SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

May 22, 2017

Mr. Kelley Kohout
LMI West Seattle Holdings, LLC
1325 Fourth Avenue, Suite 1700
Seattle, Washington 98101-2528

SUBJECT: GROUNDWATER MONITORING REPORT—FIRST QUARTER 2017
SKS Shell Station Site
3901 Southwest Alaska Street
Seattle, Washington
Project Number: 0914-001

Dear Mr. Kohout:

SoundEarth Strategies, Inc. (SoundEarth) has prepared this report to present the results of the First Quarter 2017 groundwater monitoring event conducted at the SKS Shell Station Site located at 3901 Southwest Alaska Street in Seattle, Washington (SKS Site), as shown on Figure 1. The groundwater monitoring event was conducted to evaluate the long-term effectiveness of the cleanup activities completed on and beneath the SKS Site that are being performed pursuant to the Cleanup Action Plan under Prospective Purchase Consent Decree #13-2-27556-2, entered on July 29, 2013 (PPCD).

BACKGROUND

The SKS Site was developed as a gasoline station and an automotive repair facility in 1934. Successive oil companies retailing gasoline products at the SKS Site include Gilmore Red Lion in the 1930s, Mobil Oil in the 1940s, Texaco in the 1950s, Atlantic Richfield in the 1960s, ARCO from 1975 to 1995, Texaco from approximately 1998 to 2004, and Shell from 2004 until July 2013.

In 1950, the original 1934 gasoline fueling equipment was removed and two 4,000-gallon underground storage tanks (USTs) were installed. The pump island and service station office were removed in 1961 and replaced with a new pump island, relocated to locations as shown on Figure 2. An additional 8,000-gallon UST was installed in 1974. The 1950-vintage USTs were removed in 1984 and replaced with one 10,000-gallon UST and two 12,000 gallon USTs. Over time, leaded and unleaded gasoline and diesel fuel have been used and stored in various USTs at the SKS Site. In December 2013, the three 1984-vintage USTs and the 1974-vintage UST were decommissioned and removed from the SKS Site.

SoundEarth conducted remedial activities on the SKS Site in 2015 as part of the development of the SKS Site and adjacent properties. Remedial activities included lot-line to lot-line remedial excavation of soil to approximately 29.5 feet below ground surface, right-of-way (ROW) dewatering, and water and vapor barrier installation. Approximately 9,755 tons of petroleum-contaminated soil were removed from the SKS Site.

On September 1, 2015, monitoring wells MW108 through MW110 were installed on the SKS Site to complete compliance groundwater monitoring.

FIELD ACTIVITIES

The First Quarter monitoring event was conducted on March 2, 3, and 17, 2017, to evaluate the long-term effectiveness of remedial activities. The monitoring event included measuring depths to groundwater in monitoring wells MW108 through MW110, located in the basement level of the building now located on the SKS Site, and MW101, MW105, RW02, and RW03, located within the Fauntleroy Way Southwest ROW. Monitoring well MW104, RW04, and RW05, located within the Fauntleroy Way Southwest ROW, were buried or inaccessible due to construction activities on March 2 and 3. On March 17, 2017, SoundEarth remobilized to access monitoring well MW104.

Upon arrival at the SKS Site, SoundEarth personnel opened monitoring wells and permitted water levels to equilibrate with atmospheric pressure for a minimum of 15 minutes before groundwater level measurements were obtained. Groundwater levels were measured relative to the top of well casing to an accuracy of 0.01 feet using an electronic water level meter.

Groundwater samples were collected from monitoring wells MW104, MW108 through MW110, and RW03 in accordance with the U.S. Environmental Protection Agency (EPA) *Low-Flow (Minimal Drawdown) Ground-Water Procedures* (April 1996). Purging and sampling of each monitoring well were performed using a bladder pump or peristaltic pump and dedicated polyethylene tubing at flow rates ranging from 40 to 160 milliliters per minute. The intake was placed approximately 2 to 3 feet below the surface of the groundwater or mid-screen in each monitoring well. During purging, water quality was monitored using a YSI water quality meter equipped with a flow-through cell. The water quality parameters that were monitored and recorded included temperature, pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential. Each monitoring well was purged until a minimum subset of pH, specific conductivity, and dissolved oxygen and/or turbidity stabilized.

Following purging, groundwater samples were collected from the pump outlet tubing located upstream of the flow-through cell and placed directly into clean, laboratory-prepared sample containers. Each container was labeled with a unique sample identification number, placed on ice in a cooler, and transported to Friedman & Bruya, Inc., of Seattle, Washington, under standard chain-of-custody protocols for laboratory analysis.

The groundwater samples were submitted for analysis of gasoline-range petroleum hydrocarbons (GRPH) by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-Gx; benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B; and diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) by Method NWTPH-Dx and with silica gel cleanup by EPA Method 3630. DRPH and ORPH samples were analyzed with silica gel cleanup because previous DRPH and ORPH exceedances in groundwater were flagged as not resembling the fuel standard. Purge water generated during the monitoring event was placed in an appropriately labeled 55-gallon steel drum and temporarily stored on the SKS Site pending receipt of analytical data and proper disposal.

RESULTS

Groundwater levels measured on March 2 and 3, 2017, ranged from 6.64 (MW108 in the lower level garage) to 27.22 (RW03 on the Fauntleroy sidewalk) feet below the top of the monitoring well casings (Table 1). The groundwater level measured on March 17, 2017, in groundwater monitoring well MW104 was at 27.55 feet below the top of the monitoring well casing. Historical groundwater measurements

have indicated groundwater generally flows to the south–southeast. Current groundwater elevations were not contoured. SoundEarth plans to conduct groundwater contouring in Second Quarter 2017.

Groundwater analytical results from the monitoring event are summarized below (Figure 2; Table 1). Results for MW108 and MW109, both located on-property, were below Washington State Model Toxics Control Act (MTCA) cleanup levels for all chemicals of concerns. Concentrations of ORPH, both with and without silica gel cleanup, were below the MTCA Method A cleanup level for all groundwater samples collected.

The following summarizes results from other monitoring wells:

- **Gasoline-Range Petroleum Hydrocarbons.** Concentrations of GRPH exceeding the MTCA Method A cleanup level were detected in the groundwater samples collected from monitoring wells MW104 and RW03 (1,400 and 4,900 micrograms per liter [µg/L], respectively). These results were lower than the concentrations detected in the Fourth Quarter 2016 groundwater samples. All of the groundwater samples from on-property wells, including MW110, were below the MTCA cleanup level for gasoline-range hydrocarbons.
- **Benzene.** A concentration of benzene exceeding the MTCA Method A cleanup level was detected in the groundwater sample collected from monitoring well RW03 (150 µg/L). This result was lower than previously detected in Fourth Quarter 2016 (470 µg/L). All other groundwater samples were below the MTCA cleanup level for benzene.
- **Diesel-Range Petroleum Hydrocarbons.** Groundwater samples were analyzed for DRPH both with and without silica gel cleanup. With silica gel cleanup, a concentration of DRPH exceeding the MTCA Method A cleanup level was detected in the groundwater sample collected from monitoring well RW03. Without silica gel cleanup, concentrations of DRPH exceeding the MTCA Method A cleanup level were detected in the groundwater samples collected from wells MW104, MW110, and RW03.

Copies of the laboratory analytical reports are provided as Attachment A.

DATA VALIDATION

SoundEarth contracted with Validata, LLC to conduct a Stage 2A level quality assurance/quality control (QA/QC) review of the analytical results. The data were reviewed using the guidance and quality control criteria documented in the EPA's National Functional Guidelines for Organic Data Review (1999 & 2008). The QC requirements that were reviewed included sample receipt, handling, and holding times, recoveries for method blanks, surrogates, spikes, field duplicates, and reporting limits.

Results. The analytical data for NWTPH-Dx were flagged "J" (as estimates) due to the laboratory reporting that the detected chromatographic pattern did not match the diesel fuel standard. These results were also flagged "x" by the analytical laboratory for the same reason. However, the result was determined to be acceptable for use. All other QA/QC criteria were confirmed to be acceptable for the groundwater samples, and the analytical results are considered to be acceptable for use. A copy of the Validata LLC Data Validation Report is provided as Attachment B.

Following data validation, the groundwater data were uploaded to Washington State Department of Ecology's Environmental Information Management system.

CONCLUSION

Concentrations of GRPH, DRPH, and BTEX decreased in monitoring wells MW104 and RW03 during First Quarter 2017, after an unexpected increase in the Fourth Quarter 2016. Concentrations of DRPH in monitoring well MW110 had generally increased for several quarters, but decreased in concentrations from Fourth Quarter 2016 to First Quarter 2017.

As discussed in our separate Revised 2017 Work Plan for the SKS Site, groundwater levels were generally 1 to 3 feet lower in the Fourth Quarter 2016 and the First Quarter 2017 than previously measured at the SKS Site. This unexpected conditions represents a change from trends that we have observed in the past. Before any changes are made to the existing groundwater monitoring program, and before any decisions are made related to future groundwater cleanup, we will be performing additional groundwater evaluation to evaluate groundwater levels, which should have been at their highest (not lowest) levels during the wet season monitoring events. The Revised 2017 Work Plan for the SKS Site outlines several monitoring elements that we will be conducting in order to better understand groundwater fluctuations, flow direction, and groundwater conditions.

SoundEarth will conduct a monitoring event at the SKS Site in Second Quarter 2017, the results of which will be included in a groundwater monitoring report. Sampling of ROW wells MW102, MW103, MW105, and MW107 will be conducted in Second Quarter 2017, with the schedule dependent on Seattle Department of Transportation traffic control plan reviews and issuance of street use permits.

CLOSING

SoundEarth appreciates this opportunity to provide LMI West Seattle Holdings, LLC, with environmental consulting services. Please call either of the undersigned at 206-306-1900 if you have any questions or comments regarding the content of this report.

Respectfully,

SoundEarth Strategies, Inc.

