) Hexane	2.98	57	607	0.102	ppb		75		
14) Methylene chloride	2.52	84	5294	0.610	ppb		95		
15) t-Butyl alcohol (TBA)	2.64	59	336	3.245	ppb		57		
16) Methyl t-butyl ether (...)	0.00		0	N.D.					
17) trans-1,2-Dichloroethene	2.75	96	43326	8.271	ppb		89		
18) Diisopropyl ether (DIPE)	3.17	45	10673	0.809	ppb		89		
19) 1,1-Dichloroethane	3.09	63	430	0.050	ppb		75		
20) Ethyl t-butyl ether (E...)	0.00		0	N.D.					
21) 2,2-Dichloropropane	0.00		0	N.D.					
22) cis-1,2-Dichloroethene	0.00		0	N.D.					
23) Chloroform	0.00		0	N.D.					
24) 2-Butanone (MEK)	3.60	43	362	0.463	ppb	#	1		
25) t-Amyl methyl ether (T...)	0.00		0	N.D.					
26) 1,2-Dichloroethane (EDC)	4.32	62	1497	0.312	ppb		78		
27) 1,1,1-Trichloroethane	3.99	97	279	0.037	ppb	#	1		
28) 1,1-Dichloropropene	0.00		0	N.D.					
29) Carbon tetrachloride	0.00		0	N.D.					
31) Benzene	4.30	78	2907	0.160	ppb		99		
32) Trichloroethene	4.85	95	2117953	430.625	ppb		92		
33) 1,2-Dichloropropane	0.00		0	N.D.					
34) Bromodichloromethane	0.00		0	N.D.					
36) Dibromomethane	0.00		0	N.D.					
37) 4-Methyl-2-pentanone	0.00		0	N.D.					
38) cis-1,3-Dichloropropene	0.00		0	N.D.					

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

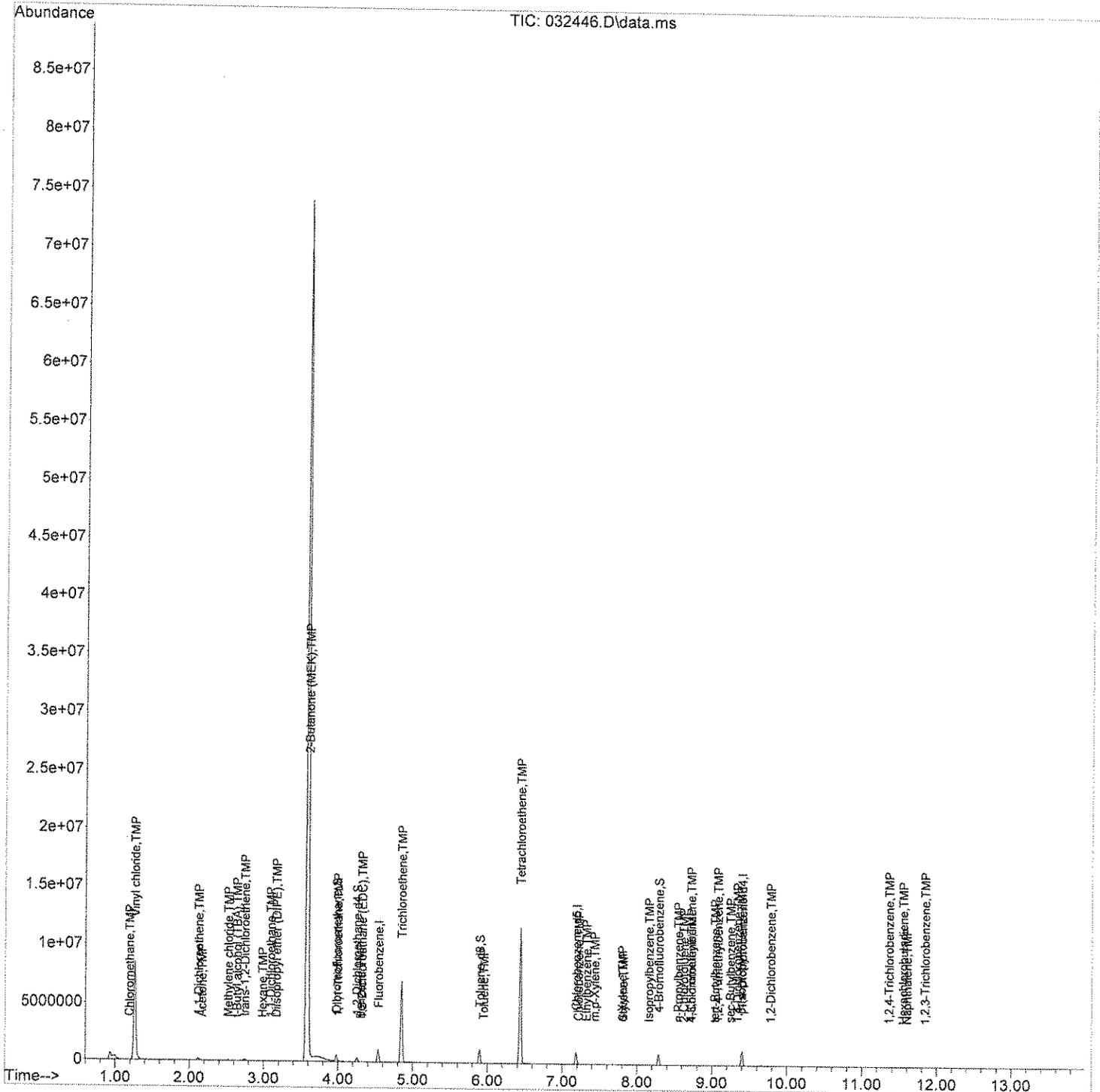
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 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
40) Toluene	5.95	92	2125	0.232	ppb #	75
41) trans-1,3-Dichloropropene	0.00		0	N.D.		
42) 1,1,2-Trichloroethane	0.00		0	N.D.	d	
43) 2-Hexanone	0.00		0	N.D.		
44) 1,3-Dichloropropane	0.00		0	N.D.		
45) Tetrachloroethene	6.44	164	2746845	727.828	ppb	94
46) Dibromochloromethane	0.00		0	N.D.		
47) 1,2-Dibromoethane (EDB)	0.00		0	N.D.		
48) Chlorobenzene	7.22	112	274	0.026	ppb #	29
49) Ethylbenzene	7.32	91	852	0.046	ppb	93
50) 1,1,1,2-Tetrachloroethane	0.00		0	N.D.		
51) m,p-Xylene	7.43	106	615	0.087	ppb	84
52) o-Xylene	7.80	106	358	0.052	ppb	95
53) Styrene	7.81	104	225	0.021	ppb	86
54) Isopropylbenzene	8.16	105	273	0.015	ppb	49
55) Bromoform	0.00		0	N.D.		
58) n-Propylbenzene	8.55	91	796	0.034	ppb	88
59) Bromobenzene	0.00		0	N.D.		
60) 1,3,5-Trimethylbenzene	8.72	105	372	0.022	ppb #	30
61) 1,1,2,2-Tetrachloroethane	0.00		0	N.D.		
62) 1,2,3-Trichloropropane	0.00		0	N.D.	d	
63) 2-Chlorotoluene	8.62	91	198	0.015	ppb #	40
64) 4-Chlorotoluene	8.72	91	510	0.033	ppb #	44
65) tert-Butylbenzene	9.04	119	248	0.019	ppb #	24
66) 1,2,4-Trimethylbenzene	9.08	105	1004	0.059	ppb	88
67) sec-Butylbenzene	9.24	105	711	0.035	ppb	60
68) p-Isopropyltoluene	9.39	119	875	0.048	ppb #	20
69) 1,3-Dichlorobenzene	9.34	146	617	0.059	ppb	97
70) 1,4-Dichlorobenzene	9.34	146	617	0.059	ppb	99
71) 1,2-Dichlorobenzene	9.78	146	341	0.034	ppb #	56
72) 1,2-Dibromo-3-chloropr...	0.00		0	N.D.		
73) 1,2,4-Trichlorobenzene	11.36	180	930	0.118	ppb	79
74) Hexachlorobutadiene	11.55	225	421	0.093	ppb	90
75) Naphthalene	11.60	128	1464	0.132	ppb	94
76) 1,2,3-Trichlorobenzene	11.84	180	691	0.103	ppb	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Mar 25 08:29:18 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M



Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Dec 09 11:10:15 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)			
Internal Standards									
1) Fluorobenzene	4.54	96	865571	50.000	ppb	0.00			
39) Chlorobenzene-d5	7.19	117	558560	50.000	ppb	0.00			
56) 1,4-Dichlorobenzene-d4	9.40	152	361788	50.000	ppb	0.00			
System Monitoring Compounds									
3) Dibromofluoromethane	3.98	113	257056	49.308	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	98.62%			
30) 1,2-Dichloroethane-d4	4.25	102	34250	45.059	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	90.12%			
35) Toluene-d8	5.90	98	777064	46.952	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	93.90%			
57) 4-Bromofluorobenzene	8.29	95	277497	48.432	ppb	0.00			
Spiked Amount	50.000	Range	50 - 150	Recovery	=	96.86%			
Target Compounds									
2) Ethanol	0.00		0	N.D.			Qvalue		
4) Dichlorodifluoromethane	0.00		0	N.D.					
5) Chloromethane	1.19	50	131	0.023	ppb	#	42		
6) Vinyl chloride	1.26	62	9997009	1797.834	ppb		98		
7) Bromomethane	0.00		0	N.D.					
8) Chloroethane	0.00		0	N.D.					
9) Trichlorofluoromethane	0.00		0	N.D.					
10) 2-Propanol	0.00		0	N.D.					
11) Acetone	2.17	58	892	7.429	ppb	#	54		
12) 1,1-Dichloroethene	2.12	96	60717	13.080	ppb	#	76		
13) Hexane	2.98	57	607	0.102	ppb		75		
14) Methylene chloride	2.52	84	5294	0.610	ppb		95		
15) t-Butyl alcohol (TBA)	2.64	59	336	3.245	ppb		57		
16) Methyl t-butyl ether (...)	0.00		0	N.D.					
17) trans-1,2-Dichloroethene	2.75	96	43326	8.271	ppb		89		
18) Diisopropyl ether (DIPE)	3.17	45	10673	0.809	ppb		89		
19) 1,1-Dichloroethane	3.09	63	430	0.050	ppb		75		
20) Ethyl t-butyl ether (E...)	0.00		0	N.D.					
21) 2,2-Dichloropropane	0.00		0	N.D.					
22) cis-1,2-Dichloroethene	3.57	96	23602096m	4341.224	ppb				
23) Chloroform	0.00		0	N.D.					
24) 2-Butanone (MEK)	3.60	43	362	0.463	ppb	#	1		
25) t-Amyl methyl ether (T...)	0.00		0	N.D.					
26) 1,2-Dichloroethane (EDC)	4.32	62	1497	0.312	ppb		78		
27) 1,1,1-Trichloroethane	3.99	97	279	0.037	ppb	#	1		
28) 1,1-Dichloropropene	0.00		0	N.D.					
29) Carbon tetrachloride	0.00		0	N.D.					
31) Benzene	4.30	78	2907	0.160	ppb		99		
32) Trichloroethene	4.85	95	2117953	430.625	ppb		92		
33) 1,2-Dichloropropane	0.00		0	N.D.					
34) Bromodichloromethane	0.00		0	N.D.					
36) Dibromomethane	0.00		0	N.D.					
37) 4-Methyl-2-pentanone	0.00		0	N.D.					
38) cis-1,3-Dichloropropene	0.00		0	N.D.					

Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

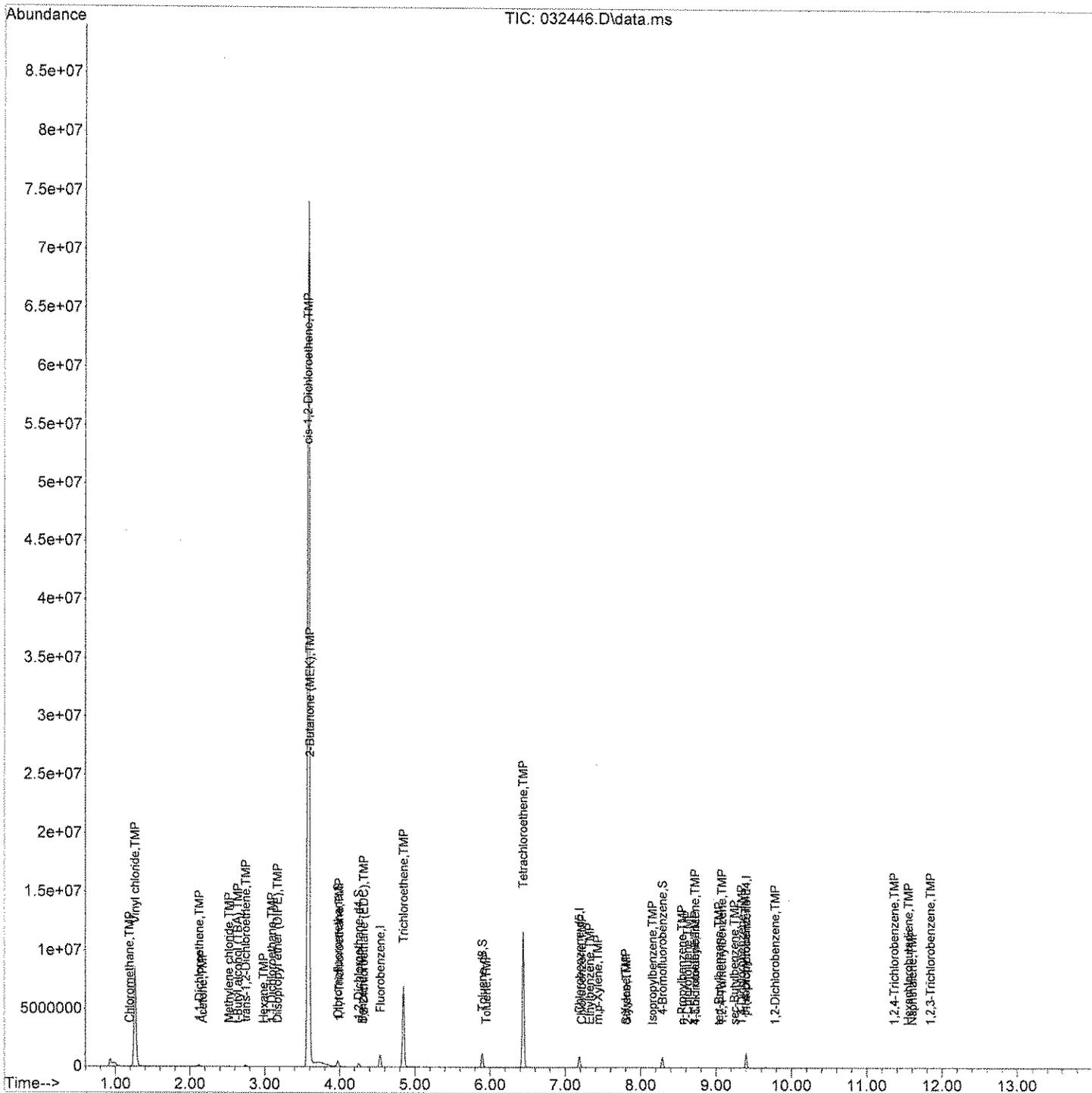
Quant Time: Dec 09 11:10:15 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M

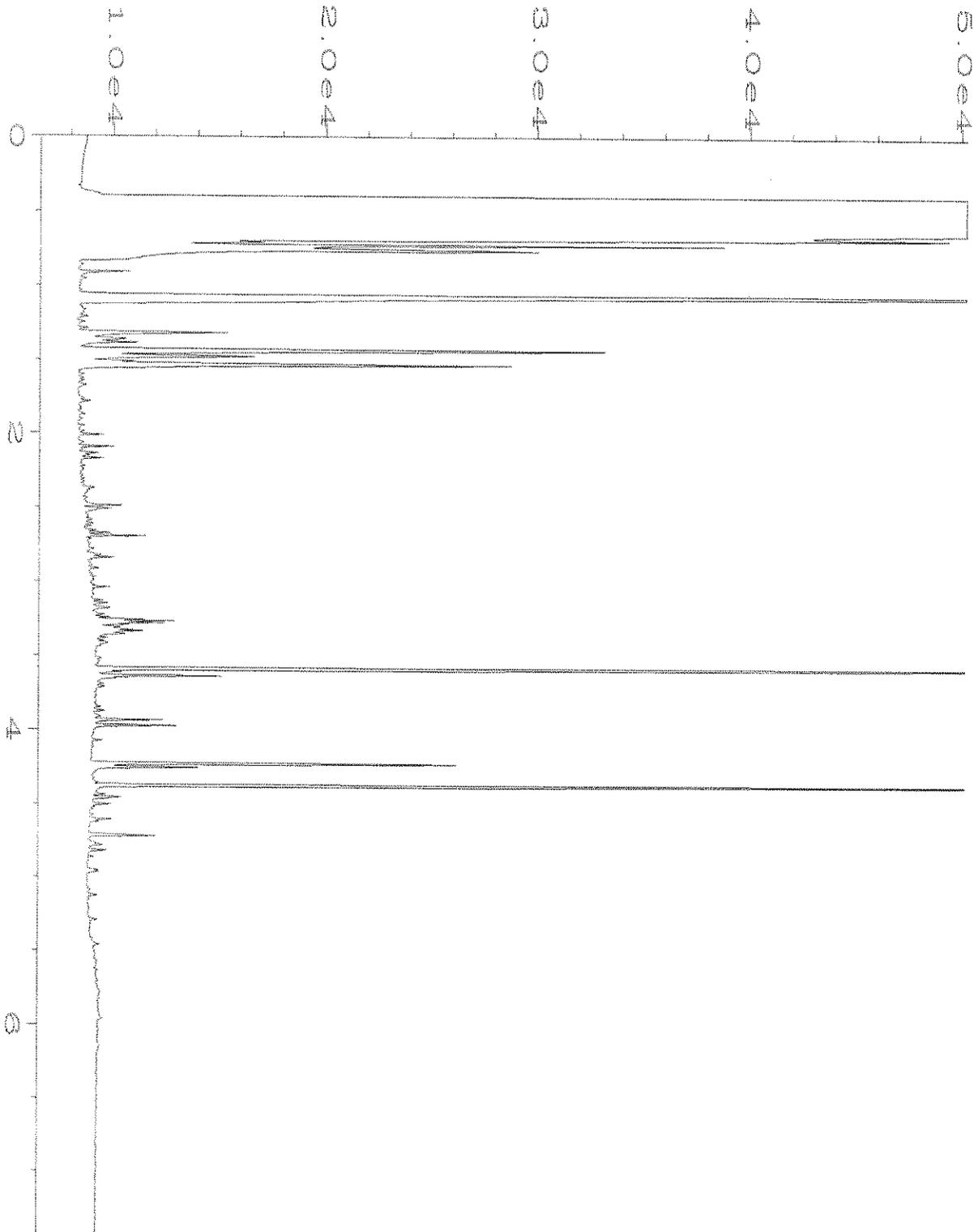
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
40) Toluene	5.95	92	2125	0.232	ppb	# 75
41) trans-1,3-Dichloropropene	0.00		0	N.D.		
42) 1,1,2-Trichloroethane	0.00		0	N.D.	d	
43) 2-Hexanone	0.00		0	N.D.		
44) 1,3-Dichloropropane	0.00		0	N.D.		
45) Tetrachloroethene	6.44	164	2746845	727.828	ppb	94
46) Dibromochloromethane	0.00		0	N.D.		
47) 1,2-Dibromoethane (EDB)	0.00		0	N.D.		
48) Chlorobenzene	7.22	112	274	0.026	ppb	# 29
49) Ethylbenzene	7.32	91	852	0.046	ppb	93
50) 1,1,1,2-Tetrachloroethane	0.00		0	N.D.		
51) m,p-Xylene	7.43	106	615	0.087	ppb	84
52) o-Xylene	7.80	106	358	0.052	ppb	95
53) Styrene	7.81	104	225	0.021	ppb	86
54) Isopropylbenzene	8.16	105	273	0.015	ppb	49
55) Bromoform	0.00		0	N.D.		
58) n-Propylbenzene	8.55	91	796	0.034	ppb	88
59) Bromobenzene	0.00		0	N.D.		
60) 1,3,5-Trimethylbenzene	8.72	105	372	0.022	ppb	# 30
61) 1,1,2,2-Tetrachloroethane	0.00		0	N.D.		
62) 1,2,3-Trichloropropane	0.00		0	N.D.	d	
63) 2-Chlorotoluene	8.62	91	198	0.015	ppb	# 40
64) 4-Chlorotoluene	8.72	91	510	0.033	ppb	# 44
65) tert-Butylbenzene	9.04	119	248	0.019	ppb	# 24
66) 1,2,4-Trimethylbenzene	9.08	105	1004	0.059	ppb	88
67) sec-Butylbenzene	9.24	105	711	0.035	ppb	60
68) p-Isopropyltoluene	9.39	119	875	0.048	ppb	# 20
69) 1,3-Dichlorobenzene	9.34	146	617	0.059	ppb	97
70) 1,4-Dichlorobenzene	9.34	146	617	0.059	ppb	99
71) 1,2-Dichlorobenzene	9.78	146	341	0.034	ppb	# 56
72) 1,2-Dibromo-3-chloropr...	0.00		0	N.D.		
73) 1,2,4-Trichlorobenzene	11.36	180	930	0.118	ppb	79
74) Hexachlorobutadiene	11.55	225	421	0.093	ppb	90
75) Naphthalene	11.60	128	1464	0.132	ppb	94
76) 1,2,3-Trichlorobenzene	11.84	180	691	0.103	ppb	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

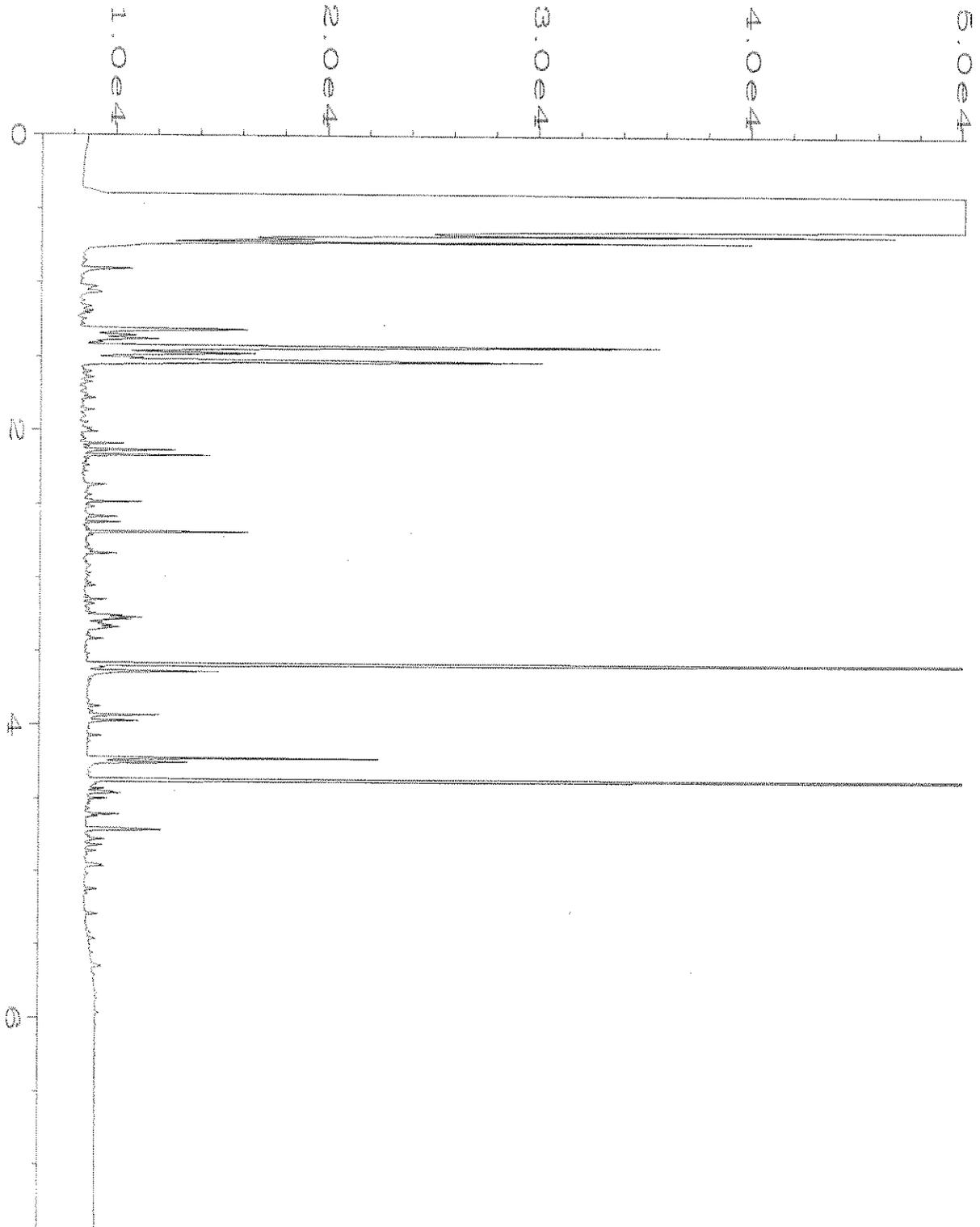
Data Path : I:\GCMS9\03-24-20\  
 Data File : 032446.D  
 Acq On : 24 Mar 2020 7:07 pm  
 Operator : VM  
 Sample : 003357-01  
 Misc : water  
 ALS Vial : 98 Sample Multiplier: 1  
 InstName : GCMS9

Quant Time: Dec 09 11:10:15 2020  
 Quant Method : D:\METHODS\Inst9\VB032020ms9.M  
 Quant Title : 8260 Purge & Trap Volatiles  
 QLast Update : Wed Apr 01 19:19:04 2020  
 Response via : Initial Calibration  
 DataAcq Meth:826075.M

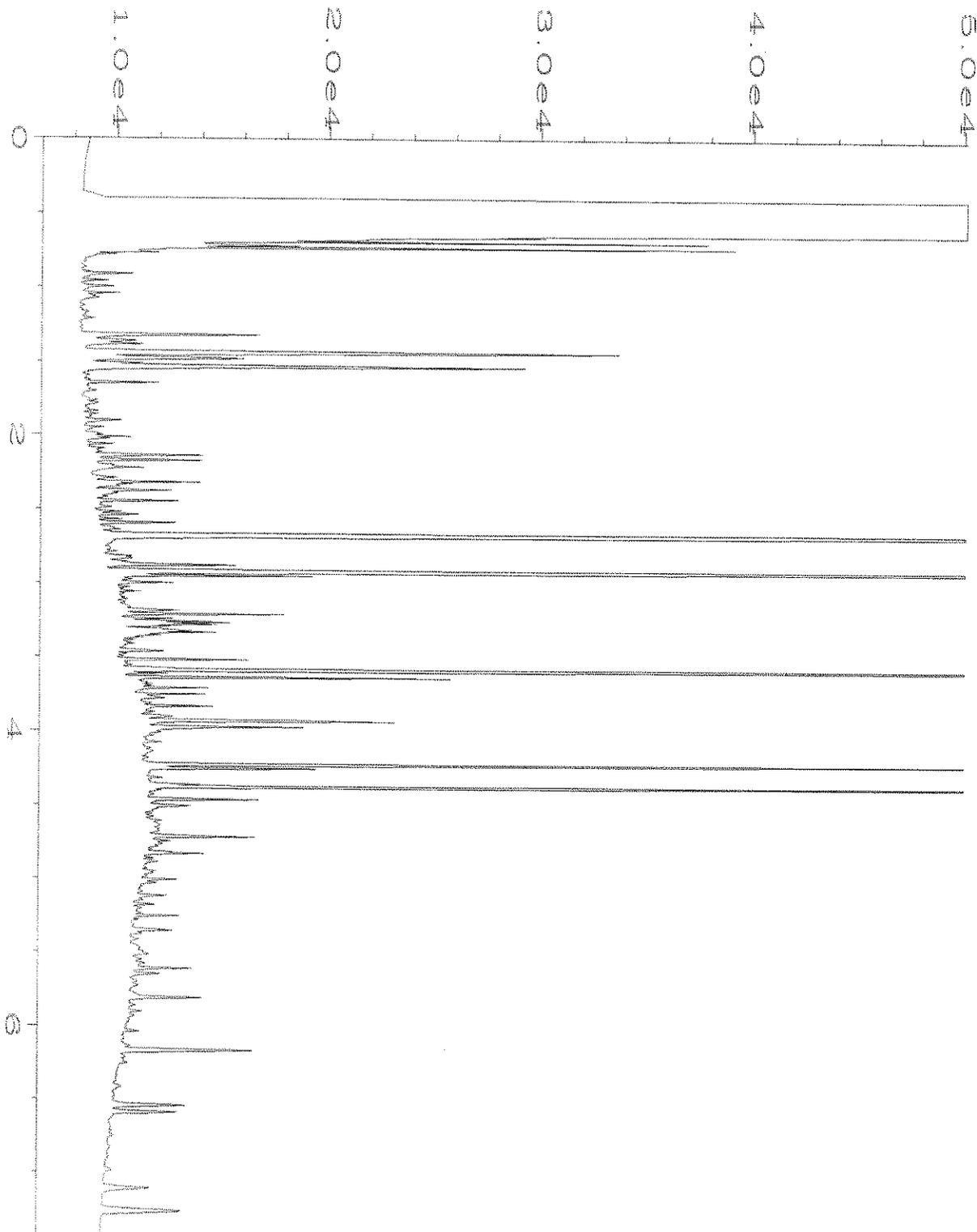




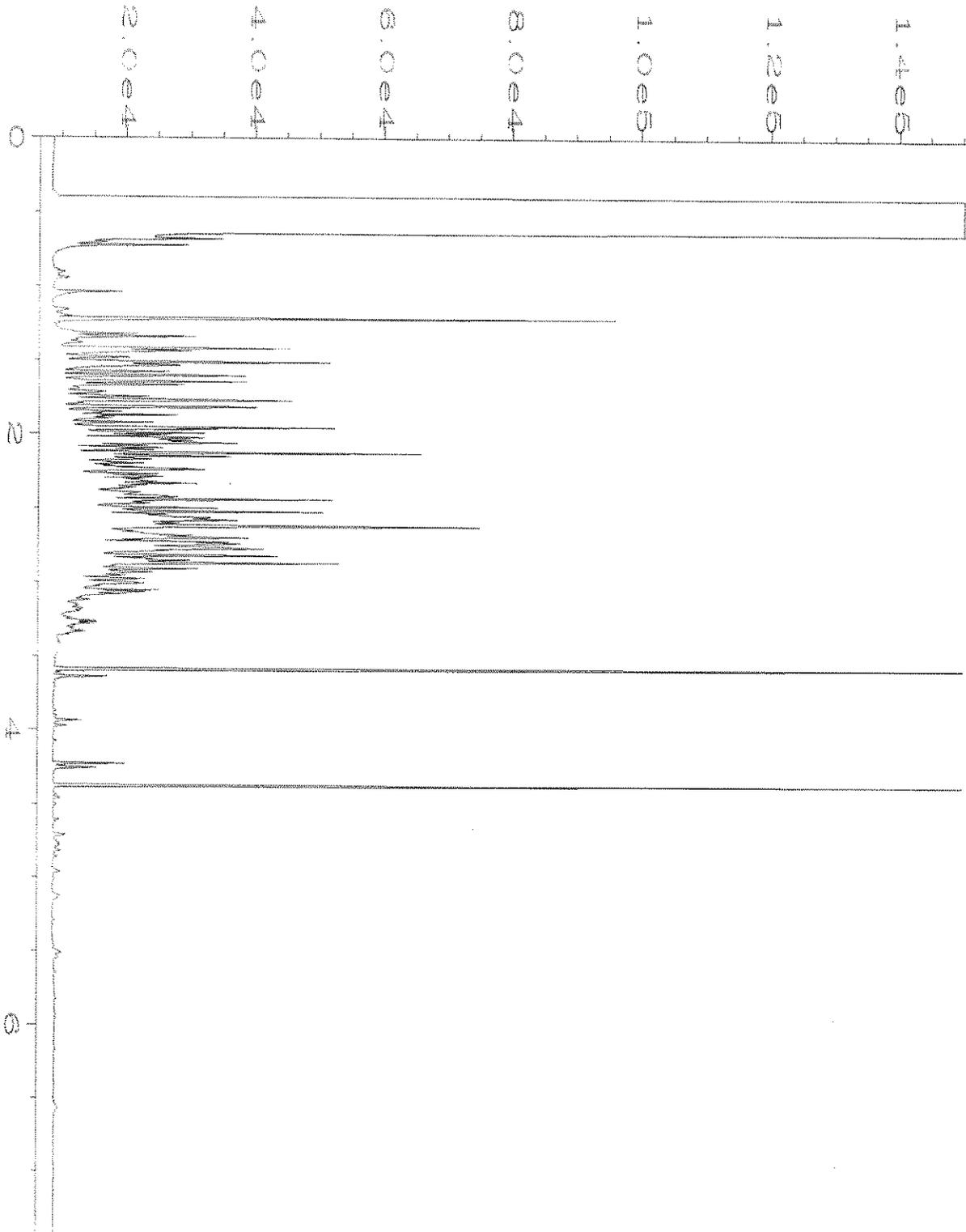
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Operator	: TL	Vial Number	: 10
Instrument	: GC1	Injection Number	: 1
Sample Name	: 003357-01	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 11:44 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:40 AM		



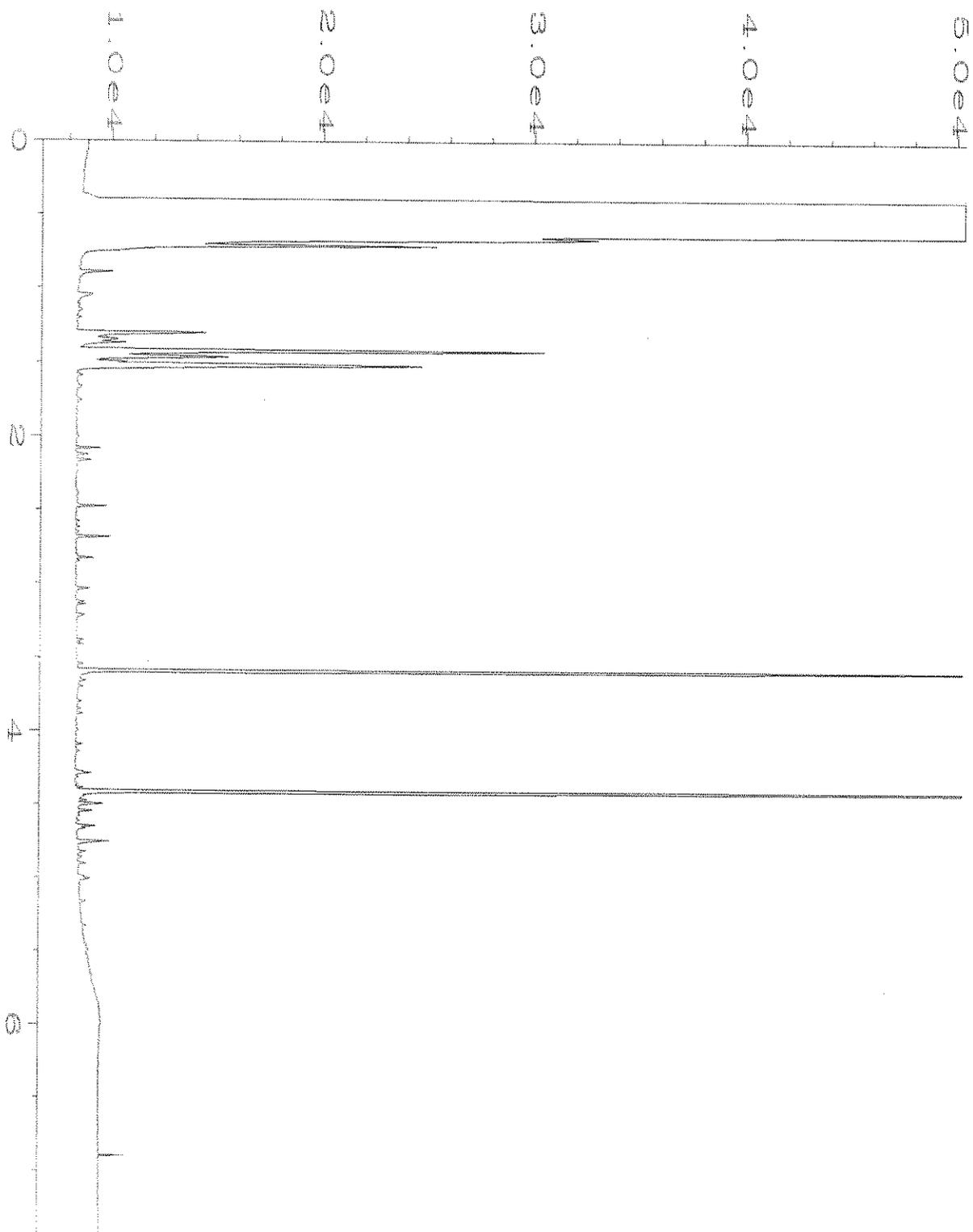
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Operator	: TL	Vial Number	: 11
Instrument	: GC1	Injection Number	: 1
Sample Name	: 003357-02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 11:55 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:40 AM		



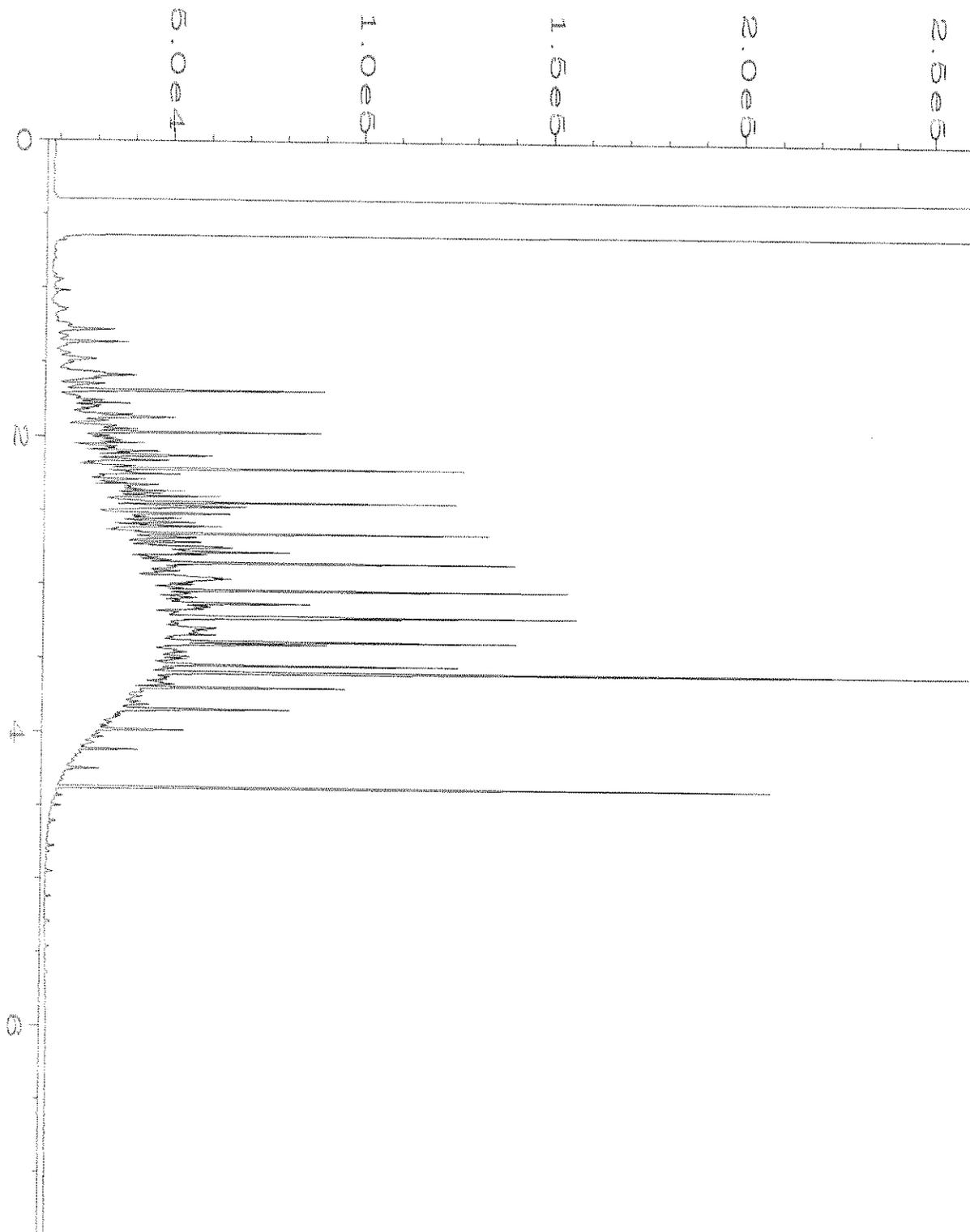
Data File Name	: C:\HPCHEM\1\DATA\03-23-20\012F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 12
Instrument	: GC1	Injection Number	: 1
Sample Name	: 003357-03	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 12:07 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:40 AM		



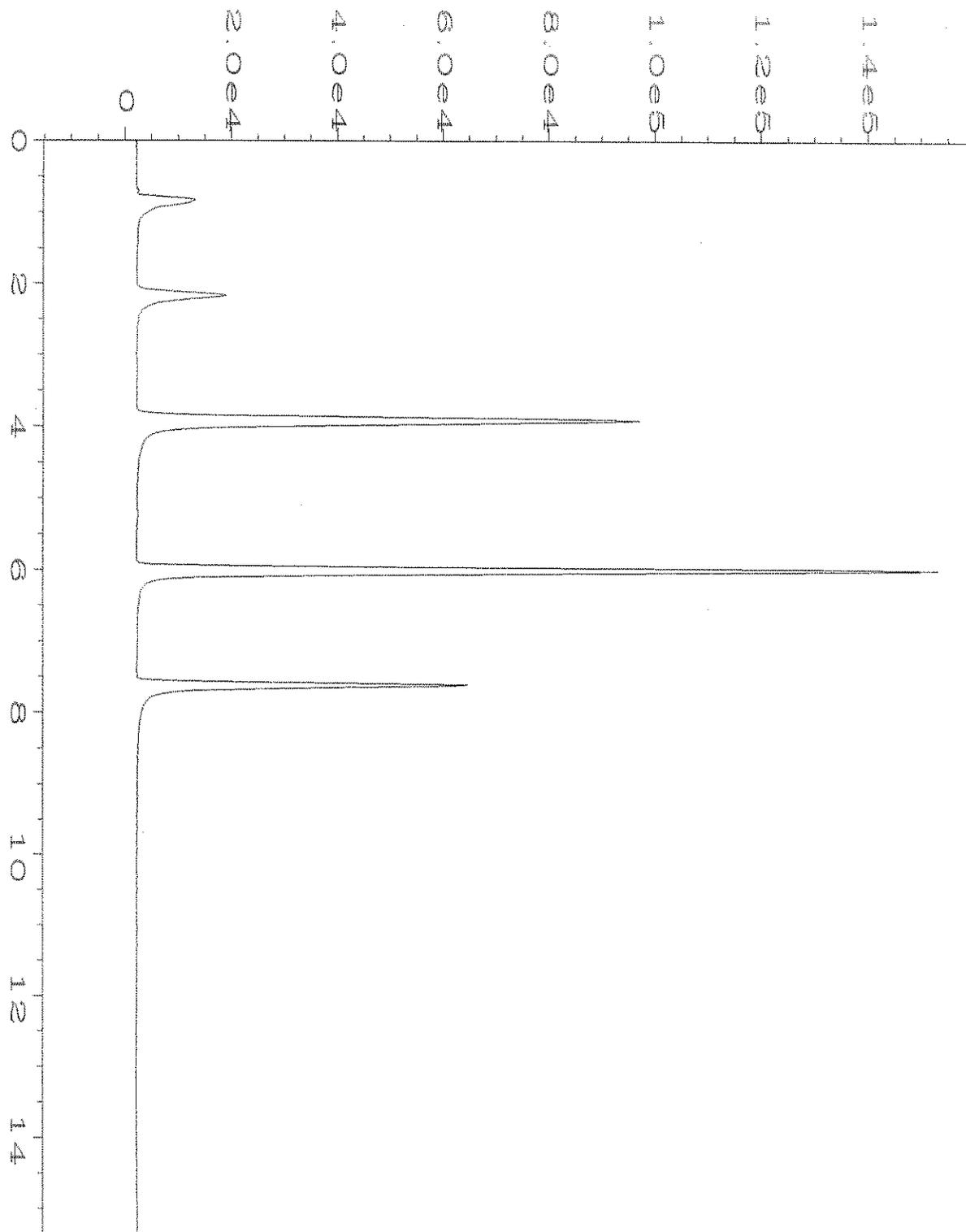
Data File Name	: C:\HPCHEM\1\DATA\03-23-20\013F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 13
Instrument	: GC1	Injection Number	: 1
Sample Name	: 003357-04	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 12:18 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:41 AM		



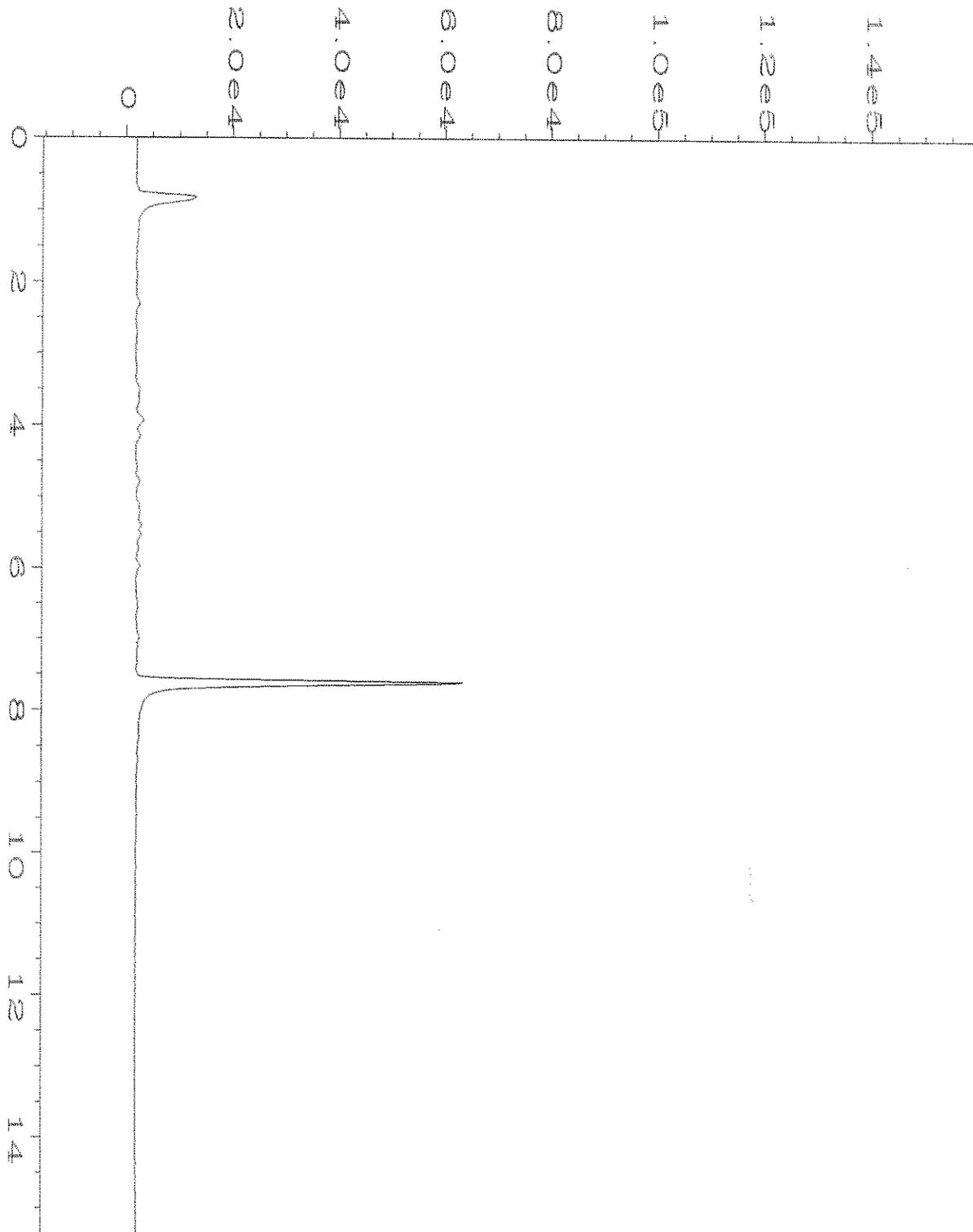
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Operator	: TL	Vial Number	: 6
Instrument	: GC1	Injection Number	: 1
Sample Name	: 00-736 mb	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 11:01 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:42 AM		



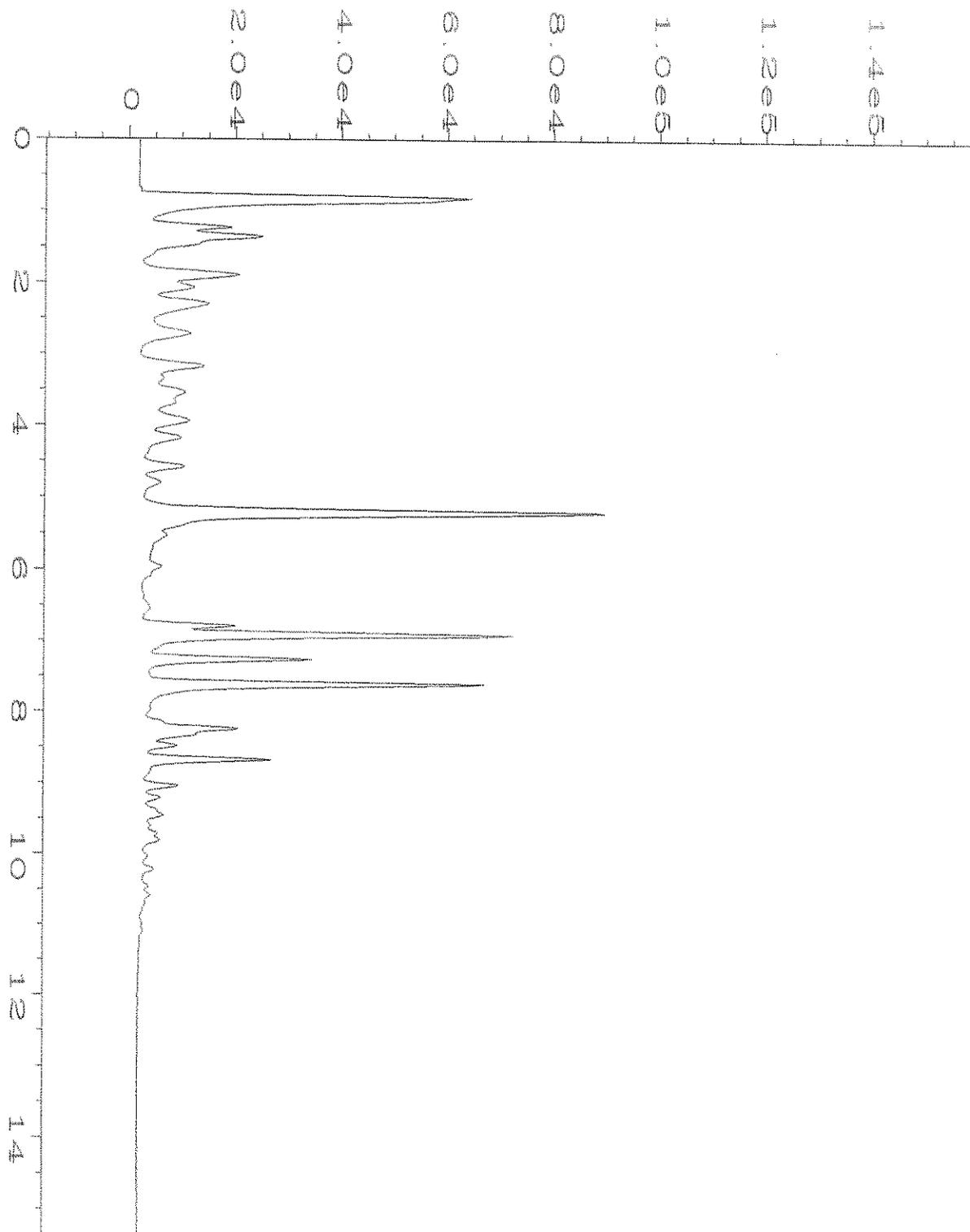
Data File Name	: C:\HPCHEM\1\DATA\03-23-20\003F0201.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC1	Injection Number	: 1
Sample Name	: 500 Dx 58-146H	Sequence Line	: 2
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 23 Mar 20 06:26 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:42 AM		



Data File Name	: C:\HPCHEM\2\DATA\03-23-20\030F0101.D	Page Number	: 1
Operator	: JEB	Vial Number	: 30
Instrument	: GC2	Injection Number	: 1
Sample Name	: 003357-01	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	GX.MTH
Acquired on	: 23 Mar 20 03:28 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:31 AM		



Data File Name	: C:\HPCHEM\2\DATA\03-23-20\004F0101.D	Page Number	: 1
Operator	: JEB	Vial Number	: 4
Instrument	: GC2	Injection Number	: 1
Sample Name	: 00-655 mb	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	GX.MTH
Acquired on	: 23 Mar 20 06:20 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:31 AM		



Data File Name	: C:\HPCHEM\2\DATA\03-23-20\003F0101.D	Page Number	: 1
Operator	: JEB	Vial Number	: 3
Instrument	: GC2	Injection Number	: 1
Sample Name	: 00-655 lcsq/ccg	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	GX.MTH
Acquired on	: 23 Mar 20 05:58 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	01 Oct 20 11:31 AM		

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 11, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 1, 2020 from the MMB Job 1940904, F&BI 009027 project. There are 69 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0911R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 1, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB Job 1940904, F&BI 009027 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009027 -01	Trip blank
009027 -02	MBB17-5
009027 -03	MBB17-10
009027 -04	MBB17-15
009027 -05	MBB17-25
009027 -06	MBB18-5
009027 -07	MBB18-10
009027 -08	MBB18-15
009027 -09	MBB18-20
009027 -10	MBB19-5
009027 -11	MBB19-10
009027 -12	MBB19-15
009027 -13	MBB19-20

A 6020B internal standard failed the acceptance criteria for sample MBB17-15. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

The 8260D calibration standard failed the acceptance criteria for acetone. The data were flagged accordingly.

Methylene chloride was detected in the 8260D analysis of samples MBB18-10, MBB19-15, and MBB19-20. The data were flagged as due to laboratory contamination.

Mercury in the 6020B matrix spike and the associated relative percent difference exceeded the acceptance criteria. Mercury was not detected in the samples, therefore the data were acceptable.

The 8260D matrix spike, laboratory control sample, and laboratory control sample duplicate exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

Date Extracted: 09/03/20

Date Analyzed: 09/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
MBB17-5 009027-02	<5	89
MBB17-10 009027-03	<5	88
MBB17-15 009027-04	<5	87
MBB17-25 009027-05	<5	87
MBB18-5 009027-06	<5	88
MBB18-10 009027-07	<5	89
MBB18-15 009027-08	<5	88
MBB18-20 009027-09	<5	90
MBB19-5 009027-10	<5	87
MBB19-10 009027-11	<5	87
MBB19-15 009027-12	<5	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

Date Extracted: 09/03/20

Date Analyzed: 09/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 58-139)
MBB19-20 009027-13	<5	87
Method Blank 00-1820 MB	<5	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20  
 Date Received: 09/01/20  
 Project: MMB Job 1940904, F&BI 009027  
 Date Extracted: 09/02/20  
 Date Analyzed: 09/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB17-5 009027-02	<50	<250	89
MBB17-10 009027-03	<50	<250	96
MBB17-15 009027-04	<50	<250	87
MBB17-25 009027-05	<50	<250	89
MBB18-5 009027-06	<50	<250	86
MBB18-10 009027-07	<50	<250	87
MBB18-15 009027-08	<50	<250	86
MBB18-20 009027-09	<50	<250	94
MBB19-5 009027-10	<50	<250	86
MBB19-10 009027-11	<50	<250	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

Date Extracted: 09/02/20

Date Analyzed: 09/02/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB19-15 009027-12	<50	<250	91
MBB19-20 009027-13	<50	<250	95
Method Blank 00-1982 MB	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB17-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-02
Date Analyzed:	09/08/20	Data File:	009027-02.195
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.71
Cadmium	<1
Chromium	23.6
Lead	2.67
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB17-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-03
Date Analyzed:	09/08/20	Data File:	009027-03.196
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.75
Cadmium	<1
Chromium	15.0
Lead	4.42
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB17-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-04
Date Analyzed:	09/08/20	Data File:	009027-04.197
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.91
Cadmium	<1
Chromium	16.0 J
Lead	7.13
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB17-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-04 x5
Date Analyzed:	09/10/20	Data File:	009027-04 x5.305
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	17.5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB17-25	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-05
Date Analyzed:	09/08/20	Data File:	009027-05.198
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.97
Cadmium	<1
Chromium	17.7
Lead	1.75
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB18-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-06
Date Analyzed:	09/08/20	Data File:	009027-06.201
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	14.2
Cadmium	<1
Chromium	25.5
Lead	13.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB18-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-07
Date Analyzed:	09/08/20	Data File:	009027-07.202
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.20
Cadmium	<1
Chromium	14.4
Lead	6.61
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB18-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-08
Date Analyzed:	09/08/20	Data File:	009027-08.203
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.13
Cadmium	<1
Chromium	12.3
Lead	1.02
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB18-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-09
Date Analyzed:	09/08/20	Data File:	009027-09.204
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.61
Cadmium	<1
Chromium	16.2
Lead	1.69
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB19-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-10
Date Analyzed:	09/08/20	Data File:	009027-10.205
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.16
Cadmium	<1
Chromium	19.2
Lead	4.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB19-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-11
Date Analyzed:	09/08/20	Data File:	009027-11.206
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.47
Cadmium	<1
Chromium	15.4
Lead	55.6
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB19-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-12
Date Analyzed:	09/08/20	Data File:	009027-12.207
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.01
Cadmium	<1
Chromium	20.8
Lead	1.75
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB19-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-13
Date Analyzed:	09/08/20	Data File:	009027-13.208
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.70
Cadmium	<1
Chromium	13.5
Lead	1.13
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	I0-515 mb
Date Analyzed:	09/03/20	Data File:	I0-515 mb.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip blank	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-01
Date Analyzed:	09/02/20	Data File:	090233.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<1
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	00-1946 mb
Date Analyzed:	09/02/20	Data File:	090224.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.04 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.8
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB17-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-02
Date Analyzed:	09/04/20	Data File:	090351.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB17-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-03
Date Analyzed:	09/04/20	Data File:	090352.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	94	50	150
4-Bromofluorobenzene	88	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB17-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-04
Date Analyzed:	09/04/20	Data File:	090353.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB17-25	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-05
Date Analyzed:	09/04/20	Data File:	090354.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	90	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca j	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05 j
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB18-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-06
Date Analyzed:	09/04/20	Data File:	090355.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.0062
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB18-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-07
Date Analyzed:	09/04/20	Data File:	090356.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.12 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB18-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-08
Date Analyzed:	09/04/20	Data File:	090357.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB18-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-09
Date Analyzed:	09/04/20	Data File:	090414.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB19-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-10
Date Analyzed:	09/04/20	Data File:	090415.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB19-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-11
Date Analyzed:	09/04/20	Data File:	090416.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB19-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-12
Date Analyzed:	09/04/20	Data File:	090417.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0215 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB19-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	009027-13
Date Analyzed:	09/04/20	Data File:	090418.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1 ca	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0215 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/03/20	Lab ID:	00-1950 mb
Date Analyzed:	09/03/20	Data File:	090317.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025 ca
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB17-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-02 1/25
Date Analyzed:	09/02/20	Data File:	090214.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55 d	50	150
Phenol-d6	67 d	50	150
Nitrobenzene-d5	60 d	50	150
2-Fluorobiphenyl	71 d	50	150
2,4,6-Tribromophenol	57 d	50	150
Terphenyl-d14	78 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB17-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-03 1/5
Date Analyzed:	09/02/20	Data File:	090206.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	50	150
Phenol-d6	63	50	150
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	65	50	150
2,4,6-Tribromophenol	59	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB17-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-04 1/25
Date Analyzed:	09/02/20	Data File:	090217.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35 d	50	150
Phenol-d6	59 d	50	150
Nitrobenzene-d5	56 d	50	150
2-Fluorobiphenyl	67 d	50	150
2,4,6-Tribromophenol	0 d	50	150
Terphenyl-d14	70 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB17-25	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-05 1/5
Date Analyzed:	09/02/20	Data File:	090207.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	59	50	150
Phenol-d6	68	50	150
Nitrobenzene-d5	63	50	150
2-Fluorobiphenyl	68	50	150
2,4,6-Tribromophenol	70	50	150
Terphenyl-d14	76	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB18-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-06 1/25
Date Analyzed:	09/02/20	Data File:	090215.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	0 d	50	150
Phenol-d6	10 d	50	150
Nitrobenzene-d5	61 d	50	150
2-Fluorobiphenyl	70 d	50	150
2,4,6-Tribromophenol	0 d	50	150
Terphenyl-d14	75 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB18-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-07 1/25
Date Analyzed:	09/02/20	Data File:	090216.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	4 d	50	150
Phenol-d6	37 d	50	150
Nitrobenzene-d5	64 d	50	150
2-Fluorobiphenyl	72 d	50	150
2,4,6-Tribromophenol	0 d	50	150
Terphenyl-d14	76 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB18-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-08 1/5
Date Analyzed:	09/02/20	Data File:	090208.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	50	150
Phenol-d6	73	50	150
Nitrobenzene-d5	63	50	150
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	76	50	150
Terphenyl-d14	73	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB18-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-09 1/5
Date Analyzed:	09/02/20	Data File:	090209.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	56	50	150
Phenol-d6	64	50	150
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	65	50	150
2,4,6-Tribromophenol	57	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB19-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-10 1/25
Date Analyzed:	09/08/20	Data File:	090816.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	27 d	50	150
Phenol-d6	56 d	50	150
Nitrobenzene-d5	60 d	50	150
2-Fluorobiphenyl	68 d	50	150
2,4,6-Tribromophenol	13 d	50	150
Terphenyl-d14	75 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB19-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-11 1/25
Date Analyzed:	09/03/20	Data File:	090219.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12 d	50	150
Phenol-d6	66 d	50	150
Nitrobenzene-d5	64 d	50	150
2-Fluorobiphenyl	75 d	50	150
2,4,6-Tribromophenol	49 d	50	150
Terphenyl-d14	75 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	0.050
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	0.064
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB19-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-12 1/5
Date Analyzed:	09/08/20	Data File:	090820.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	61	50	150
Phenol-d6	71	50	150
Nitrobenzene-d5	62	50	150
2-Fluorobiphenyl	69	50	150
2,4,6-Tribromophenol	68	50	150
Terphenyl-d14	67	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB19-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-13 1/5
Date Analyzed:	09/08/20	Data File:	090821.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	56	50	150
Phenol-d6	65	50	150
Nitrobenzene-d5	56	50	150
2-Fluorobiphenyl	68	50	150
2,4,6-Tribromophenol	71	50	150
Terphenyl-d14	74	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	00-1981 mb 1/5
Date Analyzed:	09/02/20	Data File:	090205.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	50	150
Phenol-d6	87	50	150
Nitrobenzene-d5	79	50	150
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	80	50	150
Terphenyl-d14	94	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB17-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-02 1/6
Date Analyzed:	09/02/20	Data File:	090210.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB17-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-03 1/6
Date Analyzed:	09/02/20	Data File:	090211.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	66	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB17-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-04 1/6
Date Analyzed:	09/02/20	Data File:	090212.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	88	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	0.022
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB17-25	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-05 1/6
Date Analyzed:	09/02/20	Data File:	090213.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	69	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB18-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-06 1/6
Date Analyzed:	09/02/20	Data File:	090214.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	0 ip	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB18-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-07 1/6
Date Analyzed:	09/02/20	Data File:	090216.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	0.022
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB18-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-08 1/6
Date Analyzed:	09/02/20	Data File:	090217.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB18-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-09 1/6
Date Analyzed:	09/02/20	Data File:	090218.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB19-5	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-10 1/6
Date Analyzed:	09/02/20	Data File:	090219.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB19-10	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-11 1/6
Date Analyzed:	09/02/20	Data File:	090220.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	0.026
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB19-15	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-12 1/6
Date Analyzed:	09/02/20	Data File:	090221.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB19-20	Client:	Hart Crowser
Date Received:	09/01/20	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	009027-13 1/6
Date Analyzed:	09/02/20	Data File:	090222.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	87	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009027
Date Extracted:	09/02/20	Lab ID:	00-1976 mb2 1/6
Date Analyzed:	09/02/20	Data File:	090208.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	93	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009027-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009027-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	96	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009044-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	87	85	75-125	2
Cadmium	mg/kg (ppm)	10	<5	103	103	75-125	0
Chromium	mg/kg (ppm)	50	12.5	98	96	75-125	2
Lead	mg/kg (ppm)	50	<5	100	97	75-125	3
Mercury	mg/kg (ppm)	5	<5	127 vo	99	75-125	25 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	89	80-120
Cadmium	mg/kg (ppm)	10	98	80-120
Chromium	mg/kg (ppm)	50	100	80-120
Lead	mg/kg (ppm)	50	104	80-120
Mercury	mg/kg (ppm)	5	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

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

Laboratory Code: 008421-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Dichlorodifluoromethane	ug/L (ppb)	10	<1	114	50-150
Chloromethane	ug/L (ppb)	10	<10	104	50-150
Vinyl chloride	ug/L (ppb)	10	<0.2	111	50-150
Bromomethane	ug/L (ppb)	10	<5	138	50-150
Chloroethane	ug/L (ppb)	10	<1	127	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	108	50-150
Acetone	ug/L (ppb)	50	<50	112	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	112	50-150
Hexane	ug/L (ppb)	10	<5	119	50-150
Methylene chloride	ug/L (ppb)	10	<5	88	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	104	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	107	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	104	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	195 vo	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	105	50-150
Chloroform	ug/L (ppb)	10	<1	98	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	85	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	100	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	103	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	104	50-150
Carbon tetrachloride	ug/L (ppb)	10	<1	102	50-150
Benzene	ug/L (ppb)	10	<0.35	101	50-150
Trichloroethene	ug/L (ppb)	10	<1	81	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	96	50-150
Bromodichloromethane	ug/L (ppb)	10	<1	111	50-150
Dibromomethane	ug/L (ppb)	10	<1	104	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	111	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	106	50-150
Toluene	ug/L (ppb)	10	<1	100	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	108	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	106	50-150
2-Hexanone	ug/L (ppb)	50	<10	87	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	101	50-150
Dibromochloromethane	ug/L (ppb)	10	<1	116	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	105	50-150
Chlorobenzene	ug/L (ppb)	10	<1	102	50-150
Ethylbenzene	ug/L (ppb)	10	<1	101	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	107	50-150
m,p-Xylene	ug/L (ppb)	20	<2	98	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150
Styrene	ug/L (ppb)	10	<1	99	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	101	50-150
Bromoform	ug/L (ppb)	10	<5	105	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	105	50-150
Bromobenzene	ug/L (ppb)	10	<1	101	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	105	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	170 vo	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	109	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	104	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	104	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	103	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	102	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	105	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	106	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	103	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	100	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	105	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<1	104	50-150
Naphthalene	ug/L (ppb)	10	<1	106	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	120	124	70-130	3
Chloromethane	ug/L (ppb)	10	102	98	70-130	4
Vinyl chloride	ug/L (ppb)	10	112	112	70-130	0
Bromomethane	ug/L (ppb)	10	142 vo	133 vo	70-130	7
Chloroethane	ug/L (ppb)	10	128	125	70-130	2
Trichlorofluoromethane	ug/L (ppb)	10	107	107	70-130	0
Acetone	ug/L (ppb)	50	93	84	64-131	10
1,1-Dichloroethene	ug/L (ppb)	10	112	107	70-130	5
Hexane	ug/L (ppb)	10	147 vo	147 vo	70-130	0
Methylene chloride	ug/L (ppb)	10	89	89	29-192	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	102	103	70-130	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	106	106	70-130	0
1,1-Dichloroethane	ug/L (ppb)	10	101	102	70-130	1
2,2-Dichloropropane	ug/L (ppb)	10	267 vo	267 vo	70-130	0
cis-1,2-Dichloroethene	ug/L (ppb)	10	102	103	70-130	1
Chloroform	ug/L (ppb)	10	98	98	70-130	0
2-Butanone (MEK)	ug/L (ppb)	50	80	81	70-130	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	98	100	70-130	2
1,1,1-Trichloroethane	ug/L (ppb)	10	102	104	70-130	2
1,1-Dichloropropene	ug/L (ppb)	10	107	108	70-130	1
Carbon tetrachloride	ug/L (ppb)	10	97	101	70-130	4
Benzene	ug/L (ppb)	10	100	101	70-130	1
Trichloroethene	ug/L (ppb)	10	82	85	70-130	4
1,2-Dichloropropane	ug/L (ppb)	10	99	99	70-130	0
Bromodichloromethane	ug/L (ppb)	10	116	120	70-130	3
Dibromomethane	ug/L (ppb)	10	103	105	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	112	115	70-130	3
cis-1,3-Dichloropropene	ug/L (ppb)	10	122	123	70-130	1
Toluene	ug/L (ppb)	10	98	101	70-130	3
trans-1,3-Dichloropropene	ug/L (ppb)	10	125	127	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	104	107	70-130	3
2-Hexanone	ug/L (ppb)	50	85	92	70-130	8
1,3-Dichloropropane	ug/L (ppb)	10	99	101	70-130	2
Tetrachloroethene	ug/L (ppb)	10	105	107	70-130	2
Dibromochloromethane	ug/L (ppb)	10	119	121	70-130	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	104	108	70-130	4
Chlorobenzene	ug/L (ppb)	10	102	104	70-130	2
Ethylbenzene	ug/L (ppb)	10	101	104	70-130	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	104	106	70-130	2
m,p-Xylene	ug/L (ppb)	20	99	102	70-130	3
o-Xylene	ug/L (ppb)	10	100	102	70-130	2
Styrene	ug/L (ppb)	10	101	107	70-130	6
Isopropylbenzene	ug/L (ppb)	10	102	104	70-130	2
Bromoform	ug/L (ppb)	10	114	117	63-206	3
n-Propylbenzene	ug/L (ppb)	10	112	109	70-130	3
Bromobenzene	ug/L (ppb)	10	108	104	70-130	4
1,3,5-Trimethylbenzene	ug/L (ppb)	10	111	108	70-130	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	173 vo	167 vo	70-130	4
1,2,3-Trichloropropane	ug/L (ppb)	10	111	108	70-130	3
2-Chlorotoluene	ug/L (ppb)	10	107	104	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	111	109	70-130	2
tert-Butylbenzene	ug/L (ppb)	10	110	105	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	108	104	70-130	4
sec-Butylbenzene	ug/L (ppb)	10	113	109	70-130	4
p-Isopropyltoluene	ug/L (ppb)	10	115	110	70-130	4
1,3-Dichlorobenzene	ug/L (ppb)	10	108	106	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	108	107	70-130	1
1,2-Dichlorobenzene	ug/L (ppb)	10	106	104	70-130	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	103	102	70-130	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	110	108	70-130	2
Hexachlorobutadiene	ug/L (ppb)	10	117	113	70-130	3
Naphthalene	ug/L (ppb)	10	111	106	70-130	5
1,2,3-Trichlorobenzene	ug/L (ppb)	10	106	104	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	102	104	70-130	2
Chloromethane	mg/kg (ppm)	0.025	86	91	70-130	6
Vinyl chloride	mg/kg (ppm)	0.025	96	99	70-130	3
Bromomethane	mg/kg (ppm)	0.025	103	107	70-130	4
Chloroethane	mg/kg (ppm)	0.025	99	106	70-130	7
Trichlorofluoromethane	mg/kg (ppm)	0.025	109	113	70-130	4
Acetone	mg/kg (ppm)	0.125	75	76	70-130	1
1,1-Dichloroethene	mg/kg (ppm)	0.025	85	86	70-130	1
Hexane	mg/kg (ppm)	0.025	108	99	70-130	9
Methylene chloride	mg/kg (ppm)	0.025	96	84	70-130	13
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	84	90	70-130	7
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	92	95	70-130	3
1,1-Dichloroethane	mg/kg (ppm)	0.025	88	93	70-130	6
2,2-Dichloropropane	mg/kg (ppm)	0.025	95	98	70-130	3
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	86	92	70-130	7
Chloroform	mg/kg (ppm)	0.025	83	89	70-130	7
2-Butanone (MEK)	mg/kg (ppm)	0.125	98	130	70-130	28 vo
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	88	95	70-130	8
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	100	101	70-130	1
1,1-Dichloropropene	mg/kg (ppm)	0.025	103	105	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.025	113	112	70-130	1
Benzene	mg/kg (ppm)	0.025	88	93	70-130	6
Trichloroethene	mg/kg (ppm)	0.025	90	93	70-130	3
1,2-Dichloropropane	mg/kg (ppm)	0.025	81	85	70-130	5
Bromodichloromethane	mg/kg (ppm)	0.025	87	95	70-130	9
Dibromomethane	mg/kg (ppm)	0.025	89	94	70-130	5
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	92	94	70-130	2
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	87	94	70-130	8
Toluene	mg/kg (ppm)	0.025	103	108	70-130	5
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	89	96	70-130	8
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	84	91	70-130	8
2-Hexanone	mg/kg (ppm)	0.125	104	108	70-130	4
1,3-Dichloropropane	mg/kg (ppm)	0.025	83	92	70-130	10
Tetrachloroethene	mg/kg (ppm)	0.025	101	100	70-130	1
Dibromochloromethane	mg/kg (ppm)	0.025	98	105	70-130	7
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	90	96	70-130	6
Chlorobenzene	mg/kg (ppm)	0.025	99	106	70-130	7
Ethylbenzene	mg/kg (ppm)	0.025	110	115	70-130	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	99	107	70-130	8
m,p-Xylene	mg/kg (ppm)	0.05	98	102	70-130	4
o-Xylene	mg/kg (ppm)	0.025	103	109	70-130	6
Styrene	mg/kg (ppm)	0.025	101	110	70-130	9
Isopropylbenzene	mg/kg (ppm)	0.025	113	115	70-130	2
Bromoform	mg/kg (ppm)	0.025	94	105	70-130	11
n-Propylbenzene	mg/kg (ppm)	0.025	102	98	70-130	4
Bromobenzene	mg/kg (ppm)	0.025	92	95	70-130	3
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	105	100	70-130	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	98	100	70-130	2
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	96	96	70-130	0
2-Chlorotoluene	mg/kg (ppm)	0.025	97	95	70-130	2
4-Chlorotoluene	mg/kg (ppm)	0.025	94	94	70-130	0
tert-Butylbenzene	mg/kg (ppm)	0.025	101	96	70-130	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	103	101	70-130	2
sec-Butylbenzene	mg/kg (ppm)	0.025	113	105	70-130	7
p-Isopropyltoluene	mg/kg (ppm)	0.025	109	104	70-130	5
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	98	98	70-130	0
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	100	100	70-130	0
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	95	96	70-130	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	114	109	70-130	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	97	94	70-130	3
Hexachlorobutadiene	mg/kg (ppm)	0.025	100	91	70-130	9
Naphthalene	mg/kg (ppm)	0.025	101	100	70-130	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	93	94	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009027-03 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	85	91	50-150	7
Chrysene	mg/kg (ppm)	0.83	<0.01	84	88	50-150	5
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	91	99	50-150	8
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	98	50-150	11
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	93	50-150	6
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	95	100	50-150	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	97	101	50-150	4

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	89	70-130
Chrysene	mg/kg (ppm)	0.83	90	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	96	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	99	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	94	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	92	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	95	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/11/20

Date Received: 09/01/20

Project: MMB Job 1940904, F&BI 009027

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 008492-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	81	89	29-125	9
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	124	140 ip	25-137	12

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	102	55-137
Aroclor 1260	mg/kg (ppm)	0.25	101	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

Samples Shipped to: STB Lab 009027

**HART CROWSER** ME 08/09-01-20 1572

Hart Crowser, Inc.  
3131 Elliott Avenue, Suite 600  
Seattle, Washington 98121  
Office: 206.324.9530 • Fax 206.328.5581

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
01 A-C	TIPPBANK		9/1/02			NWTPH-6X NWTPH-DX BTEX Full Vol PCBs CPAHs MCHA metals	3	per BD 9/12/02 ME
02 A-F	MBB17-5							
03	MBB17-10							
04	MBB17-15							
05	MBB17-25							
06	MBB18-5							
07	MBB18-10							
08	MBB18-15							
09	MBB18-20							
10	MBB19-5							
11	MBB19-10							
12	MBB19-15							
RELINQUISHED BY		DATE	RECEIVED BY	DATE	SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:			
[Signature]		9/1/02	[Signature]	9/1/02	Samples received at 5:00			
PRINT NAME		TIME	PRINT NAME	TIME	TOTAL NUMBER OF CONTAINERS			
A.C.		16:30	V.V.H.	16:25	3			
COMPANY			COMPANY		SAMPLE RECEIPT INFORMATION			
FBI			FBI		CUSTODY SEALS: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A			
RELINQUISHED BY		DATE	RECEIVED BY	DATE	GOOD CONDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO			
SIGNATURE		TIME	SIGNATURE	TIME	TEMPERATURE: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT			
PRINT NAME			PRINT NAME		SHIPMENT METHOD: <input type="checkbox"/> HAND <input type="checkbox"/> COURIER <input type="checkbox"/> OVERNIGHT			
COMPANY			COMPANY		TURNAROUND TIME: <input type="checkbox"/> 24 HOURS <input type="checkbox"/> 1 WEEK <input type="checkbox"/> 48 HOURS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> OTHER			
COOLER NO.:		STORAGE LOCATION:		See Lab Work Order No. _____ for Other Contract Requirements				

White to Lab Yellow to Project Manager Pink to Sample Custodian



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  
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www.friedmanandbruya.com

September 14, 2020

Becca Dozier, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Dozier:

Included are the results from the testing of material submitted on September 2, 2020 from the MMB, F&BI 009053 project. There are 72 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Mark Dagel  
HCR0914R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 2, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 009053 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009053 -01	MBB16-5
009053 -02	MBB16-10
009053 -03	MBB16-15
009053 -04	MBB16-20
009053 -05	MBB16-25
009053 -06	MBB21-5
009053 -07	MBB21-10
009053 -08	MBB21-15
009053 -09	MBB21-20
009053 -10	MBB20-5
009053 -11	MBB20-10
009053 -12	MBB20-15
009053 -13	MBB20-20

A 6020B internal standard failed the acceptance criteria for samples MBB16-5 and MBB16-15. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

Due to the high concentration of 8260 volatile target analytes in samples MBB16-5 and MBB16-10, the samples were prepped via the methanolic extraction method and reanalyzed. Both data sets were reported.