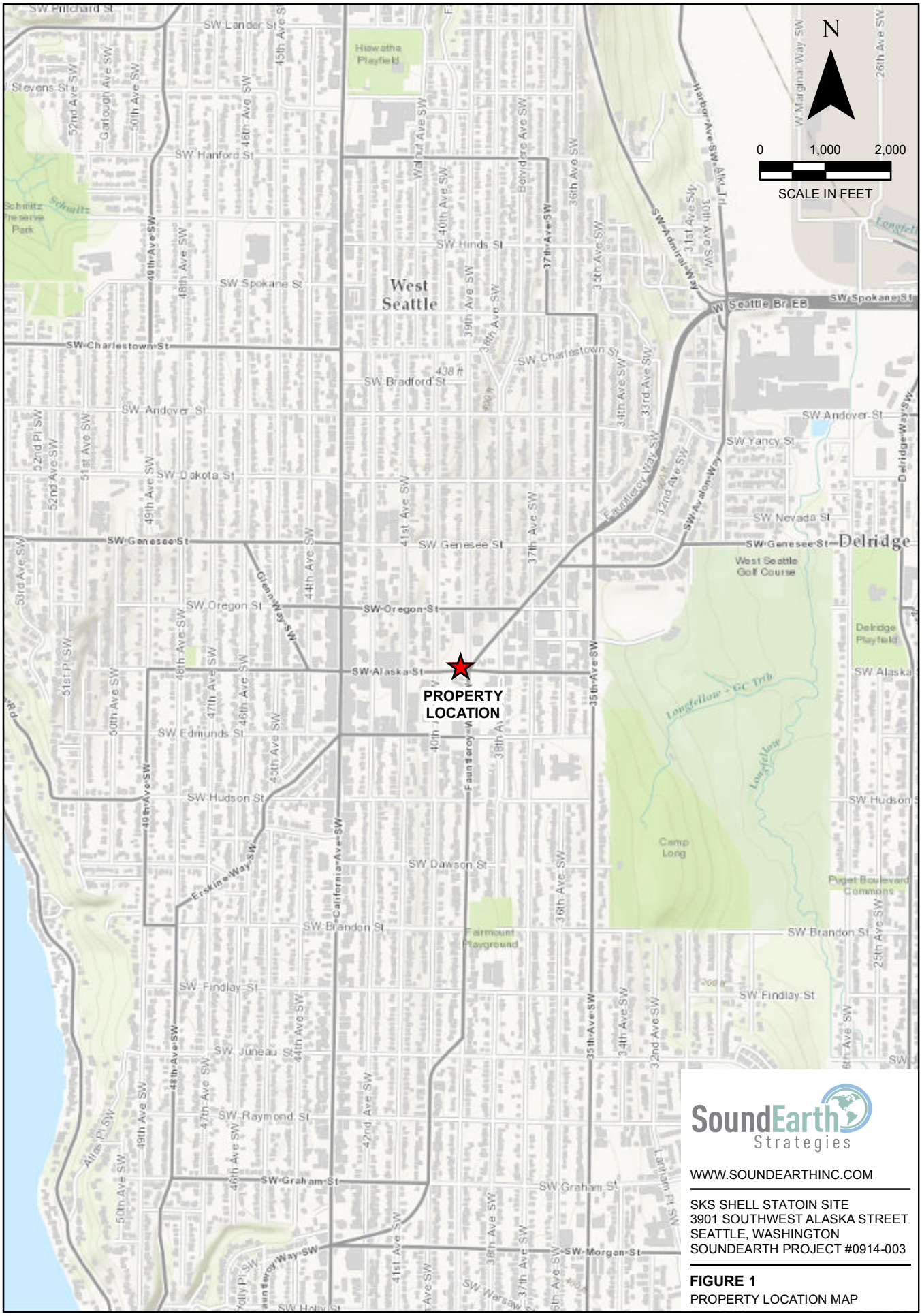
Liz Forbes, LG
Project Geologist

Rob Roberts
Senior Scientist

Attachments: Figure 1, Property Location Map
Figure 2, 2017 Q1 Groundwater Analytical Data
Table 1, Summary of Groundwater Data
A, Laboratory Analytical Reports
Friedman & Bruya, Inc. #703084 and additional
Friedman & Bruya, Inc. #703320 and additional
B, Data Validation Report
Validata, LLC #703084 & 703320

EBF/CER:dnm/rt

FIGURES



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SKS SHELL STATOIN SITE
3901 SOUTHWEST ALASKA STREET
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0914-003

FIGURE 1
PROPERTY LOCATION MAP

5/8/2017

P:\0914 LENNAR SHELL\0914-001 SKS SHELL ROW\TECHNICAL\CAD\2017\2017 Q1\0914-004_2017Q1_GD.DWG

FORMER HOWDEN-KENNEDY FUNERAL HOME

Well ID	Sample Date	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	DRPH	DRPH with Silica Gel	ORPH
		Analytical Results (micrograms per liter)							
MW108	06/24/16	<100	<1	<1	<1	<3	<50	--	<250
	09/28/16	<100	<1	<1	<1	<3	<60	--	<300
	12/23/16	<100	<1	<1	<1	<3	94	<70	<350
	03/03/17	<100	<1	<1	<1	<3	<80	<80	<400
MTCA Method A Cleanup Level		1,000/800	5	1,000	700	1,000	500	500	500

Well ID	Sample Date	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	DRPH	DRPH with Silica Gel	ORPH
		Analytical Results (micrograms per liter)							
MW110	06/24/16	<100	<1	<1	<1	<3	100	--	<250
	09/28/16	<100	<1	<1	<1	<3	590	--	440
	12/23/16	500	2.3	<1	9.7	18	1,200	68	<300
	03/03/17	570	2.1	<1	9.3	4.7	1,000	110	<250
MTCA Method A Cleanup Level		1,000/800	5	1,000	700	1,000	500	500	500

Well ID	Sample Date	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	DRPH	DRPH with Silica Gel	ORPH
		Analytical Results (micrograms per liter)							
MW109	06/24/16	<100	<1	<1	<1	<3	160	--	<250
	09/28/16	<100	<1	<1	<1	<3	260	--	<250
	12/23/16	250	<1	<1	<1	<3	430	<50	<350
	03/03/17	370	<1	<1	1.2	<3	490	55	<250
MTCA Method A Cleanup Level		1,000/800	5	1,000	700	1,000	500	500	500

Well ID	Sample Date	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	DRPH	DRPH with Silica Gel	ORPH
		Analytical Results (micrograms per liter)							
RW03	06/24/16	1,600	27	4.4	27	59	3,600	--	<250
	09/28/16	1,100	6.7	<1	20	45	2,400	--	<300
	12/23/16	9,000	470	16	380	750	11,000	720	<300
	03/02/17	4,900	150	<10	220	190	11,000	880	<250
MTCA Method A Cleanup Level		1,000/800	5	1,000	700	1,000	500	500	500

Well ID	Sample Date	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	DRPH	DRPH with Silica Gel	ORPH
		Analytical Results (micrograms per liter)							
MW104	06/24/16	940	2.5	2.0	3.0	9.5	3,200	--	<250
	09/28/16	940	7.2	<1	3.7	7.4	4,000	--	340
	12/23/16	2,000	2.1	2.1	17	27	16,000	180	<250
	03/17/17	1,400	<1	<1	8.5	10	7,900	290	<400
MTCA Method A Cleanup Level		1,000/800	5	1,000	700	1,000	500	500	500

FORMER SKS SHELL

FORMER UST- #1

FORMER UST- #2

FORMER UST- #3

FORMER UST- #4

FORMER PUMP ISLANDS AND CANOPIES

FORMER USTs

FORMER PUMP ISLAND USTs

SEATTLE ELECTRIC COMPANY UTILIDORE

SOUTHWEST ALASKA STREET

FAUNTLEROY WAY SOUTHWEST

SIDEWALK

MW101 MW102 MW103 MW104 MW105 MW107 MW108 MW109 MW110

RW01 RW02 RW03 RW04 RW05 RW06 RW07 RW08 RW09

B-6/MW-4

N

0 10 20

APPROXIMATE SCALE IN FEET

LEGEND

- EXISTING REMEDIATION WELL
- EXISTING MONITORING WELL
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- SEWER LINE
- WATER LINE
- GAS LINE
- HISTORICAL UTILITY LINES
- GRPH — GASOLINE-RANGE PETROLEUM HYDROCARBONS
- DRPH — DIESEL-RANGE PETROLEUM HYDROCARBONS
- ORPH — OIL-RANGE PETROLEUM HYDROCARBONS
- MTCA — WASHINGTON STATE MODEL TOXICS CONTROL ACT
- UST — UNDERGROUND STORAGE TANK
- RED — DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL
- < — RESULT BELOW LABORATORY REPORTING LIMITS
- -- — NOT ANALYZED

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SKS SHELL PROPERTY
3901 SOUTHWEST ALASKA STREET
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #914-001

FIGURE 2
2017 Q1 GROUNDWATER ANALYTICAL DATA

TABLE

SoundEarth Strategies

Table 1
Summary of Groundwater Data
SKS Shell Property
3901 Southwest Alaska Street
Seattle, Washington