Methylene chloride was detected in the 8260D analysis. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/02/20  
Project: MMB, F&BI 009053  
Date Extracted: 09/03/20  
Date Analyzed: 09/03/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB16-5 009053-01 1/20	1,200	138
MBB16-10 009053-02 1/10	200	106
MBB16-15 009053-03	20	108
MBB16-20 009053-04	<5	96
MBB21-5 009053-06	<5	97
MBB21-10 009053-07	<5	96
MBB21-15 009053-08	<5	95
MBB21-20 009053-09	<5	94
MBB20-5 009053-10	<5	85
MBB20-10 009053-11	<5	97
MBB20-15 009053-12	<5	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/02/20  
Project: MMB, F&BI 009053  
Date Extracted: 09/03/20  
Date Analyzed: 09/03/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB20-20 009053-13	<5	95
Method Blank 00-1818 MB2	<5	95
Method Blank 00-1990 MB	<5	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
 Date Received: 09/02/20  
 Project: MMB, F&BI 009053  
 Date Extracted: 09/03/20  
 Date Analyzed: 09/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB16-5 009053-01	350 x	<250	98
MBB16-10 009053-02	<50	<250	93
MBB16-15 009053-03	<50	<250	88
MBB16-20 009053-04	<50	<250	95
MBB21-5 009053-06	<50	<250	90
MBB21-10 009053-07	<50	<250	87
MBB21-15 009053-08	<50	<250	95
MBB21-20 009053-09	<50	<250	88
MBB20-5 009053-10	<50	<250	88
MBB20-10 009053-11	<50	<250	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/02/20  
Project: MMB, F&BI 009053  
Date Extracted: 09/03/20  
Date Analyzed: 09/03/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB20-15 009053-12	<50	<250	94
MBB20-20 009053-13	<50	<250	86
Method Blank 00-1986 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-01
Date Analyzed:	09/09/20	Data File:	009053-01.233
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.62
Cadmium	<1
Chromium	26.3 J
Lead	7.58
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-01 x5
Date Analyzed:	09/10/20	Data File:	009053-01 x5.306
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	28.4
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-02
Date Analyzed:	09/09/20	Data File:	009053-02.234
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.56
Cadmium	<1
Chromium	18.3
Lead	1.89
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-03
Date Analyzed:	09/03/20	Data File:	009053-03.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.74
Cadmium	<1
Chromium	21.3 J
Lead	1.30
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-03 x5
Date Analyzed:	09/04/20	Data File:	009053-03 x5.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	24.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB16-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-04
Date Analyzed:	09/09/20	Data File:	009053-04.237
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.42
Cadmium	<1
Chromium	13.7
Lead	1.17
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB21-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-06
Date Analyzed:	09/09/20	Data File:	009053-06.238
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.02
Cadmium	<1
Chromium	20.0
Lead	1.69
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB21-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-07
Date Analyzed:	09/09/20	Data File:	009053-07.239
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.21
Cadmium	<1
Chromium	19.3
Lead	1.85
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB21-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-08
Date Analyzed:	09/09/20	Data File:	009053-08.240
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.52
Cadmium	<1
Chromium	18.3
Lead	1.40
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB21-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-09
Date Analyzed:	09/09/20	Data File:	009053-09.241
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.53
Cadmium	<1
Chromium	14.3
Lead	1.46
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB20-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-10
Date Analyzed:	09/09/20	Data File:	009053-10.242
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.67
Cadmium	<1
Chromium	16.6
Lead	2.02
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB20-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-11
Date Analyzed:	09/09/20	Data File:	009053-11.243
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.48
Cadmium	<1
Chromium	19.2
Lead	5.15
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB20-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-12
Date Analyzed:	09/09/20	Data File:	009053-12.244
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.60
Cadmium	<1
Chromium	20.6
Lead	1.54
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB20-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-13
Date Analyzed:	09/09/20	Data File:	009053-13.245
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.53
Cadmium	<1
Chromium	17.2
Lead	1.50
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	I0-516 mb
Date Analyzed:	09/03/20	Data File:	I0-516 mb.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/10/20	Lab ID:	009053-01
Date Analyzed:	09/11/20	Data File:	091045.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	107	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.91
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.16
Hexane	<0.25	o-Xylene	0.055
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.55
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	1.2
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	1.3
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	2.8
Benzene	<0.03	sec-Butylbenzene	0.42
Trichloroethene	<0.02	p-Isopropyltoluene	0.59
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	1.9
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB16-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/10/20	Lab ID:	009053-02
Date Analyzed:	09/11/20	Data File:	091044.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	145
Toluene-d8	100	55	145
4-Bromofluorobenzene	105	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.13
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.13
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.075
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.17
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	0.25
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	0.49
Benzene	<0.03	sec-Butylbenzene	0.068
Trichloroethene	<0.02	p-Isopropyltoluene	0.16
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	0.22
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009053
Date Extracted:	09/10/20	Lab ID:	00-2033 mb2
Date Analyzed:	09/10/20	Data File:	091010.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	145
Toluene-d8	100	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-01
Date Analyzed:	09/10/20	Data File:	090934.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	50	150
Toluene-d8	2957 ip	50	150
4-Bromofluorobenzene	0 ip	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	0.0081
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	1.4 ve
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	0.32 ve
Hexane	1.3 ve	o-Xylene	0.10
Methylene chloride	0.0432 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	0.60 ve
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	1.1 ve
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	1.2 ve
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	0.018
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	2.1 ve
Benzene	0.0060	sec-Butylbenzene	0.29 ve
Trichloroethene	<0.03	p-Isopropyltoluene	0.43 ve
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	0.018	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	1.3 ve
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB16-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-02
Date Analyzed:	09/09/20	Data File:	090923.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	50	150
Toluene-d8	189 ip	50	150
4-Bromofluorobenzene	390 ip	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	0.42 ve
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	0.60 ve
Hexane	0.73 ve	o-Xylene	0.19 ve
Methylene chloride	0.0318 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	0.17 ve
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	0.29 ve
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	0.56 ve
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	1.2 ve
Benzene	0.011	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	0.22 ve
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	0.032	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.42 ve
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB16-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-03
Date Analyzed:	09/09/20	Data File:	090924.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	126	50	150
4-Bromofluorobenzene	111	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	0.014
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0388 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	0.0062
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	0.010
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	0.0086
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.014
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	0.0059
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.024
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB16-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-04
Date Analyzed:	09/09/20	Data File:	090925.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	126	50	150
Toluene-d8	118	50	150
4-Bromofluorobenzene	111	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0488 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.0081
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.0057
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB21-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-06
Date Analyzed:	09/09/20	Data File:	090926.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	132	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.057 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB21-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-07
Date Analyzed:	09/09/20	Data File:	090927.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	128	50	150
Toluene-d8	91	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.084 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB21-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-08
Date Analyzed:	09/09/20	Data File:	090928.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	88	50	150
4-Bromofluorobenzene	88	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.080 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB21-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-09
Date Analyzed:	09/09/20	Data File:	090929.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	89	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.062 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB20-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-10
Date Analyzed:	09/09/20	Data File:	090930.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	90	50	150
4-Bromofluorobenzene	88	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.067 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB20-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-11
Date Analyzed:	09/09/20	Data File:	090931.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	89	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.12 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB20-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-12
Date Analyzed:	09/09/20	Data File:	090932.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	92	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.096 lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB20-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	009053-13
Date Analyzed:	09/09/20	Data File:	090933.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009053
Date Extracted:	09/09/20	Lab ID:	00-1954 mb
Date Analyzed:	09/09/20	Data File:	090910.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-01 1/25
Date Analyzed:	09/03/20	Data File:	090317.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50 d	50	150
Phenol-d6	75 d	50	150
Nitrobenzene-d5	81 d	50	150
2-Fluorobiphenyl	78 d	50	150
2,4,6-Tribromophenol	63 d	50	150
Terphenyl-d14	76 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB16-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-02 1/5
Date Analyzed:	09/03/20	Data File:	090309.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	50	150
Phenol-d6	70	50	150
Nitrobenzene-d5	68	50	150
2-Fluorobiphenyl	74	50	150
2,4,6-Tribromophenol	64	50	150
Terphenyl-d14	74	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB16-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-03 1/5
Date Analyzed:	09/03/20	Data File:	090310.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	69	50	150
Phenol-d6	79	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	70	50	150
Terphenyl-d14	81	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB16-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-04 1/5
Date Analyzed:	09/03/20	Data File:	090308.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	48 vo	50	150
Phenol-d6	76	50	150
Nitrobenzene-d5	68	50	150
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	65	50	150
Terphenyl-d14	77	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB21-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-06 1/5
Date Analyzed:	09/03/20	Data File:	090311.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	59	50	150
Phenol-d6	69	50	150
Nitrobenzene-d5	61	50	150
2-Fluorobiphenyl	68	50	150
2,4,6-Tribromophenol	60	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB21-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-07 1/5
Date Analyzed:	09/03/20	Data File:	090312.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	50	150
Phenol-d6	73	50	150
Nitrobenzene-d5	64	50	150
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	63	50	150
Terphenyl-d14	77	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB21-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-08 1/5
Date Analyzed:	09/03/20	Data File:	090313.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	64	50	150
Phenol-d6	74	50	150
Nitrobenzene-d5	67	50	150
2-Fluorobiphenyl	72	50	150
2,4,6-Tribromophenol	68	50	150
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB21-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-09 1/5
Date Analyzed:	09/03/20	Data File:	090314.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	65	50	150
Phenol-d6	75	50	150
Nitrobenzene-d5	67	50	150
2-Fluorobiphenyl	75	50	150
2,4,6-Tribromophenol	66	50	150
Terphenyl-d14	83	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB20-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-10 1/25
Date Analyzed:	09/03/20	Data File:	090318.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	49 d	50	150
Phenol-d6	57 d	50	150
Nitrobenzene-d5	54 d	50	150
2-Fluorobiphenyl	64 d	50	150
2,4,6-Tribromophenol	47 d	50	150
Terphenyl-d14	66 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB20-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-11 1/25
Date Analyzed:	09/04/20	Data File:	090319.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41 d	50	150
Phenol-d6	60 d	50	150
Nitrobenzene-d5	53 d	50	150
2-Fluorobiphenyl	63 d	50	150
2,4,6-Tribromophenol	16 d	50	150
Terphenyl-d14	72 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB20-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-12 1/5
Date Analyzed:	09/03/20	Data File:	090315.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	58	50	150
Phenol-d6	69	50	150
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	68	50	150
2,4,6-Tribromophenol	65	50	150
Terphenyl-d14	82	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB20-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-13 1/5
Date Analyzed:	09/03/20	Data File:	090316.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	50	150
Phenol-d6	73	50	150
Nitrobenzene-d5	63	50	150
2-Fluorobiphenyl	71	50	150
2,4,6-Tribromophenol	67	50	150
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	00-1987 mb 1/5
Date Analyzed:	09/03/20	Data File:	090307.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	50	150
Phenol-d6	86	50	150
Nitrobenzene-d5	81	50	150
2-Fluorobiphenyl	89	50	150
2,4,6-Tribromophenol	70	50	150
Terphenyl-d14	94	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB16-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-01 1/6
Date Analyzed:	09/03/20	Data File:	090306.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	72	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB16-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-02 1/6
Date Analyzed:	09/03/20	Data File:	090307.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB16-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-03 1/6
Date Analyzed:	09/03/20	Data File:	090308.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB16-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-04 1/6
Date Analyzed:	09/03/20	Data File:	090311.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB21-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-06 1/6
Date Analyzed:	09/03/20	Data File:	090313.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB21-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-07 1/6
Date Analyzed:	09/03/20	Data File:	090314.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	63	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB21-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-08 1/6
Date Analyzed:	09/03/20	Data File:	090315.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	76	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB21-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-09 1/6
Date Analyzed:	09/03/20	Data File:	090316.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	72	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB20-5	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-10 1/6
Date Analyzed:	09/03/20	Data File:	090317.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB20-10	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-11 1/6
Date Analyzed:	09/03/20	Data File:	090318.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB20-15	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-12 1/6
Date Analyzed:	09/03/20	Data File:	090319.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB20-20	Client:	Hart Crowser
Date Received:	09/02/20	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	009053-13 1/6
Date Analyzed:	09/03/20	Data File:	090320.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009053
Date Extracted:	09/03/20	Lab ID:	00-1988 mb 1/6
Date Analyzed:	09/03/20	Data File:	090305.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

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

Laboratory Code: 008377-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

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

Laboratory Code: 009053-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
 Date Received: 09/02/20  
 Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009053-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	96	73-135	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
 Date Received: 09/02/20  
 Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009053-03 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	98	92	75-125	6
Cadmium	mg/kg (ppm)	10	<5	107	104	75-125	3
Chromium	mg/kg (ppm)	50	23.0	95	94	75-125	1
Lead	mg/kg (ppm)	50	<5	100	99	75-125	1
Mercury	mg/kg (ppm)	5	<5	101	103	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	86	80-120
Cadmium	mg/kg (ppm)	10	97	80-120
Chromium	mg/kg (ppm)	50	100	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 009147-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	16	17	10-142	6
Chloromethane	mg/kg (ppm)	2.5	<0.5	40	42	10-126	5
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	37	41	10-138	10
Bromomethane	mg/kg (ppm)	2.5	<0.5	53	54	10-163	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	55	60	10-176	9
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	39	43	10-176	10
Acetone	mg/kg (ppm)	12.5	<5	86	87	10-163	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	54	56	10-160	4
Hexane	mg/kg (ppm)	2.5	<0.25	29	31	10-137	7
Methylene chloride	mg/kg (ppm)	2.5	<0.5	83	85	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	87	88	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	62	65	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	77	80	19-140	4
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	26	27	10-158	4
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	75	78	25-135	4
Chloroform	mg/kg (ppm)	2.5	<0.05	80	82	21-145	2
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	90	90	19-147	0
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	85	87	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	72	73	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	69	72	17-140	4
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	62	65	9-164	5
Benzene	mg/kg (ppm)	2.5	<0.03	75	78	29-129	4
Trichloroethene	mg/kg (ppm)	2.5	<0.02	67	70	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	78	82	30-135	5
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	73	76	23-155	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	74	77	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	88	89	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	67	70	28-144	4
Toluene	mg/kg (ppm)	2.5	<0.05	72	76	35-130	5
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	68	70	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	74	75	10-205	1
2-Hexanone	mg/kg (ppm)	12.5	<0.5	94	94	15-166	0
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	85	87	31-137	2
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	59	62	20-133	5
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	68	70	28-150	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	77	80	28-142	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	76	78	32-129	3
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	73	77	32-137	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	72	73	31-143	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	70	73	34-136	4
o-Xylene	mg/kg (ppm)	2.5	0.092	71	75	33-134	5
Styrene	mg/kg (ppm)	2.5	<0.05	73	75	35-137	3
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	71	75	31-142	5
Bromoform	mg/kg (ppm)	2.5	<0.05	70	71	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	0.049	68	72	23-146	6
Bromobenzene	mg/kg (ppm)	2.5	<0.05	73	76	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	2.4	22 b	25 b	18-149	13 b
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	100	90	28-140	11
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	86	89	25-144	3
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	75	80	31-134	6
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	76	80	31-136	5
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	70	74	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	2.1	26 b	28 b	10-182	7 b
sec-Butylbenzene	mg/kg (ppm)	2.5	0.29	63	67	23-145	6
p-Isopropyltoluene	mg/kg (ppm)	2.5	0.16	60	66	21-149	10
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	69	73	30-131	6
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	70	73	29-129	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	73	77	31-132	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	86	88	11-161	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	67	72	22-142	7
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	81	87	10-142	7
Naphthalene	mg/kg (ppm)	2.5	0.77	59 b	60 b	14-157	2 b
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	74	78	20-144	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	41	10-146
Chloromethane	mg/kg (ppm)	2.5	67	27-133
Vinyl chloride	mg/kg (ppm)	2.5	72	22-139
Bromomethane	mg/kg (ppm)	2.5	73	38-114
Chloroethane	mg/kg (ppm)	2.5	88	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	80	10-196
Acetone	mg/kg (ppm)	12.5	103	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	88	47-128
Hexane	mg/kg (ppm)	2.5	99	43-142
Methylene chloride	mg/kg (ppm)	2.5	93	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	107	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	96	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	104	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	128	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	72-127
Chloroform	mg/kg (ppm)	2.5	104	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	111	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	110	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	99	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	105	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	96	60-139
Benzene	mg/kg (ppm)	2.5	103	68-114
Trichloroethene	mg/kg (ppm)	2.5	93	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	102	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	93	72-130
Dibromomethane	mg/kg (ppm)	2.5	96	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	108	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	104	75-136
Toluene	mg/kg (ppm)	2.5	101	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	105	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	91	75-113
2-Hexanone	mg/kg (ppm)	12.5	118	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	107	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	97	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	86	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	74-132
Chlorobenzene	mg/kg (ppm)	2.5	102	76-111
Ethylbenzene	mg/kg (ppm)	2.5	104	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	93	69-135
m,p-Xylene	mg/kg (ppm)	5	103	78-122
o-Xylene	mg/kg (ppm)	2.5	102	77-124
Styrene	mg/kg (ppm)	2.5	98	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	104	76-127
Bromoform	mg/kg (ppm)	2.5	93	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	103	74-124
Bromobenzene	mg/kg (ppm)	2.5	98	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	101	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	111	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	107	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	105	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	105	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	102	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	101	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	100	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	100	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	99	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	104	50-153
Naphthalene	mg/kg (ppm)	2.5	95	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	101	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	116	116	70-130	0
Chloromethane	mg/kg (ppm)	0.025	108	98	70-130	10
Vinyl chloride	mg/kg (ppm)	0.025	109	95	70-130	14
Bromomethane	mg/kg (ppm)	0.025	105	94	70-130	11
Chloroethane	mg/kg (ppm)	0.025	107	98	70-130	9
Trichlorofluoromethane	mg/kg (ppm)	0.025	102	106	70-130	4
Acetone	mg/kg (ppm)	0.125	130	123	70-130	6
1,1-Dichloroethene	mg/kg (ppm)	0.025	104	98	70-130	6
Hexane	mg/kg (ppm)	0.025	105	102	70-130	3
Methylene chloride	mg/kg (ppm)	0.025	81	83	70-130	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	99	102	70-130	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	100	101	70-130	1
1,1-Dichloroethane	mg/kg (ppm)	0.025	101	102	70-130	1
2,2-Dichloropropane	mg/kg (ppm)	0.025	98	93	70-130	5
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	98	100	70-130	2
Chloroform	mg/kg (ppm)	0.025	99	99	70-130	0
2-Butanone (MEK)	mg/kg (ppm)	0.125	104	113	70-130	8
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	104	105	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	109	106	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.025	102	104	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.025	107	100	70-130	7
Benzene	mg/kg (ppm)	0.025	100	101	70-130	1
Trichloroethene	mg/kg (ppm)	0.025	101	101	70-130	0
1,2-Dichloropropane	mg/kg (ppm)	0.025	98	100	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.025	106	101	70-130	5
Dibromomethane	mg/kg (ppm)	0.025	104	106	70-130	2
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	102	105	70-130	3
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	105	104	70-130	1
Toluene	mg/kg (ppm)	0.025	103	103	70-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	106	102	70-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	98	99	70-130	1
2-Hexanone	mg/kg (ppm)	0.125	115	113	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.025	101	103	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.025	108	105	70-130	3
Dibromochloromethane	mg/kg (ppm)	0.025	110	100	70-130	10
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	105	104	70-130	1
Chlorobenzene	mg/kg (ppm)	0.025	103	103	70-130	0
Ethylbenzene	mg/kg (ppm)	0.025	104	103	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	100	96	70-130	4
m,p-Xylene	mg/kg (ppm)	0.05	102	101	70-130	1
o-Xylene	mg/kg (ppm)	0.025	101	101	70-130	0
Styrene	mg/kg (ppm)	0.025	105	103	70-130	2
Isopropylbenzene	mg/kg (ppm)	0.025	105	105	70-130	0
Bromoform	mg/kg (ppm)	0.025	92	94	70-130	2
n-Propylbenzene	mg/kg (ppm)	0.025	107	107	70-130	0
Bromobenzene	mg/kg (ppm)	0.025	104	102	70-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	109	108	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	109	108	70-130	1
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	103	103	70-130	0
2-Chlorotoluene	mg/kg (ppm)	0.025	104	103	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.025	108	105	70-130	3
tert-Butylbenzene	mg/kg (ppm)	0.025	108	107	70-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	106	107	70-130	1
sec-Butylbenzene	mg/kg (ppm)	0.025	111	110	70-130	1
p-Isopropyltoluene	mg/kg (ppm)	0.025	112	110	70-130	2
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	107	105	70-130	2
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	106	104	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	104	103	70-130	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	103	95	70-130	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	107	106	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.025	117	115	70-130	2
Naphthalene	mg/kg (ppm)	0.025	98	99	70-130	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	104	105	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009053-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	111	89	50-150	22 vo
Chrysene	mg/kg (ppm)	0.83	<0.01	89	88	50-150	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	97	96	50-150	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	96	94	50-150	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	95	94	50-150	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	98	99	50-150	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	99	102	50-150	3

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	90	70-130
Chrysene	mg/kg (ppm)	0.83	91	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	96	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	95	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	95	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	91	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	91	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/02/20

Project: MMB, F&BI 009053

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 009053-03 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	74	73	29-125	1
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	78	80	25-137	3

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	86	55-137
Aroclor 1260	mg/kg (ppm)	0.25	91	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

069053

SAMPLE CHAIN OF CUSTODY

ME 09-02-20

VS3/PTP 2

Report To Bruce Deaver / Mark Degal

Company HART CREUSER

Address 3131 Elliott Ave, Suite 600

City, State, ZIP Seattle, WA 98121

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) Corie McCabe

PROJECT NAME

MMB

PO #

REMARKS

INVOICE TO

Project specific RIAs? - Yes / No

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		MTOA Metals	
MBB16-5	01A-F	9/2/20	8:10	Soil	6	X	X			X	X	X			
MBB16-10	02	9/2/20	8:20	Soil	6	X	X			X	X	X			
MBB16-15	03	9/2/20	8:30	Soil	6	X	X			X	X	X			
MBE16-20	04	9/2/20	8:45	Soil	6	X	X			X	X	X			
MBB16-25	05	9/2/20	8:55	Soil	6										Hold for analysis
MBB21-5	06	9/2/20	18:40	Soil	6	X	X			X	X	X			
MBB21-10	07	9/2/20	19:50	Soil	6	X	X			X	X	X			
MBB21-15	08	9/2/20	13:00	Soil	6	X	X			X	X	X			
MBB21-20	09	9/2/20	13:15	Soil	6	X	X			X	X	X			
<u>THREE BLANKS</u>															

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Corie McCabe</u>	<u>Hart Creuser</u>	<u>9/2/20</u>	<u>15:40</u>
<u>[Signature]</u>	<u>HONG DZUYEN</u>	<u>PTI</u>	<u>✓</u>	<u>✓</u>
Received by:				
Relinquished by:				
Received by:				

Page # 1 of 2

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

Samples received at 400

**SAMPLE CHAIN OF CUSTODY**

ME 09-02-20

US3 / BEY

Report To 009053

Company Hart Crosser

Address 3131 Elliott Ave Suite 600

City, State, ZIP Seattle, WA 98121

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature)  
Caire McCabe

PROJECT NAME  
MMB

PROJECT NAME

PO #

REMARKS

REMARKS

INVOICE TO

Project specific RI's? - Yes / No

Page # 2 of 2

**TURNAROUND TIME**

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

**SAMPLE DISPOSAL**

Archive samples

Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		MTCM Metals
MBB20-5	10AF	9/2/20	13:55	Soil	6	X	X			X	X	X		
MBB20-10	11	9/2/20	14:00	Soil	6	X	X			X	X	X		
MBB20-15	12	9/2/20	14:10	Soil	6	X	X			X	X	X		
MBB20-20	13	9/2/20	14:20	Soil	6	X	X			X	X	X		

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Rehinguished by:	<u>[Signature]</u>	<u>Caire McCabe</u>		<u>Hart Crosser</u>		<u>9/2/20</u>	<u>15:40</u>
Received by:	<u>[Signature]</u>	<u>HORR NGUYEN</u>		<u>HAI</u>		<u>✓</u>	<u>✓</u>
Rehinguished by:							
Received by:							

Samples received at 4:00

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 14, 2020

Becca Dozier, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Dozier:

Included are the results from the testing of material submitted on September 3, 2020 from the MMB, F&BI 009086 project. There are 64 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Mark Dagel  
HCR0914R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 3, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 009086 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009086 -01	HMW-17S-5
009086 -02	HMW-17S-10
009086 -03	HMW-17S-15
009086 -04	HMW-17S-20
009086 -05	HMW-17S-25
009086 -06	Trip Blank
009086 -07	HMW-18S-5
009086 -08	HMW-18S-10
009086 -09	HMW-18S-15
009086 -10	HMW-18S-20
009086 -11	HMW-18S-25
009086 -12	HMW-18S-30

Methylene chloride was detected in the 8260D analysis of the samples. The data were flagged as due to laboratory contamination.

The 8260D matrix spike, laboratory control sample, and laboratory control sample duplicate exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/03/20  
Project: MMB, F&BI 009086  
Date Extracted: 09/04/20  
Date Analyzed: 09/08/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-17S-5 009086-01	<5	100
HMW-17S-10 009086-02	<5	94
HMW-17S-15 009086-03	<5	98
HMW-17S-20 009086-04	<5	98
HMW-17S-25 009086-05	<5	99
HMW-18S-5 009086-07	<5	101
HMW-18S-10 009086-08 1/5	45	96
HMW-18S-15 009086-09	<5	97
HMW-18S-20 009086-10	<5	96
HMW-18S-25 009086-11	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/03/20  
Project: MMB, F&BI 009086  
Date Extracted: 09/04/20  
Date Analyzed: 09/08/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-18S-30 009086-12	<5	96
Method Blank 00-1991 MB	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/03/20  
Project: MMB, F&BI 009086  
Date Extracted: 09/04/20  
Date Analyzed: 09/04/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
HMW-17S-5 009086-01	<50	<250	88
HMW-17S-10 009086-02	<50	<250	98
HMW-17S-15 009086-03	<50	<250	98
HMW-17S-20 009086-04	<50	<250	100
HMW-17S-25 009086-05	<50	<250	88
HMW-18S-5 009086-07	<50	<250	96
HMW-18S-10 009086-08	<50	<250	89
HMW-18S-15 009086-09	<50	<250	94
HMW-18S-20 009086-10	<50	<250	93
HMW-18S-25 009086-11	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
Date Received: 09/03/20  
Project: MMB, F&BI 009086  
Date Extracted: 09/04/20  
Date Analyzed: 09/04/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
HMW-18S-30 009086-12	<50	<250	95
Method Blank 00-2015 MB	<50	<250	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-01
Date Analyzed:	09/10/20	Data File:	009086-01.271
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.93
Cadmium	<1
Chromium	24.1
Lead	4.65
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-02
Date Analyzed:	09/10/20	Data File:	009086-02.272
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.50
Cadmium	<1
Chromium	13.2
Lead	2.18
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-03
Date Analyzed:	09/10/20	Data File:	009086-03.273
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.45
Cadmium	<1
Chromium	15.4
Lead	1.60
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-04
Date Analyzed:	09/10/20	Data File:	009086-04.274
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.48
Cadmium	<1
Chromium	16.6
Lead	1.53
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-05
Date Analyzed:	09/10/20	Data File:	009086-05.285
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	15.8
Lead	1.23
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-07
Date Analyzed:	09/10/20	Data File:	009086-07.286
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.19
Cadmium	<1
Chromium	11.1
Lead	1.36
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-08
Date Analyzed:	09/10/20	Data File:	009086-08.287
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.90
Cadmium	<1
Chromium	25.8
Lead	3.15
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-09
Date Analyzed:	09/10/20	Data File:	009086-09.298
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.01
Cadmium	<1
Chromium	19.2
Lead	2.43
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-10
Date Analyzed:	09/10/20	Data File:	009086-10.299
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.39
Cadmium	<1
Chromium	12.0
Lead	1.22
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-11
Date Analyzed:	09/10/20	Data File:	009086-11.300
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.09
Cadmium	<1
Chromium	13.9
Lead	1.23
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S-30	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-12
Date Analyzed:	09/10/20	Data File:	009086-12.301
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.03
Cadmium	<1
Chromium	15.5
Lead	1.54
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	I0-534 mb
Date Analyzed:	09/09/20	Data File:	I0-534 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-17S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-01
Date Analyzed:	09/09/20	Data File:	090912.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	111	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0149 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-17S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-02
Date Analyzed:	09/09/20	Data File:	090913.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	110	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0081 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-17S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-03
Date Analyzed:	09/09/20	Data File:	090914.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-17S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-04
Date Analyzed:	09/09/20	Data File:	090915.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0204 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-17S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-05
Date Analyzed:	09/09/20	Data File:	090916.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	121	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0117 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-07
Date Analyzed:	09/09/20	Data File:	090917.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-08
Date Analyzed:	09/09/20	Data File:	090918.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	118	50	150
4-Bromofluorobenzene	151	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	0.0059
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0183 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	0.0079
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	0.0077
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.0068
Benzene	<0.003	sec-Butylbenzene	0.011
Trichloroethene	<0.03	p-Isopropyltoluene	0.015
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-09
Date Analyzed:	09/09/20	Data File:	090919.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0161 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-10
Date Analyzed:	09/09/20	Data File:	090920.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	119	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-11
Date Analyzed:	09/09/20	Data File:	090921.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0261 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-18S-30	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	009086-12
Date Analyzed:	09/09/20	Data File:	090922.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0189 j lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009086
Date Extracted:	09/09/20	Lab ID:	00-2031 mb
Date Analyzed:	09/09/20	Data File:	090911.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-06
Date Analyzed:	09/04/20	Data File:	090419.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2 j
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.5 j	Chlorobenzene	<0.2 j
Trichlorofluoromethane	<0.2 j	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2 j	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2 j	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2 j	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2 j	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2 j	1,1,2,2-Tetrachloroethane	<0.2 j
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.02 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2 j
1,1,1-Trichloroethane	<0.2 j	4-Chlorotoluene	<0.2 j
1,1-Dichloropropene	<0.2 j	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2 j	1,2,4-Trimethylbenzene	<0.2 j
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2 j	1,3-Dichlorobenzene	<0.2 j
Bromodichloromethane	<0.2 j	1,4-Dichlorobenzene	<0.2 j
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2 j
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<0.4 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2 j
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2 j	1,2,3-Trichlorobenzene	<0.2 j
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	00-1952 mb
Date Analyzed:	09/04/20	Data File:	090412.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.4 j
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2 j	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2 j	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2 j	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<1 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2 j	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-01 1/25
Date Analyzed:	09/04/20	Data File:	090419.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	64 d	36	114
Phenol-d6	71 d	47	116
Nitrobenzene-d5	66 d	38	117
2-Fluorobiphenyl	77 d	50	150
2,4,6-Tribromophenol	66 d	25	187
Terphenyl-d14	76 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-02 1/25
Date Analyzed:	09/04/20	Data File:	090420.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	54 d	36	114
Phenol-d6	67 d	47	116
Nitrobenzene-d5	59 d	38	117
2-Fluorobiphenyl	76 d	50	150
2,4,6-Tribromophenol	69 d	25	187
Terphenyl-d14	74 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-03 1/5
Date Analyzed:	09/04/20	Data File:	090408.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	59	36	114
Phenol-d6	70	47	116
Nitrobenzene-d5	64	38	117
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	65	25	187
Terphenyl-d14	81	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-04 1/5
Date Analyzed:	09/04/20	Data File:	090409.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	57	36	114
Phenol-d6	65	47	116
Nitrobenzene-d5	61	38	117
2-Fluorobiphenyl	70	50	150
2,4,6-Tribromophenol	61	25	187
Terphenyl-d14	77	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-05 1/5
Date Analyzed:	09/04/20	Data File:	090410.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63	36	114
Phenol-d6	72	47	116
Nitrobenzene-d5	66	38	117
2-Fluorobiphenyl	74	50	150
2,4,6-Tribromophenol	67	25	187
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-07 1/25
Date Analyzed:	09/04/20	Data File:	090418.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	54 d	36	114
Phenol-d6	64 d	47	116
Nitrobenzene-d5	55 d	38	117
2-Fluorobiphenyl	71 d	50	150
2,4,6-Tribromophenol	66 d	25	187
Terphenyl-d14	75 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-08 1/5
Date Analyzed:	09/04/20	Data File:	090411.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	51	36	114
Phenol-d6	61	47	116
Nitrobenzene-d5	56	38	117
2-Fluorobiphenyl	62	50	150
2,4,6-Tribromophenol	64	25	187
Terphenyl-d14	73	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-09 1/5
Date Analyzed:	09/04/20	Data File:	090412.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	61	36	114
Phenol-d6	68	47	116
Nitrobenzene-d5	64	38	117
2-Fluorobiphenyl	70	50	150
2,4,6-Tribromophenol	62	25	187
Terphenyl-d14	77	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-10 1/5
Date Analyzed:	09/04/20	Data File:	090413.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	61	36	114
Phenol-d6	71	47	116
Nitrobenzene-d5	63	38	117
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	68	25	187
Terphenyl-d14	79	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-11 1/5
Date Analyzed:	09/04/20	Data File:	090414.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	58	36	114
Phenol-d6	69	47	116
Nitrobenzene-d5	61	38	117
2-Fluorobiphenyl	72	50	150
2,4,6-Tribromophenol	65	25	187
Terphenyl-d14	78	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S-30	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-12 1/5
Date Analyzed:	09/04/20	Data File:	090415.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	36	114
Phenol-d6	77	47	116
Nitrobenzene-d5	73	38	117
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	66	25	187
Terphenyl-d14	88	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	00-2017 mb 1/5
Date Analyzed:	09/04/20	Data File:	090407.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	36	114
Phenol-d6	80	47	116
Nitrobenzene-d5	75	38	117
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	72	25	187
Terphenyl-d14	91	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-17S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-01 1/6
Date Analyzed:	09/04/20	Data File:	090413.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	89	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-17S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-02 1/6
Date Analyzed:	09/04/20	Data File:	090416.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	90	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-17S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-03 1/6
Date Analyzed:	09/04/20	Data File:	090417.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	75	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-17S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-04 1/6
Date Analyzed:	09/04/20	Data File:	090418.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	76	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-17S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-05 1/6
Date Analyzed:	09/04/20	Data File:	090420.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	78	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-5	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-07 1/6
Date Analyzed:	09/04/20	Data File:	090421.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	88	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-10	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-08 1/6
Date Analyzed:	09/04/20	Data File:	090422.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-15	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-09 1/6
Date Analyzed:	09/04/20	Data File:	090423.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	69	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-20	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-10 1/6
Date Analyzed:	09/04/20	Data File:	090424.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	62	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-25	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-11 1/6
Date Analyzed:	09/04/20	Data File:	090425.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-18S-30	Client:	Hart Crowser
Date Received:	09/03/20	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	009086-12 1/6
Date Analyzed:	09/04/20	Data File:	090426.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009086
Date Extracted:	09/04/20	Lab ID:	00-2019 mb 1/6
Date Analyzed:	09/04/20	Data File:	090412.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	101	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

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

Laboratory Code: 008464-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	46	6.4	151 a

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
 Date Received: 09/03/20  
 Project: MMB, F&BI 009086

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009080-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	9,700	71 b	107 b	73-135 b	40 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96 b	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009089-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	8.48	101	118	75-125	16
Cadmium	mg/kg (ppm)	5	<5	101	108	75-125	7
Chromium	mg/kg (ppm)	20	40.1	123 b	171 b	75-125	33 b
Lead	mg/kg (ppm)	10	6.77	96	112	75-125	15
Mercury	mg/kg (ppm)	5	<5	104	109	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	80-120
Cadmium	mg/kg (ppm)	5	100	80-120
Chromium	mg/kg (ppm)	20	107	80-120
Lead	mg/kg (ppm)	10	103	80-120
Mercury	mg/kg (ppm)	5	104	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	116	116	70-130	0
Chloromethane	mg/kg (ppm)	0.025	108	98	70-130	10
Vinyl chloride	mg/kg (ppm)	0.025	109	95	70-130	14
Bromomethane	mg/kg (ppm)	0.025	105	94	70-130	11
Chloroethane	mg/kg (ppm)	0.025	107	98	70-130	9
Trichlorofluoromethane	mg/kg (ppm)	0.025	102	106	70-130	4
Acetone	mg/kg (ppm)	0.125	130	123	70-130	6
1,1-Dichloroethene	mg/kg (ppm)	0.025	104	98	70-130	6
Hexane	mg/kg (ppm)	0.025	105	102	70-130	3
Methylene chloride	mg/kg (ppm)	0.025	81	83	70-130	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	99	102	70-130	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	100	101	70-130	1
1,1-Dichloroethane	mg/kg (ppm)	0.025	101	102	70-130	1
2,2-Dichloropropane	mg/kg (ppm)	0.025	98	93	70-130	5
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	98	100	70-130	2
Chloroform	mg/kg (ppm)	0.025	99	99	70-130	0
2-Butanone (MEK)	mg/kg (ppm)	0.125	104	113	70-130	8
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	104	105	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	109	106	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.025	102	104	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.025	107	100	70-130	7
Benzene	mg/kg (ppm)	0.025	100	101	70-130	1
Trichloroethene	mg/kg (ppm)	0.025	101	101	70-130	0
1,2-Dichloropropane	mg/kg (ppm)	0.025	98	100	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.025	106	101	70-130	5
Dibromomethane	mg/kg (ppm)	0.025	104	106	70-130	2
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	102	105	70-130	3
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	105	104	70-130	1
Toluene	mg/kg (ppm)	0.025	103	103	70-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	106	102	70-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	98	99	70-130	1
2-Hexanone	mg/kg (ppm)	0.125	115	113	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.025	101	103	70-130	2
Tetrachloroethene	mg/kg (ppm)	0.025	108	105	70-130	3
Dibromochloromethane	mg/kg (ppm)	0.025	110	100	70-130	10
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	105	104	70-130	1
Chlorobenzene	mg/kg (ppm)	0.025	103	103	70-130	0
Ethylbenzene	mg/kg (ppm)	0.025	104	103	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	100	96	70-130	4
m,p-Xylene	mg/kg (ppm)	0.05	102	101	70-130	1
o-Xylene	mg/kg (ppm)	0.025	101	101	70-130	0
Styrene	mg/kg (ppm)	0.025	105	103	70-130	2
Isopropylbenzene	mg/kg (ppm)	0.025	105	105	70-130	0
Bromoform	mg/kg (ppm)	0.025	92	94	70-130	2
n-Propylbenzene	mg/kg (ppm)	0.025	107	107	70-130	0
Bromobenzene	mg/kg (ppm)	0.025	104	102	70-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	109	108	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	109	108	70-130	1
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	103	103	70-130	0
2-Chlorotoluene	mg/kg (ppm)	0.025	104	103	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.025	108	105	70-130	3
tert-Butylbenzene	mg/kg (ppm)	0.025	108	107	70-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	106	107	70-130	1
sec-Butylbenzene	mg/kg (ppm)	0.025	111	110	70-130	1
p-Isopropyltoluene	mg/kg (ppm)	0.025	112	110	70-130	2
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	107	105	70-130	2
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	106	104	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	104	103	70-130	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	103	95	70-130	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	107	106	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.025	117	115	70-130	2
Naphthalene	mg/kg (ppm)	0.025	98	99	70-130	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	104	105	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

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

Laboratory Code: 009079-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	111	50-150
Chloromethane	ug/L (ppb)	10	<10	93	50-150
Vinyl chloride	ug/L (ppb)	10	<0.2	104	50-150
Bromomethane	ug/L (ppb)	10	<5	137	50-150
Chloroethane	ug/L (ppb)	10	<1	128	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	114	50-150
Acetone	ug/L (ppb)	50	<50	117	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	112	50-150
Hexane	ug/L (ppb)	10	<5	141	50-150
Methylene chloride	ug/L (ppb)	10	<5	89	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	105	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	109	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	107	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	260 vo	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	107	50-150
Chloroform	ug/L (ppb)	10	<1	105	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	87	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	103	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	105	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	107	50-150
Carbon tetrachloride	ug/L (ppb)	10	<1	102	50-150
Benzene	ug/L (ppb)	10	<0.35	103	50-150
Trichloroethene	ug/L (ppb)	10	<1	85	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	101	50-150
Bromodichloromethane	ug/L (ppb)	10	<1	118	50-150
Dibromomethane	ug/L (ppb)	10	<1	110	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	113	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	118	50-150
Toluene	ug/L (ppb)	10	<1	94	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	120	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	110	50-150
2-Hexanone	ug/L (ppb)	50	<10	89	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	103	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	106	50-150
Dibromochloromethane	ug/L (ppb)	10	<1	121	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	109	50-150
Chlorobenzene	ug/L (ppb)	10	<1	106	50-150
Ethylbenzene	ug/L (ppb)	10	<1	105	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	110	50-150
m,p-Xylene	ug/L (ppb)	20	<2	102	50-150
o-Xylene	ug/L (ppb)	10	<1	104	50-150
Styrene	ug/L (ppb)	10	<1	105	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	106	50-150
Bromoform	ug/L (ppb)	10	<5	111	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	112	50-150
Bromobenzene	ug/L (ppb)	10	<1	106	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	112	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	177 vo	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	112	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	108	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	110	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	108	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	109	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	113	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	115	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	108	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	109	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	108	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	105	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	113	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<1	115	50-150
Naphthalene	ug/L (ppb)	10	<1	112	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	110	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20  
 Date Received: 09/03/20  
 Project: MMB, F&BI 009086

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	123	133 vo	70-130	8
Chloromethane	ug/L (ppb)	10	111	113	70-130	2
Vinyl chloride	ug/L (ppb)	10	117	123	70-130	5
Bromomethane	ug/L (ppb)	10	142 vo	153 vo	70-130	7
Chloroethane	ug/L (ppb)	10	136 vo	142 vo	70-130	4
Trichlorofluoromethane	ug/L (ppb)	10	113	119	70-130	5
Acetone	ug/L (ppb)	50	107	109	64-131	2
1,1-Dichloroethene	ug/L (ppb)	10	119	124	70-130	4
Hexane	ug/L (ppb)	10	124	133 vo	70-130	7
Methylene chloride	ug/L (ppb)	10	88	94	29-192	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	106	111	70-130	5
trans-1,2-Dichloroethene	ug/L (ppb)	10	109	115	70-130	5
1,1-Dichloroethane	ug/L (ppb)	10	104	109	70-130	5
2,2-Dichloropropane	ug/L (ppb)	10	282 vo	287 vo	70-130	2
cis-1,2-Dichloroethene	ug/L (ppb)	10	105	110	70-130	5
Chloroform	ug/L (ppb)	10	101	103	70-130	2
2-Butanone (MEK)	ug/L (ppb)	50	83	87	70-130	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	98	103	70-130	5
1,1,1-Trichloroethane	ug/L (ppb)	10	106	112	70-130	6
1,1-Dichloropropene	ug/L (ppb)	10	104	108	70-130	4
Carbon tetrachloride	ug/L (ppb)	10	106	108	70-130	2
Benzene	ug/L (ppb)	10	100	104	70-130	4
Trichloroethene	ug/L (ppb)	10	82	86	70-130	5
1,2-Dichloropropane	ug/L (ppb)	10	94	100	70-130	6
Bromodichloromethane	ug/L (ppb)	10	117	120	70-130	3
Dibromomethane	ug/L (ppb)	10	105	110	70-130	5
4-Methyl-2-pentanone	ug/L (ppb)	50	108	113	70-130	5
cis-1,3-Dichloropropene	ug/L (ppb)	10	113	117	70-130	3
Toluene	ug/L (ppb)	10	102	103	70-130	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	120	120	70-130	0
1,1,2-Trichloroethane	ug/L (ppb)	10	107	108	70-130	1
2-Hexanone	ug/L (ppb)	50	85	88	70-130	3
1,3-Dichloropropane	ug/L (ppb)	10	100	99	70-130	1
Tetrachloroethene	ug/L (ppb)	10	105	107	70-130	2
Dibromochloromethane	ug/L (ppb)	10	118	120	70-130	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	105	106	70-130	1
Chlorobenzene	ug/L (ppb)	10	103	104	70-130	1
Ethylbenzene	ug/L (ppb)	10	103	105	70-130	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	116	116	70-130	0
m,p-Xylene	ug/L (ppb)	20	101	102	70-130	1
o-Xylene	ug/L (ppb)	10	104	105	70-130	1
Styrene	ug/L (ppb)	10	101	103	70-130	2
Isopropylbenzene	ug/L (ppb)	10	107	109	70-130	2
Bromoform	ug/L (ppb)	10	116	117	63-206	1
n-Propylbenzene	ug/L (ppb)	10	113	113	70-130	0
Bromobenzene	ug/L (ppb)	10	106	107	70-130	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	113	115	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	175 vo	178 vo	70-130	2
1,2,3-Trichloropropane	ug/L (ppb)	10	117	115	70-130	2
2-Chlorotoluene	ug/L (ppb)	10	111	112	70-130	1
4-Chlorotoluene	ug/L (ppb)	10	108	110	70-130	2
tert-Butylbenzene	ug/L (ppb)	10	110	112	70-130	2
1,2,4-Trimethylbenzene	ug/L (ppb)	10	109	112	70-130	3
sec-Butylbenzene	ug/L (ppb)	10	114	115	70-130	1
p-Isopropyltoluene	ug/L (ppb)	10	115	118	70-130	3
1,3-Dichlorobenzene	ug/L (ppb)	10	108	107	70-130	1
1,4-Dichlorobenzene	ug/L (ppb)	10	108	109	70-130	1
1,2-Dichlorobenzene	ug/L (ppb)	10	110	110	70-130	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	113	110	70-130	3
1,2,4-Trichlorobenzene	ug/L (ppb)	10	114	118	70-130	3
Hexachlorobutadiene	ug/L (ppb)	10	115	117	70-130	2
Naphthalene	ug/L (ppb)	10	116	118	70-130	2
1,2,3-Trichlorobenzene	ug/L (ppb)	10	113	117	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009086-03 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	84	83	50-150	1
Chrysene	mg/kg (ppm)	0.83	<0.01	87	86	50-150	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	91	92	48-134	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	91	91	38-158	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	92	92	41-151	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	97	97	19-144	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	99	98	21-140	1

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	88	70-130
Chrysene	mg/kg (ppm)	0.83	92	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	97	64-112
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	95	61-118
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	99	61-116
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	102	52-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	104	54-125

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/20

Date Received: 09/03/20

Project: MMB, F&BI 009086

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 009086-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	80	83	29-125	4
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	75	74	25-137	1

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	83	55-137
Aroclor 1260	mg/kg (ppm)	0.25	84	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

000086

SAMPLE CHAIN OF CUSTODY ME 09-03-20 VS3/BIU

Report To Becca Dozier / Mark Dozier

Company HART CROWSER

Address 3131 Elliott Ave Suite 600

City, State, ZIP SEATTLE, WA 98121

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLES (signature) <u>Corey McCabe</u>	
PROJECT NAME	PO #
<u>NMB</u>	
REMARKS	INVOICE TO
Project specific RLS? - Yes / No	

Page # 1 of 2

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		MTC Metals	
HMW-175-5	01A-F	9/3/20	8:05	Soil	6	X	X			X	X	X			
HMW-175-10	02	9/3/20	8:15	Soil	6	X	X			X	X	X			
HMW-175-15	03	9/3/20	8:35	Soil	6	X	X			X	X	X			
HMW-175-20	04	9/3/20	8:45	Soil	6	X	X			X	X	X			
HMW-175-25	05	9/3/20	8:55	Soil	6	X	X			X	X	X			
TRIP BLANKS	06A-B	9/3/20	13:05		3					X	X	X			VOCs only per M/D/ME 9/2/20
HMW-185-5	07A-F	9/3/20	13:10	Soil	6	X	X			X	X	X			
HMW-185-10	08	9/3/20	13:20	Soil	6	X	X			X	X	X			
HMW-185-15	09	9/3/20	13:30	Soil	6	X	X			X	X	X			
HMW-185-20	10	9/3/20	13:40	Soil	6	X	X			X	X	X			

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>Becca Dozier</u>	<u>Becca Dozier</u>	<u>Hart Crowser</u>	<u>9/3/20</u>	<u>17:25</u>
<u>Mark Dozier</u>	<u>Mark Dozier</u>	<u>Hart Crowser</u>	<u>9/3/20</u>	<u>17:25</u>
<u>Corey McCabe</u>	<u>Corey McCabe</u>	<u>Hart Crowser</u>	<u>9/3/20</u>	<u>17:25</u>
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 17, 2020

Becca Dozier, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Dozier :

Included are the results from the testing of material submitted on September 8, 2020 from the MMB, F&BI 009135 project. There are 68 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Mark Dagel  
HCR0917R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 8, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 009135 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009135 -01	HMW-19S-5
009135 -02	HMW-19S-10
009135 -03	HMW-19S-15
009135 -04	HMW-19S-20
009135 -05	HMW-19S-26
009135 -06	HMW-19S-30
009135 -07	HMW-19S-35
009135 -08	HMW-19S-40
009135 -09	HMW-19S-45
009135 -10	Trip Blanks
009135 -11	HMW-20S-5
009135 -12	HMW-20S-10
009135 -13	HMW-20S-15
009135 -14	HMW-20S-20
009135 -15	HMW-20S-25
009135 -16	HMW-20S-30

A 6020B internal standard failed the acceptance criteria for samples HMW-19S-15, HMW-19S-30, and HMW-20S-25. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

Methylene chloride was detected in the 8260D analysis of several of the samples. The data were flagged as due to laboratory contamination.

The 8260D laboratory control sample exceeded the acceptance criteria for acetone. The compound was not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
Date Received: 09/08/20  
Project: MMB, F&BI 009135  
Date Extracted: 09/10/20  
Date Analyzed: 09/11/20 and 09/14/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-19S-5 009135-01	<5	85
HMW-19S-10 009135-02	<5	97
HMW-19S-15 009135-03	<5	98
HMW-19S-20 009135-04	<5	94
HMW-19S-26 009135-05	<5	94
HMW-19S-30 009135-06	26	113
HMW-20S-5 009135-11	<5	95
HMW-20S-10 009135-12	<5	95
HMW-20S-15 009135-13	<5	95
HMW-20S-20 009135-14	<5	93
HMW-20S-25 009135-15	<5	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
Date Received: 09/08/20  
Project: MMB, F&BI 009135  
Date Extracted: 09/10/20  
Date Analyzed: 09/11/20 and 09/14/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HMW-20S-30 009135-16	<5	78
Method Blank 00-1998 MB	<5	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
 Date Received: 09/08/20  
 Project: MMB, F&BI 009135  
 Date Extracted: 09/09/20  
 Date Analyzed: 09/09/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-19S-5 009135-01	<50	<250	93
HMW-19S-10 009135-02	<50	<250	96
HMW-19S-15 009135-03	<50	<250	103
HMW-19S-20 009135-04	<50	<250	96
HMW-19S-26 009135-05	<50	<250	97
HMW-19S-30 009135-06	<50	<250	94
HMW-20S-5 009135-11	<50	<250	97
HMW-20S-10 009135-12	<50	<250	90
HMW-20S-15 009135-13	<50	<250	94
HMW-20S-20 009135-14	<50	<250	97
HMW-20S-25 009135-15	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
Date Received: 09/08/20  
Project: MMB, F&BI 009135  
Date Extracted: 09/09/20  
Date Analyzed: 09/09/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HMW-20S-30 009135-16	<50	<250	91
Method Blank 00-2052 MB	<50	<250	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-01
Date Analyzed:	09/10/20	Data File:	009135-01.147
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.16
Cadmium	<1
Chromium	26.2
Lead	2.33
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-02
Date Analyzed:	09/10/20	Data File:	009135-02.148
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.24
Cadmium	<1
Chromium	14.0
Lead	1.27
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-03
Date Analyzed:	09/10/20	Data File:	009135-03.149
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.02
Cadmium	<1
Chromium	26.1 J
Lead	3.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-03 x5
Date Analyzed:	09/11/20	Data File:	009135-03 x5.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	30.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-04
Date Analyzed:	09/10/20	Data File:	009135-04.150
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.17
Cadmium	<1
Chromium	31.5
Lead	2.22
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-26	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-05
Date Analyzed:	09/10/20	Data File:	009135-05.151
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.44
Cadmium	<1
Chromium	20.5
Lead	1.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-06
Date Analyzed:	09/10/20	Data File:	009135-06.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.31
Cadmium	<1
Chromium	33.8 J
Lead	1.49
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-06 x5
Date Analyzed:	09/11/20	Data File:	009135-06 x5.114
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	38.2
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-11
Date Analyzed:	09/10/20	Data File:	009135-11.153
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.57
Cadmium	<1
Chromium	12.6
Lead	1.88
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-12
Date Analyzed:	09/10/20	Data File:	009135-12.156
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.36
Cadmium	<1
Chromium	9.22
Lead	4.47
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-13
Date Analyzed:	09/10/20	Data File:	009135-13.157
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.55
Cadmium	<1
Chromium	13.5
Lead	1.62
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-14
Date Analyzed:	09/10/20	Data File:	009135-14.158
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.77
Cadmium	<1
Chromium	15.6
Lead	1.66
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-25	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-15
Date Analyzed:	09/10/20	Data File:	009135-15.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.90
Cadmium	<1
Chromium	25.2 J
Lead	2.68
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-25	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-15 x5
Date Analyzed:	09/11/20	Data File:	009135-15 x5.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	29.1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-16
Date Analyzed:	09/10/20	Data File:	009135-16.160
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.32
Cadmium	<1
Chromium	29.5
Lead	1.77
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	I0-536 mb
Date Analyzed:	09/10/20	Data File:	I0-536 mb.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-01
Date Analyzed:	09/11/20	Data File:	091041.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.025 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-02
Date Analyzed:	09/11/20	Data File:	091042.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.011 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-03
Date Analyzed:	09/11/20	Data File:	091043.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.017 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-04
Date Analyzed:	09/11/20	Data File:	091044.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.023 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-26	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-05
Date Analyzed:	09/11/20	Data File:	091045.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.011 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-19S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-06
Date Analyzed:	09/11/20	Data File:	091046.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	110	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	0.013
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	0.027
Hexane	<0.025	o-Xylene	0.017
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	0.0099
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	0.030
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	0.11
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	0.0060
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.036
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-11
Date Analyzed:	09/11/20	Data File:	091047.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-12
Date Analyzed:	09/11/20	Data File:	091048.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0092 j ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-13
Date Analyzed:	09/11/20	Data File:	091049.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	80	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-14
Date Analyzed:	09/11/20	Data File:	091050.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.010 ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-25	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-15
Date Analyzed:	09/11/20	Data File:	091051.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0096 j ca lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	HMW-20S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	009135-16
Date Analyzed:	09/11/20	Data File:	091052.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	50	150
Toluene-d8	91	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009135
Date Extracted:	09/10/20	Lab ID:	00-2036 mb
Date Analyzed:	09/10/20	Data File:	091010.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-01 1/5
Date Analyzed:	09/09/20	Data File:	090906.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	50	150
Phenol-d6	64	50	150
Nitrobenzene-d5	57	50	150
2-Fluorobiphenyl	65	50	150
2,4,6-Tribromophenol	55	50	150
Terphenyl-d14	67	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-02 1/5
Date Analyzed:	09/09/20	Data File:	090913.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60	50	150
Phenol-d6	72	50	150
Nitrobenzene-d5	67	50	150
2-Fluorobiphenyl	70	50	150
2,4,6-Tribromophenol	64	50	150
Terphenyl-d14	73	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-03 1/5
Date Analyzed:	09/09/20	Data File:	090914.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	54	50	150
Phenol-d6	63	50	150
Nitrobenzene-d5	60	50	150
2-Fluorobiphenyl	65	50	150
2,4,6-Tribromophenol	56	50	150
Terphenyl-d14	64	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-04 1/5
Date Analyzed:	09/09/20	Data File:	090915.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	50	150
Phenol-d6	64	50	150
Nitrobenzene-d5	58	50	150
2-Fluorobiphenyl	63	50	150
2,4,6-Tribromophenol	60	50	150
Terphenyl-d14	66	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-26	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-05 1/5
Date Analyzed:	09/09/20	Data File:	090916.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41 vo	50	150
Phenol-d6	66	50	150
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	66	50	150
2,4,6-Tribromophenol	59	50	150
Terphenyl-d14	71	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-06 1/5
Date Analyzed:	09/09/20	Data File:	090917.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	58	50	150
Phenol-d6	67	50	150
Nitrobenzene-d5	62	50	150
2-Fluorobiphenyl	70	50	150
2,4,6-Tribromophenol	63	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-11 1/5
Date Analyzed:	09/10/20	Data File:	090918.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41 vo	50	150
Phenol-d6	68	50	150
Nitrobenzene-d5	62	50	150
2-Fluorobiphenyl	69	50	150
2,4,6-Tribromophenol	61	50	150
Terphenyl-d14	75	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-12 1/5
Date Analyzed:	09/10/20	Data File:	090919.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	40 vo	50	150
Phenol-d6	73	50	150
Nitrobenzene-d5	64	50	150
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	66	50	150
Terphenyl-d14	75	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-13 1/5
Date Analyzed:	09/10/20	Data File:	090920.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60	50	150
Phenol-d6	70	50	150
Nitrobenzene-d5	66	50	150
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	66	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	0.011
Chrysene	0.011
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-14 1/5
Date Analyzed:	09/10/20	Data File:	090921.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66	50	150
Phenol-d6	76	50	150
Nitrobenzene-d5	72	50	150
2-Fluorobiphenyl	78	50	150
2,4,6-Tribromophenol	71	50	150
Terphenyl-d14	81	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-25	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-15 1/5
Date Analyzed:	09/10/20	Data File:	090922.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	50	150
Phenol-d6	78	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	77	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-16 1/5
Date Analyzed:	09/10/20	Data File:	090923.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66	50	150
Phenol-d6	77	50	150
Nitrobenzene-d5	73	50	150
2-Fluorobiphenyl	83	50	150
2,4,6-Tribromophenol	74	50	150
Terphenyl-d14	84	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	00-2050 mb 1/5
Date Analyzed:	09/09/20	Data File:	090905.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	50	150
Phenol-d6	92	50	150
Nitrobenzene-d5	85	50	150
2-Fluorobiphenyl	93	50	150
2,4,6-Tribromophenol	77	50	150
Terphenyl-d14	85	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-01 1/6
Date Analyzed:	09/10/20	Data File:	091010.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	87	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-02 1/6
Date Analyzed:	09/10/20	Data File:	091011.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	69	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-03 1/6
Date Analyzed:	09/10/20	Data File:	091013.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-04 1/6
Date Analyzed:	09/10/20	Data File:	091013A.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-26	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-05 1/6
Date Analyzed:	09/10/20	Data File:	091014.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	80	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-19S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-06 1/6
Date Analyzed:	09/10/20	Data File:	091015.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-5	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-11 1/6
Date Analyzed:	09/10/20	Data File:	091016.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-10	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-12 1/6
Date Analyzed:	09/10/20	Data File:	091017.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-15	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-13 1/6
Date Analyzed:	09/10/20	Data File:	091018.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	90	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-20	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-14 1/6
Date Analyzed:	09/10/20	Data File:	091019.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-25	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-15 1/6
Date Analyzed:	09/10/20	Data File:	091020.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	HMW-20S-30	Client:	Hart Crowser
Date Received:	09/08/20	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	009135-16 1/6
Date Analyzed:	09/10/20	Data File:	091021.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	91	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009135
Date Extracted:	09/09/20	Lab ID:	00-2051 mb 1/6
Date Analyzed:	09/10/20	Data File:	091007.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	99	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20

Date Received: 09/08/20

Project: MMB, F&BI 009135

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

Laboratory Code: 009135-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
 Date Received: 09/08/20  
 Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009135-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	110	118	63-146	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	126	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
 Date Received: 09/08/20  
 Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009154-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	96	99	75-125	3
Cadmium	mg/kg (ppm)	5	<5	98	101	75-125	3
Chromium	mg/kg (ppm)	20	21.2	113	114	75-125	1
Lead	mg/kg (ppm)	10	<5	95	101	75-125	6
Mercury	mg/kg (ppm)	5	<5	97	104	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	94	80-120
Cadmium	mg/kg (ppm)	5	97	80-120
Chromium	mg/kg (ppm)	20	99	80-120
Lead	mg/kg (ppm)	10	100	80-120
Mercury	mg/kg (ppm)	5	118	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20

Date Received: 09/08/20

Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	115	108	70-130	6
Chloromethane	mg/kg (ppm)	0.025	107	103	70-130	4
Vinyl chloride	mg/kg (ppm)	0.025	113	107	70-130	5
Bromomethane	mg/kg (ppm)	0.025	109	104	70-130	5
Chloroethane	mg/kg (ppm)	0.025	116	111	70-130	4
Trichlorofluoromethane	mg/kg (ppm)	0.025	107	93	70-130	14
Acetone	mg/kg (ppm)	0.125	116	179 vo	70-130	43 vo
1,1-Dichloroethene	mg/kg (ppm)	0.025	109	107	70-130	2
Hexane	mg/kg (ppm)	0.025	94	94	70-130	0
Methylene chloride	mg/kg (ppm)	0.025	96	101	70-130	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	99	104	70-130	5
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	105	105	70-130	0
1,1-Dichloroethane	mg/kg (ppm)	0.025	101	103	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.025	97	96	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	102	104	70-130	2
Chloroform	mg/kg (ppm)	0.025	99	102	70-130	3
2-Butanone (MEK)	mg/kg (ppm)	0.125	88	78	70-130	12
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	93	99	70-130	6
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	104	104	70-130	0
1,1-Dichloropropene	mg/kg (ppm)	0.025	95	95	70-130	0
Carbon tetrachloride	mg/kg (ppm)	0.025	97	94	70-130	3
Benzene	mg/kg (ppm)	0.025	97	99	70-130	2
Trichloroethene	mg/kg (ppm)	0.025	96	97	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.025	94	98	70-130	4
Bromodichloromethane	mg/kg (ppm)	0.025	97	99	70-130	2
Dibromomethane	mg/kg (ppm)	0.025	94	100	70-130	6
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	85	92	70-130	8
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	95	97	70-130	2
Toluene	mg/kg (ppm)	0.025	106	103	70-130	3
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	96	97	70-130	1
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	91	93	70-130	2
2-Hexanone	mg/kg (ppm)	0.125	91	99	70-130	8
1,3-Dichloropropane	mg/kg (ppm)	0.025	95	98	70-130	3
Tetrachloroethene	mg/kg (ppm)	0.025	109	103	70-130	6
Dibromochloromethane	mg/kg (ppm)	0.025	98	100	70-130	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	95	98	70-130	3
Chlorobenzene	mg/kg (ppm)	0.025	102	101	70-130	1
Ethylbenzene	mg/kg (ppm)	0.025	104	101	70-130	3
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	105	103	70-130	2
m,p-Xylene	mg/kg (ppm)	0.05	103	100	70-130	3
o-Xylene	mg/kg (ppm)	0.025	109	106	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20

Date Received: 09/08/20

Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Styrene	mg/kg (ppm)	0.025	102	103	70-130	1
Isopropylbenzene	mg/kg (ppm)	0.025	113	107	70-130	5
Bromoform	mg/kg (ppm)	0.025	79	80	70-130	1
n-Propylbenzene	mg/kg (ppm)	0.025	111	101	70-130	9
Bromobenzene	mg/kg (ppm)	0.025	107	100	70-130	7
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	118	108	70-130	9
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	99	96	70-130	3
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	92	90	70-130	2
2-Chlorotoluene	mg/kg (ppm)	0.025	112	103	70-130	8
4-Chlorotoluene	mg/kg (ppm)	0.025	108	102	70-130	6
tert-Butylbenzene	mg/kg (ppm)	0.025	117	105	70-130	11
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	115	106	70-130	8
sec-Butylbenzene	mg/kg (ppm)	0.025	119	108	70-130	10
p-Isopropyltoluene	mg/kg (ppm)	0.025	119	109	70-130	9
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	111	105	70-130	6
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	109	103	70-130	6
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	111	107	70-130	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	83	83	70-130	0
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	117	111	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	0.025	121	111	70-130	9
Naphthalene	mg/kg (ppm)	0.025	98	95	70-130	3
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	115	108	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20

Date Received: 09/08/20

Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009135-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	86	85	50-150	1
Chrysene	mg/kg (ppm)	0.83	<0.01	85	84	50-150	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	93	91	50-150	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	91	50-150	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	85	50-150	3
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	80	82	50-150	2
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	74	78	50-150	5

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	88	70-130
Chrysene	mg/kg (ppm)	0.83	89	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	94	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	93	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	93	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	89	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	85	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/20  
Date Received: 09/08/20  
Project: MMB, F&BI 009135

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 009135-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	86	80	29-125	7
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	83	78	25-137	6

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	88	55-137
Aroclor 1260	mg/kg (ppm)	0.25	78	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

009135

SAMPLE CHAIN OF CUSTODY

ME 09/08/20

US3/10/20

Report To Betsy Dozier/Mark Deagal

Company Hart Crosser

Address 3131 Elliott Ave Suite 600

City, State, ZIP Seattle, WA 98121

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLES (signature) G. McCarre

PROJECT NAME MMB

PO #

REMARKS

INVOICE TO

Project specific RIs? - Yes / No

Page # 1 of 1

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		MTEA Metals	
HMW-19S-5	01A-F	9/8/20	9:07	Soil	6	X	X			X	X	X			CPAHs per MD
HMW-19S-18	02A-F	9/8/20	9:25	Soil	6	X	X			X	X	X			
HMW-19S-15	03A-F	9/8/20	9:35	Soil	6	X	X			X	X	X			
HMW-19S-20	04A-F	9/8/20	9:45	Soil	6	X	X			X	X	X			
HMW-19S-26	05A-F	9/8/20	9:55	Soil	6	X	X			X	X	X			
HMW-19S-36	06A-F	9/8/20	10:15	Soil	6	X	X			X	X	X			
HMW-19S-35	07A-F	9/8/20	10:30	Soil	6										Hold for analysis
HMW-19S-40	08A-F	9/8/20	10:40	Soil	6										Hold for analysis
HMW-19S-45	09A-F	9/8/20	10:55	Soil	6										Hold for analysis
TRIP BLANKS	10A-B	9/8/20													

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Carole McCarre</u>	<u>Hart Crosser</u>	<u>9/8/20</u>	<u>10:25</u>
<u>[Signature]</u>	<u>VINT</u>	<u>FBI</u>	<u>9/8/20</u>	<u>18:25</u>
Received by:		Samples received at	<u>3</u>	<u>00</u>

009135

SAMPLE CHAIN OF CUSTODY

ME 09/08/20

153/2 of 2/1/1

Report To Becca Dozier / Mark Deget  
 Company Hart Causser  
 Address 3131 Elliott Ave Suite 600  
 City, State, ZIP Seattle, WA 98101  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) Becca Dozier  
 PROJECT NAME MMB  
 PO # \_\_\_\_\_  
 REMARKS \_\_\_\_\_  
 INVOICE TO \_\_\_\_\_  
 Project specific RIs? - Yes / No \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
HMM-205-5	11 A-F	9/8/20	14:13	Soil	6	X	X			X	X	X	X		
HMM-205-10	12 A-F	9/8/20	14:25	Soil	6	X	X			X	X	X	X		
HMM-205-15	13 A-F	9/8/20	14:30	Soil	6	X	X			X	X	X	X		
HMM-205-20	14 A-F	9/8/20	16:10	Soil	6	X	X			X	X	X	X		
HMM-205-25	15 A-F	9/8/20	16:20	Soil	6	X	X			X	X	X	X		
HMM-205-30	110 A-F	9/8/20	16:35	Soil	6	X	X			X	X	X	X		

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>Becca Dozier</u>	<u>Becca Dozier</u>	<u>Hart Causser</u>	<u>9/8/20</u>	<u>18:25</u>
<u>Mark Deget</u>	<u>Mark Deget</u>	<u>FBI</u>	<u>9/8/20</u>	<u>18:25</u>
Received by:				
Relinquished by:				

Samples received at 300

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 18, 2020

Becca Dozier, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Ms Dozier:

Included are the results from the testing of material submitted on September 9, 2020 from the MMB, F&BI 009154 project. There are 43 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Mark Dagel  
HCR0918R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 9, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB, F&BI 009154 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009154 -01	MMB24-5
009154 -02	MMB24-10
009154 -03	MMB24-15
009154 -04	MMB24-20
009154 -05	MMB24-25
009154 -06	MMB24-30
009154 -07	MMB24-35
009154 -08	MMB24-40
009154 -09	Trip Blanks

A 6020B internal standard failed the acceptance criteria for samples MMB24-5 and MMB24-15. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

Methylene chloride was detected in the 8260D analysis of the samples. The data were flagged as due to laboratory contamination.

The 8260D calibration standard failed the acceptance criteria for several compounds. The data were flagged accordingly.

Several compounds in the 8260D laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
Date Received: 09/09/20  
Project: MMB, F&BI 009154  
Date Extracted: 09/10/20  
Date Analyzed: 09/10/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MMB24-5 009154-01	<5	83
MMB24-10 009154-02	<5	94
MMB24-15 009154-03	<5	93
MMB24-20 009154-04	<5	96
MMB24-25 009154-05	<5	93
MMB24-30 009154-06	<5	92
Method Blank 00-1995 MB2	<5	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
Date Received: 09/09/20  
Project: MMB, F&BI 009154  
Date Extracted: 09/09/20  
Date Analyzed: 09/09/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MMB24-5 009154-01	<50	<250	87
MMB24-10 009154-02	<50	<250	86
MMB24-15 009154-03	<50	<250	84
MMB24-20 009154-04	<50	<250	85
MMB24-25 009154-05	<50	<250	84
MMB24-30 009154-06	<50	<250	84
Method Blank 00-2049 MB	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-5	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-01
Date Analyzed:	09/10/20	Data File:	009154-01.137
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.92
Cadmium	<1
Chromium	22.8 J
Lead	3.32
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-5	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/10/20	Lab ID:	009154-01 x5
Date Analyzed:	09/11/20	Data File:	009154-01 x5.109
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	25.9
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-10	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-02
Date Analyzed:	09/10/20	Data File:	009154-02.140
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.38
Cadmium	<1
Chromium	15.0
Lead	1.57
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-15	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-03
Date Analyzed:	09/10/20	Data File:	009154-03.141
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.00
Cadmium	<1
Chromium	22.2 J
Lead	3.04
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-15	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/10/20	Lab ID:	009154-03 x5
Date Analyzed:	09/11/20	Data File:	009154-03 x5.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	25.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-20	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-04
Date Analyzed:	09/10/20	Data File:	009154-04.144
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.05
Cadmium	<1
Chromium	10.5
Lead	1.02
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-25	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-05
Date Analyzed:	09/10/20	Data File:	009154-05.145
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.38
Cadmium	<1
Chromium	14.9
Lead	1.52
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MMB24-30	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-06
Date Analyzed:	09/10/20	Data File:	009154-06.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	14.1
Lead	1.34
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB, F&BI 009154
Date Extracted:	09/10/20	Lab ID:	I0-536 mb
Date Analyzed:	09/10/20	Data File:	I0-536 mb.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-5	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/14/20	Lab ID:	009154-01
Date Analyzed:	09/14/20	Data File:	091410.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	90	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.03 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 jl	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05 ca		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-10	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/14/20	Lab ID:	009154-02
Date Analyzed:	09/14/20	Data File:	091411.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	90	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.011 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 jl	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05 ca		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-15	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/11/20	Lab ID:	009154-03
Date Analyzed:	09/11/20	Data File:	091111.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025 j	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005 ca
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-20	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/11/20	Lab ID:	009154-04
Date Analyzed:	09/11/20	Data File:	091112.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025 j	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005 ca
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-25	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/11/20	Lab ID:	009154-05
Date Analyzed:	09/11/20	Data File:	091113.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025 j	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005 ca
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MMB24-30	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/11/20	Lab ID:	009154-06
Date Analyzed:	09/11/20	Data File:	091114.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025 j	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005 ca
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009154
Date Extracted:	09/11/20	Lab ID:	00-2040 mb
Date Analyzed:	09/11/20	Data File:	091108.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025 j	o-Xylene	<0.005
Methylene chloride	<0.0078 j	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005 ca
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 j	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009154
Date Extracted:	09/14/20	Lab ID:	00-2044 mb
Date Analyzed:	09/14/20	Data File:	091409.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	50	150
Toluene-d8	91	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05 jl	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05 ca		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-5	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-01 1/5
Date Analyzed:	09/10/20	Data File:	091010.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	50	150
Phenol-d6	79	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	66	50	150
Terphenyl-d14	78	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-10	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-02 1/5
Date Analyzed:	09/10/20	Data File:	091011.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	50	150
Phenol-d6	78	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	79	50	150
2,4,6-Tribromophenol	70	50	150
Terphenyl-d14	78	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-15	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-03 1/5
Date Analyzed:	09/10/20	Data File:	091012.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	64	50	150
Phenol-d6	76	50	150
Nitrobenzene-d5	72	50	150
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	69	50	150
Terphenyl-d14	78	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-20	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-04 1/5
Date Analyzed:	09/10/20	Data File:	091013.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63	50	150
Phenol-d6	74	50	150
Nitrobenzene-d5	68	50	150
2-Fluorobiphenyl	72	50	150
2,4,6-Tribromophenol	68	50	150
Terphenyl-d14	76	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-25	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-05 1/5
Date Analyzed:	09/11/20	Data File:	091014.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	69	50	150
Phenol-d6	81	50	150
Nitrobenzene-d5	80	50	150
2-Fluorobiphenyl	84	50	150
2,4,6-Tribromophenol	75	50	150
Terphenyl-d14	78	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MMB24-30	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-06 1/5
Date Analyzed:	09/11/20	Data File:	091015.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	64	50	150
Phenol-d6	77	50	150
Nitrobenzene-d5	67	50	150
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	75	50	150
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	00-2050 mb 1/5
Date Analyzed:	09/09/20	Data File:	090905.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	50	150
Phenol-d6	92	50	150
Nitrobenzene-d5	85	50	150
2-Fluorobiphenyl	93	50	150
2,4,6-Tribromophenol	77	50	150
Terphenyl-d14	85	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-5	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-01 1/6
Date Analyzed:	09/10/20	Data File:	091024.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-10	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-02 1/6
Date Analyzed:	09/10/20	Data File:	091025.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-15	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-03 1/6
Date Analyzed:	09/10/20	Data File:	091026.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-20	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-04 1/6
Date Analyzed:	09/11/20	Data File:	091027.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-25	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-05 1/6
Date Analyzed:	09/11/20	Data File:	091028.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MMB24-30	Client:	Hart Crowser
Date Received:	09/09/20	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	009154-06 1/6
Date Analyzed:	09/11/20	Data File:	091029.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	82	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB, F&BI 009154
Date Extracted:	09/09/20	Lab ID:	00-2051 mb 1/6
Date Analyzed:	09/10/20	Data File:	091007.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	99	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
Date Received: 09/09/20  
Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009123-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
 Date Received: 09/09/20  
 Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009136-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	98	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
 Date Received: 09/09/20  
 Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009154-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	96	99	75-125	3
Cadmium	mg/kg (ppm)	5	<5	98	101	75-125	3
Chromium	mg/kg (ppm)	20	21.2	113	114	75-125	1
Lead	mg/kg (ppm)	10	<5	95	101	75-125	6
Mercury	mg/kg (ppm)	5	<5	97	104	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	94	80-120
Cadmium	mg/kg (ppm)	5	97	80-120
Chromium	mg/kg (ppm)	20	99	80-120
Lead	mg/kg (ppm)	10	100	80-120
Mercury	mg/kg (ppm)	5	118	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20

Date Received: 09/09/20

Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 009154-06 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Bromomethane	mg/kg (ppm)	<0.05	<0.05	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
Acetone	mg/kg (ppm)	<0.1	<0.1	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Hexane	mg/kg (ppm)	<0.025	<0.025	nm
Methylene chloride	mg/kg (ppm)	<0.0078 j	0.0153	nm
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	<0.005	<0.005	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
2-Butanone (MEK)	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dichloroethane (EDC)	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Dibromomethane	mg/kg (ppm)	<0.005	<0.005	nm
4-Methyl-2-pentanone	mg/kg (ppm)	<0.05	<0.05	nm
cis-1,3-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
trans-1,3-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2-Hexanone	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
Styrene	mg/kg (ppm)	<0.005	<0.005	nm
Isopropylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
Bromoform	mg/kg (ppm)	<0.005	<0.005	nm
n-Propylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
Bromobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3,5-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
tert-Butylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
sec-Butylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
p-Isopropyltoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
1,2,4-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
Naphthalene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
 Date Received: 09/09/20  
 Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	114	117	70-130	3
Chloromethane	mg/kg (ppm)	0.025	95	94	70-130	1
Vinyl chloride	mg/kg (ppm)	0.025	98	99	70-130	1
Bromomethane	mg/kg (ppm)	0.025	94	95	70-130	1
Chloroethane	mg/kg (ppm)	0.025	100	101	70-130	1
Trichlorofluoromethane	mg/kg (ppm)	0.025	106	108	70-130	2
Acetone	mg/kg (ppm)	0.125	118	119	70-130	1
1,1-Dichloroethene	mg/kg (ppm)	0.025	99	100	70-130	1
Hexane	mg/kg (ppm)	0.025	59 vo	60 vo	70-130	2
Methylene chloride	mg/kg (ppm)	0.025	80	109	70-130	31 vo
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	92	93	70-130	1
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	93	96	70-130	3
1,1-Dichloroethane	mg/kg (ppm)	0.025	94	96	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.025	105	93	70-130	12
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	93	95	70-130	2
Chloroform	mg/kg (ppm)	0.025	93	95	70-130	2
2-Butanone (MEK)	mg/kg (ppm)	0.125	79	69 vo	70-130	14
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	96	98	70-130	2
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	100	103	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.025	93	96	70-130	3
Carbon tetrachloride	mg/kg (ppm)	0.025	93	93	70-130	0
Benzene	mg/kg (ppm)	0.025	93	96	70-130	3
Trichloroethene	mg/kg (ppm)	0.025	92	96	70-130	4
1,2-Dichloropropane	mg/kg (ppm)	0.025	91	94	70-130	3
Bromodichloromethane	mg/kg (ppm)	0.025	91	95	70-130	4
Dibromomethane	mg/kg (ppm)	0.025	95	97	70-130	2
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	89	89	70-130	0
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	92	97	70-130	5
Toluene	mg/kg (ppm)	0.025	102	101	70-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	98	95	70-130	3
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	94	93	70-130	1
2-Hexanone	mg/kg (ppm)	0.125	88	86	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	0.025	100	95	70-130	5
Tetrachloroethene	mg/kg (ppm)	0.025	105	103	70-130	2
Dibromochloromethane	mg/kg (ppm)	0.025	96	90	70-130	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	98	95	70-130	3
Chlorobenzene	mg/kg (ppm)	0.025	100	99	70-130	1
Ethylbenzene	mg/kg (ppm)	0.025	102	101	70-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	98	94	70-130	4
m,p-Xylene	mg/kg (ppm)	0.05	100	99	70-130	1
o-Xylene	mg/kg (ppm)	0.025	103	102	70-130	1
Styrene	mg/kg (ppm)	0.025	103	101	70-130	2
Isopropylbenzene	mg/kg (ppm)	0.025	107	105	70-130	2
Bromoform	mg/kg (ppm)	0.025	78	77	70-130	1
n-Propylbenzene	mg/kg (ppm)	0.025	102	102	70-130	0
Bromobenzene	mg/kg (ppm)	0.025	98	96	70-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	105	104	70-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	100	94	70-130	6
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	96	93	70-130	3
2-Chlorotoluene	mg/kg (ppm)	0.025	101	100	70-130	1
4-Chlorotoluene	mg/kg (ppm)	0.025	103	102	70-130	1
tert-Butylbenzene	mg/kg (ppm)	0.025	104	103	70-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	104	102	70-130	2
sec-Butylbenzene	mg/kg (ppm)	0.025	107	105	70-130	2
p-Isopropyltoluene	mg/kg (ppm)	0.025	107	105	70-130	2
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	105	104	70-130	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	105	102	70-130	3
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	105	102	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	83	78	70-130	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	106	102	70-130	4
Hexachlorobutadiene	mg/kg (ppm)	0.025	107	108	70-130	1
Naphthalene	mg/kg (ppm)	0.025	95	91	70-130	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	102	100	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20