Well ID	Sample Date	Sampled By	Depth to Groundwater (feet below TOC)	Relative Groundwater Elevation[1]	Analytical Results (µg/L)											
					GRPH[2]	Benzene[3]	Toluene[3]	Ethyl-benzene[3]	Total Xylenes[3]	MTBE[3]	EDC[3]	EDB[3]	DRPH[2]	DRPH with Silica Gel[4]	ORPH[2]	ORPH with Silica Gel[4]
MW104	11/07/12	SoundEarth	24.41	244.94	6,100	2,100	10	120	418	<1	<1	<1	4,000	--	<250	--
	03/06/13	SoundEarth	23.24	246.11	9,900	2,300	110	470	870	--	--	--	1,900[x]	--	<250	--
	04/01/13	SoundEarth	23.37	245.98	20,000	2,600	140	640	1,300	--	--	--	--	540[x]	--	<250
	06/12/14	SoundEarth	25.50	243.85	15,000	1,800	120	480	1,330	--	--	<0.01	14,000[x]	--	250[x]	--
	03/17/16	SoundEarth	26.41	242.94	480	1.2	1.8	2.2	5.7	--	--	--	1,200[x]	--	<300	--
	06/24/16	SoundEarth	25.16	244.19	940	2.5	2.0	3.0	9.5	--	--	--	3,200	--	<250	--
	09/28/16	SoundEarth	25.55	243.80	940	7.2	<1	3.7	7.4	--	--	--	4,000[x]	--	340[x]	--
	12/23/16	SoundEarth	27.28	242.07	2,000	2.1	2.1	17	27	--	--	--	16,000	180[x]	380[x]	<250
	03/17/17	SoundEarth	27.55	241.80	1,400	<1	<1	8.5	10	--	--	--	7,900	290[x]	<400	<400
MW106	12/13/12	SoundEarth	26.97	246.36	<100	<1	<1	<1	<3	--	--	--	110[x]	--	<250	--
	04/01/13	SoundEarth	25.92	247.41	130	<1	<1	<1	<3	--	--	--	--	<55	--	<280
RW03	03/17/16	SoundEarth	26.23	--	2,300	41	6.9	51	260	--	--	--	1,400[x]	--	<250	--
	06/24/16	SoundEarth	25.40	--	1,600	27	4.4	27	59	--	--	--	3,600	--	<250	--
	09/28/16	SoundEarth	25.71	--	1,100	6.7	<1	20	45	--	--	--	2,400[x]	--	<300	--
	12/23/16	SoundEarth	26.77	--	9,000	470	16	380	750	--	--	--	11,000	720[x]	<300	<300
	03/02/17	SoundEarth	27.22	--	4,900	150	<10	220	190	--	--	--	11,000[x]	880[x]	<250	<250
RW04	07/16/14	SoundEarth	--	--	17,000	1,200	270	360	1,700	--	--	--	4,600[x]	--	270[x]	--
RW07	07/16/14	SoundEarth	--	--	1,600	110	8.3	8.3	17	--	--	--	1,100[x]	--	<250	--
RW09	07/16/14	SoundEarth	--	--	2,600	10	18	70	34	--	--	--	700[x]	--	<250	--
MW108	03/17/16	SoundEarth	5.52	--	<100	<1	<1	<1	<3	--	--	--	93[x]	--	<300	--
	06/24/16	SoundEarth	3.33	--	<100	<1	<1	<1	<3	--	--	--	<50	--	<250	--
	09/28/16	SoundEarth	3.85	--	<100	<1	<1	<1	<3	--	--	--	<60	--	<300	--
	12/23/16	SoundEarth	6.56	--	<100	<1	<1	<1	<3	--	--	--	94[x]	<70	<350	<350
	03/03/17	SoundEarth	6.64	--	<100	<1	<1	<1	<3	--	--	--	<80	<80	<400	<400
MW109	03/17/16	SoundEarth	5.42	--	<100	<1	<1	<1	<3	--	--	--	97[x]	--	<250	--
	06/24/16	SoundEarth	3.35	--	<100	<1	<1	<1	<3	--	--	--	160[x]	--	<250	--
	09/28/16	SoundEarth	3.96	--	<100	<1	<1	<1	<3	--	--	--	260[x]	--	<250	--
	12/23/16	SoundEarth	6.59	--	250	<1	<1	<1	<3	--	--	--	430[x]	<50	<250	<250
	03/03/17	SoundEarth	6.70	--	370	<1	<1	1.2	<3	--	--	--	490[x]	55[x]	<250	<250
MW110	03/17/16	SoundEarth	5.70	--	<100	<1	<1	<1	<3	--	--	--	<50	--	<250	--
	06/24/16	SoundEarth	3.56	--	<100	<1	<1	<1	<3	--	--	--	100[x]	--	<250	--
	09/28/16	SoundEarth	4.19	--	<100	<1	<1	<1	<3	--	--	--	590[x]	--	440[x]	--
	12/23/16	SoundEarth	6.96	--	500	2.3	<1	9.7	18	--	--	--	1,200	68[x]	<300	<300
	03/03/17	SoundEarth	7.57	--	570	2.1	<1	9.3	4.7	--	--	--	1,000[x]	110[x]	<250	<250
MTCA Method A Cleanup Levels for Groundwater[5]					**1,000/800[6]**	**5**	**1,000**	**700**	**1,000**	**20**	**5**	**0.01**	**500**	**500**	**500**	**500**

NOTES:

Red indicates concentrations exceeding MTCA Method A cleanup levels for groundwater.

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

[1]Elevation reference datum North American Vertical Datum of 1988 (Dowl HKM November 2012).

[2]Analyzed by Method NWTPH-Gx (gasoline) and NWTPH-Dx (diesel and oil).

[3]Analyzed by EPA Method 8260B, 8260C, or 8021B.

[4]Analyzed by Method NWTPH-Dx; sample extracts passed through a silica gel column prior to analysis.

[5]MTCA Cleanup Regulation, Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

[6]1,000 µg/L when benzene is not present and 800 µg/L when benzene is present.

Laboratory Note:

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

-- = not analyzed, not measured

< = not detected above the laboratory reporting limit

µg/L = micrograms per liter

DRPH = diesel-range petroleum hydrocarbons

EDB = 1,2 dibromoethane

EDC = 1,2 dichloroethane

EPA = U.S. Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTBE = methyl tertiary-butyl ether

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

SoundEarth = SoundEarth Strategies, Inc.

TOC = top of casing elevation

ATTACHMENT A
LABORATORY ANALYTICAL REPORTS

Friedman & Bruya, Inc. #703084 and additional

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

March 9, 2017

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Roberts:

Included are the results from the testing of material submitted on March 3, 2017 from the SOU_0914-001_ 20170303, F&BI 703084 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Jonathan Loeffler, Liz Forbes
SOU0309R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 3, 2017 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_ 20170303, F&BI 703084 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
703084 -01	RW03-20170302
703084 -02	MW99-20170302
703084 -03	MW109-20170303
703084 -04	MW108-20170303
703084 -05	MW110-20170303

All quality control requirements were acceptable.

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/06/17 and 03/07/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
RW03-20170302 703084-01 1/10	150	<10	220	190	4,900	81
MW99-20170302 703084-02 1/10	150	<10	220	190	4,600	83
MW109-20170303 703084-03	<1	<1	1.2	<3	370	81
MW108-20170303 703084-04	<1	<1	<1	<3	<100	81
MW110-20170303 703084-05	2.1	<1	9.3	4.7	570	83
Method Blank 07-422 MB	<1	<1	<1	<3	<100	71

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/06/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
RW03-20170302 703084-01	11,000 x	<250	95
MW99-20170302 703084-02 1/1.2	13,000 x	<300	122
MW109-20170303 703084-03	490 x	<250	128
MW108-20170303 703084-04 1/1.6	<80	<400	119
MW110-20170303 703084-05	1,000 x	<250	111
Method Blank 07-452 MB	<50	<250	92

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084

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

Laboratory Code: 703073-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	120	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	100	72-122
Ethylbenzene	ug/L (ppb)	50	100	73-126
Xylenes	ug/L (ppb)	150	98	74-118
Gasoline	ug/L (ppb)	1,000	98	69-134

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	103	97	61-133	6

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

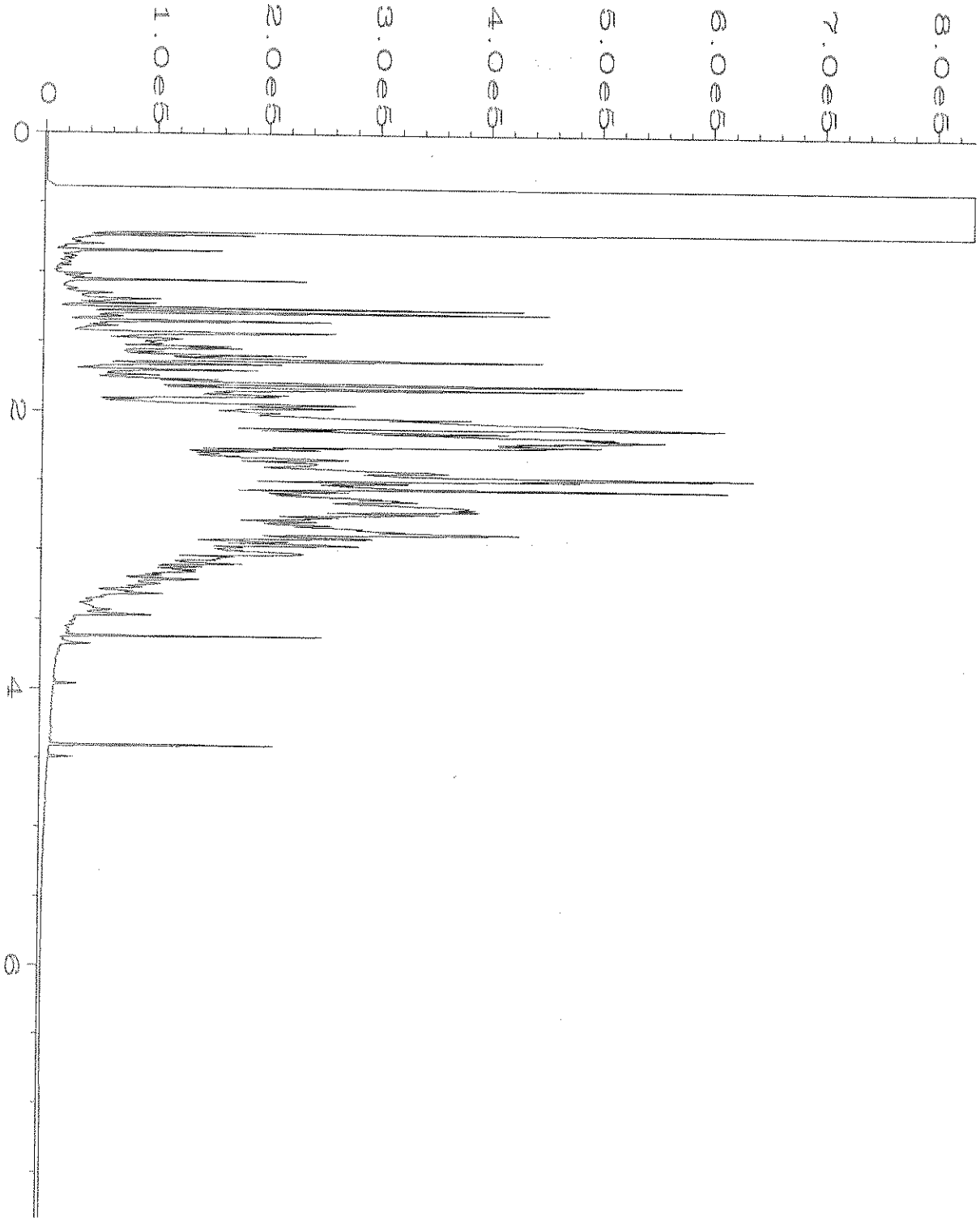
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