Date Received: 09/09/20

Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	109	109	70-130	0
Chloromethane	mg/kg (ppm)	0.025	105	102	70-130	3
Vinyl chloride	mg/kg (ppm)	0.025	115	109	70-130	5
Bromomethane	mg/kg (ppm)	0.025	104	103	70-130	1
Chloroethane	mg/kg (ppm)	0.025	120	114	70-130	5
Trichlorofluoromethane	mg/kg (ppm)	0.025	119	113	70-130	5
Acetone	mg/kg (ppm)	0.125	107	119	70-130	11
1,1-Dichloroethene	mg/kg (ppm)	0.025	119	111	70-130	7
Hexane	mg/kg (ppm)	0.025	103	94	70-130	9
Methylene chloride	mg/kg (ppm)	0.025	69 vo	73	70-130	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	90	104	70-130	14
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	107	104	70-130	3
1,1-Dichloroethane	mg/kg (ppm)	0.025	104	102	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.025	103	98	70-130	5
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	101	102	70-130	1
Chloroform	mg/kg (ppm)	0.025	98	101	70-130	3
2-Butanone (MEK)	mg/kg (ppm)	0.125	61 vo	79	70-130	26 vo
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	89	96	70-130	8
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	119	115	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	0.025	102	96	70-130	6
Carbon tetrachloride	mg/kg (ppm)	0.025	121	114	70-130	6
Benzene	mg/kg (ppm)	0.025	101	98	70-130	3
Trichloroethene	mg/kg (ppm)	0.025	102	97	70-130	5
1,2-Dichloropropane	mg/kg (ppm)	0.025	97	95	70-130	2
Bromodichloromethane	mg/kg (ppm)	0.025	102	105	70-130	3
Dibromomethane	mg/kg (ppm)	0.025	89	98	70-130	10
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	73	86	70-130	16
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	100	99	70-130	1
Toluene	mg/kg (ppm)	0.025	110	105	70-130	5
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	94	102	70-130	8
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	86	93	70-130	8
2-Hexanone	mg/kg (ppm)	0.125	72	81	70-130	12
1,3-Dichloropropane	mg/kg (ppm)	0.025	91	96	70-130	5
Tetrachloroethene	mg/kg (ppm)	0.025	116	109	70-130	6
Dibromochloromethane	mg/kg (ppm)	0.025	109	112	70-130	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	91	96	70-130	5
Chlorobenzene	mg/kg (ppm)	0.025	108	102	70-130	6
Ethylbenzene	mg/kg (ppm)	0.025	115	105	70-130	9
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	117	118	70-130	1
m,p-Xylene	mg/kg (ppm)	0.05	113	104	70-130	8
o-Xylene	mg/kg (ppm)	0.025	115	110	70-130	4
Styrene	mg/kg (ppm)	0.025	112	104	70-130	7
Isopropylbenzene	mg/kg (ppm)	0.025	123	115	70-130	7
Bromoform	mg/kg (ppm)	0.025	77	96	70-130	22 vo
n-Propylbenzene	mg/kg (ppm)	0.025	118	103	70-130	14
Bromobenzene	mg/kg (ppm)	0.025	104	98	70-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	121	112	70-130	8
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	92	101	70-130	9
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	83	91	70-130	9
2-Chlorotoluene	mg/kg (ppm)	0.025	114	106	70-130	7
4-Chlorotoluene	mg/kg (ppm)	0.025	115	104	70-130	10
tert-Butylbenzene	mg/kg (ppm)	0.025	120	111	70-130	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	120	110	70-130	9
sec-Butylbenzene	mg/kg (ppm)	0.025	125	114	70-130	9
p-Isopropyltoluene	mg/kg (ppm)	0.025	125	115	70-130	8
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	116	106	70-130	9
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	114	104	70-130	9
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	111	108	70-130	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	79	91	70-130	14
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	114	115	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	0.025	127	118	70-130	7
Naphthalene	mg/kg (ppm)	0.025	85	100	70-130	16
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	103	113	70-130	9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20  
 Date Received: 09/09/20  
 Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
 FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009135-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	86	85	50-150	1
Chrysene	mg/kg (ppm)	0.83	<0.01	85	84	50-150	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	93	91	50-150	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	91	50-150	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	88	85	50-150	3
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	80	82	50-150	2
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	74	78	50-150	5

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	88	70-130
Chrysene	mg/kg (ppm)	0.83	89	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	94	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	93	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	93	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	89	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	85	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/18/20

Date Received: 09/09/20

Project: MMB, F&BI 009154

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 009135-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	86	80	29-125	7
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	83	78	25-137	6

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	88	55-137
Aroclor 1260	mg/kg (ppm)	0.25	78	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

009154

SAMPLE CHAIN OF CUSTODY

ME 09/09/20 W11/BTY/154

Report To Becca Dozier / Mark Dejas

Company Hart Crouser

Address 3131 Elliott Ave Suite 600

City, State, ZIP Seattle, WA 98121

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) [Signature] Core-McCabe

PROJECT NAME MMB PO # \_\_\_\_\_

REMARKS as a/b/c INVOICE TO \_\_\_\_\_

Project specific RIs? - Yes / No \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTEA Metals				
M3B24-5		01A.F	9/9/20	8:25	Soil	6	X	X			X	X	X	X			
M3B24-10		02	9/9/20	8:35	Soil	6	X	X			X	X	X	X			
M3B24-15		03	9/9/20	8:45	Soil	6	X	X			X	X	X	X			
M3B24-20		04	9/9/20	8:55	Soil	6	X	X			X	X	X	X			
M3B24-25		05	9/9/20	9:05	Soil	6	X	X			X	X	X	X			
M3B24-30		06	9/9/20	9:15	Soil	6	X	X			X	X	X	X			Hold for analysis
M3B24-35		07	9/9/20	9:25	Soil	6											Hold for analysis
M3B24-40		08	9/9/20	9:40	Soil	6											
TRIP BLANKS		09AB				2											

**Sub**

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	Becca Lytle	Hart Crouser	9/9/20	14:02
<u>[Signature]</u>	MKen Phan	FeB T	9/9/20	14:02
Received by: _____		Samples received at _____	3	00

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 25, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 10, 2020 from the MMB Job 1940904, F&BI 009184 project. There are 28 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0925R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 10, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB Job 1940904, F&BI 009184 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009184 -01	MBB-24
009184 -02	HMW-12D
009184 -03	HMW-13D
009184 -04	Trip Blank 9-10-2020

Dissolved mercury in the 6020B matrix spike and matrix spike duplicate failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

Acetone in the 8260D laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

Date Extracted: 09/14/20

Date Analyzed: 09/14/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MBB-24 009184-01	1,600	116
HMW-12D 009184-02	<100	88
HMW-13D 009184-03	<100	84
Method Blank 00-2000 MB	<100	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

Date Extracted: 09/11/20

Date Analyzed: 09/11/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MBB-24 009184-01	650 x	<250	91
HMW-12D 009184-02	<50	<250	101
HMW-13D 009184-03	<50	<250	91
Method Blank 00-2060 MB2	<50	<250	108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MBB-24	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/17/20	Lab ID:	009184-01
Date Analyzed:	09/17/20	Data File:	009184-01.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.49
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-12D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/17/20	Lab ID:	009184-02
Date Analyzed:	09/17/20	Data File:	009184-02.057
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.54
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-13D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/17/20	Lab ID:	009184-03
Date Analyzed:	09/17/20	Data File:	009184-03.058
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.25
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/17/20	Lab ID:	I0-549 mb
Date Analyzed:	09/17/20	Data File:	I0-549 mb.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-24	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-01
Date Analyzed:	09/14/20	Data File:	009184-01.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.53
Cadmium	<1
Chromium	3.22
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-12D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-02
Date Analyzed:	09/14/20	Data File:	009184-02.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.75
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-13D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-03
Date Analyzed:	09/14/20	Data File:	009184-03.116
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.47
Cadmium	<1
Chromium	9.39
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	I0-542 mb
Date Analyzed:	09/14/20	Data File:	I0-542 mb.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-24	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/11/20	Lab ID:	009184-01 1/2
Date Analyzed:	09/14/20	Data File:	091406.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	43	15	99
Phenol-d6	29	11	65
Nitrobenzene-d5	83	10	145
2-Fluorobiphenyl	77	16	138
2,4,6-Tribromophenol	89	12	132
Terphenyl-d14	96	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	6.0
2-Methylnaphthalene	1.6
1-Methylnaphthalene	1.6
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-12D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/11/20	Lab ID:	009184-02 1/2
Date Analyzed:	09/11/20	Data File:	091115.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	37	15	99
Phenol-d6	25	11	65
Nitrobenzene-d5	76	10	145
2-Fluorobiphenyl	86	16	138
2,4,6-Tribromophenol	89	12	132
Terphenyl-d14	90	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-13D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/11/20	Lab ID:	009184-03 1/2
Date Analyzed:	09/11/20	Data File:	091116.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	40	15	99
Phenol-d6	27	11	65
Nitrobenzene-d5	80	10	145
2-Fluorobiphenyl	78	16	138
2,4,6-Tribromophenol	83	12	132
Terphenyl-d14	89	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/11/20	Lab ID:	00-2061 mb2
Date Analyzed:	09/11/20	Data File:	091108.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	26	15	99
Phenol-d6	15	11	65
Nitrobenzene-d5	81	10	145
2-Fluorobiphenyl	84	16	138
2,4,6-Tribromophenol	70	12	132
Terphenyl-d14	88	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MBB-24	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-01
Date Analyzed:	09/15/20	Data File:	091429.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	24
Acetone	<50 j l	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	21
Hexane	<5	o-Xylene	19
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	6.0
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	6.9
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	14
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	7.1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	0.30
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	37
Benzene	34	sec-Butylbenzene	2.0
Trichloroethene	<0.2	p-Isopropyltoluene	3.8
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	7.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	6.9
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-12D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-02
Date Analyzed:	09/15/20	Data File:	091430.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	3.9	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 j l	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	0.70	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	0.22	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	200 ve	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-12D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/18/20	Lab ID:	009184-02 1/10
Date Analyzed:	09/18/20	Data File:	091805.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<2 j
Chloromethane	<20	Tetrachloroethene	<2
Vinyl chloride	3.2	Dibromochloromethane	<5
Bromomethane	<50	1,2-Dibromoethane (EDB)	<10
Chloroethane	<2 j	Chlorobenzene	<2 j
Trichlorofluoromethane	<2 j	Ethylbenzene	<2
Acetone	<500 j1	1,1,1,2-Tetrachloroethane	<2 j
1,1-Dichloroethene	<2 j	m,p-Xylene	<4
Hexane	<50	o-Xylene	<2
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	<10
trans-1,2-Dichloroethene	<2 j	Bromoform	<50
1,1-Dichloroethane	<2 j	n-Propylbenzene	<10
2,2-Dichloropropane	<2 j	Bromobenzene	<10
cis-1,2-Dichloroethene	200	1,3,5-Trimethylbenzene	<10
Chloroform	<2 j	1,1,2,2-Tetrachloroethane	<2
2-Butanone (MEK)	<200	1,2,3-Trichloropropane	<0.8 j
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<2
1,1,1-Trichloroethane	<2 j	4-Chlorotoluene	<2
1,1-Dichloropropene	<2 j	tert-Butylbenzene	<2
Carbon tetrachloride	<2 j	1,2,4-Trimethylbenzene	<2
Benzene	<2	sec-Butylbenzene	<10
Trichloroethene	<2	p-Isopropyltoluene	<10
1,2-Dichloropropane	<2 j	1,3-Dichlorobenzene	<2
Bromodichloromethane	<2 j	1,4-Dichlorobenzene	<2
Dibromomethane	<10	1,2-Dichlorobenzene	<2
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<30 j
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<2	Hexachlorobutadiene	<2
trans-1,3-Dichloropropene	<10	Naphthalene	<10
1,1,2-Trichloroethane	<2 j	1,2,3-Trichlorobenzene	<2
2-Hexanone	<100		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-13D	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/23/20	Lab ID:	009184-03
Date Analyzed:	09/23/20	Data File:	092311.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 9-10-2020	Client:	Hart Crowser
Date Received:	09/10/20	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	009184-04
Date Analyzed:	09/15/20	Data File:	091432.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 j	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB Job 1940904, F&BI 009184
Date Extracted:	09/14/20	Lab ID:	00-2072 mb
Date Analyzed:	09/15/20	Data File:	091428.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 j l	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009184-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,600	1,700	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	107	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	96	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 009184-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	7.49	105	102	75-125	3
Cadmium	ug/L (ppb)	5	<1	99	97	75-125	2
Chromium	ug/L (ppb)	20	<1	99	98	75-125	1
Lead	ug/L (ppb)	10	<1	89	90	75-125	1
Mercury	ug/L (ppb)	5	<1	60 vo	59 vo	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	99	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	104	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009184-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	7.28	91	84	75-125	8
Cadmium	ug/L (ppb)	5	<1	99	96	75-125	3
Chromium	ug/L (ppb)	20	3.41	96	88	75-125	9
Lead	ug/L (ppb)	10	<1	79	75	75-125	5
Mercury	ug/L (ppb)	5	<1	85	81	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	101	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	105	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	96	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	78	70	56-100	11
2-Methylnaphthalene	ug/L (ppb)	5	82	72	60-104	13
1-Methylnaphthalene	ug/L (ppb)	5	81	72	60-104	12
Acenaphthylene	ug/L (ppb)	5	85	82	70-130	4
Acenaphthene	ug/L (ppb)	5	85	81	65-122	5
Fluorene	ug/L (ppb)	5	92	88	70-130	4
Phenanthrene	ug/L (ppb)	5	88	89	70-130	1
Anthracene	ug/L (ppb)	5	88	89	70-130	1
Fluoranthene	ug/L (ppb)	5	94	93	70-130	1
Pyrene	ug/L (ppb)	5	87	95	70-130	9
Benz(a)anthracene	ug/L (ppb)	5	88	92	70-130	4
Chrysene	ug/L (ppb)	5	89	93	70-130	4
Benzo(a)pyrene	ug/L (ppb)	5	93	96	70-130	3
Benzo(b)fluoranthene	ug/L (ppb)	5	93	95	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	93	96	70-130	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	94	102	57-141	8
Dibenz(a,h)anthracene	ug/L (ppb)	5	90	98	57-137	9
Benzo(g,h,i)perylene	ug/L (ppb)	5	88	97	50-143	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/25/20

Date Received: 09/10/20

Project: MMB Job 1940904, F&BI 009184

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	94	95	70-130	1
Chloromethane	ug/L (ppb)	10	88	91	70-130	3
Vinyl chloride	ug/L (ppb)	10	95	100	70-130	5
Bromomethane	ug/L (ppb)	10	102	108	70-130	6
Chloroethane	ug/L (ppb)	10	110	115	70-130	4
Trichlorofluoromethane	ug/L (ppb)	10	94	99	70-130	5
Acetone	ug/L (ppb)	50	56 vo	56 vo	64-131	0
1,1-Dichloroethene	ug/L (ppb)	10	102	103	70-130	1
Hexane	ug/L (ppb)	10	85	88	70-130	3
Methylene chloride	ug/L (ppb)	10	95	107	29-192	12
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	92	92	70-130	0
trans-1,2-Dichloroethene	ug/L (ppb)	10	95	96	70-130	1
1,1-Dichloroethane	ug/L (ppb)	10	96	96	70-130	0
2,2-Dichloropropane	ug/L (ppb)	10	79	83	70-130	5
cis-1,2-Dichloroethene	ug/L (ppb)	10	95	95	70-130	0
Chloroform	ug/L (ppb)	10	99	98	70-130	1
2-Butanone (MEK)	ug/L (ppb)	50	73	73	70-130	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	92	92	70-130	0
1,1,1-Trichloroethane	ug/L (ppb)	10	93	95	70-130	2
1,1-Dichloropropene	ug/L (ppb)	10	91	91	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	87	97	70-130	11
Benzene	ug/L (ppb)	10	93	93	70-130	0
Trichloroethene	ug/L (ppb)	10	89	89	70-130	0
1,2-Dichloropropane	ug/L (ppb)	10	86	88	70-130	2
Bromodichloromethane	ug/L (ppb)	10	86	84	70-130	2
Dibromomethane	ug/L (ppb)	10	92	91	70-130	1
4-Methyl-2-pentanone	ug/L (ppb)	50	97	96	70-130	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	87	87	70-130	0
Toluene	ug/L (ppb)	10	102	101	70-130	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	87	85	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	89	88	70-130	1
2-Hexanone	ug/L (ppb)	50	77	79	70-130	3
1,3-Dichloropropane	ug/L (ppb)	10	92	90	70-130	2
Tetrachloroethene	ug/L (ppb)	10	95	96	70-130	1
Dibromochloromethane	ug/L (ppb)	10	86	87	70-130	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	92	91	70-130	1
Chlorobenzene	ug/L (ppb)	10	93	91	70-130	2
Ethylbenzene	ug/L (ppb)	10	93	92	70-130	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	91	90	70-130	1
m,p-Xylene	ug/L (ppb)	20	91	90	70-130	1
o-Xylene	ug/L (ppb)	10	94	93	70-130	1
Styrene	ug/L (ppb)	10	91	91	70-130	0
Isopropylbenzene	ug/L (ppb)	10	95	94	70-130	1
Bromoform	ug/L (ppb)	10	84	82	63-206	2
n-Propylbenzene	ug/L (ppb)	10	94	92	70-130	2
Bromobenzene	ug/L (ppb)	10	91	86	70-130	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	96	94	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	97	94	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	97	91	70-130	6
2-Chlorotoluene	ug/L (ppb)	10	81	79	70-130	2
4-Chlorotoluene	ug/L (ppb)	10	93	90	70-130	3
tert-Butylbenzene	ug/L (ppb)	10	94	94	70-130	0
1,2,4-Trimethylbenzene	ug/L (ppb)	10	94	92	70-130	2
sec-Butylbenzene	ug/L (ppb)	10	95	93	70-130	2
p-Isopropyltoluene	ug/L (ppb)	10	95	92	70-130	3
1,3-Dichlorobenzene	ug/L (ppb)	10	90	89	70-130	1
1,4-Dichlorobenzene	ug/L (ppb)	10	91	89	70-130	2
1,2-Dichlorobenzene	ug/L (ppb)	10	94	93	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	93	89	70-130	4
1,2,4-Trichlorobenzene	ug/L (ppb)	10	89	90	70-130	1
Hexachlorobutadiene	ug/L (ppb)	10	86	87	70-130	1
Naphthalene	ug/L (ppb)	10	100	97	70-130	3
1,2,3-Trichlorobenzene	ug/L (ppb)	10	95	93	70-130	2

# FRIEDMAN & BRUYA, INC.

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### **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 analyte 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 due to sample matrix effects.

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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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September 28, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 16, 2020 from the 1940904, F&BI 009292 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0928R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 16, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 009292 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009292 -01	HMW-14D
009292 -02	HMW-15IB
009292 -03	Trip Blank 9-16-2020

The 8260D calibration standard failed the acceptance criteria for acetone and 2-butanone (MEK). The data were flagged accordingly.

Hexachlorobutadiene in the 8260D matrix spike sample failed below the acceptance criteria. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect. In addition, the laboratory control sample and laboratory control sample duplicate failed the relative percent difference for methylene chloride and bromoform. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 09/28/20  
Date Received: 09/16/20  
Project: 1940904, F&BI 009292  
Date Extracted: 09/18/20  
Date Analyzed: 09/21/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-14D 009292-01	<100	94
HMW-15IB 009292-02	<100	93
Method Blank 00-2008 MB	<100	96

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292  
 Date Extracted: 09/17/20  
 Date Analyzed: 09/17/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS  
 DIESEL AND MOTOR OIL  
 USING METHOD NWTPH-D<sub>x</sub>  
 Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
HMW-14D 009292-01	<50	<250	100
HMW-15IB 009292-02	<50	<250	105
Method Blank 00-2087 MB3	<50	<250	125

# Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-14D	Client:	Hart Crowser
Date Received:	09/16/20	Project:	1940904, F&BI 009292
Date Extracted:	09/21/20	Lab ID:	009292-01
Date Analyzed:	09/22/20	Data File:	009292-01.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.91
Cadmium	<1
Chromium	1.34
Lead	<1
Mercury	<1

# Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-151B	Client:	Hart Crowser
Date Received:	09/16/20	Project:	1940904, F&BI 009292
Date Extracted:	09/21/20	Lab ID:	009292-02
Date Analyzed:	09/22/20	Data File:	009292-02.119
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.78
Cadmium	<1
Chromium	40.9
Lead	<1
Mercury	<1

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009292
Date Extracted:	09/21/20	Lab ID:	I0-557 mb
Date Analyzed:	09/21/20	Data File:	I0-557 mb.066
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-14D	Client:	Hart Crowser
Date Received:	09/16/20	Project:	1940904, F&BI 009292
Date Extracted:	09/22/20	Lab ID:	009292-01
Date Analyzed:	09/22/20	Data File:	009292-01.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.05
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-151B	Client:	Hart Crowser
Date Received:	09/16/20	Project:	1940904, F&BI 009292
Date Extracted:	09/22/20	Lab ID:	009292-02
Date Analyzed:	09/22/20	Data File:	009292-02.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.66
Cadmium	<1
Chromium	1.52
Lead	<1
Mercury	<1

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009292
Date Extracted:	09/22/20	Lab ID:	I0-562 mb
Date Analyzed:	09/22/20	Data File:	I0-562 mb.089
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

## Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: HMW-14D  
 Date Received: 09/16/20  
 Date Extracted: 09/22/20  
 Date Analyzed: 09/22/20  
 Matrix: Water  
 Units: ug/L (ppb)

Client: Hart Crowser  
 Project: 1940904, F&BI 009292  
 Lab ID: 009292-01  
 Data File: 092216.D  
 Instrument: GCMS13  
 Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

## Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: HMW-151B  
 Date Received: 09/16/20  
 Date Extracted: 09/22/20  
 Date Analyzed: 09/22/20  
 Matrix: Water  
 Units: ug/L (ppb)

Client: Hart Crowser  
 Project: 1940904, F&BI 009292  
 Lab ID: 009292-02  
 Data File: 092217.D  
 Instrument: GCMS13  
 Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	117	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

## Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: Trip Blank 9-16-2020	Client: Hart Crowser
Date Received: 09/16/20	Project: 1940904, F&BI 009292
Date Extracted: 09/23/20	Lab ID: 009292-03
Date Analyzed: 09/23/20	Data File: 092305.D
Matrix: Water	Instrument: GCMS13
Units: ug/L (ppb)	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

## Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: Method Blank	Client: Hart Crowser
Date Received: Not Applicable	Project: 1940904, F&BI 009292
Date Extracted: 09/22/20	Lab ID: 00-2109 mb
Date Analyzed: 09/23/20	Data File: 092227.D
Matrix: Water	Instrument: GCMS13
Units: ug/L (ppb)	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

## Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: HMW-14D	Client: Hart Crowser
Date Received: 09/16/20	Project: 1940904, F&BI 009292
Date Extracted: 09/17/20	Lab ID: 009292-01 1/2
Date Analyzed: 09/17/20	Data File: 091711.D
Matrix: Water	Instrument: GCMS8
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	38	15	99
Phenol-d6	28	11	65
Nitrobenzene-d5	78	10	145
2-Fluorobiphenyl	75	16	138
2,4,6-Tribromophenol	70	12	132
Terphenyl-d14	95	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

## Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: HMW-151B	Client: Hart Crowser
Date Received: 09/16/20	Project: 1940904, F&BI 009292
Date Extracted: 09/17/20	Lab ID: 009292-02 1/2
Date Analyzed: 09/17/20	Data File: 091712.D
Matrix: Water	Instrument: GCMS8
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	32	15	99
Phenol-d6	24	11	65
Nitrobenzene-d5	65	10	145
2-Fluorobiphenyl	70	16	138
2,4,6-Tribromophenol	77	12	132
Terphenyl-d14	96	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

## Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009292
Date Extracted:	09/17/20	Lab ID:	00-2086 mb4
Date Analyzed:	09/17/20	Data File:	091710.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	22	15	99
Phenol-d6	16	11	65
Nitrobenzene-d5	81	10	145
2-Fluorobiphenyl	89	16	138
2,4,6-Tribromophenol	64	12	132
Terphenyl-d14	107	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
 SAMPLES FOR TPH AS GASOLINE  
 USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009251-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	370	340	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	109	69-134

Date of Report: 09/28/20  
Date Received: 09/16/20  
Project: 1940904, F&BI 009292

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

<u>Analyte</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Percent Recovery LCS</u>	<u>Percent Recovery LCSD</u>	<u>Acceptance Criteria</u>	<u>RPD (Limit 20)</u>
Diesel Extended	ug/L (ppb)	2,500	100	112	63-142	11

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	5.91	96	96	75-125	0
Cadmium	ug/L (ppb)	5	<1	98	99	75-125	1
Chromium	ug/L (ppb)	20	1.34	103	104	75-125	1
Lead	ug/L (ppb)	10	<1	100	99	75-125	1
Mercury	ug/L (ppb)	5	<1	98	100	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	99	80-120
Cadmium	ug/L (ppb)	5	105	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

**QUALITY ASSURANCE RESULTS  
 FOR THE ANALYSIS OF WATER SAMPLES  
 FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 009292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	6.05	103	98	75-125	5
Cadmium	ug/L (ppb)	5	<1	101	98	75-125	3
Chromium	ug/L (ppb)	20	<1	102	105	75-125	3
Lead	ug/L (ppb)	10	<1	100	100	75-125	0
Mercury	ug/L (ppb)	5	<1	97	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	103	80-120
Mercury	ug/L (ppb)	5	100	80-120

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

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

Laboratory Code: 009346-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	76	50-150
Chloromethane	ug/L (ppb)	10	<2	70	50-150
Vinyl chloride	ug/L (ppb)	10	15	66 b	50-150
Bromomethane	ug/L (ppb)	10	<5	73	50-150
Chloroethane	ug/L (ppb)	10	<0.2	78	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<0.2	65	50-150
Acetone	ug/L (ppb)	50	<50	51	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<0.2	70	50-150
Hexane	ug/L (ppb)	10	<5	59	50-150
Methylene chloride	ug/L (ppb)	10	<5	82	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	71	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<0.2	69	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<0.2	78	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<0.2	90	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	3.3	84 b	50-150
Chloroform	ug/L (ppb)	10	<0.2	72	50-150
2-Butanone (MEK)	ug/L (ppb)	50	25	77 b	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	70	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<0.2	72	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<0.2	73	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.2	66	50-150
Benzene	ug/L (ppb)	10	<0.2	71	50-150
Trichloroethene	ug/L (ppb)	10	<0.2	61	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<0.2	72	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.2	88	50-150
Dibromomethane	ug/L (ppb)	10	<1	69	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	74	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	69	50-150
Toluene	ug/L (ppb)	10	<0.2	61	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	64	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.2	70	50-150
2-Hexanone	ug/L (ppb)	50	<10	72	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<0.2	76	50-150
Tetrachloroethene	ug/L (ppb)	10	<0.2	55	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	70	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	72	50-150
Chlorobenzene	ug/L (ppb)	10	<0.2	65	50-150
Ethylbenzene	ug/L (ppb)	10	<0.2	64	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	66	50-150
m,p-Xylene	ug/L (ppb)	20	<0.4	62	50-150
o-Xylene	ug/L (ppb)	10	<0.2	65	50-150
Styrene	ug/L (ppb)	10	<1	65	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	63	50-150
Bromoform	ug/L (ppb)	10	<5	67	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	56	50-150
Bromobenzene	ug/L (ppb)	10	<1	62	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	58	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	67	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<0.08	66	50-150
2-Chlorotoluene	ug/L (ppb)	10	<0.2	64	50-150
4-Chlorotoluene	ug/L (ppb)	10	<0.2	62	50-150
tert-Butylbenzene	ug/L (ppb)	10	<0.2	60	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<0.2	58	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	54	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	55	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<0.2	62	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<0.2	58	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<0.2	63	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<3	77	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	56	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.2	49 vo	50-150
Naphthalene	ug/L (ppb)	10	<1	63	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<0.2	54	50-150

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	114	108	70-130	5
Chloromethane	ug/L (ppb)	10	98	95	70-130	3
Vinyl chloride	ug/L (ppb)	10	109	107	70-130	2
Bromomethane	ug/L (ppb)	10	115	109	70-130	5
Chloroethane	ug/L (ppb)	10	111	106	70-130	5
Trichlorofluoromethane	ug/L (ppb)	10	105	99	70-130	6
Acetone	ug/L (ppb)	50	90	82	64-131	9
1,1-Dichloroethene	ug/L (ppb)	10	101	101	70-130	0
Hexane	ug/L (ppb)	10	112	102	70-130	9
Methylene chloride	ug/L (ppb)	10	135	104	29-192	26 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	93	93	70-130	0
trans-1,2-Dichloroethene	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloroethane	ug/L (ppb)	10	99	99	70-130	0
2,2-Dichloropropane	ug/L (ppb)	10	124	117	70-130	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	94	94	70-130	0
Chloroform	ug/L (ppb)	10	94	91	70-130	3
2-Butanone (MEK)	ug/L (ppb)	50	108	93	70-130	15
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	96	93	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloropropene	ug/L (ppb)	10	103	108	70-130	5
Carbon tetrachloride	ug/L (ppb)	10	102	97	70-130	5
Benzene	ug/L (ppb)	10	97	97	70-130	0
Trichloroethene	ug/L (ppb)	10	90	90	70-130	0
1,2-Dichloropropane	ug/L (ppb)	10	103	102	70-130	1
Bromodichloromethane	ug/L (ppb)	10	126	121	70-130	4
Dibromomethane	ug/L (ppb)	10	100	104	70-130	4
4-Methyl-2-pentanone	ug/L (ppb)	50	106	112	70-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	106	103	70-130	3
Toluene	ug/L (ppb)	10	89	87	70-130	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	102	98	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	94	92	70-130	2
2-Hexanone	ug/L (ppb)	50	96	96	70-130	0
1,3-Dichloropropane	ug/L (ppb)	10	99	96	70-130	3
Tetrachloroethene	ug/L (ppb)	10	91	89	70-130	2
Dibromochloromethane	ug/L (ppb)	10	102	86	70-130	17
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	95	70-130	8
Chlorobenzene	ug/L (ppb)	10	95	92	70-130	3
Ethylbenzene	ug/L (ppb)	10	96	90	70-130	6
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	89	87	70-130	2
m,p-Xylene	ug/L (ppb)	20	96	88	70-130	9
o-Xylene	ug/L (ppb)	10	97	88	70-130	10
Styrene	ug/L (ppb)	10	96	87	70-130	10
Isopropylbenzene	ug/L (ppb)	10	98	88	70-130	11
Bromoform	ug/L (ppb)	10	112	88	63-206	24 vo
n-Propylbenzene	ug/L (ppb)	10	95	90	70-130	5
Bromobenzene	ug/L (ppb)	10	94	96	70-130	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	94	91	70-130	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	98	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	91	97	70-130	6
2-Chlorotoluene	ug/L (ppb)	10	98	96	70-130	2
4-Chlorotoluene	ug/L (ppb)	10	103	96	70-130	7
tert-Butylbenzene	ug/L (ppb)	10	98	93	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	96	92	70-130	4
sec-Butylbenzene	ug/L (ppb)	10	97	92	70-130	5
p-Isopropyltoluene	ug/L (ppb)	10	98	91	70-130	7
1,3-Dichlorobenzene	ug/L (ppb)	10	103	100	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	100	94	70-130	6
1,2-Dichlorobenzene	ug/L (ppb)	10	98	96	70-130	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	110	105	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	103	93	70-130	10
Hexachlorobutadiene	ug/L (ppb)	10	97	96	70-130	1
Naphthalene	ug/L (ppb)	10	98	89	70-130	10
1,2,3-Trichlorobenzene	ug/L (ppb)	10	94	89	70-130	5

Date of Report: 09/28/20  
 Date Received: 09/16/20  
 Project: 1940904, F&BI 009292

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
 SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	74	81	70-130	9
2-Methylnaphthalene	ug/L (ppb)	5	76	84	70-130	10
1-Methylnaphthalene	ug/L (ppb)	5	77	84	70-130	9
Acenaphthylene	ug/L (ppb)	5	90	96	70-130	6
Acenaphthene	ug/L (ppb)	5	83	89	70-130	7
Fluorene	ug/L (ppb)	5	91	97	70-130	6
Phenanthrene	ug/L (ppb)	5	94	94	70-130	0
Anthracene	ug/L (ppb)	5	96	98	70-130	2
Fluoranthene	ug/L (ppb)	5	103	104	70-130	1
Pyrene	ug/L (ppb)	5	101	101	70-130	0
Benz(a)anthracene	ug/L (ppb)	5	95	98	70-130	3
Chrysene	ug/L (ppb)	5	95	98	70-130	3
Benzo(a)pyrene	ug/L (ppb)	5	103	105	70-130	2
Benzo(b)fluoranthene	ug/L (ppb)	5	100	106	70-130	6
Benzo(k)fluoranthene	ug/L (ppb)	5	102	104	70-130	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	101	105	70-130	4
Dibenz(a,h)anthracene	ug/L (ppb)	5	98	98	70-130	0
Benzo(g,h,i)perylene	ug/L (ppb)	5	96	100	70-130	4

## Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The analyte 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 due to sample matrix effects.
- 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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Yelena Aravkina, M.S.  
Michael Erdahl, B.S.  
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September 28, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 17, 2020 from the 1940904, F&BI 009314 project. There are 28 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0928R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 17, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 009314 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009314 -01	HMW-17S
009314 -02	HMW-16IB
009314 -03	HMW-18S
009314 -04	Trip Blank 9-17-2020
009314 -05	HMW-19S

The 8260D calibration standard failed the acceptance criteria for acetone and 2-butanone (MEK). The data were flagged accordingly.

Hexachlorobutadiene in the 8260D matrix spike sample failed below the acceptance criteria. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect. In addition, the laboratory control sample and laboratory control sample duplicate failed the relative percent difference for methylene chloride and bromoform. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/17/20  
Project: 1940904, F&BI 009314  
Date Extracted: 09/18/20  
Date Analyzed: 09/21/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-17S 009314-01	<100	92
HMW-18S 009314-03	<100	96
HMW-19S 009314-05	170	96
Method Blank 00-2008 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/17/20  
Project: 1940904, F&BI 009314  
Date Extracted: 09/18/20  
Date Analyzed: 09/18/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-17S 009314-01	<50	<250	99
HMW-16IB 009314-02	210 x	<250	119
HMW-18S 009314-03	<50	<250	98
HMW-19S 009314-05	<50	<250	106
Method Blank 00-2096 MB	<50	<250	117

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-17S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/23/20	Lab ID:	009314-01
Date Analyzed:	09/23/20	Data File:	009314-01.118
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.32
Cadmium	<1
Chromium	2.12
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-18S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/23/20	Lab ID:	009314-03
Date Analyzed:	09/23/20	Data File:	009314-03.119
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.50
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-19S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/23/20	Lab ID:	009314-05
Date Analyzed:	09/23/20	Data File:	009314-05.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.97
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009314
Date Extracted:	09/23/20	Lab ID:	I0-562 mb2
Date Analyzed:	09/23/20	Data File:	I0-562 mb2.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-17S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-01
Date Analyzed:	09/22/20	Data File:	009314-01.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.57
Cadmium	<1
Chromium	5.45
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-18S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-03
Date Analyzed:	09/22/20	Data File:	009314-03.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.58
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-19S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-05
Date Analyzed:	09/22/20	Data File:	009314-05.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.87
Cadmium	<1
Chromium	1.73
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	I0-557 mb
Date Analyzed:	09/21/20	Data File:	I0-557 mb.066
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-17S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-01 1/2
Date Analyzed:	09/21/20	Data File:	092114.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	15	99
Phenol-d6	25	11	65
Nitrobenzene-d5	85	10	145
2-Fluorobiphenyl	87	16	138
2,4,6-Tribromophenol	57	12	132
Terphenyl-d14	104	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-18S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-03 1/2
Date Analyzed:	09/21/20	Data File:	092115.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41	15	99
Phenol-d6	28	11	65
Nitrobenzene-d5	87	10	145
2-Fluorobiphenyl	89	16	138
2,4,6-Tribromophenol	76	12	132
Terphenyl-d14	106	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-19S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	009314-05 1/2
Date Analyzed:	09/21/20	Data File:	092116.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	31	15	99
Phenol-d6	24	11	65
Nitrobenzene-d5	84	10	145
2-Fluorobiphenyl	90	16	138
2,4,6-Tribromophenol	56	12	132
Terphenyl-d14	108	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009314
Date Extracted:	09/21/20	Lab ID:	00-2118 mb
Date Analyzed:	09/21/20	Data File:	092108.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	23	15	99
Phenol-d6	14	11	65
Nitrobenzene-d5	87	10	145
2-Fluorobiphenyl	90	16	138
2,4,6-Tribromophenol	65	12	132
Terphenyl-d14	105	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-17S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/22/20	Lab ID:	009314-01
Date Analyzed:	09/22/20	Data File:	092218.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-18S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/22/20	Lab ID:	009314-03
Date Analyzed:	09/22/20	Data File:	092219.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	110	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 9-17-2020	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/22/20	Lab ID:	009314-04
Date Analyzed:	09/22/20	Data File:	092214.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-19S	Client:	Hart Crowser
Date Received:	09/17/20	Project:	1940904, F&BI 009314
Date Extracted:	09/22/20	Lab ID:	009314-05
Date Analyzed:	09/22/20	Data File:	092220.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	0.76
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	1.8
Hexane	<5	o-Xylene	0.77
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	0.65
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009314
Date Extracted:	09/22/20	Lab ID:	00-2109 mb
Date Analyzed:	09/23/20	Data File:	092227.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009251-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	370	340	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	109	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	104	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 009292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	6.05	103	98	75-125	5
Cadmium	ug/L (ppb)	5	<1	101	98	75-125	3
Chromium	ug/L (ppb)	20	<1	102	105	75-125	3
Lead	ug/L (ppb)	10	<1	100	100	75-125	0
Mercury	ug/L (ppb)	5	<1	97	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	103	80-120
Mercury	ug/L (ppb)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	5.91	96	96	75-125	0
Cadmium	ug/L (ppb)	5	<1	98	99	75-125	1
Chromium	ug/L (ppb)	20	1.34	103	104	75-125	1
Lead	ug/L (ppb)	10	<1	100	99	75-125	1
Mercury	ug/L (ppb)	5	<1	98	100	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	99	80-120
Cadmium	ug/L (ppb)	5	105	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	95	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	82	84	56-100	2
2-Methylnaphthalene	ug/L (ppb)	5	83	82	60-104	1
1-Methylnaphthalene	ug/L (ppb)	5	83	82	60-104	1
Acenaphthylene	ug/L (ppb)	5	93	90	70-130	3
Acenaphthene	ug/L (ppb)	5	90	88	65-122	2
Fluorene	ug/L (ppb)	5	89	86	70-130	3
Phenanthrene	ug/L (ppb)	5	96	95	70-130	1
Anthracene	ug/L (ppb)	5	94	94	70-130	0
Fluoranthene	ug/L (ppb)	5	99	96	70-130	3
Pyrene	ug/L (ppb)	5	96	101	70-130	5
Benz(a)anthracene	ug/L (ppb)	5	93	92	70-130	1
Chrysene	ug/L (ppb)	5	94	94	70-130	0
Benzo(a)pyrene	ug/L (ppb)	5	98	99	70-130	1
Benzo(b)fluoranthene	ug/L (ppb)	5	100	102	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	101	104	70-130	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	91	84	57-141	8
Dibenz(a,h)anthracene	ug/L (ppb)	5	92	86	57-137	7
Benzo(g,h,i)perylene	ug/L (ppb)	5	91	84	50-143	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

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

Laboratory Code: 009346-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	76	50-150
Chloromethane	ug/L (ppb)	10	<2	70	50-150
Vinyl chloride	ug/L (ppb)	10	15	66 b	50-150
Bromomethane	ug/L (ppb)	10	<5	73	50-150
Chloroethane	ug/L (ppb)	10	<0.2	78	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<0.2	65	50-150
Acetone	ug/L (ppb)	50	<50	51	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<0.2	70	50-150
Hexane	ug/L (ppb)	10	<5	59	50-150
Methylene chloride	ug/L (ppb)	10	<5	82	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	71	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<0.2	69	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<0.2	78	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<0.2	90	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	3.3	84 b	50-150
Chloroform	ug/L (ppb)	10	<0.2	72	50-150
2-Butanone (MEK)	ug/L (ppb)	50	25	77 b	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	70	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<0.2	72	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<0.2	73	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.2	66	50-150
Benzene	ug/L (ppb)	10	<0.2	71	50-150
Trichloroethene	ug/L (ppb)	10	<0.2	61	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<0.2	72	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.2	88	50-150
Dibromomethane	ug/L (ppb)	10	<1	69	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	74	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	69	50-150
Toluene	ug/L (ppb)	10	<0.2	61	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	64	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.2	70	50-150
2-Hexanone	ug/L (ppb)	50	<10	72	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<0.2	76	50-150
Tetrachloroethene	ug/L (ppb)	10	<0.2	55	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	70	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	72	50-150
Chlorobenzene	ug/L (ppb)	10	<0.2	65	50-150
Ethylbenzene	ug/L (ppb)	10	<0.2	64	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	66	50-150
m,p-Xylene	ug/L (ppb)	20	<0.4	62	50-150
o-Xylene	ug/L (ppb)	10	<0.2	65	50-150
Styrene	ug/L (ppb)	10	<1	65	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	63	50-150
Bromoform	ug/L (ppb)	10	<5	67	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	56	50-150
Bromobenzene	ug/L (ppb)	10	<1	62	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	58	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	67	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<0.08	66	50-150
2-Chlorotoluene	ug/L (ppb)	10	<0.2	64	50-150
4-Chlorotoluene	ug/L (ppb)	10	<0.2	62	50-150
tert-Butylbenzene	ug/L (ppb)	10	<0.2	60	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<0.2	58	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	54	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	55	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<0.2	62	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<0.2	58	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<0.2	63	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<3	77	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	56	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.2	49 vo	50-150
Naphthalene	ug/L (ppb)	10	<1	63	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<0.2	54	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/17/20

Project: 1940904, F&BI 009314

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS/D	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	114	108	70-130	5
Chloromethane	ug/L (ppb)	10	98	95	70-130	3
Vinyl chloride	ug/L (ppb)	10	109	107	70-130	2
Bromomethane	ug/L (ppb)	10	115	109	70-130	5
Chloroethane	ug/L (ppb)	10	111	106	70-130	5
Trichlorofluoromethane	ug/L (ppb)	10	105	99	70-130	6
Acetone	ug/L (ppb)	50	90	82	64-131	9
1,1-Dichloroethene	ug/L (ppb)	10	101	101	70-130	0
Hexane	ug/L (ppb)	10	112	102	70-130	9
Methylene chloride	ug/L (ppb)	10	135	104	29-192	26 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	93	93	70-130	0
trans-1,2-Dichloroethene	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloroethane	ug/L (ppb)	10	99	99	70-130	0
2,2-Dichloropropane	ug/L (ppb)	10	124	117	70-130	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	94	94	70-130	0
Chloroform	ug/L (ppb)	10	94	91	70-130	3
2-Butanone (MEK)	ug/L (ppb)	50	108	93	70-130	15
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	96	93	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloropropene	ug/L (ppb)	10	103	108	70-130	5
Carbon tetrachloride	ug/L (ppb)	10	102	97	70-130	5
Benzene	ug/L (ppb)	10	97	97	70-130	0
Trichloroethene	ug/L (ppb)	10	90	90	70-130	0
1,2-Dichloropropane	ug/L (ppb)	10	103	102	70-130	1
Bromodichloromethane	ug/L (ppb)	10	126	121	70-130	4
Dibromomethane	ug/L (ppb)	10	100	104	70-130	4
4-Methyl-2-pentanone	ug/L (ppb)	50	106	112	70-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	106	103	70-130	3
Toluene	ug/L (ppb)	10	89	87	70-130	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	102	98	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	94	92	70-130	2
2-Hexanone	ug/L (ppb)	50	96	96	70-130	0
1,3-Dichloropropane	ug/L (ppb)	10	99	96	70-130	3
Tetrachloroethene	ug/L (ppb)	10	91	89	70-130	2
Dibromochloromethane	ug/L (ppb)	10	102	86	70-130	17
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	95	70-130	8
Chlorobenzene	ug/L (ppb)	10	95	92	70-130	3
Ethylbenzene	ug/L (ppb)	10	96	90	70-130	6
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	89	87	70-130	2
m,p-Xylene	ug/L (ppb)	20	96	88	70-130	9
o-Xylene	ug/L (ppb)	10	97	88	70-130	10
Styrene	ug/L (ppb)	10	96	87	70-130	10
Isopropylbenzene	ug/L (ppb)	10	98	88	70-130	11
Bromoform	ug/L (ppb)	10	112	88	63-206	24 vo
n-Propylbenzene	ug/L (ppb)	10	95	90	70-130	5
Bromobenzene	ug/L (ppb)	10	94	96	70-130	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	94	91	70-130	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	98	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	91	97	70-130	6
2-Chlorotoluene	ug/L (ppb)	10	98	96	70-130	2
4-Chlorotoluene	ug/L (ppb)	10	103	96	70-130	7
tert-Butylbenzene	ug/L (ppb)	10	98	93	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	96	92	70-130	4
sec-Butylbenzene	ug/L (ppb)	10	97	92	70-130	5
p-Isopropyltoluene	ug/L (ppb)	10	98	91	70-130	7
1,3-Dichlorobenzene	ug/L (ppb)	10	103	100	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	100	94	70-130	6
1,2-Dichlorobenzene	ug/L (ppb)	10	98	96	70-130	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	110	105	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	103	93	70-130	10
Hexachlorobutadiene	ug/L (ppb)	10	97	96	70-130	1
Naphthalene	ug/L (ppb)	10	98	89	70-130	10
1,2,3-Trichlorobenzene	ug/L (ppb)	10	94	89	70-130	5

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

009314  
 MARL OBERL / B. DOZIER

SAMPLE CHAIN OF CUSTODY <sup>M/L</sup>

09-17-20

v51/A12/  
 B03

Report To \_\_\_\_\_

Company HART CREWSEK

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Email MARL.OBERL@HARTCREWSEK.COM

Project specific RLS? - Yes / No SECT. 001616@HARTCREWSEK.COM

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME 1940904

PO # \_\_\_\_\_

REMARKS \_\_\_\_\_

INVOICE TO \_\_\_\_\_

Page # 1 of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOTAL METALS	DISSOLVED METALS		
HMW-175	01A-5	9/17/2020	0832	WATER	10	X	X			X	X	X	X			
HMW-16IB	02	9/17/2020	1040	WATER	1	X										
HMW-185	03A-5	9/17/2020	1317	WATER	10	X	X			X	X	X	X			
TRIP BANK 9-17-2020	04A-B	9/17/2020			2					X						
HMW-195	05A-5	9/17/2020	1440	WATER	10	X	X			X	X	X	X			

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Requested by: <u>[Signature]</u>	<u>Blair Dyer</u>	<u>Blair Dyer</u>	<u>Blair Dyer</u>	<u>HART CREWSEK</u>	<u>HART CREWSEK</u>	9/17/2020	1541
Requested by: <u>[Signature]</u>	<u>Eric [Signature]</u>	<u>Eric [Signature]</u>	<u>Eric [Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	9/17/20	1541
Received by: _____							

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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September 28, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 18, 2020 from the 1940904, F&BI 009346 project. There are 29 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0928R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 18, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 009346 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009346 -01	HMW-16IB
009346 -02	HMW-20IA
009346 -03	HMW-20S
009346 -04	Trip Blank 9-18-2020

The 8260D calibration standard failed the acceptance criteria for acetone and 2-butanone (MEK). The data were flagged accordingly.

Hexachlorobutadiene in the 8260D matrix spike sample failed below the acceptance criteria. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect. In addition, the laboratory control sample and laboratory control sample duplicate failed the relative percent difference for methylene chloride and bromoform. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/18/20  
Project: 1940904, F&BI 009346  
Date Extracted: 09/22/20  
Date Analyzed: 09/22/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
HMW-16IB 009346-01	<100	95
HMW-20IA 009346-02	<100	95
HMW-20S 009346-03	<100	94
Method Blank 00-2011 MB	<100	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/18/20  
Project: 1940904, F&BI 009346  
Date Extracted: 09/21/20  
Date Analyzed: 09/21/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-20IA 009346-02	<50	<250	112
HMW-20S 009346-03	<50	<250	73
Method Blank 00-2115 MB	<50	<250	108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-16IB	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-01
Date Analyzed:	09/23/20	Data File:	009346-01.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.23
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-20IA	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-02
Date Analyzed:	09/23/20	Data File:	009346-02.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.39
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	HMW-20S	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-03
Date Analyzed:	09/23/20	Data File:	009346-03.123
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.03
Cadmium	<1
Chromium	4.26
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	I0-562 mb2
Date Analyzed:	09/23/20	Data File:	I0-562 mb2.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-16IB	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-01
Date Analyzed:	09/23/20	Data File:	009346-01.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.21
Cadmium	<1
Chromium	8.12
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20IA	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-02
Date Analyzed:	09/23/20	Data File:	009346-02.058
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.40
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	HMW-20S	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-03
Date Analyzed:	09/23/20	Data File:	009346-03.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.04
Cadmium	<1
Chromium	4.99
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	I0-564 mb
Date Analyzed:	09/23/20	Data File:	I0-564 mb.048
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-16IB	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/21/20	Lab ID:	009346-01 1/2
Date Analyzed:	09/22/20	Data File:	092117.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	15	99
Phenol-d6	26	11	65
Nitrobenzene-d5	84	10	145
2-Fluorobiphenyl	87	16	138
2,4,6-Tribromophenol	67	12	132
Terphenyl-d14	98	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20IA	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/21/20	Lab ID:	009346-02 1/2
Date Analyzed:	09/22/20	Data File:	092118.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	25	15	99
Phenol-d6	24	11	65
Nitrobenzene-d5	83	10	145
2-Fluorobiphenyl	87	16	138
2,4,6-Tribromophenol	46	12	132
Terphenyl-d14	97	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HMW-20S	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/21/20	Lab ID:	009346-03 1/2
Date Analyzed:	09/22/20	Data File:	092119.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	45	15	99
Phenol-d6	31	11	65
Nitrobenzene-d5	82	10	145
2-Fluorobiphenyl	88	16	138
2,4,6-Tribromophenol	79	12	132
Terphenyl-d14	109	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009346
Date Extracted:	09/21/20	Lab ID:	00-2118 mb
Date Analyzed:	09/21/20	Data File:	092108.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	23	15	99
Phenol-d6	14	11	65
Nitrobenzene-d5	87	10	145
2-Fluorobiphenyl	90	16	138
2,4,6-Tribromophenol	65	12	132
Terphenyl-d14	105	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-16IB	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/22/20	Lab ID:	009346-01
Date Analyzed:	09/22/20	Data File:	092221.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	15	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	3.3	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	25 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-20IA	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/22/20	Lab ID:	009346-02
Date Analyzed:	09/22/20	Data File:	092222.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	5.5
Vinyl chloride	480 ve	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	2.5	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	2.5	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	780 ve	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	18	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-20IA	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-02 1/20
Date Analyzed:	09/23/20	Data File:	092312.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<20	1,3-Dichloropropane	<4
Chloromethane	<40	Tetrachloroethene	6.4
Vinyl chloride	520	Dibromochloromethane	<10
Bromomethane	<100	1,2-Dibromoethane (EDB)	<20
Chloroethane	<4	Chlorobenzene	<4
Trichlorofluoromethane	<4	Ethylbenzene	<4
Acetone	<1,000 ca	1,1,1,2-Tetrachloroethane	<4
1,1-Dichloroethene	<4	m,p-Xylene	<8
Hexane	<100	o-Xylene	<4
Methylene chloride	<100	Styrene	<20
Methyl t-butyl ether (MTBE)	<20	Isopropylbenzene	<20
trans-1,2-Dichloroethene	<4	Bromoform	<100
1,1-Dichloroethane	<4	n-Propylbenzene	<20
2,2-Dichloropropane	<4	Bromobenzene	<20
cis-1,2-Dichloroethene	840	1,3,5-Trimethylbenzene	<20
Chloroform	<4	1,1,2,2-Tetrachloroethane	<4
2-Butanone (MEK)	<400 ca	1,2,3-Trichloropropane	<1.6 j
1,2-Dichloroethane (EDC)	<20	2-Chlorotoluene	<4
1,1,1-Trichloroethane	<4	4-Chlorotoluene	<4
1,1-Dichloropropene	<4	tert-Butylbenzene	<4
Carbon tetrachloride	<4	1,2,4-Trimethylbenzene	<4
Benzene	<4	sec-Butylbenzene	<20
Trichloroethene	18	p-Isopropyltoluene	<20
1,2-Dichloropropane	<4	1,3-Dichlorobenzene	<4
Bromodichloromethane	<4	1,4-Dichlorobenzene	<4
Dibromomethane	<20	1,2-Dichlorobenzene	<4
4-Methyl-2-pentanone	<200	1,2-Dibromo-3-chloropropane	<60 j
cis-1,3-Dichloropropene	<20	1,2,4-Trichlorobenzene	<20
Toluene	<4	Hexachlorobutadiene	<4
trans-1,3-Dichloropropene	<20	Naphthalene	<20
1,1,2-Trichloroethane	<4	1,2,3-Trichlorobenzene	<4
2-Hexanone	<200		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	HMW-20S	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/23/20	Lab ID:	009346-03
Date Analyzed:	09/23/20	Data File:	092306.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	4.7
Vinyl chloride	0.99	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	1.4	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	0.38	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank 9-18-2020	Client:	Hart Crowser
Date Received:	09/18/20	Project:	1940904, F&BI 009346
Date Extracted:	09/22/20	Lab ID:	009346-04
Date Analyzed:	09/22/20	Data File:	092215.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009346
Date Extracted:	09/22/20	Lab ID:	00-2109 mb
Date Analyzed:	09/23/20	Data File:	092227.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20 ca	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3 j
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 009359-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	114	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	116	63-142	15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 009292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	6.05	103	98	75-125	5
Cadmium	ug/L (ppb)	5	<1	101	98	75-125	3
Chromium	ug/L (ppb)	20	<1	102	105	75-125	3
Lead	ug/L (ppb)	10	<1	100	100	75-125	0
Mercury	ug/L (ppb)	5	<1	97	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	99	80-120
Chromium	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	103	80-120
Mercury	ug/L (ppb)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009346-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	4.40	96	98	75-125	2
Cadmium	ug/L (ppb)	5	<1	99	100	75-125	1
Chromium	ug/L (ppb)	20	<1	102	101	75-125	1
Lead	ug/L (ppb)	10	<1	86	86	75-125	0
Mercury	ug/L (ppb)	5	<1	88	88	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	93	80-120
Cadmium	ug/L (ppb)	5	100	80-120
Chromium	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	88	80-120
Mercury	ug/L (ppb)	5	90	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	82	84	56-100	2
2-Methylnaphthalene	ug/L (ppb)	5	83	82	60-104	1
1-Methylnaphthalene	ug/L (ppb)	5	83	82	60-104	1
Acenaphthylene	ug/L (ppb)	5	93	90	70-130	3
Acenaphthene	ug/L (ppb)	5	90	88	65-122	2
Fluorene	ug/L (ppb)	5	89	86	70-130	3
Phenanthrene	ug/L (ppb)	5	96	95	70-130	1
Anthracene	ug/L (ppb)	5	94	94	70-130	0
Fluoranthene	ug/L (ppb)	5	99	96	70-130	3
Pyrene	ug/L (ppb)	5	96	101	70-130	5
Benz(a)anthracene	ug/L (ppb)	5	93	92	70-130	1
Chrysene	ug/L (ppb)	5	94	94	70-130	0
Benzo(a)pyrene	ug/L (ppb)	5	98	99	70-130	1
Benzo(b)fluoranthene	ug/L (ppb)	5	100	102	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	101	104	70-130	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	91	84	57-141	8
Dibenz(a,h)anthracene	ug/L (ppb)	5	92	86	57-137	7
Benzo(g,h,i)perylene	ug/L (ppb)	5	91	84	50-143	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

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

Laboratory Code: 009346-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	76	50-150
Chloromethane	ug/L (ppb)	10	<2	70	50-150
Vinyl chloride	ug/L (ppb)	10	15	66 b	50-150
Bromomethane	ug/L (ppb)	10	<5	73	50-150
Chloroethane	ug/L (ppb)	10	<0.2	78	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<0.2	65	50-150
Acetone	ug/L (ppb)	50	<50	51	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<0.2	70	50-150
Hexane	ug/L (ppb)	10	<5	59	50-150
Methylene chloride	ug/L (ppb)	10	<5	82	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	71	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<0.2	69	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<0.2	78	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<0.2	90	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	3.3	84 b	50-150
Chloroform	ug/L (ppb)	10	<0.2	72	50-150
2-Butanone (MEK)	ug/L (ppb)	50	25	77 b	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	70	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<0.2	72	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<0.2	73	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.2	66	50-150
Benzene	ug/L (ppb)	10	<0.2	71	50-150
Trichloroethene	ug/L (ppb)	10	<0.2	61	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<0.2	72	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.2	88	50-150
Dibromomethane	ug/L (ppb)	10	<1	69	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	74	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	69	50-150
Toluene	ug/L (ppb)	10	<0.2	61	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	64	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.2	70	50-150
2-Hexanone	ug/L (ppb)	50	<10	72	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<0.2	76	50-150
Tetrachloroethene	ug/L (ppb)	10	<0.2	55	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	70	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	72	50-150
Chlorobenzene	ug/L (ppb)	10	<0.2	65	50-150
Ethylbenzene	ug/L (ppb)	10	<0.2	64	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	66	50-150
m,p-Xylene	ug/L (ppb)	20	<0.4	62	50-150
o-Xylene	ug/L (ppb)	10	<0.2	65	50-150
Styrene	ug/L (ppb)	10	<1	65	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	63	50-150
Bromoform	ug/L (ppb)	10	<5	67	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	56	50-150
Bromobenzene	ug/L (ppb)	10	<1	62	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	58	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	67	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<0.08	66	50-150
2-Chlorotoluene	ug/L (ppb)	10	<0.2	64	50-150
4-Chlorotoluene	ug/L (ppb)	10	<0.2	62	50-150
tert-Butylbenzene	ug/L (ppb)	10	<0.2	60	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<0.2	58	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	54	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	55	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<0.2	62	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<0.2	58	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<0.2	63	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<3	77	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	56	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.2	49 vo	50-150
Naphthalene	ug/L (ppb)	10	<1	63	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<0.2	54	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/18/20

Project: 1940904, F&BI 009346

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	114	108	70-130	5
Chloromethane	ug/L (ppb)	10	98	95	70-130	3
Vinyl chloride	ug/L (ppb)	10	109	107	70-130	2
Bromomethane	ug/L (ppb)	10	115	109	70-130	5
Chloroethane	ug/L (ppb)	10	111	106	70-130	5
Trichlorofluoromethane	ug/L (ppb)	10	105	99	70-130	6
Acetone	ug/L (ppb)	50	90	82	64-131	9
1,1-Dichloroethene	ug/L (ppb)	10	101	101	70-130	0
Hexane	ug/L (ppb)	10	112	102	70-130	9
Methylene chloride	ug/L (ppb)	10	135	104	29-192	26 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	93	93	70-130	0
trans-1,2-Dichloroethene	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloroethane	ug/L (ppb)	10	99	99	70-130	0
2,2-Dichloropropane	ug/L (ppb)	10	124	117	70-130	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	94	94	70-130	0
Chloroform	ug/L (ppb)	10	94	91	70-130	3
2-Butanone (MEK)	ug/L (ppb)	50	108	93	70-130	15
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	96	93	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	99	99	70-130	0
1,1-Dichloropropene	ug/L (ppb)	10	103	108	70-130	5
Carbon tetrachloride	ug/L (ppb)	10	102	97	70-130	5
Benzene	ug/L (ppb)	10	97	97	70-130	0
Trichloroethene	ug/L (ppb)	10	90	90	70-130	0
1,2-Dichloropropane	ug/L (ppb)	10	103	102	70-130	1
Bromodichloromethane	ug/L (ppb)	10	126	121	70-130	4
Dibromomethane	ug/L (ppb)	10	100	104	70-130	4
4-Methyl-2-pentanone	ug/L (ppb)	50	106	112	70-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	106	103	70-130	3
Toluene	ug/L (ppb)	10	89	87	70-130	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	102	98	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	94	92	70-130	2
2-Hexanone	ug/L (ppb)	50	96	96	70-130	0
1,3-Dichloropropane	ug/L (ppb)	10	99	96	70-130	3
Tetrachloroethene	ug/L (ppb)	10	91	89	70-130	2
Dibromochloromethane	ug/L (ppb)	10	102	86	70-130	17
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	95	70-130	8
Chlorobenzene	ug/L (ppb)	10	95	92	70-130	3
Ethylbenzene	ug/L (ppb)	10	96	90	70-130	6
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	89	87	70-130	2
m,p-Xylene	ug/L (ppb)	20	96	88	70-130	9
o-Xylene	ug/L (ppb)	10	97	88	70-130	10
Styrene	ug/L (ppb)	10	96	87	70-130	10
Isopropylbenzene	ug/L (ppb)	10	98	88	70-130	11
Bromoform	ug/L (ppb)	10	112	88	63-206	24 vo
n-Propylbenzene	ug/L (ppb)	10	95	90	70-130	5
Bromobenzene	ug/L (ppb)	10	94	96	70-130	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	94	91	70-130	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	98	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	91	97	70-130	6
2-Chlorotoluene	ug/L (ppb)	10	98	96	70-130	2
4-Chlorotoluene	ug/L (ppb)	10	103	96	70-130	7
tert-Butylbenzene	ug/L (ppb)	10	98	93	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	96	92	70-130	4
sec-Butylbenzene	ug/L (ppb)	10	97	92	70-130	5
p-Isopropyltoluene	ug/L (ppb)	10	98	91	70-130	7
1,3-Dichlorobenzene	ug/L (ppb)	10	103	100	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	100	94	70-130	6
1,2-Dichlorobenzene	ug/L (ppb)	10	98	96	70-130	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	110	105	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	103	93	70-130	10
Hexachlorobutadiene	ug/L (ppb)	10	97	96	70-130	1
Naphthalene	ug/L (ppb)	10	98	89	70-130	10
1,2,3-Trichlorobenzene	ug/L (ppb)	10	94	89	70-130	5

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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September 28, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on September 21, 2020 from the 1940904, F&BI 009365 project. There are 62 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR0928R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 21, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 009365 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
009365 -01	MBB-22-5
009365 -02	MBB-22-15
009365 -03	MBB-22-20
009365 -04	MBB-22-25
009365 -05	MBB-22-30
009365 -06	MBB-23-5
009365 -07	MBB-23-10
009365 -08	MBB-23-15
009365 -09	MBB-23-20
009365 -10	MBB-23-25
009365 -11	MBB-23-30
009365 -12	MBB-22-35

A 6020B internal standard failed the acceptance criteria for sample MBB-22-15. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

The 8260D calibration standard failed the acceptance criteria for methylene chloride. The data were flagged accordingly.

Methylene chloride in the 8260D laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. In addition, the relative percent difference for this analyte exceeded the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/21/20  
Project: 1940904, F&BI 009365  
Date Extracted: 09/22/20  
Date Analyzed: 09/23/20

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-22-5 009365-01	<5	87
MBB-22-15 009365-02	<5	89
MBB-22-20 009365-03	<5	90
MBB-22-25 009365-04	<5	89
MBB-22-30 009365-05	<5	88
MBB-23-5 009365-06	<5	88
MBB-23-10 009365-07	<5	82
MBB-23-15 009365-08	<5	89
MBB-23-20 009365-09	<5	87
MBB-23-25 009365-10	<5	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/21/20  
Project: 1940904, F&BI 009365  
Date Extracted: 09/22/20  
Date Analyzed: 09/23/20

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

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MBB-23-30 009365-11	<5	88
Method Blank 00-2009 mb	<5	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/21/20  
Project: 1940904, F&BI 009365  
Date Extracted: 09/22/20  
Date Analyzed: 09/22/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB-22-5 009365-01	<50	<250	90
MBB-22-15 009365-02	<50	<250	92
MBB-22-20 009365-03	<50	<250	93
MBB-22-25 009365-04	<50	<250	87
MBB-22-30 009365-05	<50	<250	92
MBB-23-5 009365-06	<50	<250	85
MBB-23-10 009365-07	<50	<250	85
MBB-23-15 009365-08	<50	<250	86
MBB-23-20 009365-09	<50	<250	86
MBB-23-25 009365-10	<50	<250	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20  
Date Received: 09/21/20  
Project: 1940904, F&BI 009365  
Date Extracted: 09/22/20  
Date Analyzed: 09/22/20

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MBB-23-30 009365-11	<50	<250	88
Method Blank 00-2134 MB	<50	<250	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-01
Date Analyzed:	09/23/20	Data File:	009365-01.046
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.71
Cadmium	<1
Chromium	30.2
Lead	26.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-02
Date Analyzed:	09/23/20	Data File:	009365-02.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.08
Cadmium	<1
Chromium	25.4 J
Lead	2.58
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-02 x5
Date Analyzed:	09/23/20	Data File:	009365-02 x5.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	26.1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-03
Date Analyzed:	09/23/20	Data File:	009365-03.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.63
Cadmium	<1
Chromium	15.3
Lead	1.39
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-04
Date Analyzed:	09/23/20	Data File:	009365-04.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.03
Cadmium	<1
Chromium	24.4
Lead	1.14
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-22-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-05
Date Analyzed:	09/23/20	Data File:	009365-05.108
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.96
Cadmium	<1
Chromium	40.0
Lead	1.97
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-06
Date Analyzed:	09/23/20	Data File:	009365-06.109
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.57
Cadmium	<1
Chromium	18.7
Lead	3.58
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-10	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-07
Date Analyzed:	09/23/20	Data File:	009365-07.110
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.98
Cadmium	<1
Chromium	17.1
Lead	29.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-08
Date Analyzed:	09/23/20	Data File:	009365-08.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.73
Cadmium	<1
Chromium	22.4
Lead	3.60
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-09
Date Analyzed:	09/23/20	Data File:	009365-09.114
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.21
Cadmium	<1
Chromium	17.7
Lead	1.99
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-10
Date Analyzed:	09/23/20	Data File:	009365-10.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.88
Cadmium	<1
Chromium	16.3
Lead	1.35
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MBB-23-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	009365-11
Date Analyzed:	09/23/20	Data File:	009365-11.116
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.68
Cadmium	<1
Chromium	16.2
Lead	1.36
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Hart Crowser
Date Received:	NA	Project:	1940904, F&BI 009365
Date Extracted:	09/23/20	Lab ID:	I0-563 mb
Date Analyzed:	09/23/20	Data File:	I0-563 mb.032
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-22-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-01 1/25
Date Analyzed:	09/24/20	Data File:	092326.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72 d	36	114
Phenol-d6	80 d	47	116
Nitrobenzene-d5	77 d	38	117
2-Fluorobiphenyl	92 d	50	150
2,4,6-Tribromophenol	73 d	25	187
Terphenyl-d14	92 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	0.20
Chrysene	0.31
Benzo(a)pyrene	0.33
Benzo(b)fluoranthene	0.33
Benzo(k)fluoranthene	0.13
Indeno(1,2,3-cd)pyrene	0.24
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-22-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-02 1/5
Date Analyzed:	09/23/20	Data File:	092318.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	36	114
Phenol-d6	77	47	116
Nitrobenzene-d5	74	38	117
2-Fluorobiphenyl	84	50	150
2,4,6-Tribromophenol	79	25	187
Terphenyl-d14	100	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-22-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-03 1/5
Date Analyzed:	09/23/20	Data File:	092319.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	52	36	114
Phenol-d6	60	47	116
Nitrobenzene-d5	57	38	117
2-Fluorobiphenyl	66	50	150
2,4,6-Tribromophenol	62	25	187
Terphenyl-d14	84	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-22-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-04 1/5
Date Analyzed:	09/23/20	Data File:	092320.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	36	114
Phenol-d6	69	47	116
Nitrobenzene-d5	67	38	117
2-Fluorobiphenyl	79	50	150
2,4,6-Tribromophenol	79	25	187
Terphenyl-d14	94	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-22-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-05 1/5
Date Analyzed:	09/23/20	Data File:	092321.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	51	36	114
Phenol-d6	59	47	116
Nitrobenzene-d5	55	38	117
2-Fluorobiphenyl	69	50	150
2,4,6-Tribromophenol	70	25	187
Terphenyl-d14	85	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-06 1/25
Date Analyzed:	09/24/20	Data File:	092327.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63 d	36	114
Phenol-d6	72 d	47	116
Nitrobenzene-d5	66 d	38	117
2-Fluorobiphenyl	83 d	50	150
2,4,6-Tribromophenol	73 d	25	187
Terphenyl-d14	93 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-10	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-07 1/25
Date Analyzed:	09/24/20	Data File:	092328.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	47 d	36	114
Phenol-d6	59 d	47	116
Nitrobenzene-d5	54 d	38	117
2-Fluorobiphenyl	72 d	50	150
2,4,6-Tribromophenol	69 d	25	187
Terphenyl-d14	89 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	1.0
Chrysene	1.7
Benzo(a)pyrene	1.8
Benzo(b)fluoranthene	2.3
Benzo(k)fluoranthene	0.77
Indeno(1,2,3-cd)pyrene	1.1
Dibenz(a,h)anthracene	0.22

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-08 1/5
Date Analyzed:	09/23/20	Data File:	092322.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	36	114
Phenol-d6	51	47	116
Nitrobenzene-d5	48	38	117
2-Fluorobiphenyl	66	50	150
2,4,6-Tribromophenol	69	25	187
Terphenyl-d14	90	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-09 1/5
Date Analyzed:	09/23/20	Data File:	092323.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	57	36	114
Phenol-d6	67	47	116
Nitrobenzene-d5	63	38	117
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	76	25	187
Terphenyl-d14	92	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-10 1/5
Date Analyzed:	09/23/20	Data File:	092324.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50	36	114
Phenol-d6	59	47	116
Nitrobenzene-d5	54	38	117
2-Fluorobiphenyl	70	50	150
2,4,6-Tribromophenol	72	25	187
Terphenyl-d14	90	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-23-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-11 1/5
Date Analyzed:	09/23/20	Data File:	092325.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	45	36	114
Phenol-d6	53	47	116
Nitrobenzene-d5	48	38	117
2-Fluorobiphenyl	67	50	150
2,4,6-Tribromophenol	68	25	187
Terphenyl-d14	87	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	00-2112 mb3 1/5
Date Analyzed:	09/22/20	Data File:	092205.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	50	150
Phenol-d6	90	50	150
Nitrobenzene-d5	79	50	150
2-Fluorobiphenyl	94	50	150
2,4,6-Tribromophenol	81	50	150
Terphenyl-d14	90	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-22-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-01
Date Analyzed:	09/22/20	Data File:	092226.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-22-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-02
Date Analyzed:	09/22/20	Data File:	092227.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	89	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-22-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-03
Date Analyzed:	09/22/20	Data File:	092228.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	91	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-22-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-04
Date Analyzed:	09/22/20	Data File:	092229.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.067 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-22-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-05
Date Analyzed:	09/22/20	Data File:	092230.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	50	150
Toluene-d8	89	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-06
Date Analyzed:	09/22/20	Data File:	092231.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.0096 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-10	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-07
Date Analyzed:	09/22/20	Data File:	092232.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.013 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	0.019
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-08
Date Analyzed:	09/22/20	Data File:	092233.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-09
Date Analyzed:	09/22/20	Data File:	092234.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.029 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-10
Date Analyzed:	09/22/20	Data File:	092235.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	MBB-23-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-11
Date Analyzed:	09/22/20	Data File:	092237.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	0.078 ca jl lc	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	0.014	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	00-2123 mb
Date Analyzed:	09/22/20	Data File:	092214.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	92	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.05	1,3-Dichloropropane	<0.005
Chloromethane	<0.05	Tetrachloroethene	<0.025
Vinyl chloride	<0.005	Dibromochloromethane	<0.005
Bromomethane	<0.05	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.05	Chlorobenzene	<0.005
Trichlorofluoromethane	<0.05	Ethylbenzene	<0.005
Acetone	<0.1	1,1,1,2-Tetrachloroethane	<0.005
1,1-Dichloroethene	<0.005	m,p-Xylene	<0.01
Hexane	<0.025	o-Xylene	<0.005
Methylene chloride	<0.0078 j ca jl	Styrene	<0.005
Methyl t-butyl ether (MTBE)	<0.005	Isopropylbenzene	<0.005
trans-1,2-Dichloroethene	<0.001	Bromoform	<0.005
1,1-Dichloroethane	<0.005	n-Propylbenzene	<0.005
2,2-Dichloropropane	<0.005	Bromobenzene	<0.005
cis-1,2-Dichloroethene	<0.005	1,3,5-Trimethylbenzene	<0.005
Chloroform	<0.005	1,1,2,2-Tetrachloroethane	<0.005
2-Butanone (MEK)	<0.05	1,2,3-Trichloropropane	<0.005
1,2-Dichloroethane (EDC)	<0.005	2-Chlorotoluene	<0.005
1,1,1-Trichloroethane	<0.005	4-Chlorotoluene	<0.005
1,1-Dichloropropene	<0.005	tert-Butylbenzene	<0.005
Carbon tetrachloride	<0.005	1,2,4-Trimethylbenzene	<0.005
Benzene	<0.003	sec-Butylbenzene	<0.005
Trichloroethene	<0.03	p-Isopropyltoluene	<0.005
1,2-Dichloropropane	<0.001	1,3-Dichlorobenzene	<0.005
Bromodichloromethane	<0.005	1,4-Dichlorobenzene	<0.005
Dibromomethane	<0.005	1,2-Dichlorobenzene	<0.005
4-Methyl-2-pentanone	<0.05	1,2-Dibromo-3-chloropropane	<0.05
cis-1,3-Dichloropropene	<0.005	1,2,4-Trichlorobenzene	<0.025
Toluene	<0.005	Hexachlorobutadiene	<0.025
trans-1,3-Dichloropropene	<0.005	Naphthalene	<0.005
1,1,2-Trichloroethane	<0.005	1,2,3-Trichlorobenzene	<0.025
2-Hexanone	<0.05		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-22-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-01 1/6
Date Analyzed:	09/23/20	Data File:	092309.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-22-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-02 1/6
Date Analyzed:	09/23/20	Data File:	092310.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	69	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-22-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-03 1/6
Date Analyzed:	09/23/20	Data File:	092311.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	61	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-22-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-04 1/6
Date Analyzed:	09/23/20	Data File:	092312.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	66	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-22-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-05 1/6
Date Analyzed:	09/23/20	Data File:	092313.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	68	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-5	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-06 1/6
Date Analyzed:	09/23/20	Data File:	092314.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-10	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-07 1/6
Date Analyzed:	09/23/20	Data File:	092315.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-15	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-08 1/6
Date Analyzed:	09/23/20	Data File:	092316.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	65	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-20	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-09 1/6
Date Analyzed:	09/23/20	Data File:	092317.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	66	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-25	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-10 1/6
Date Analyzed:	09/23/20	Data File:	092318.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MBB-23-30	Client:	Hart Crowser
Date Received:	09/21/20	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	009365-11 1/6
Date Analyzed:	09/23/20	Data File:	092319.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 009365
Date Extracted:	09/22/20	Lab ID:	00-2117 mb3 1/6
Date Analyzed:	09/23/20	Data File:	092242.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	95	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

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

Laboratory Code: 009370-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 009365-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	86	86	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 009371-10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	2.39	99	102	75-125	3
Cadmium	mg/kg (ppm)	10	<1	104	105	75-125	1
Chromium	mg/kg (ppm)	50	18.9	100	105	75-125	5
Lead	mg/kg (ppm)	50	9.84	90	94	75-125	4
Mercury	mg/kg (ppm)	5	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	102	80-120
Cadmium	mg/kg (ppm)	10	108	80-120
Chromium	mg/kg (ppm)	50	113	80-120
Lead	mg/kg (ppm)	50	105	80-120
Mercury	mg/kg (ppm)	5	105	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 009345-08 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	0.032	98	97	50-150	1
Chrysene	mg/kg (ppm)	0.83	0.032	96	96	50-150	0
Benzo(a)pyrene	mg/kg (ppm)	0.83	0.029	103	105	50-150	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	0.034	105	107	50-150	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	0.014	104	106	50-150	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	0.015	88	89	50-150	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	85	86	50-150	1