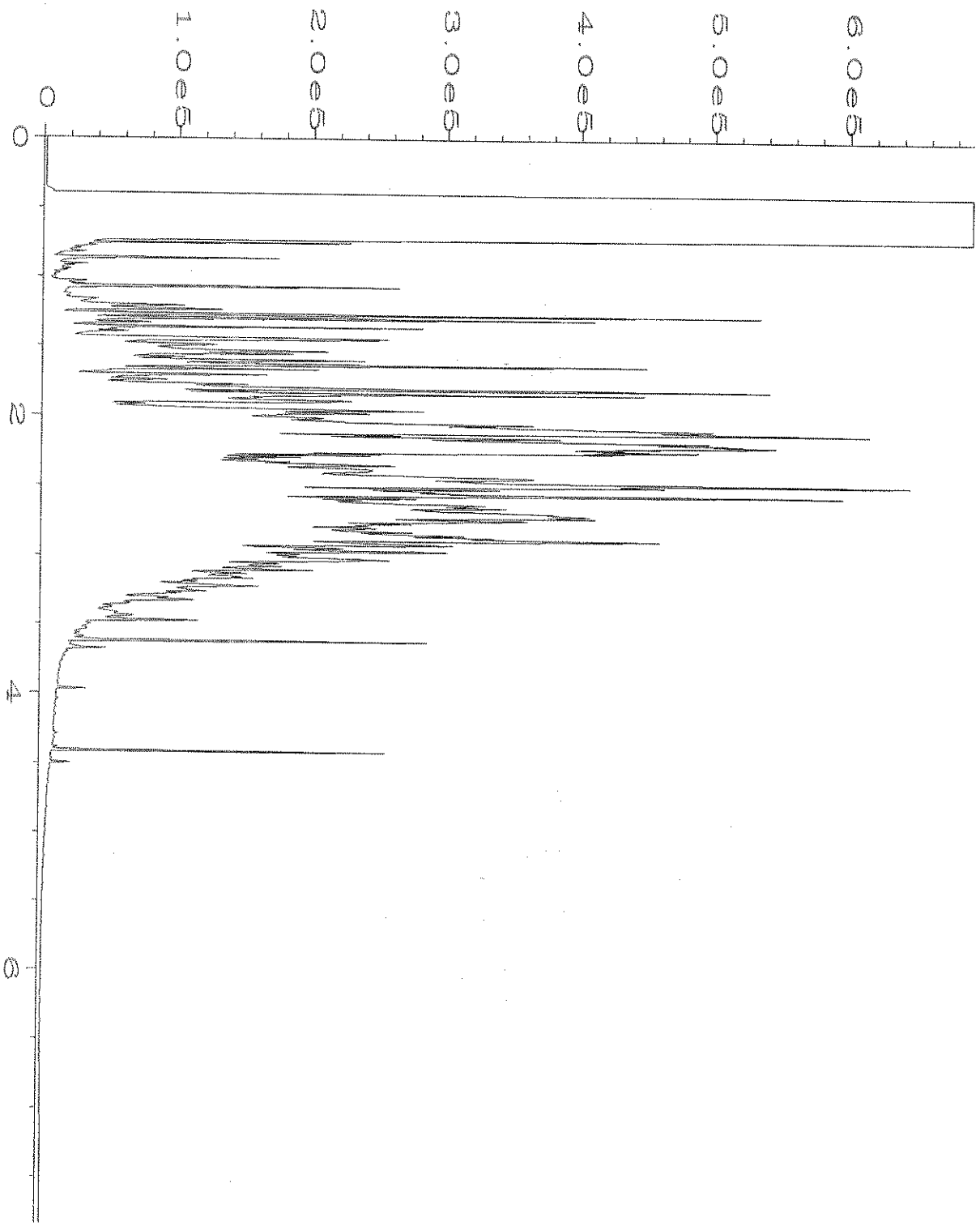
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

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

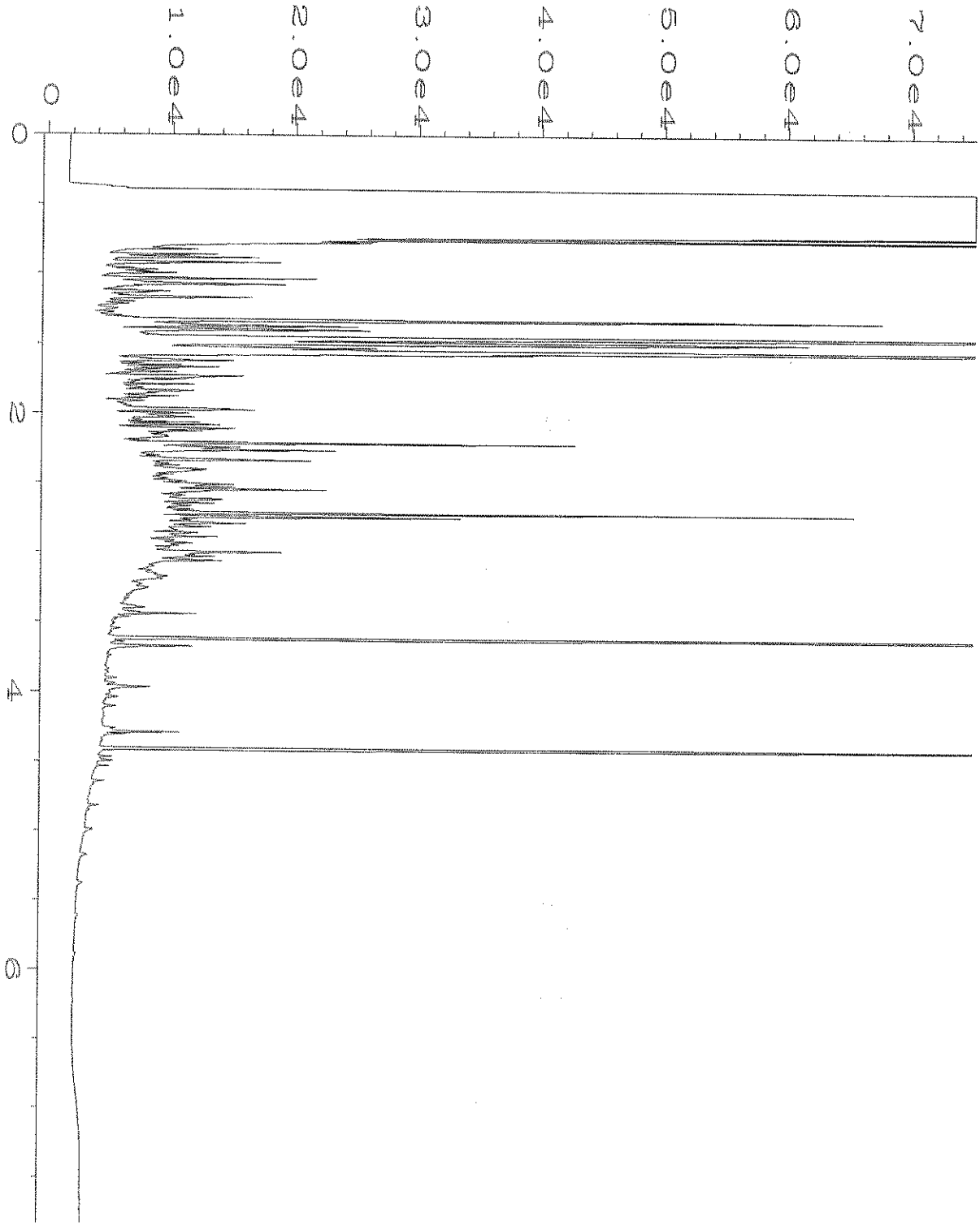


Data File Name	: C:\HPCHEM\4\DATA\03-06-17\031F1501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 31
Sample Name	: 703084-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 06 Mar 17 05:53 PM	Instrument Method	: DX.MTH
Report Created on	: 07 Mar 17 09:20 AM	Analysis Method	: DX.MTH