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	95	70-130
Chrysene	mg/kg (ppm)	0.83	95	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	102	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	108	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	105	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	91	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	85	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: 009365-10 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Vinyl chloride	mg/kg (ppm)	<0.005	<0.005	nm
Bromomethane	mg/kg (ppm)	<0.05	<0.05	nm
Chloroethane	mg/kg (ppm)	<0.05	<0.05	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.05	<0.05	nm
Acetone	mg/kg (ppm)	<0.1	<0.1	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Hexane	mg/kg (ppm)	<0.025	<0.025	nm
Methylene chloride	mg/kg (ppm)	<0.0078 j	0.028	nm
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	<0.005	<0.005	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.001	<0.001	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.005	<0.005	nm
Chloroform	mg/kg (ppm)	<0.005	<0.005	nm
2-Butanone (MEK)	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dichloroethane (EDC)	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Carbon tetrachloride	mg/kg (ppm)	<0.005	<0.005	nm
Benzene	mg/kg (ppm)	<0.003	<0.003	nm
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.001	<0.001	nm
Bromodichloromethane	mg/kg (ppm)	<0.005	<0.005	nm
Dibromomethane	mg/kg (ppm)	<0.005	<0.005	nm
4-Methyl-2-pentanone	mg/kg (ppm)	<0.05	<0.05	nm
cis-1,3-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
Toluene	mg/kg (ppm)	<0.005	<0.005	nm
trans-1,3-Dichloropropene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
2-Hexanone	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005	<0.005	nm
Chlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
Ethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
m,p-Xylene	mg/kg (ppm)	<0.01	<0.01	nm
o-Xylene	mg/kg (ppm)	<0.005	<0.005	nm
Styrene	mg/kg (ppm)	<0.005	<0.005	nm
Isopropylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
Bromoform	mg/kg (ppm)	<0.005	<0.005	nm
n-Propylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
Bromobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,3,5-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.005	<0.005	nm
2-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
4-Chlorotoluene	mg/kg (ppm)	<0.005	<0.005	nm
tert-Butylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
sec-Butylbenzene	mg/kg (ppm)	<0.005	<0.005	nm
p-Isopropyltoluene	mg/kg (ppm)	<0.005	<0.005	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.005	<0.005	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.05	<0.05	nm
1,2,4-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.025	<0.025	nm
Naphthalene	mg/kg (ppm)	<0.005	<0.005	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.025	<0.025	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS <sup>D</sup>	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	0.025	107	105	70-130	2
Chloromethane	mg/kg (ppm)	0.025	110	111	70-130	1
Vinyl chloride	mg/kg (ppm)	0.025	106	105	70-130	1
Bromomethane	mg/kg (ppm)	0.025	105	104	70-130	1
Chloroethane	mg/kg (ppm)	0.025	109	109	70-130	0
Trichlorofluoromethane	mg/kg (ppm)	0.025	113	112	70-130	1
Acetone	mg/kg (ppm)	0.125	84	89	70-130	6
1,1-Dichloroethene	mg/kg (ppm)	0.025	95	94	70-130	1
Hexane	mg/kg (ppm)	0.025	115	115	70-130	0
Methylene chloride	mg/kg (ppm)	0.025	37 vo	47 vo	70-130	24 vo
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	0.025	97	100	70-130	3
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	103	104	70-130	1
1,1-Dichloroethane	mg/kg (ppm)	0.025	104	106	70-130	2
2,2-Dichloropropane	mg/kg (ppm)	0.025	120	119	70-130	1
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	100	102	70-130	2
Chloroform	mg/kg (ppm)	0.025	100	109	70-130	9
2-Butanone (MEK)	mg/kg (ppm)	0.125	87	93	70-130	7
1,2-Dichloroethane (EDC)	mg/kg (ppm)	0.025	99	103	70-130	4
1,1,1-Trichloroethane	mg/kg (ppm)	0.025	107	107	70-130	0
1,1-Dichloropropene	mg/kg (ppm)	0.025	105	107	70-130	2
Carbon tetrachloride	mg/kg (ppm)	0.025	102	102	70-130	0
Benzene	mg/kg (ppm)	0.025	101	104	70-130	3
Trichloroethene	mg/kg (ppm)	0.025	102	103	70-130	1
1,2-Dichloropropane	mg/kg (ppm)	0.025	96	102	70-130	6
Bromodichloromethane	mg/kg (ppm)	0.025	103	102	70-130	1
Dibromomethane	mg/kg (ppm)	0.025	97	96	70-130	1
4-Methyl-2-pentanone	mg/kg (ppm)	0.125	88	95	70-130	8
cis-1,3-Dichloropropene	mg/kg (ppm)	0.025	99	105	70-130	6
Toluene	mg/kg (ppm)	0.025	106	108	70-130	2
trans-1,3-Dichloropropene	mg/kg (ppm)	0.025	107	111	70-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	0.025	100	106	70-130	6
2-Hexanone	mg/kg (ppm)	0.125	99	110	70-130	11
1,3-Dichloropropene	mg/kg (ppm)	0.025	102	108	70-130	6
Tetrachloroethene	mg/kg (ppm)	0.025	114	114	70-130	0
Dibromochloromethane	mg/kg (ppm)	0.025	99	100	70-130	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	99	104	70-130	5
Chlorobenzene	mg/kg (ppm)	0.025	106	112	70-130	6
Ethylbenzene	mg/kg (ppm)	0.025	108	110	70-130	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	0.025	103	102	70-130	1
m,p-Xylene	mg/kg (ppm)	0.05	105	107	70-130	2
o-Xylene	mg/kg (ppm)	0.025	108	109	70-130	1
Styrene	mg/kg (ppm)	0.025	106	111	70-130	5
Isopropylbenzene	mg/kg (ppm)	0.025	108	106	70-130	2
Bromoform	mg/kg (ppm)	0.025	98	103	70-130	5
n-Propylbenzene	mg/kg (ppm)	0.025	108	106	70-130	2
Bromobenzene	mg/kg (ppm)	0.025	100	100	70-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	0.025	112	107	70-130	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	0.025	97	100	70-130	3
1,2,3-Trichloropropane	mg/kg (ppm)	0.025	101	102	70-130	1
2-Chlorotoluene	mg/kg (ppm)	0.025	108	106	70-130	2
4-Chlorotoluene	mg/kg (ppm)	0.025	110	111	70-130	1
tert-Butylbenzene	mg/kg (ppm)	0.025	109	105	70-130	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	0.025	116	112	70-130	4
sec-Butylbenzene	mg/kg (ppm)	0.025	114	109	70-130	4
p-Isopropyltoluene	mg/kg (ppm)	0.025	112	108	70-130	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.025	109	110	70-130	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.025	116	116	70-130	0
1,2-Dichlorobenzene	mg/kg (ppm)	0.025	110	106	70-130	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	0.025	101	100	70-130	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.025	123	120	70-130	2
Hexachlorobutadiene	mg/kg (ppm)	0.025	121	115	70-130	5
Naphthalene	mg/kg (ppm)	0.025	105	104	70-130	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	0.025	116	113	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/28/20

Date Received: 09/21/20

Project: 1940904, F&BI 009365

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 009343-13 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	88	93	44-107	6
Aroclor 1260	mg/kg (ppm)	0.25	0.023	81	89	38-124	9

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	96	47-158
Aroclor 1260	mg/kg (ppm)	0.25	98	69-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

009365

SAMPLE CHAIN OF CUSTODY  
M. DABEL / B. DOWSER

US4 / 124  
Page # of 2

Report To M. DABEL / B. DOWSER

Company Hart Crown Seal

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_

Project specific RLS? Yes / No  
Email beta.021@hartcrown.com

SAMPLERS (signature)	PROJECT NAME	PO #
	1940904	
REMARKS	INVOICE TO	

ANALYSES REQUESTED

TURNAROUND TIME

Standard turnaround  RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTRA METALS			
MBB-22-5	01 A-F	9/21/20	0820	SOIL	6	X	X			X	X	X	X			
MBB-22-15	02	9/21/20	0839	SOIL	6	X	X			X	X	X	X			
MBB-22-20	03	9/21/20	0852	SOIL	6	X	X			X	X	X	X			
MBB-22-25	04	9/21/20	0900	SOIL	6	X	X			X	X	X	X			
MBB-22-30	05	9/21/20	0910	SOIL	6	X	X			X	X	X	X			
MBB-23-5	06 A-F	9/21/20	1130	SOIL	6	X	X			X	X	X	X			
MBB-23-10	07 A-F	9/21/20	1140	SOIL	6	X	X			X	X	X	X			
MBB-23-15	08	9/21/20	1152	SOIL	6	X	X			X	X	X	X			
MBB-23-20	09	9/21/20	1202	SOIL	6	X	X			X	X	X	X			
MBB-23-25	10	9/21/20	1211	SOIL	6	X	X			X	X	X	X			

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

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Reinquished by: <u>[Signature]</u>		BATES WYRIG		Hart Crown Seal		9/21/20	1440
Received by: <u>[Signature]</u>		Phan Phan		FCBT		9/21/20	1440
Reinquished by: _____		_____		Samples received at		4	00

009365  
 Report To ~~M. OABEL~~ / B. DOZIER

Company Hart Crosser

Address \_\_\_\_\_  
 City, State, ZIP \_\_\_\_\_  
 Phone \_\_\_\_\_  
 Email MARK.OABEL@HARTCROSSER.COM

Project specific Risks? - Yes / No

SAMPLERS (signature)	PO #	TURNAROUND TIME
PROJECT NAME 1940904	INVOICE TO	Standard turnaround <input type="checkbox"/> RUSH Rush charges authorized by: _____
REMARKS		SAMPLE DISPOSAL <input type="checkbox"/> Archive samples <input type="checkbox"/> Other Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCR METALS					
M88-23-30	11A.F	9/21/20	1222	SOIL	6	X	X			X	X	X						* Added at lab MP 9/21/20
M88-28-35	18A.D	9/21/20	0925	SOIL	4													Samples received at 4 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <i>[Signature]</i>	BRUCE LYNE	HART CROSSER	9/21/20	1440
Received by: <i>[Signature]</i>	PHAN PHAN	FE B I	9/21/20	1440
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

November 3, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on October 29, 2020 from the 1940904, F&BI 010542 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Marissa Goodman  
HCR1103R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 29, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 010542 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
010542 -01	MBB-26-5
010542 -02	MBB-26-10
010542 -03	MBB-26-15
010542 -04	MBB-26-20
010542 -05	MBB-26-25
010542 -06	MBB-26-30
010542 -07	MBB-26-30D
010542 -08	MBB-26-35
010542 -09	MBB-26-40

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-5	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-01 1/5
Date Analyzed:	10/30/20	Data File:	103009.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	62	36	114
Phenol-d6	71	47	116
Nitrobenzene-d5	71	38	117
2-Fluorobiphenyl	84	50	150
2,4,6-Tribromophenol	75	25	187
Terphenyl-d14	100	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	0.011
Benzo(b)fluoranthene	0.014
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-10	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-02 1/5
Date Analyzed:	10/30/20	Data File:	103010.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	36	114
Phenol-d6	71	47	116
Nitrobenzene-d5	72	38	117
2-Fluorobiphenyl	83	50	150
2,4,6-Tribromophenol	77	25	187
Terphenyl-d14	94	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-15	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-03 1/5
Date Analyzed:	10/30/20	Data File:	103011.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	95	36	114
Phenol-d6	78	47	116
Nitrobenzene-d5	79	38	117
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	70	25	187
Terphenyl-d14	72	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-20	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-04 1/5
Date Analyzed:	10/30/20	Data File:	103012.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	44	36	114
Phenol-d6	51	47	116
Nitrobenzene-d5	49	38	117
2-Fluorobiphenyl	85	50	150
2,4,6-Tribromophenol	63	25	187
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-25	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-05 1/5
Date Analyzed:	10/30/20	Data File:	103013.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	36	114
Phenol-d6	76	47	116
Nitrobenzene-d5	69	38	117
2-Fluorobiphenyl	82	50	150
2,4,6-Tribromophenol	78	25	187
Terphenyl-d14	91	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-30	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-06 1/5
Date Analyzed:	10/30/20	Data File:	103014.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	61	36	114
Phenol-d6	68	47	116
Nitrobenzene-d5	68	38	117
2-Fluorobiphenyl	79	50	150
2,4,6-Tribromophenol	71	25	187
Terphenyl-d14	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-30D	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-07 1/5
Date Analyzed:	10/30/20	Data File:	103015.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	36	114
Phenol-d6	75	47	116
Nitrobenzene-d5	74	38	117
2-Fluorobiphenyl	77	50	150
2,4,6-Tribromophenol	75	25	187
Terphenyl-d14	88	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-35	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-08 1/5
Date Analyzed:	10/30/20	Data File:	103016.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	36	114
Phenol-d6	59	47	116
Nitrobenzene-d5	58	38	117
2-Fluorobiphenyl	69	50	150
2,4,6-Tribromophenol	64	25	187
Terphenyl-d14	81	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26-40	Client:	Hart Crowser
Date Received:	10/29/20	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	010542-09 1/5
Date Analyzed:	10/30/20	Data File:	103017.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60	36	114
Phenol-d6	72	47	116
Nitrobenzene-d5	75	38	117
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	73	25	187
Terphenyl-d14	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 010542
Date Extracted:	10/30/20	Lab ID:	00-2449 mb2 1/5
Date Analyzed:	10/30/20	Data File:	103003.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	82	32	100
Phenol-d6	87	46	107
Nitrobenzene-d5	91	24	127
2-Fluorobiphenyl	94	46	108
2,4,6-Tribromophenol	89	25	127
Terphenyl-d14	93	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/03/20

Date Received: 10/29/20

Project: 1940904, F&BI 010542

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	85	87	58-108	2
2-Methylnaphthalene	mg/kg (ppm)	0.83	89	91	70-130	2
1-Methylnaphthalene	mg/kg (ppm)	0.83	87	89	70-130	2
Acenaphthylene	mg/kg (ppm)	0.83	99	101	70-130	2
Acenaphthene	mg/kg (ppm)	0.83	94	95	70-130	1
Fluorene	mg/kg (ppm)	0.83	95	96	70-130	1
Phenanthrene	mg/kg (ppm)	0.83	94	94	70-130	0
Anthracene	mg/kg (ppm)	0.83	94	95	70-130	1
Fluoranthene	mg/kg (ppm)	0.83	97	95	70-130	2
Pyrene	mg/kg (ppm)	0.83	94	95	70-130	1
Benz(a)anthracene	mg/kg (ppm)	0.83	96	99	70-130	3
Chrysene	mg/kg (ppm)	0.83	94	97	70-130	3
Benzo(a)pyrene	mg/kg (ppm)	0.83	99	100	70-130	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	101	105	70-130	4
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	99	97	70-130	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	106	109	70-130	3
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	109	108	70-130	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	109	107	70-130	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

010542 MWL OHAES@NAT-CLOWSER.COM  
 MW1554.6000mw@NAT-CLOWSER.COM

SAMPLE CHAIN OF CUSTODY  
 MW 10-29-20

Page # 1 of 1 Doc

Report To \_\_\_\_\_  
 Company NAT CLOWSER  
 Address 3131 ELIJAH AVE # 600  
 City, State, ZIP SEATTLE, WA  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature)	PROJECT NAME	PO #
	1940904	
REMARKS	INVOICE TO	
Protect specific RIs? - Yes / No		

TURNAROUND TIME  
 Standard turnaround  
 RUSH 72-HR  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082	
MBB-26-5	01	10/29/20	1045	SOIL	1					X				
MBB-26-10	02	10/29/20	1052	SOIL	1					X				
MBB-26-15	03	10/29/20	1059	SOIL	1					X				
MBB-26-20	04	10/29/20	1108	SOIL	1					X				
MBB-26-25	05	10/29/20	1112	SOIL	1					X				
MBB-26-30	06	10/29/20	1117	SOIL	1					X				
MBB-26-30D	07	10/29/20	1120	SOIL	1					X				
MBB-26-35	08	10/29/20	1150	SOIL	1					X				
MBB-26-40	09	10/29/20	1212	SOIL	1					X				

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
		JOSH ANDERSON		NAT CLOWSER		10/29/20	1436
Received by:							
Reinquired by:							
Received by:		Ann Webber Brugga				10/29	1436
Reinquired by:				Samples received at		3	0

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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Seattle, WA 98119-2029  
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fbi@isomedia.com  
www.friedmanandbruya.com

November 5, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on October 30, 2020 from the MMB 1940904, F&BI 010581 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Marissa Goodman  
HCR1105R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 30, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB 1940904, F&BI 010581 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
010581 -01	MBB-25-5
010581 -02	MBB-25-10
010581 -03	MBB-25-15
010581 -04	MBB-25-20
010581 -05	MBB-25-20D
010581 -06	MBB-25-25
010581 -07	MBB-25-30
010581 -08	MBB-25-35
010581 -09	MBB-25-40
010581 -10	MBB-26

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-5	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-01 1/25
Date Analyzed:	11/02/20	Data File:	110216.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68 d	32	100
Phenol-d6	74 d	46	107
Nitrobenzene-d5	74 d	24	127
2-Fluorobiphenyl	83 d	46	108
2,4,6-Tribromophenol	44 d	25	127
Terphenyl-d14	87 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-10	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-02 1/25
Date Analyzed:	11/02/20	Data File:	110217.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	20 d	32	100
Phenol-d6	55 d	46	107
Nitrobenzene-d5	68 d	24	127
2-Fluorobiphenyl	78 d	46	108
2,4,6-Tribromophenol	5 d	25	127
Terphenyl-d14	82 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	0.091
Chrysene	0.095
Benzo(a)pyrene	0.070
Benzo(b)fluoranthene	0.091
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-15	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-03 1/25
Date Analyzed:	11/02/20	Data File:	110218.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	58 d	32	100
Phenol-d6	69 d	46	107
Nitrobenzene-d5	68 d	24	127
2-Fluorobiphenyl	80 d	46	108
2,4,6-Tribromophenol	35 d	25	127
Terphenyl-d14	88 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-20	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-04 1/5
Date Analyzed:	11/02/20	Data File:	110211.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	71	32	100
Phenol-d6	76	46	107
Nitrobenzene-d5	80	24	127
2-Fluorobiphenyl	81	46	108
2,4,6-Tribromophenol	85	25	127
Terphenyl-d14	88	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-20D	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-05 1/5
Date Analyzed:	11/02/20	Data File:	110206.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	69	32	100
Phenol-d6	75	46	107
Nitrobenzene-d5	76	24	127
2-Fluorobiphenyl	78	46	108
2,4,6-Tribromophenol	83	25	127
Terphenyl-d14	84	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-25	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-06 1/25
Date Analyzed:	11/03/20	Data File:	110316.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	15 d	32	100
Phenol-d6	60 d	46	107
Nitrobenzene-d5	75 d	24	127
2-Fluorobiphenyl	80 d	46	108
2,4,6-Tribromophenol	1 d	25	127
Terphenyl-d14	79 d	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	0.25
Chrysene	0.28
Benzo(a)pyrene	0.24
Benzo(b)fluoranthene	0.28
Benzo(k)fluoranthene	0.12
Indeno(1,2,3-cd)pyrene	0.13
Dibenz(a,h)anthracene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-30	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-07 1/5
Date Analyzed:	11/02/20	Data File:	110207.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72	32	100
Phenol-d6	76	46	107
Nitrobenzene-d5	79	24	127
2-Fluorobiphenyl	80	46	108
2,4,6-Tribromophenol	77	25	127
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-35	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-08 1/5
Date Analyzed:	11/02/20	Data File:	110208.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66	32	100
Phenol-d6	71	46	107
Nitrobenzene-d5	76	24	127
2-Fluorobiphenyl	79	46	108
2,4,6-Tribromophenol	77	25	127
Terphenyl-d14	85	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25-40	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	010581-09 1/5
Date Analyzed:	11/02/20	Data File:	110209.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	74	32	100
Phenol-d6	80	46	107
Nitrobenzene-d5	86	24	127
2-Fluorobiphenyl	88	46	108
2,4,6-Tribromophenol	88	25	127
Terphenyl-d14	89	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/02/20	Lab ID:	00-2456 mb 1/5
Date Analyzed:	11/02/20	Data File:	110205.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	32	100
Phenol-d6	83	46	107
Nitrobenzene-d5	87	24	127
2-Fluorobiphenyl	90	46	108
2,4,6-Tribromophenol	84	25	127
Terphenyl-d14	93	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-26	Client:	Hart Crowser
Date Received:	10/30/20	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/03/20	Lab ID:	010581-10 1/2
Date Analyzed:	11/03/20	Data File:	110310.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	27	15	33
Phenol-d6	22 vo	10	20
Nitrobenzene-d5	78	17	143
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	75	50	150
Terphenyl-d14	91	50	150

Compounds:	Concentration ug/L (ppb)
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB 1940904, F&BI 010581
Date Extracted:	11/03/20	Lab ID:	00-2459 mb
Date Analyzed:	11/03/20	Data File:	110309.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	21	15	33
Phenol-d6	15	10	20
Nitrobenzene-d5	87	17	143
2-Fluorobiphenyl	85	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/05/20

Date Received: 10/30/20

Project: MMB 1940904, F&BI 010581

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: 010581-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	92	96	50-150	4
Chrysene	mg/kg (ppm)	0.83	<0.01	88	90	50-150	2
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	95	100	50-150	5
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	101	107	50-150	6
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	93	101	50-150	8
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	95	91	50-150	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	95	93	50-150	2

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	98	70-130
Chrysene	mg/kg (ppm)	0.83	95	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	99	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	107	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	103	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	95	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	98	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/05/20

Date Received: 10/30/20

Project: MMB 1940904, F&BI 010581

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	ug/L (ppb)	5	95	101	70-130	6
Chrysene	ug/L (ppb)	5	93	99	70-130	6
Benzo(a)pyrene	ug/L (ppb)	5	98	105	70-130	7
Benzo(b)fluoranthene	ug/L (ppb)	5	100	108	62-130	8
Benzo(k)fluoranthene	ug/L (ppb)	5	94	102	70-130	8
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	110	120	70-130	9
Dibenz(a,h)anthracene	ug/L (ppb)	5	110	118	70-130	7

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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 Custody Record

Samples Shipped to: FAB - 010581



**HART CROWSER**

ME 10/30/20

Hart Crowser  
3131 Elliott Avenue, Suite  
Seattle, Washington 98106  
Office: 206.324.9530 • Fax 206.328

JOB 1940904 LAB NUMBER MMB

PROJECT NAME MMB

HART CROWSER CONTACT MARK DITTEL @ HART CROWSER

SAMPLED BY: B WITTE / J VAN DER WERK

REQUESTED ANALYSIS

DO2

OBSERVATIONS/COMMENTS/  
COMPOSITING INSTRUCTIONS

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	NO. OF CONTAINERS
-01	MMB-25-5		10/30/20	0940	SOIL	1
02	MMB-25-10		10/30/20	0944	SOIL	1
03	MMB-25-15		10/30/20	0948	SOIL	1
04	MMB-25-20		10/30/20	0952	SOIL	1
05	MMB-25-20D		10/30/20	0955	SOIL	1
06	MMB-25-25		10/30/20	1012	SOIL	1
07	MMB-25-30		10/30/20	1016	SOIL	1
08	MMB-25-35		10/30/20	1040	SOIL	1
09	MMB-25-40		10/30/20	1107	SOIL	1
10	MMB-26		10/30/20	1410	WATER	1

Samples received at 4 °C

RELINQUISHED BY: [Signature] DATE: 10/30/20

SIGNATURE: [Signature] TIME: 1524

PRINT NAME: MAZT STOLLER COMPANY: MMB

RECEIVED BY: [Signature] DATE: 10/30/20

SIGNATURE: [Signature] TIME: 15:20

PRINT NAME: MAZT STOLLER COMPANY: MMB

COMPANY: MMB

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION

YES  NO  N/A  
 CUSTODY SEALS:  
 YES  NO  N/A  
 GOOD CONDITION  
 YES  NO  
 TEMPERATURE  
 SHIPMENT METHOD:  HAND  COVERNIGHT  
 COURIER

TURNAROUND TIME:

24 HOURS  1 WEEK  
 48 HOURS  STANDARD  
 72 HOURS  OTHER

White to Lab Yellow to Project Manager Pink to Sample Custodian

Handwritten initials

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

November 5, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on November 2, 2020 from the 1940904, F&BI 011003 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Marissa Goodman  
HCR1105R.DOC

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 2, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 011003 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

011003 -01

Hart Crowser

MBB-25

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MBB-25	Client:	Hart Crowser
Date Received:	11/02/20	Project:	1940904, F&BI 011003
Date Extracted:	11/03/20	Lab ID:	011003-01 1/2
Date Analyzed:	11/03/20	Data File:	110311.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35 vo	15	33
Phenol-d6	28 vo	10	20
Nitrobenzene-d5	87	17	143
2-Fluorobiphenyl	82	50	150
2,4,6-Tribromophenol	79	50	150
Terphenyl-d14	88	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	1940904, F&BI 011003
Date Extracted:	11/03/20	Lab ID:	00-2459 mb
Date Analyzed:	11/03/20	Data File:	110309.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	21	15	33
Phenol-d6	15	10	20
Nitrobenzene-d5	87	17	143
2-Fluorobiphenyl	85	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/05/20

Date Received: 11/02/20

Project: 1940904, F&BI 011003

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	82	84	70-130	2
2-Methylnaphthalene	ug/L (ppb)	5	86	91	70-130	6
1-Methylnaphthalene	ug/L (ppb)	5	84	89	70-130	6
Acenaphthylene	ug/L (ppb)	5	96	99	70-130	3
Acenaphthene	ug/L (ppb)	5	91	93	70-130	2
Fluorene	ug/L (ppb)	5	93	97	70-130	4
Phenanthrene	ug/L (ppb)	5	92	96	70-130	4
Anthracene	ug/L (ppb)	5	93	97	70-130	4
Fluoranthene	ug/L (ppb)	5	97	102	70-130	5
Pyrene	ug/L (ppb)	5	95	98	70-130	3
Benz(a)anthracene	ug/L (ppb)	5	95	101	70-130	6
Chrysene	ug/L (ppb)	5	93	99	70-130	6
Benzo(a)pyrene	ug/L (ppb)	5	98	105	70-130	7
Benzo(b)fluoranthene	ug/L (ppb)	5	100	108	62-130	8
Benzo(k)fluoranthene	ug/L (ppb)	5	94	102	70-130	8
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	110	120	70-130	9
Dibenz(a,h)anthracene	ug/L (ppb)	5	110	118	70-130	7
Benzo(g,h,i)perylene	ug/L (ppb)	5	107	116	70-130	8

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

011003 MWK.DWEL@HASTCONSOL.COM SAMPLE CHAIN OF CUSTODY ME 11-02-20 E04

Report To: MARISSA E. BOYMAN @ HASTCONSOL.COM  
 Company: HAST CONSOL  
 Address: 3131 ELLIOT AVE #600  
 City, State, ZIP: SEATTLE, WA  
 Phone: \_\_\_\_\_ Email: \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME: 1940904 PO #: \_\_\_\_\_  
 REMARKS: \_\_\_\_\_ INVOICE TO: \_\_\_\_\_  
 Project specific RIs? - Yes / No

Page # 1 of 1  
 TURNOUROUND TIME  
 Standard turnaround  
 RUSH 72-HR  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes											
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082												
M88-25	01	10/3/20 10/21/20	1138	WATER	1																			
		per BL MC																						

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>		<u>BRUCE LYNS</u>		<u>HAST CONSOL</u>		11/2/20	0133
Received by: <u>[Signature]</u>		<u>ANNA WEBBER BRUYA</u>		<u>F&amp;B</u>		11/2	733
Relinquished by:							
Received by:							

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

Samples received at 2 oc

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

November 9, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on November 3, 2020 from the 1940904, F&BI 011044 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Marissa Goodman  
HCR1109R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 3, 2020 by Friedman & Bruya, Inc. from the Hart Crowser 1940904, F&BI 011044 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
011044 -01	HMW-21S
011044 -02	HMW-22S
011044 -03	DMW-13S
011044 -04	DMW-14S
011044 -05	TRIP BLANK 11-3-2020

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/09/20  
Date Received: 11/03/20  
Project: 1940904, F&BI 011044  
Date Extracted: 11/06/20  
Date Analyzed: 11/06/20

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
DMW-13S 011044-03	<1	<1	<1	<3	<100	79
DMW-14S 011044-04	<1	<1	<1	<3	<100	78
Method Blank 00-2407 MB	<1	<1	<1	<3	<100	79

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/09/20  
Date Received: 11/03/20  
Project: 1940904, F&BI 011044  
Date Extracted: 11/06/20  
Date Analyzed: 11/06/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES  
USING METHOD 8021B**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Surrogate (% Recovery)</u> Limit (52-124)
TRIP BLANK 11-3-2020 011044-05	<1	<1	<1	<3	79
Method Blank 00-2407 MB	<1	<1	<1	<3	79

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/09/20  
Date Received: 11/03/20  
Project: 1940904, F&BI 011044  
Date Extracted: 11/04/20  
Date Analyzed: 11/04/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
HMW-21S 011044-01	<50	<250	87
HMW-22S 011044-02	62 x	<250	84
DMW-13S 011044-03	<50	<250	78
DMW-14S 011044-04	<50	<250	89
Method Blank 00-2465 MB2	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/09/20

Date Received: 11/03/20

Project: 1940904, F&BI 011044

**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: 011044-03 (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	100	65-118
Toluene	ug/L (ppb)	50	93	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	90	74-118
Gasoline	ug/L (ppb)	1,000	88	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/09/20

Date Received: 11/03/20

Project: 1940904, F&BI 011044

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	120	63-142	11

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

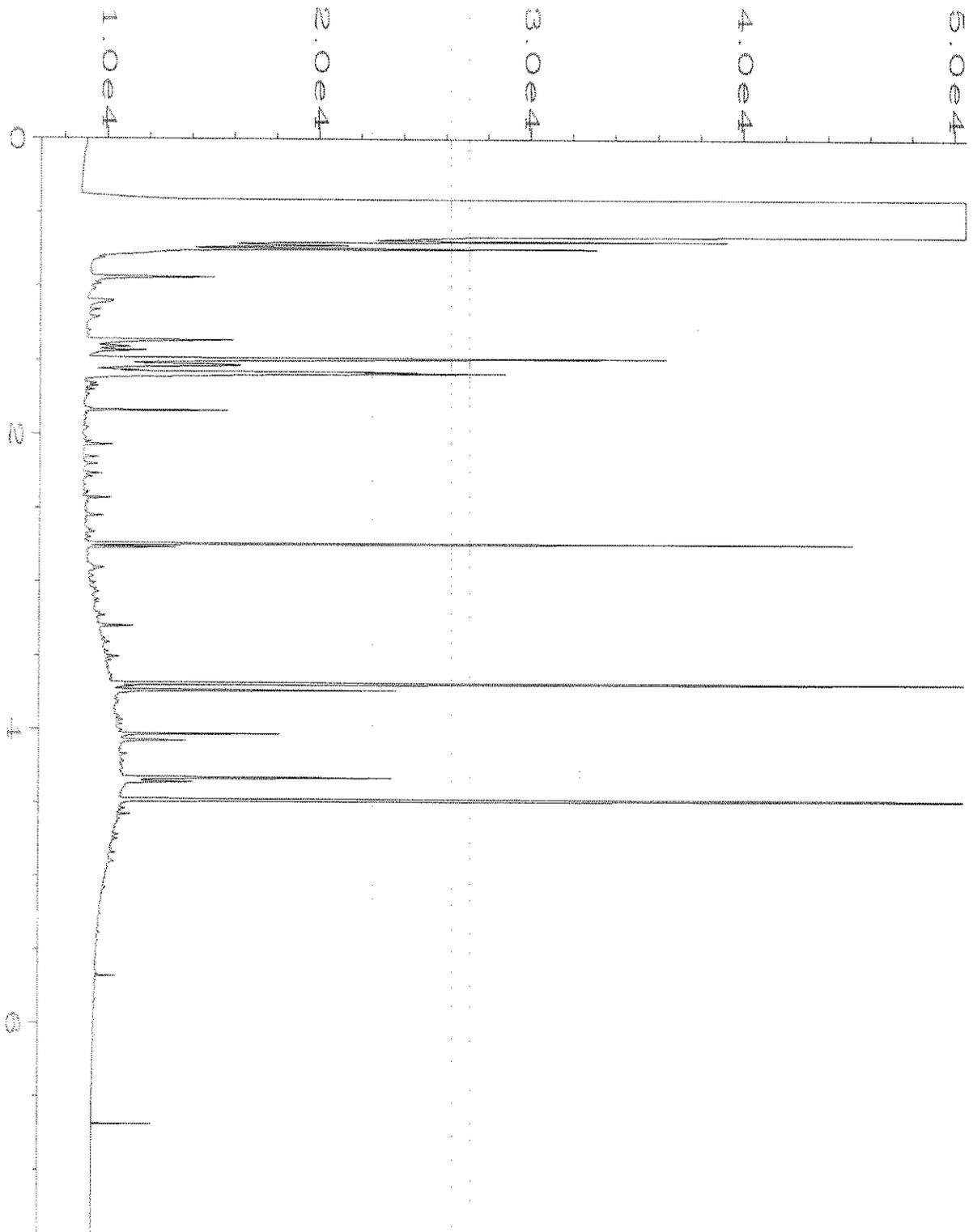
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.



Data File Name	: C:\HPCHEM\1\DATA\11-04-20\009F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 9
Instrument	: GC1	Injection Number	: 1
Sample Name	: 011044-02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 04 Nov 20 10:38 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Nov 20 10:15 AM		

011044 MARK. DATE @ HWT CLEAN S&L, CON

SAMPLE CHAIN OF CUSTODY ME

11-03-20

VW2/EO3

Report To: MARKISSA GOSWAMI @ HWT CONSULTING

Company: 2131 GULLER AVE #600

Address: \_\_\_\_\_

City, State, ZIP: SEATTLE WA

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

SAMPLERS (signature)

PROJECT NAME

1940904

PO #

REMARKS

INVOICE TO

Protect specific RIS? - Yes / No

Page # of

TURNAROUND TIME

Standard turnaround

KRUSH 72-HR

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
HMW-215	01	11/3/2020	1013	WATER	1	X									
HMW-225	02	11/3/2020	1142	WATER	1	X									
DMW-135	03A-D	11/3/2020	1050	WATER	4	X	X	X							
DMW-145	04A-D	11/3/2020	1234	WATER	4	X	X	X							
Tall Beam 11-3-2020	05A-B	11/3/2020		WATER				X							

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

PRINT NAME

MARK GOSWAMI

ANN WELBY BRUYA

COMPANY

HWT CONSULTING

F&B

DATE

11/3/20

11/3

TIME

1:550

1:550

Samples received at 3:00

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

November 17, 2020

Mark Dagel, Project Manager  
Hart Crowser  
3131 Elliott Ave, Suite 600  
Seattle, WA 98121

Dear Mr Dagel:

Included are the results from the testing of material submitted on November 10, 2020 from the MMB PO 1940904, F&BI 011180 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Becca Dozier  
HCR1117R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 10, 2020 by Friedman & Bruya, Inc. from the Hart Crowser MMB PO 1940904, F&BI 011180 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Hart Crowser</u>
011180 -01	MW-147
011180 -02	MW-146
011180 -03	Trip Blank

Dichlorodifluoromethane in the 8260D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the samples, therefore the data were acceptable.

Several 8260D compounds exceeded the calibration range in samples MW-147 and MW-146. The samples were diluted and reanalyzed. Both data sets were reported.