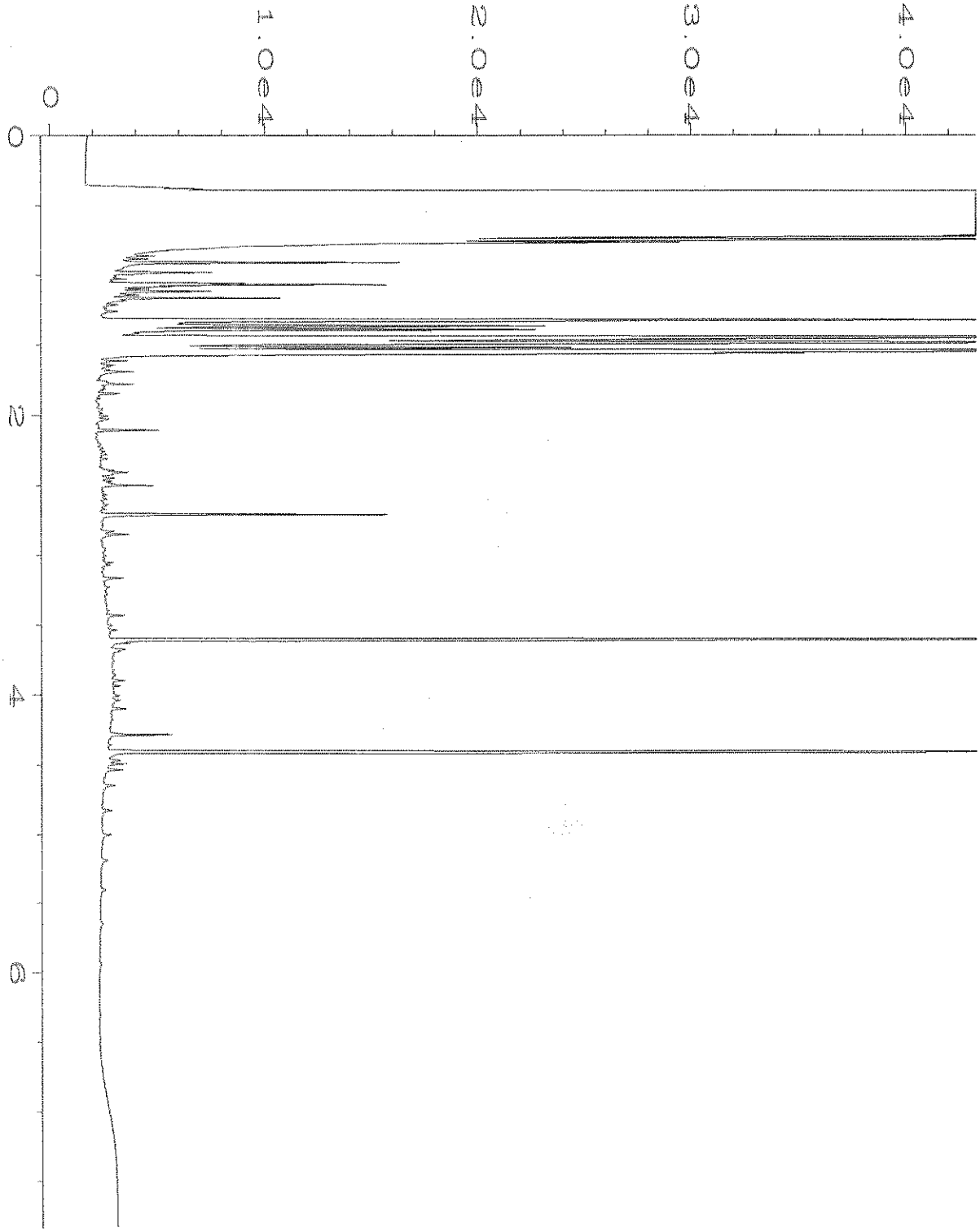


Data File Name : C:\HPCHEM\4\DATA\03-06-17\032F1501.D
Operator : mwdl
Instrument : GC#4
Sample Name : 703084-02
Run Time Bar Code:
Acquired on : 06 Mar 17 06:04 PM
Report Created on: 07 Mar 17 09:21 AM

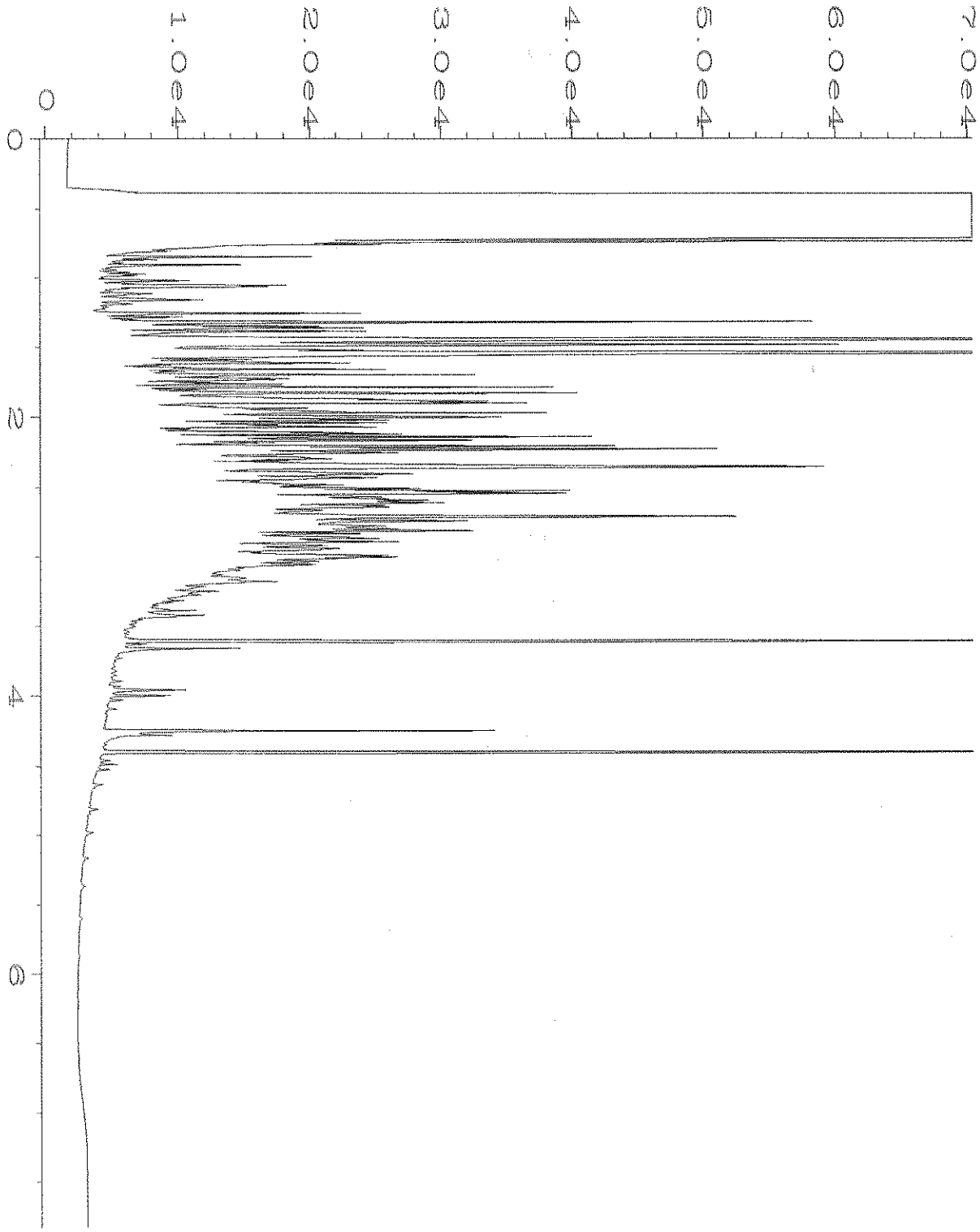
Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 15
Instrument Method: DX.MTH
Analysis Method : DX.MTH



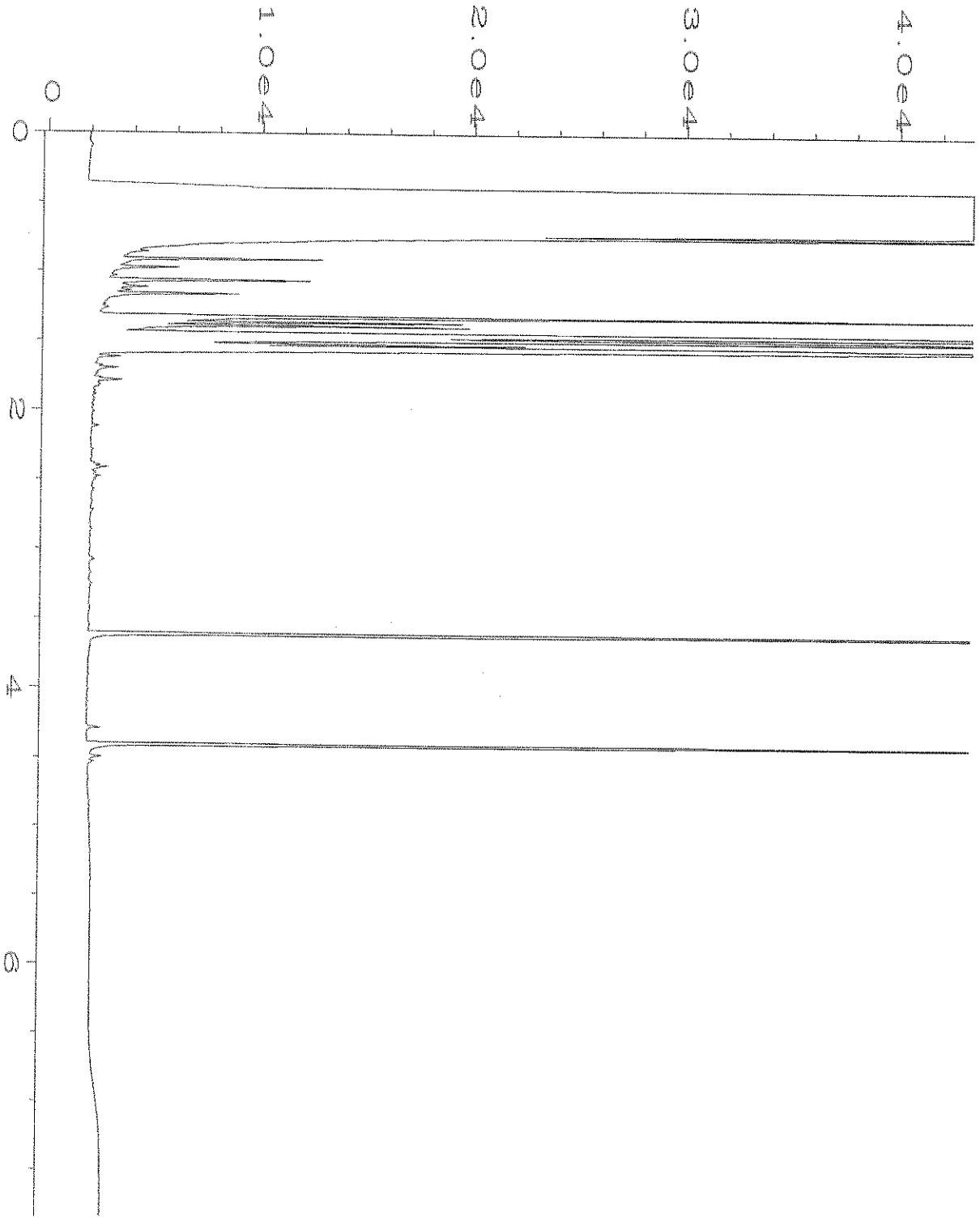
Data File Name	: C:\HPCHEM\4\DATA\03-06-17\033F1501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 33
Sample Name	: 703084-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 06 Mar 17 06:16 PM	Instrument Method	: DX.MTH
Report Created on	: 07 Mar 17 09:21 AM	Analysis Method	: DX.MTH



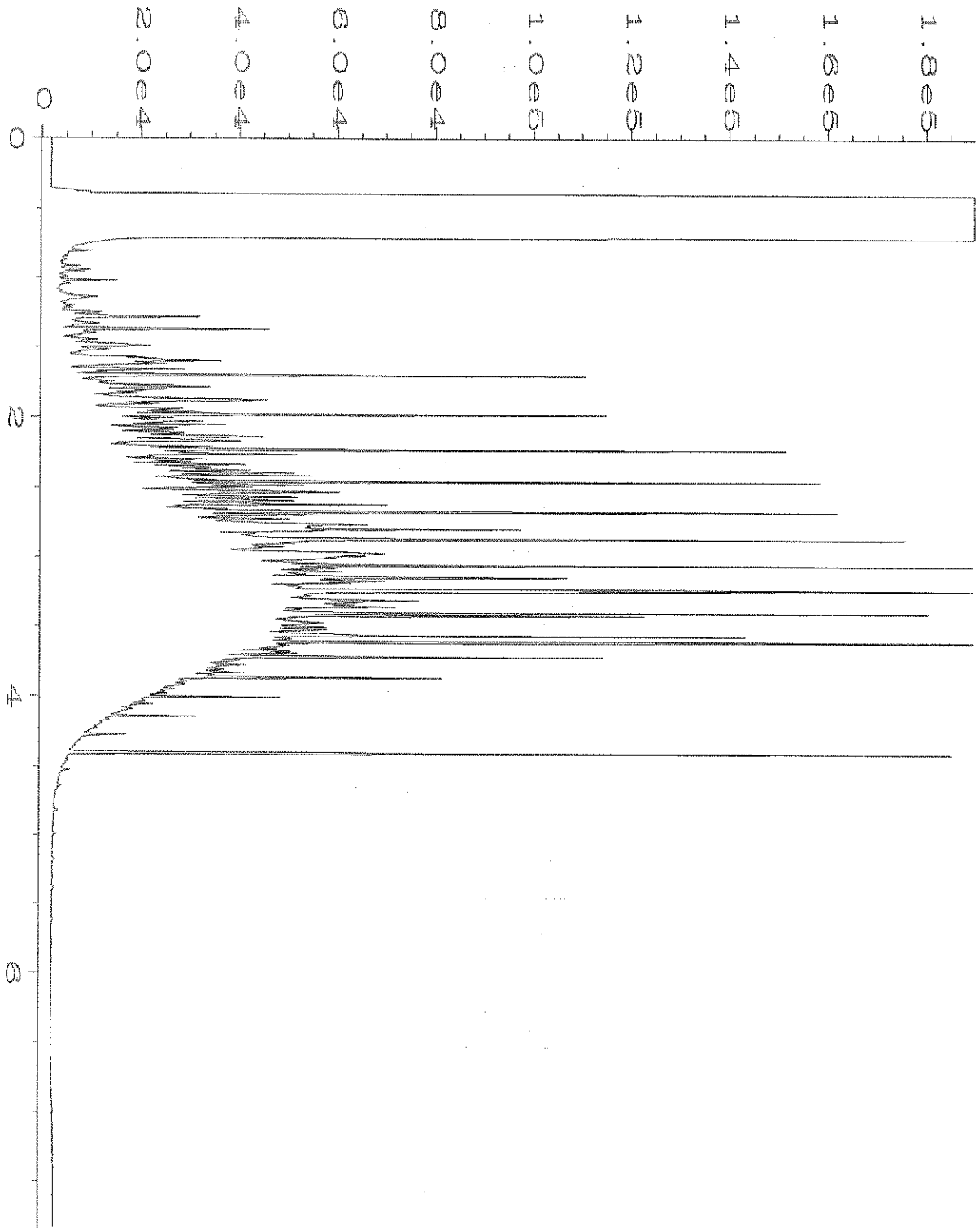
Data File Name	: C:\HPCHEM\4\DATA\03-06-17\034F1501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 34
Sample Name	: 703084-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 06 Mar 17 06:29 PM	Instrument Method	: DX.MTH
Report Created on	: 07 Mar 17 09:21 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\03-06-17\035F1501.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 35
Sample Name	: 703084-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 06 Mar 17 06:40 PM	Instrument Method	: DX.MTH
Report Created on	: 07 Mar 17 09:21 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\03-06-17\008F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 8
Sample Name	: 07-452 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 06 Mar 17 09:29 AM	Instrument Method	: DX.MTH
Report Created on:	07 Mar 17 09:20 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\4\DATA\03-06-17\003F0201.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC#4	Vial Number	: 3
Sample Name	: 500 Dx 48-20B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 06 Mar 17 06:45 AM	Instrument Method	: DX.MTH
Report Created on	: 07 Mar 17 09:22 AM	Analysis Method	: DX.MTH

703084

SAMPLE CHAIN OF CUSTODY

ME 03/03/17 | VW3 | 1/Day

Page # 1 of 1

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. SKS SHELL / 0914-001

PO #

REMARKS

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

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C			Notes
RW03-20170302	RW03	—	01 A-D	3/2/17	1622	WATER	4	X	X	X				
MW99-20170302	MW99	—	02	3/2/17	1652	WATER	4	X	X	X				
ff MW109-20170303	MW109 ff	—	03	3/3/17	1350	WATER	4	X	X	X				
MW108-20170303	MW108	—	04	3/3/17	1404	WATER	4	X	X	X				
MW110-20170303	MW110	—	05	3/3/17	1447	WATER	4	X	X	X				

3/3/17

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	JONATHAN LOEFFLER	SOUNDEARTH	3/3/17	1600
Received by:	Matt Lillis	FBInc	3/3/17	1600
Relinquished by:				
Received by:				

Samples received at 3 °C

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 20, 2017

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Roberts:

Included are the additional results from the testing of material submitted on March 3, 2017 from the SOU_0914-001_ 20170303, F&BI 703084 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Jonathan Loeffler, Liz Forbes
SOU0320R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 3, 2017 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_ 20170303, F&BI 703084 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
703084 -01	RW03-20170302
703084 -02	MW99-20170302
703084 -03	MW109-20170303
703084 -04	MW108-20170303
703084 -05	MW110-20170303

All quality control requirements were acceptable.

Date of Report: 03/20/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/14/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
RW03-20170302 703084-01	880 x	<250	120
MW99-20170302 703084-02 1/1.2	940 x	<300	133
MW109-20170303 703084-03	55 x	<250	125
MW108-20170303 703084-04 1/1.6	<80	<400	117
MW110-20170303 703084-05	110 x	<250	135
Method Blank 07-452 MB	<50	<250	105

Date of Report: 03/20/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084

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

Laboratory Code: Laboratory Control Sample 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	91	87	63-142	4

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

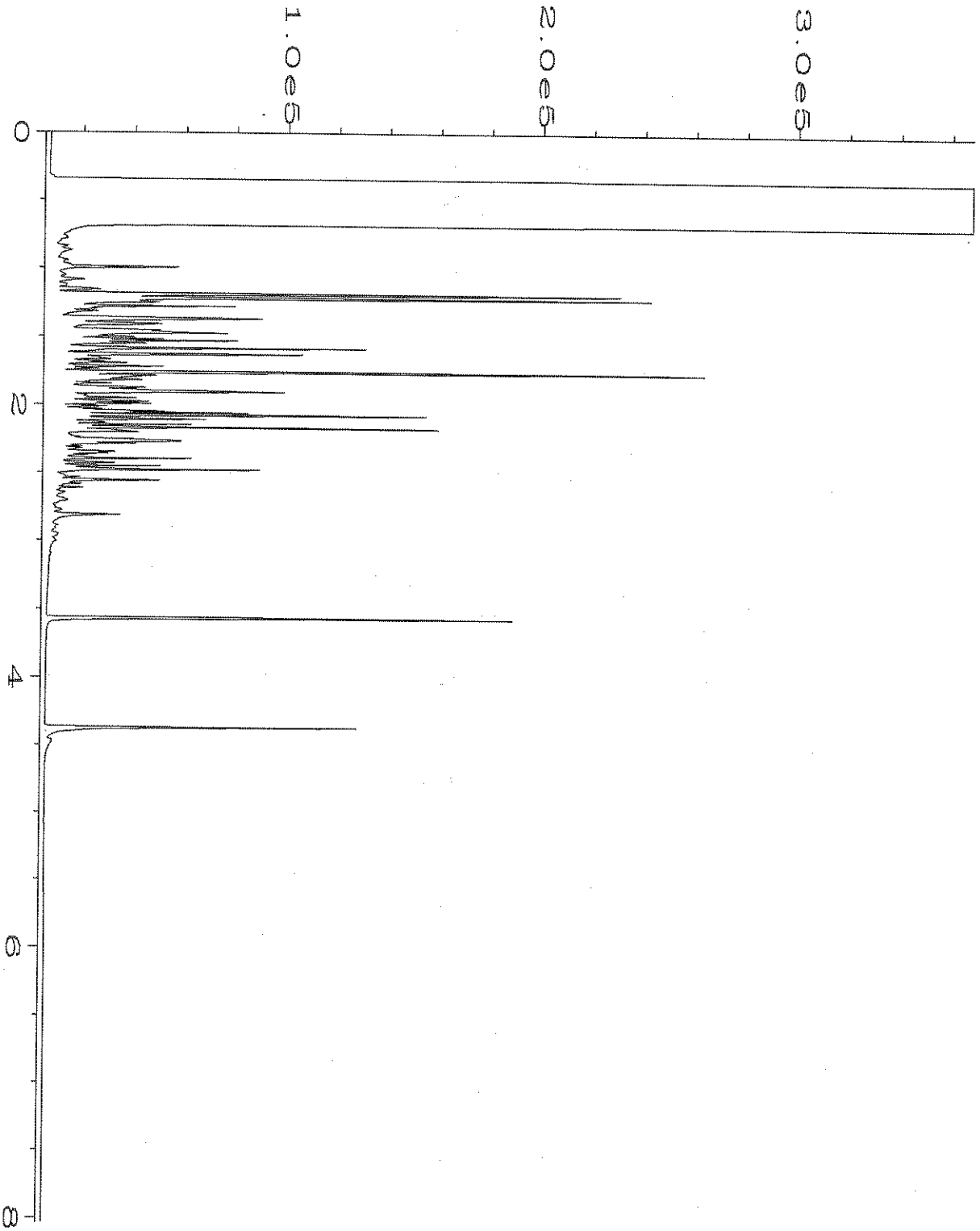
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