The 8260D tetrachloroethene continuing calibration standard did not pass the acceptance criteria in the original analysis of sample MW-146. The sample was reanalyzed.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20  
Date Received: 11/10/20  
Project: MMB PO 1940904, F&BI 011180  
Date Extracted: 11/12/20  
Date Analyzed: 11/12/20

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MW-147 011180-01	<100	83
MW-146 011180-02	<100	86
Trip Blank 011180-03	<100	83
Method Blank 00-2414 MB	<100	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

Date Extracted: 11/11/20

Date Analyzed: 11/11/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>  
Sample Extracts Passed Through a  
Silica Gel Column Prior to Analysis  
Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 47-140)
MW-147 011180-01	<50	<250	114
MW-146 011180-02	<50	<250	122
Method Blank 00-2499 MB	<50	<250	117

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

Date Extracted: 11/11/20

Date Analyzed: 11/11/20

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MW-147 011180-01	<50	<250	107
MW-146 011180-02	<50	<250	113
Method Blank 00-2499 MB	<50	<250	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-147	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-01
Date Analyzed:	11/10/20	Data File:	111015.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	3,400 ve	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	4.5	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	13	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	2,200 ve	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	4.9	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	0.30	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-147	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-01 1/500
Date Analyzed:	11/11/20	Data File:	111116.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<500	1,3-Dichloropropane	<500
Chloromethane	<5,000	Tetrachloroethene	<500
Vinyl chloride	7,400	Dibromochloromethane	<500
Bromomethane	<2,500	1,2-Dibromoethane (EDB)	<500
Chloroethane	<500	Chlorobenzene	<500
Trichlorofluoromethane	<500	Ethylbenzene	<500
Acetone	<25,000	1,1,1,2-Tetrachloroethane	<500
1,1-Dichloroethene	<500	m,p-Xylene	<1,000
Hexane	<2,500	o-Xylene	<500
Methylene chloride	<2,500	Styrene	<500
Methyl t-butyl ether (MTBE)	<500	Isopropylbenzene	<500
trans-1,2-Dichloroethene	<500	Bromoform	<2,500
1,1-Dichloroethane	<500	n-Propylbenzene	<500
2,2-Dichloropropane	<500	Bromobenzene	<500
cis-1,2-Dichloroethene	3,500	1,3,5-Trimethylbenzene	<500
Chloroform	<500	1,1,2,2-Tetrachloroethane	<500
2-Butanone (MEK)	<10,000	1,2,3-Trichloropropane	<500
1,2-Dichloroethane (EDC)	<500	2-Chlorotoluene	<500
1,1,1-Trichloroethane	<500	4-Chlorotoluene	<500
1,1-Dichloropropene	<500	tert-Butylbenzene	<500
Carbon tetrachloride	<500	1,2,4-Trimethylbenzene	<500
Benzene	<170	sec-Butylbenzene	<500
Trichloroethene	<500	p-Isopropyltoluene	<500
1,2-Dichloropropane	<500	1,3-Dichlorobenzene	<500
Bromodichloromethane	<500	1,4-Dichlorobenzene	<500
Dibromomethane	<500	1,2-Dichlorobenzene	<500
4-Methyl-2-pentanone	<5,000	1,2-Dibromo-3-chloropropane	<5,000
cis-1,3-Dichloropropene	<500	1,2,4-Trichlorobenzene	<500
Toluene	<500	Hexachlorobutadiene	<500
trans-1,3-Dichloropropene	<500	Naphthalene	<500
1,1,2-Trichloroethane	<500	1,2,3-Trichlorobenzene	<500
2-Hexanone	<5,000		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-146	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-02
Date Analyzed:	11/10/20	Data File:	111016.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	0.22 ca
Vinyl chloride	2,500 ve	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	3.7	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	13	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	1,900 ve	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	2.8	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-146	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-02
Date Analyzed:	11/13/20	Data File:	111304.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)
Tetrachloroethene	0.21

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-146	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-02 1/500
Date Analyzed:	11/11/20	Data File:	111117.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	106	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<500	1,3-Dichloropropane	<500
Chloromethane	<5,000	Tetrachloroethene	<500
Vinyl chloride	5,200	Dibromochloromethane	<500
Bromomethane	<2,500	1,2-Dibromoethane (EDB)	<500
Chloroethane	<500	Chlorobenzene	<500
Trichlorofluoromethane	<500	Ethylbenzene	<500
Acetone	<25,000	1,1,1,2-Tetrachloroethane	<500
1,1-Dichloroethene	<500	m,p-Xylene	<1,000
Hexane	<2,500	o-Xylene	<500
Methylene chloride	<2,500	Styrene	<500
Methyl t-butyl ether (MTBE)	<500	Isopropylbenzene	<500
trans-1,2-Dichloroethene	<500	Bromoform	<2,500
1,1-Dichloroethane	<500	n-Propylbenzene	<500
2,2-Dichloropropane	<500	Bromobenzene	<500
cis-1,2-Dichloroethene	3,800	1,3,5-Trimethylbenzene	<500
Chloroform	<500	1,1,2,2-Tetrachloroethane	<500
2-Butanone (MEK)	<10,000	1,2,3-Trichloropropane	<500
1,2-Dichloroethane (EDC)	<500	2-Chlorotoluene	<500
1,1,1-Trichloroethane	<500	4-Chlorotoluene	<500
1,1-Dichloropropene	<500	tert-Butylbenzene	<500
Carbon tetrachloride	<500	1,2,4-Trimethylbenzene	<500
Benzene	<170	sec-Butylbenzene	<500
Trichloroethene	<500	p-Isopropyltoluene	<500
1,2-Dichloropropane	<500	1,3-Dichlorobenzene	<500
Bromodichloromethane	<500	1,4-Dichlorobenzene	<500
Dibromomethane	<500	1,2-Dichlorobenzene	<500
4-Methyl-2-pentanone	<5,000	1,2-Dibromo-3-chloropropane	<5,000
cis-1,3-Dichloropropene	<500	1,2,4-Trichlorobenzene	<500
Toluene	<500	Hexachlorobutadiene	<500
trans-1,3-Dichloropropene	<500	Naphthalene	<500
1,1,2-Trichloroethane	<500	1,2,3-Trichlorobenzene	<500
2-Hexanone	<5,000		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Trip Blank	Client:	Hart Crowser
Date Received:	11/10/20	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	011180-03
Date Analyzed:	11/13/20	Data File:	111305.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Hart Crowser
Date Received:	Not Applicable	Project:	MMB PO 1940904, F&BI 011180
Date Extracted:	11/10/20	Lab ID:	00-2675 mb
Date Analyzed:	11/10/20	Data File:	111010.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<0.2
Chloromethane	<2	Tetrachloroethene	<0.2
Vinyl chloride	<0.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<0.2	Chlorobenzene	<0.2
Trichlorofluoromethane	<0.2	Ethylbenzene	<0.2
Acetone	<50	1,1,1,2-Tetrachloroethane	<0.2
1,1-Dichloroethene	<0.2	m,p-Xylene	<0.4
Hexane	<5	o-Xylene	<0.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<0.2	Bromoform	<5
1,1-Dichloroethane	<0.2	n-Propylbenzene	<1
2,2-Dichloropropane	<0.2	Bromobenzene	<1
cis-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<1
Chloroform	<0.2	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<0.08 j
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<0.2
1,1,1-Trichloroethane	<0.2	4-Chlorotoluene	<0.2
1,1-Dichloropropene	<0.2	tert-Butylbenzene	<0.2
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<0.2
Benzene	<0.2	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<0.2	1,3-Dichlorobenzene	<0.2
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<0.2
Dibromomethane	<1	1,2-Dichlorobenzene	<0.2
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<3
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<0.2	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<0.2
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TPH AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Laboratory Code: 011106-10 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	91	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	116	116	61-133	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	104	63-142	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

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

Laboratory Code: 011180-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	118	50-150
Chloromethane	ug/L (ppb)	10	<2	105	50-150
Vinyl chloride	ug/L (ppb)	10	3,400	0 b	50-150
Bromomethane	ug/L (ppb)	10	<5	90	50-150
Chloroethane	ug/L (ppb)	10	<0.2	81	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<0.2	103	50-150
Acetone	ug/L (ppb)	50	<50	104	50-150
1,1-Dichloroethene	ug/L (ppb)	10	4.5	86 b	50-150
Hexane	ug/L (ppb)	10	<5	93	50-150
Methylene chloride	ug/L (ppb)	10	<5	109	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	101	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	13	87 b	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<0.2	91	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<0.2	103	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	2,200	0 b	50-150
Chloroform	ug/L (ppb)	10	<0.2	97	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	93	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	94	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<0.2	98	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<0.2	99	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.2	102	50-150
Benzene	ug/L (ppb)	10	<0.2	99	50-150
Trichloroethene	ug/L (ppb)	10	4.9	98 b	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<0.2	99	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.2	92	50-150
Dibromomethane	ug/L (ppb)	10	<1	94	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	98	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	93	50-150
Toluene	ug/L (ppb)	10	0.30	99	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	105	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.2	104	50-150
2-Hexanone	ug/L (ppb)	50	<10	83	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<0.2	93	50-150
Tetrachloroethene	ug/L (ppb)	10	<0.2	99	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	99	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	100	50-150
Chlorobenzene	ug/L (ppb)	10	<0.2	93	50-150
Ethylbenzene	ug/L (ppb)	10	<0.2	100	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	91	50-150
m,p-Xylene	ug/L (ppb)	20	<0.4	98	50-150
o-Xylene	ug/L (ppb)	10	<0.2	99	50-150
Styrene	ug/L (ppb)	10	<1	96	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	96	50-150
Bromoform	ug/L (ppb)	10	<5	92	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	94	50-150
Bromobenzene	ug/L (ppb)	10	<1	93	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	93	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	100	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<0.08	100	50-150
2-Chlorotoluene	ug/L (ppb)	10	<0.2	94	50-150
4-Chlorotoluene	ug/L (ppb)	10	<0.2	94	50-150
tert-Butylbenzene	ug/L (ppb)	10	<0.2	96	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<0.2	100	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	95	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	97	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<0.2	98	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<0.2	96	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<0.2	99	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<3	102	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	100	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.2	96	50-150
Naphthalene	ug/L (ppb)	10	<1	102	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<0.2	99	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/17/20

Date Received: 11/10/20

Project: MMB PO 1940904, F&BI 011180

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS/D	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	145 vo	148 vo	70-130	2
Chloromethane	ug/L (ppb)	10	107	110	70-142	3
Vinyl chloride	ug/L (ppb)	10	111	112	70-130	1
Bromomethane	ug/L (ppb)	10	114	121	70-130	6
Chloroethane	ug/L (ppb)	10	120	120	70-130	0
Trichlorofluoromethane	ug/L (ppb)	10	117	117	70-130	0
Acetone	ug/L (ppb)	50	96	106	10-140	10
1,1-Dichloroethene	ug/L (ppb)	10	99	101	70-130	2
Hexane	ug/L (ppb)	10	98	98	70-130	0
Methylene chloride	ug/L (ppb)	10	108	106	43-134	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	105	103	70-130	2
trans-1,2-Dichloroethene	ug/L (ppb)	10	101	103	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	101	103	70-130	2
2,2-Dichloropropane	ug/L (ppb)	10	111	108	70-130	3
cis-1,2-Dichloroethene	ug/L (ppb)	10	101	104	70-130	3
Chloroform	ug/L (ppb)	10	96	97	70-130	1
2-Butanone (MEK)	ug/L (ppb)	50	98	95	17-154	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	100	99	70-130	1
1,1,1-Trichloroethane	ug/L (ppb)	10	103	104	70-130	1
1,1-Dichloropropene	ug/L (ppb)	10	105	97	70-130	8
Carbon tetrachloride	ug/L (ppb)	10	106	100	70-130	6
Benzene	ug/L (ppb)	10	103	101	70-130	2
Trichloroethene	ug/L (ppb)	10	104	102	70-130	2
1,2-Dichloropropane	ug/L (ppb)	10	109	104	70-130	5
Bromodichloromethane	ug/L (ppb)	10	99	96	70-130	3
Dibromomethane	ug/L (ppb)	10	96	100	70-130	4
4-Methyl-2-pentanone	ug/L (ppb)	50	106	87	68-130	20
cis-1,3-Dichloropropene	ug/L (ppb)	10	97	94	70-130	3
Toluene	ug/L (ppb)	10	103	102	70-130	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	108	102	70-130	6
1,1,2-Trichloroethane	ug/L (ppb)	10	108	104	70-130	4
2-Hexanone	ug/L (ppb)	50	95	84	45-138	12
1,3-Dichloropropane	ug/L (ppb)	10	110	96	70-130	14
Tetrachloroethene	ug/L (ppb)	10	108	101	70-130	7
Dibromochloromethane	ug/L (ppb)	10	96	102	70-130	6
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	104	101	70-130	3
Chlorobenzene	ug/L (ppb)	10	101	97	70-130	4
Ethylbenzene	ug/L (ppb)	10	105	105	70-130	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	101	96	70-130	5
m,p-Xylene	ug/L (ppb)	20	103	104	70-130	1
o-Xylene	ug/L (ppb)	10	103	104	70-130	1
Styrene	ug/L (ppb)	10	102	100	70-130	2
Isopropylbenzene	ug/L (ppb)	10	103	101	70-130	2
Bromoform	ug/L (ppb)	10	105	98	70-130	7
n-Propylbenzene	ug/L (ppb)	10	101	102	70-130	1
Bromobenzene	ug/L (ppb)	10	102	103	70-130	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	103	99	70-130	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	109	101	70-130	8
1,2,3-Trichloropropane	ug/L (ppb)	10	109	99	70-130	10
2-Chlorotoluene	ug/L (ppb)	10	101	102	70-130	1
4-Chlorotoluene	ug/L (ppb)	10	103	102	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	99	103	70-130	4
1,2,4-Trimethylbenzene	ug/L (ppb)	10	106	103	70-130	3
sec-Butylbenzene	ug/L (ppb)	10	104	102	70-130	2
p-Isopropyltoluene	ug/L (ppb)	10	106	103	70-130	3
1,3-Dichlorobenzene	ug/L (ppb)	10	106	104	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	102	102	70-130	0
1,2-Dichlorobenzene	ug/L (ppb)	10	106	104	70-130	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	113	107	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	108	105	70-130	3
Hexachlorobutadiene	ug/L (ppb)	10	102	99	70-130	3
Naphthalene	ug/L (ppb)	10	116	109	70-130	6
1,2,3-Trichlorobenzene	ug/L (ppb)	10	112	107	70-130	5

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

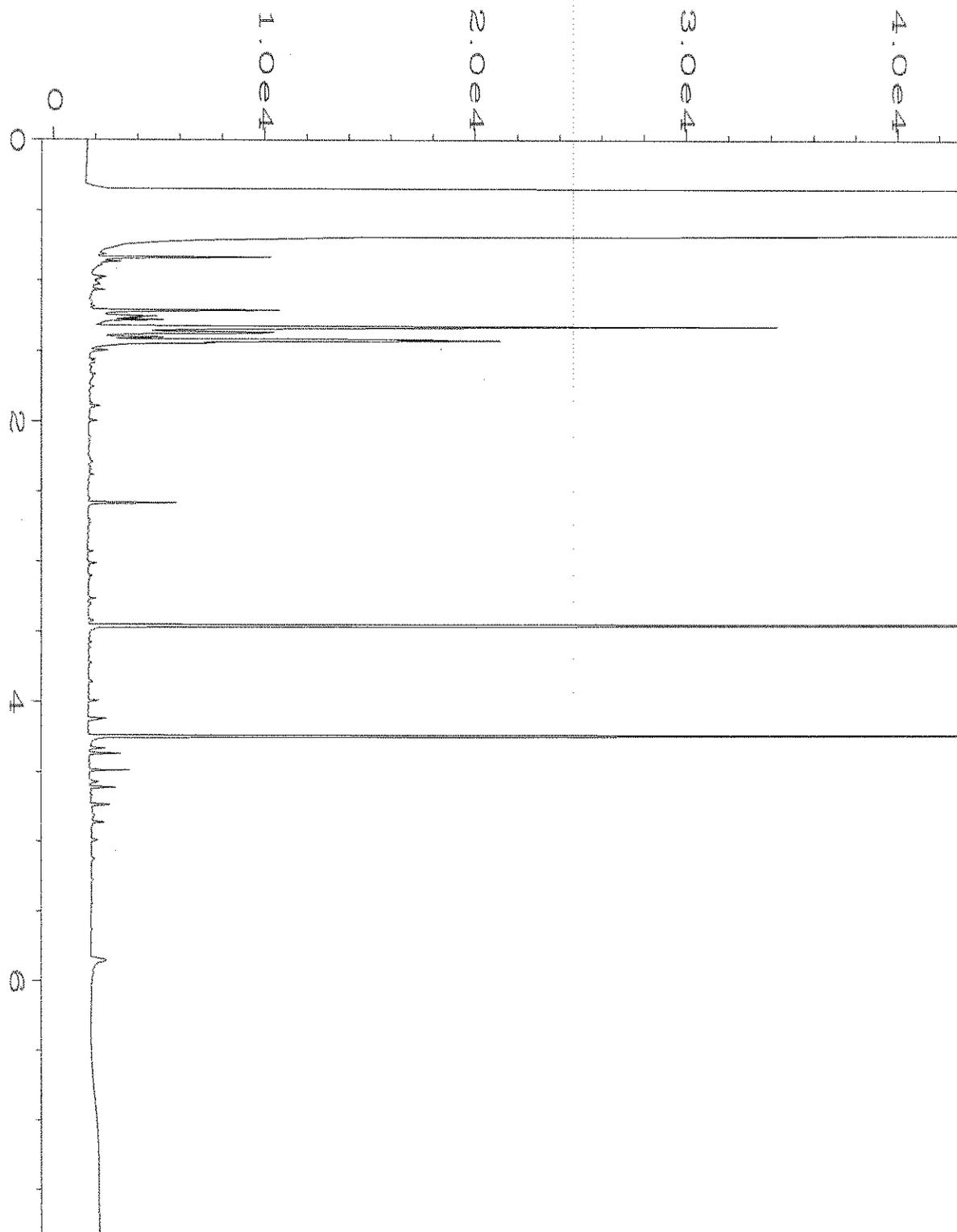
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.

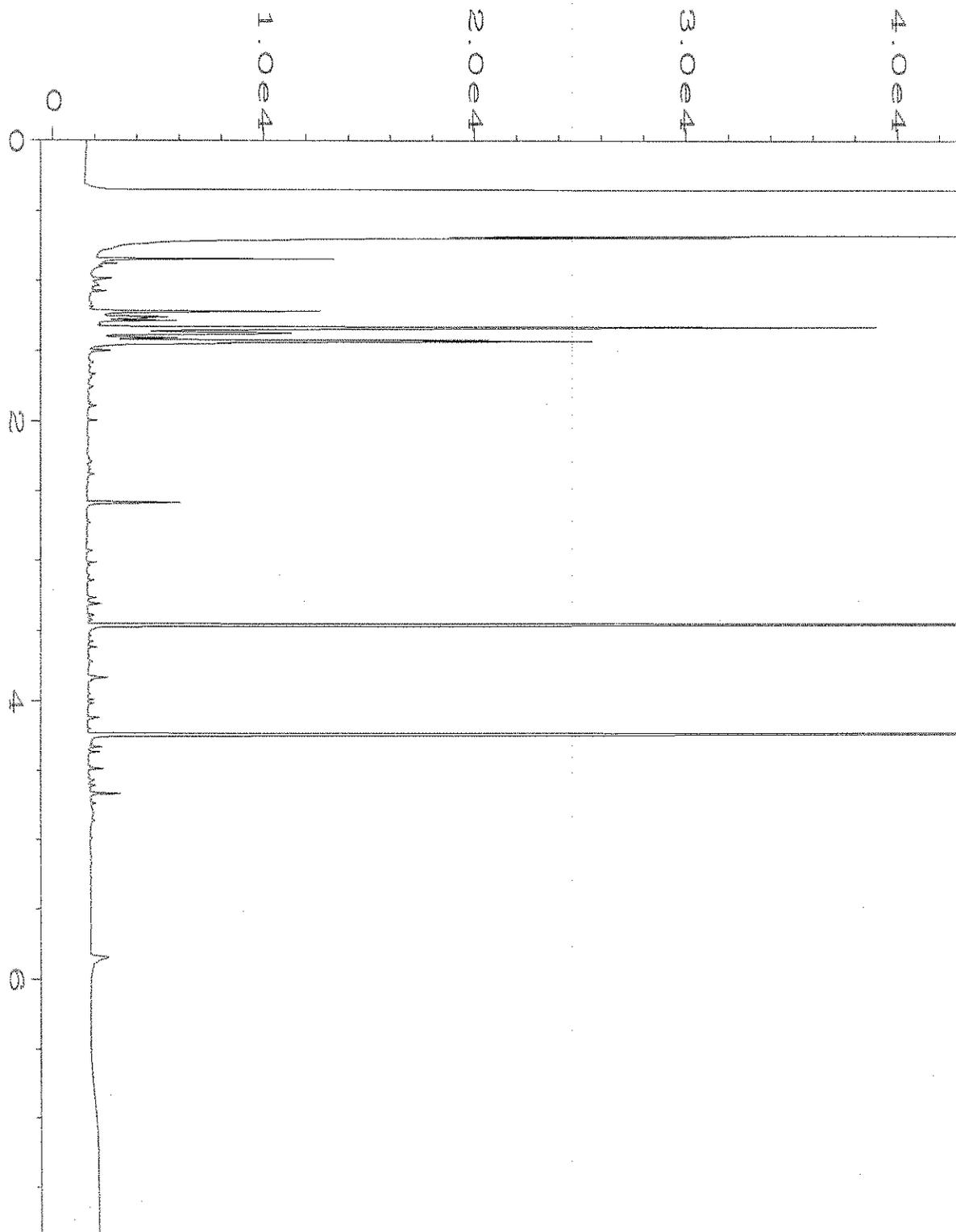
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

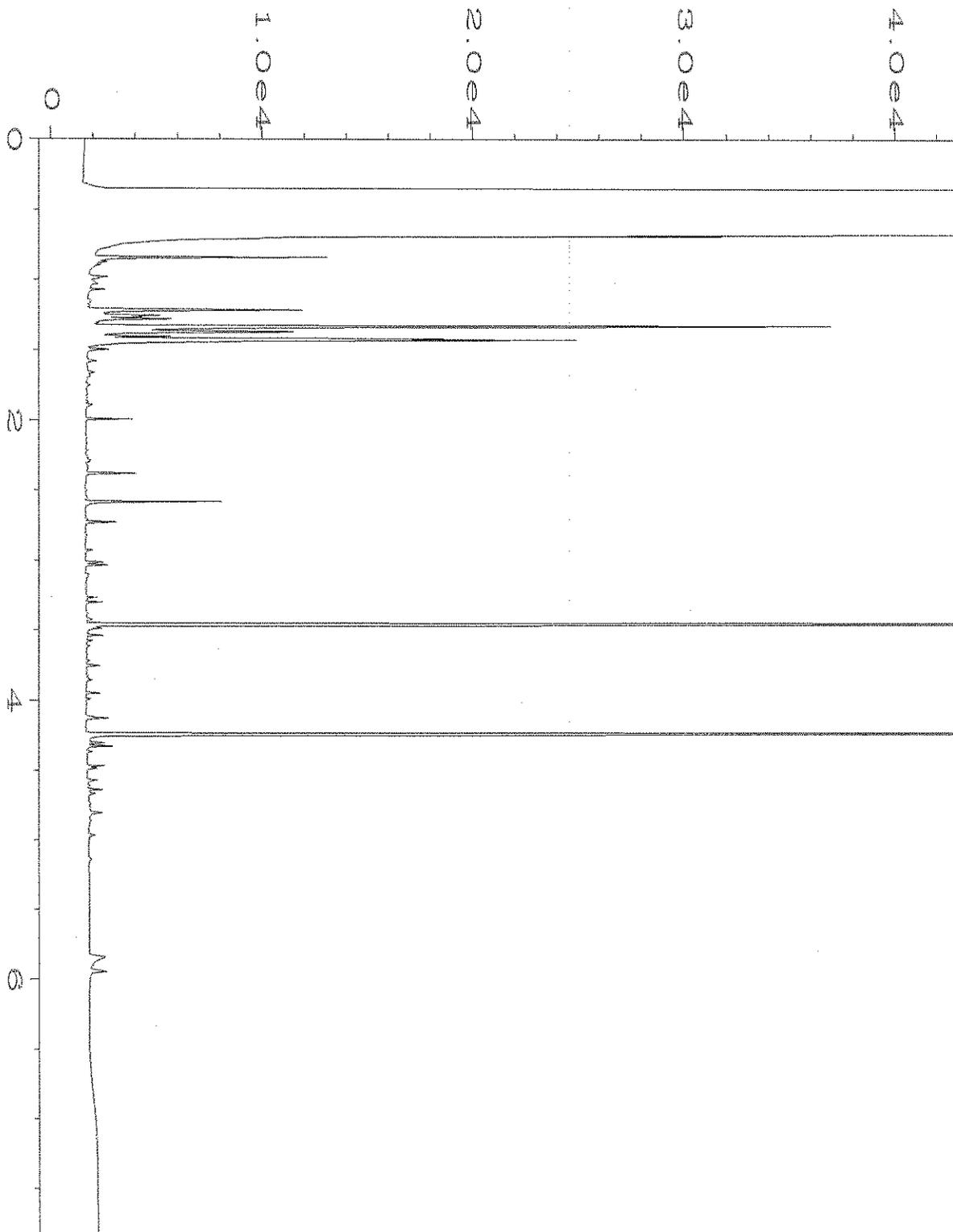
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



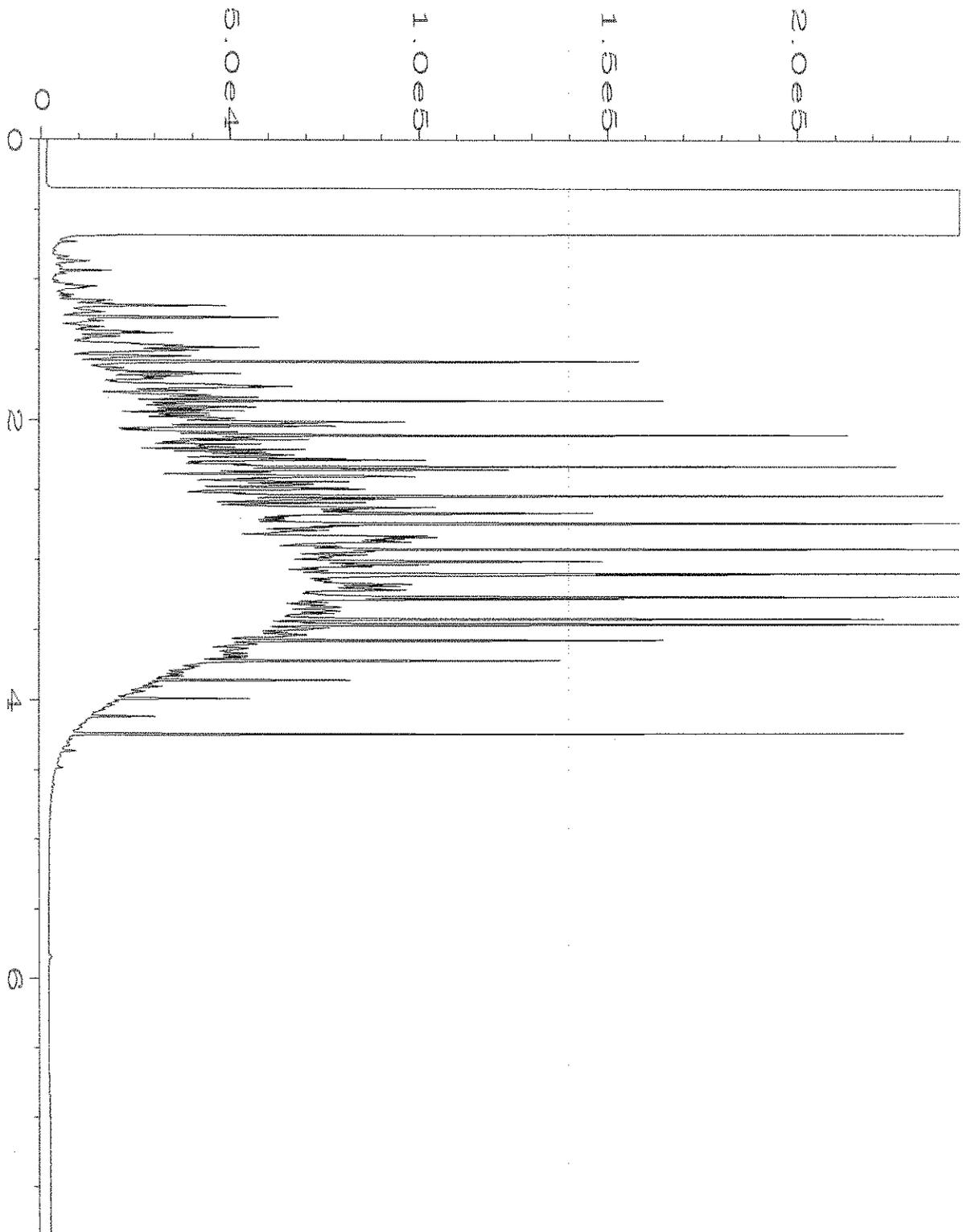
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 011180-01 sg	Sequence Line	: 12
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 07:00 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:24 AM		



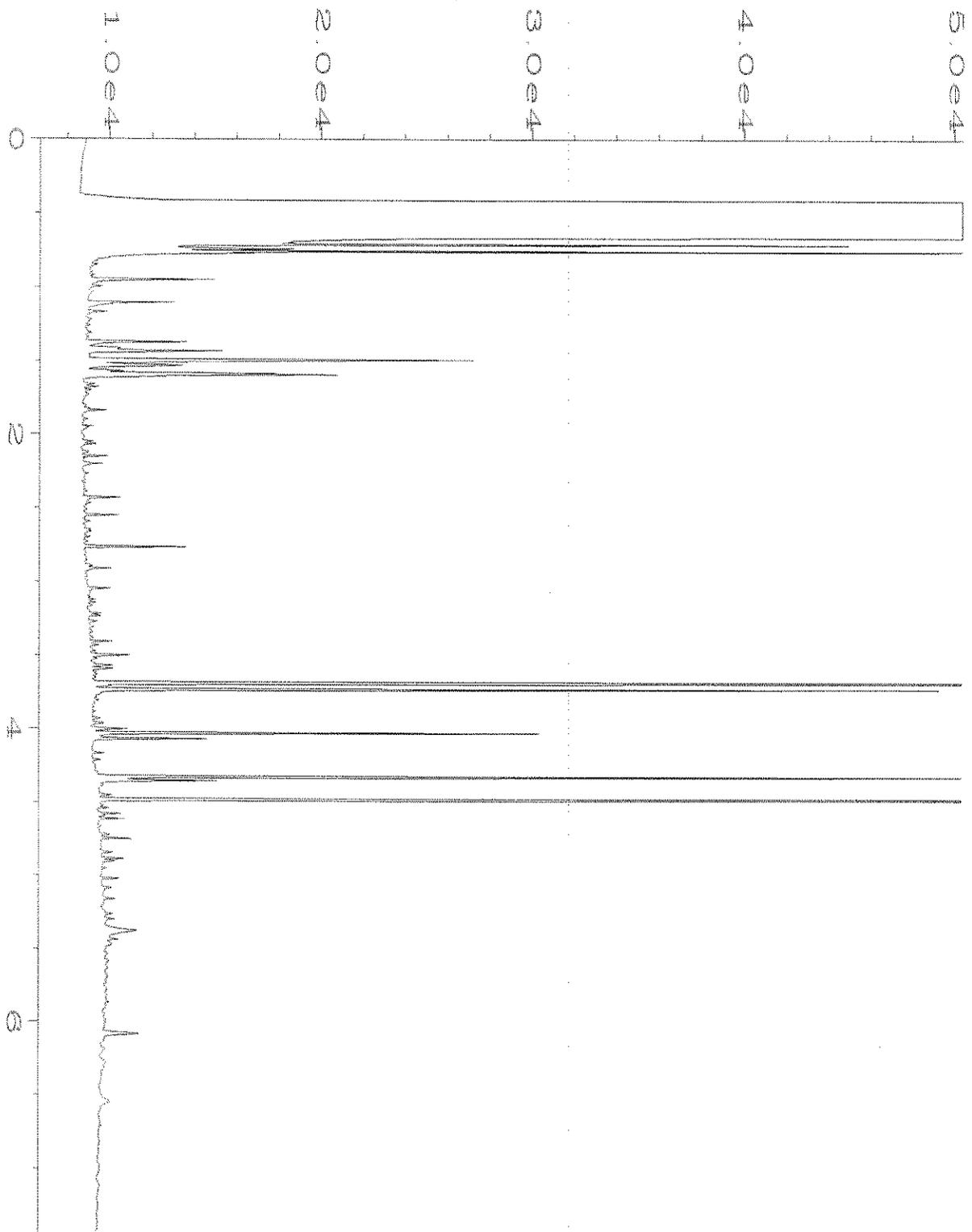
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Sample Name	: 011180-02 sg	Sequence Line	: 12
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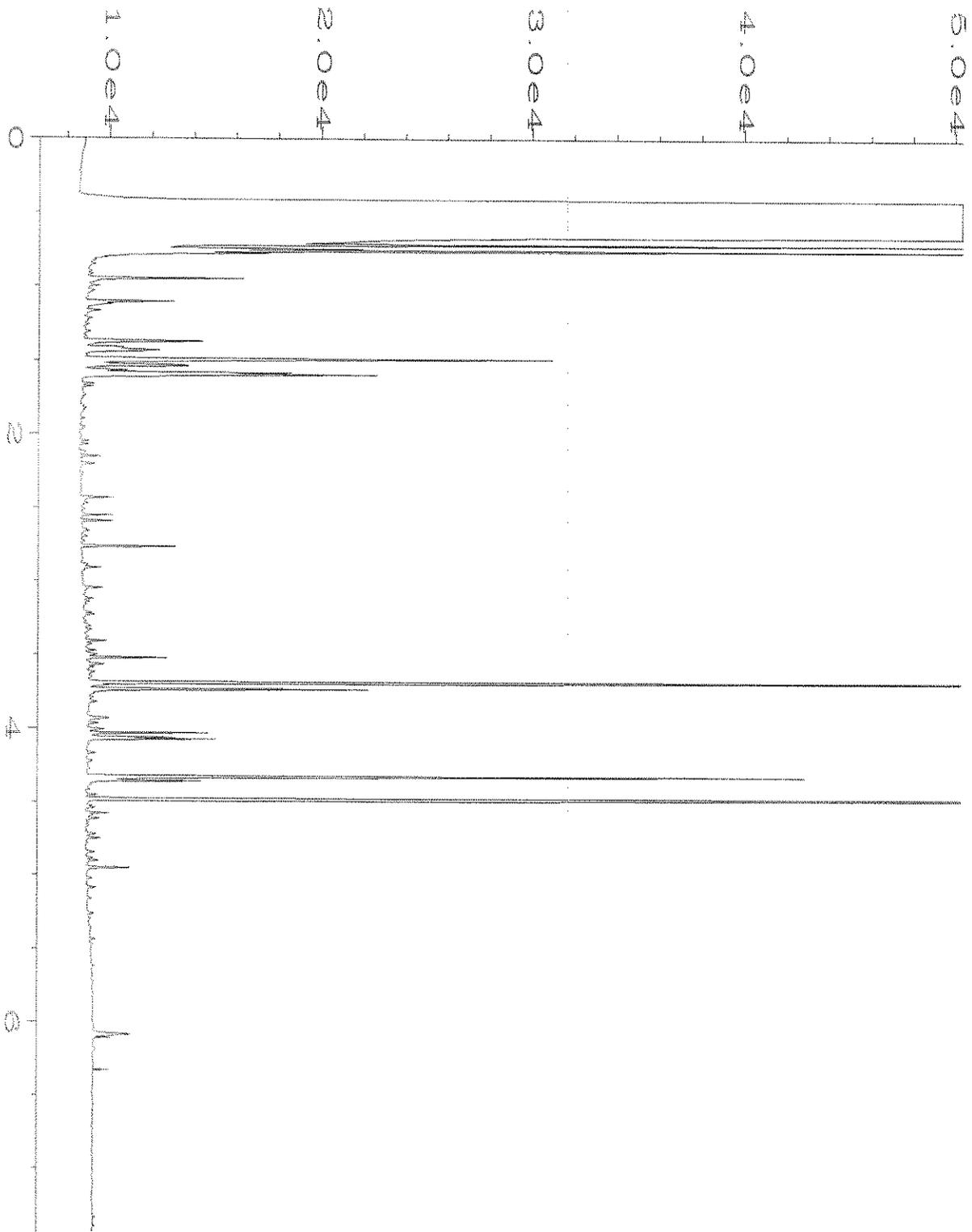
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 00-2499 mb sg	Sequence Line	: 12
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 06:22 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:25 AM		



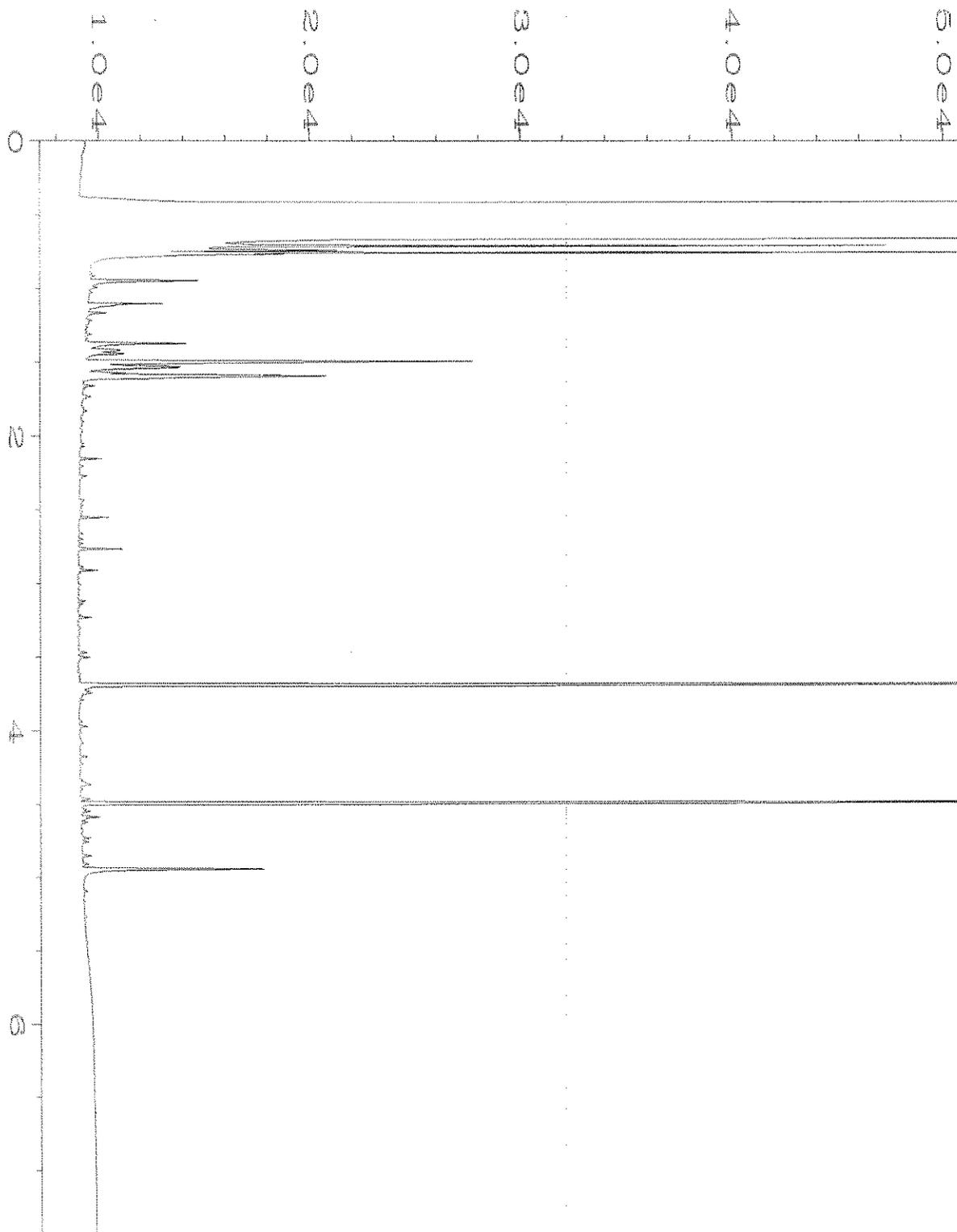
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 1000 Dx 61-146C	Sequence Line	: 8
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 02:09 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:25 AM		



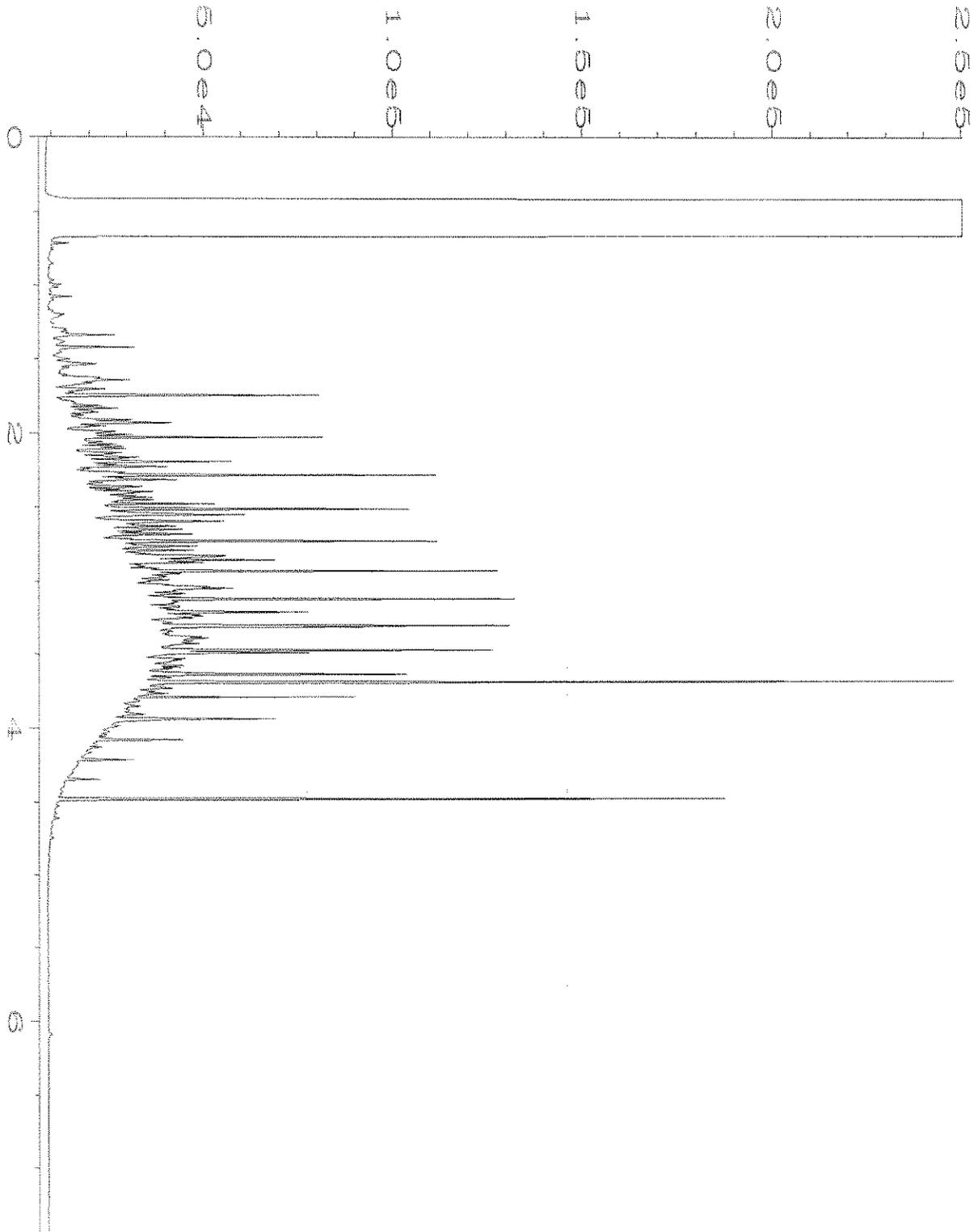
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 011180-01	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 01:39 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:55 AM		



Data File Name	: C:\HPCHEM\1\DATA\11-11-20\029F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 29
Instrument	: GC1	Injection Number	: 1
Sample Name	: 011180-02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 01:51 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:56 AM		



Data File Name	: C:\HPCHEM\1\DATA\11-11-20\008F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 8
Instrument	: GC1	Injection Number	: 1
Sample Name	: 00-2499 mb	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 09:29 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:55 AM		



Data File Name	: C:\HPCHEM\1\DATA\11-11-20\003F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC1	Injection Number	: 1
Sample Name	: 500 Dx 61-146D	Sequence Line	: 6
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 11 Nov 20 03:45 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	12 Nov 20 07:54 AM		