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

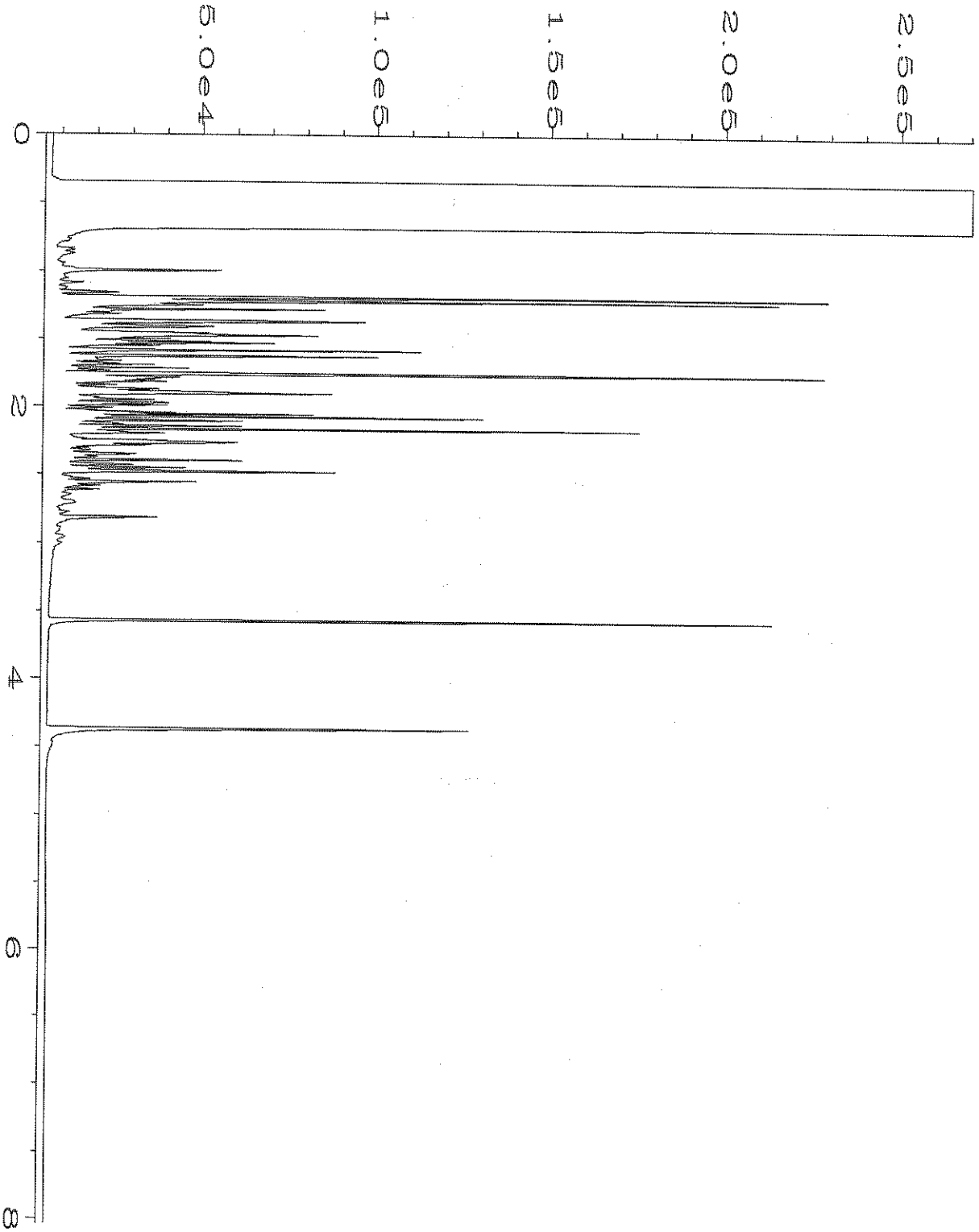
vo - The value reported fell outside the control limits established for this analyte.

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



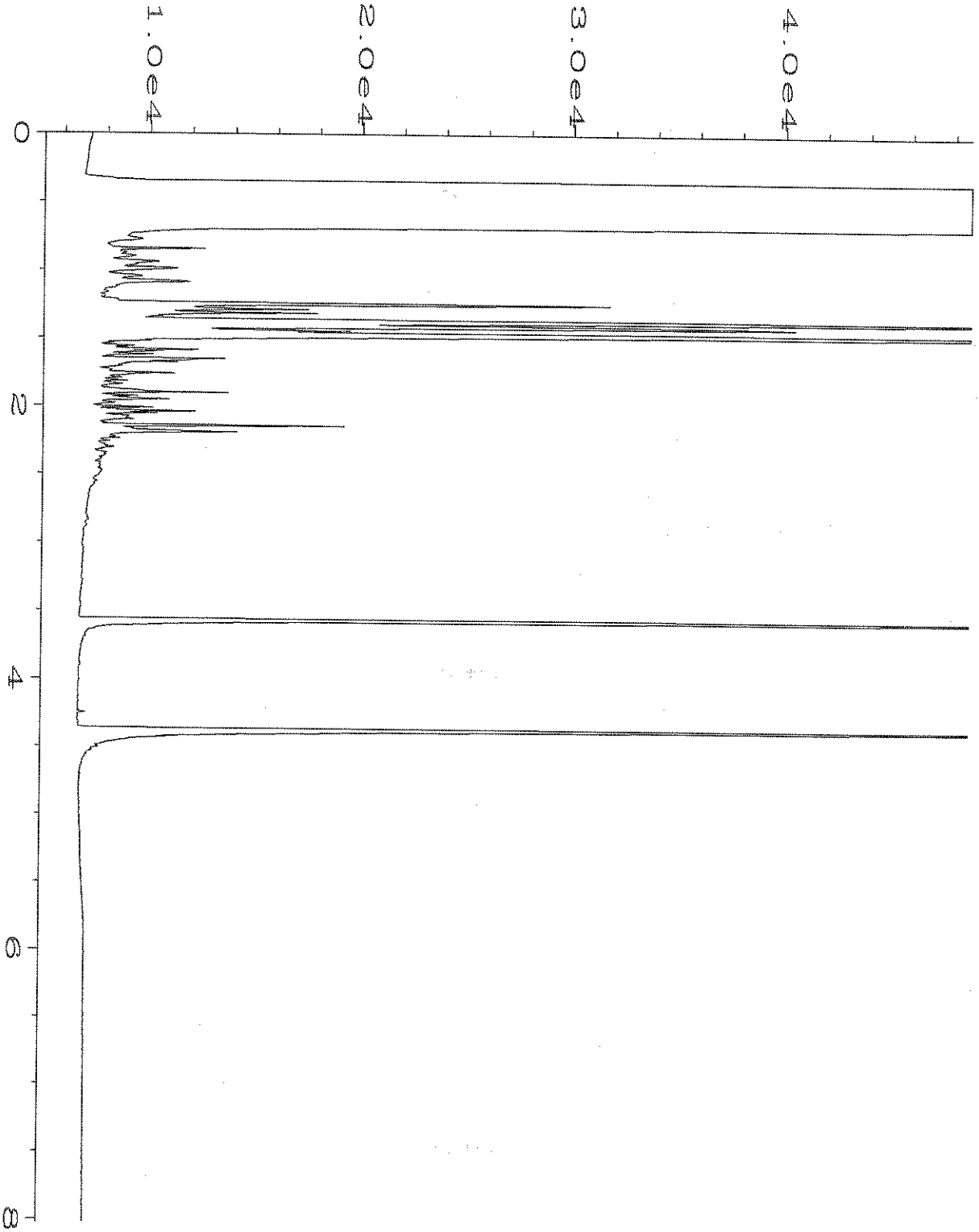
Data File Name : C:\HPCHEM\1\DATA\03-14-17\047F0901.D
Operator : mwdl
Instrument : GC1
Sample Name : 703084-01 sg
Run Time Bar Code:
Acquired on : 14 Mar 17 09:32 PM
Report Created on: 15 Mar 17 08:37 AM

Page Number : 1
Vial Number : 47
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX1.MTH



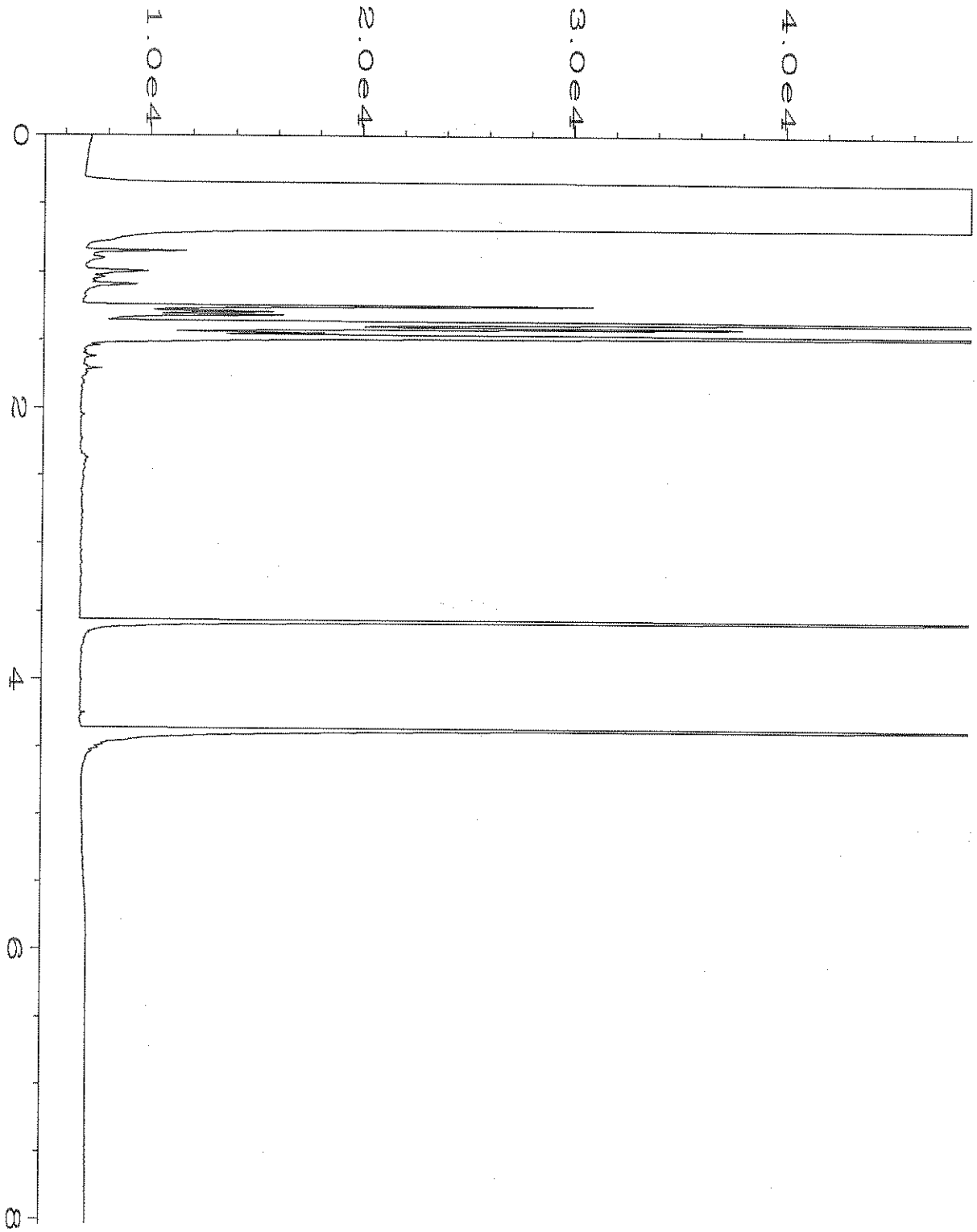
Data File Name : C:\HPCHEM\1\DATA\03-14-17\048F0901.D
Operator : mwdl
Instrument : GC1
Sample Name : 703084-02 sg
Run Time Bar Code:
Acquired on : 14 Mar 17 09:45 PM
Report Created on: 15 Mar 17 08:37 AM

Page Number : 1
Vial Number : 48
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX1.MTH



Data File Name : C:\HPCHEM\1\DATA\03-14-17\049F0901.D
Operator : mwdl
Instrument : GC1
Sample Name : 703084-03 sg
Run Time Bar Code:
Acquired on : 14 Mar 17 09:57 PM
Report Created on: 15 Mar 17 08:37 AM

Page Number : 1
Vial Number : 49
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX1.MTH



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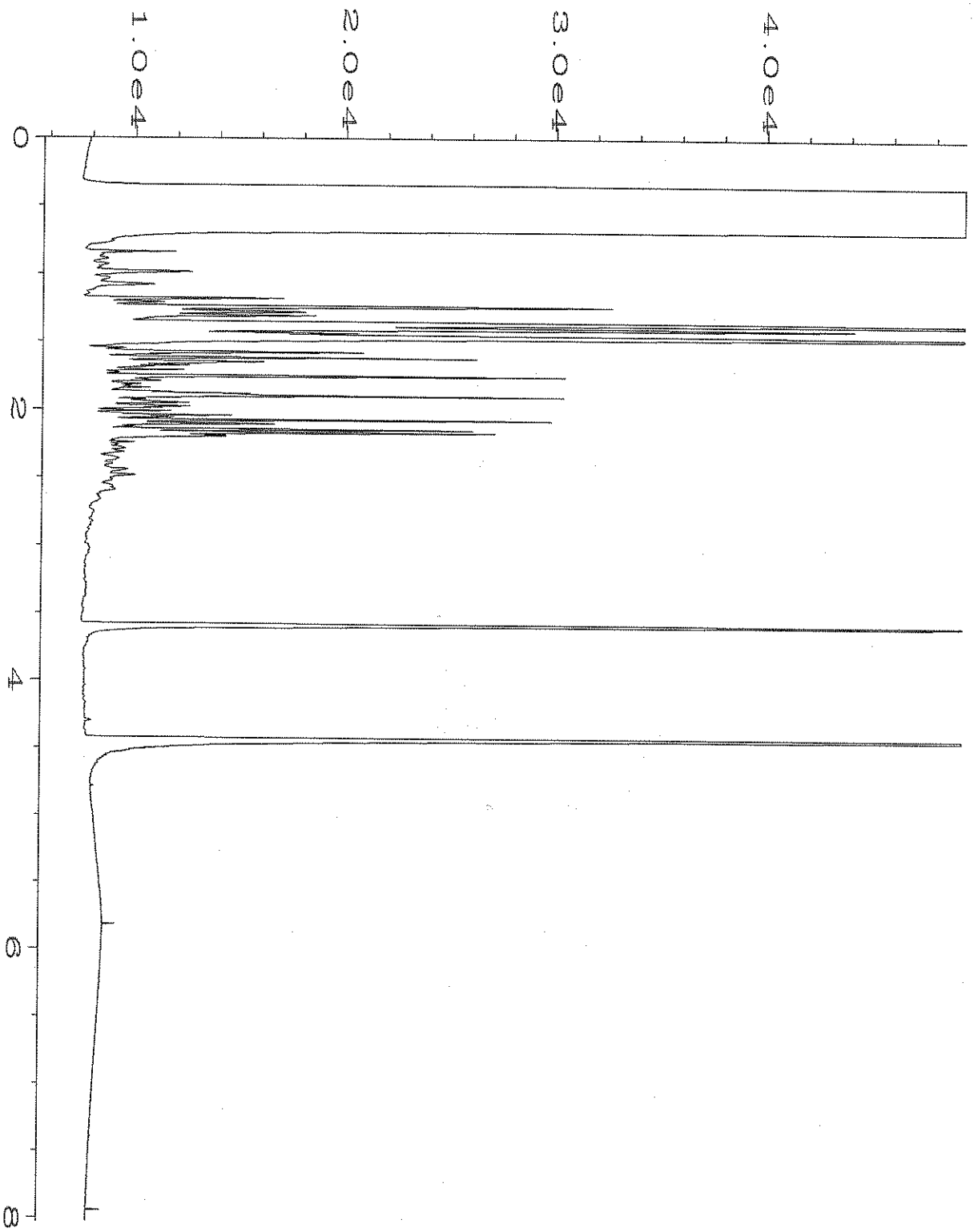
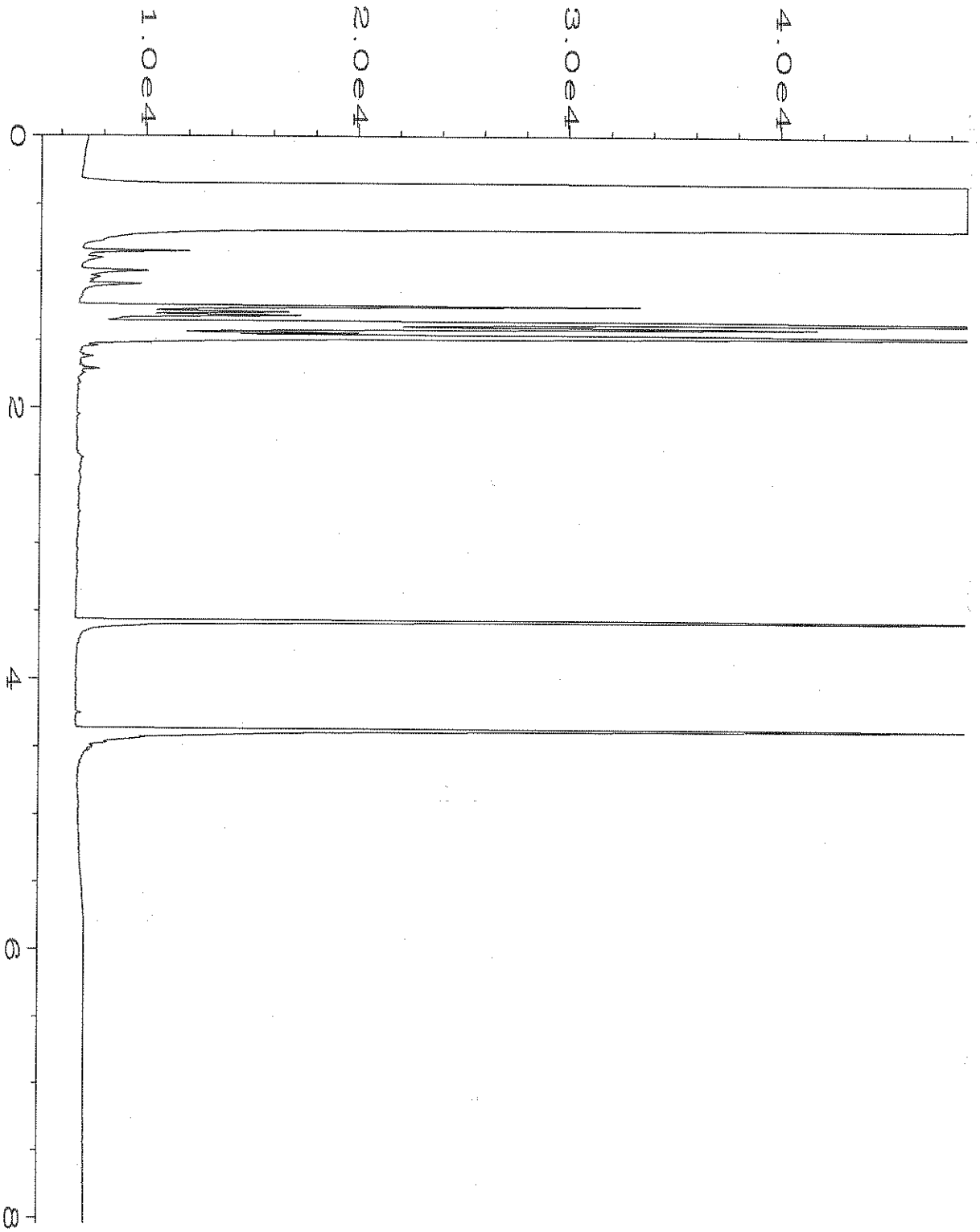
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 50
Sample Name	: 703084-04 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 14 Mar 17 10:09 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Mar 17 08:37 AM	Analysis Method	: DX1.MTH

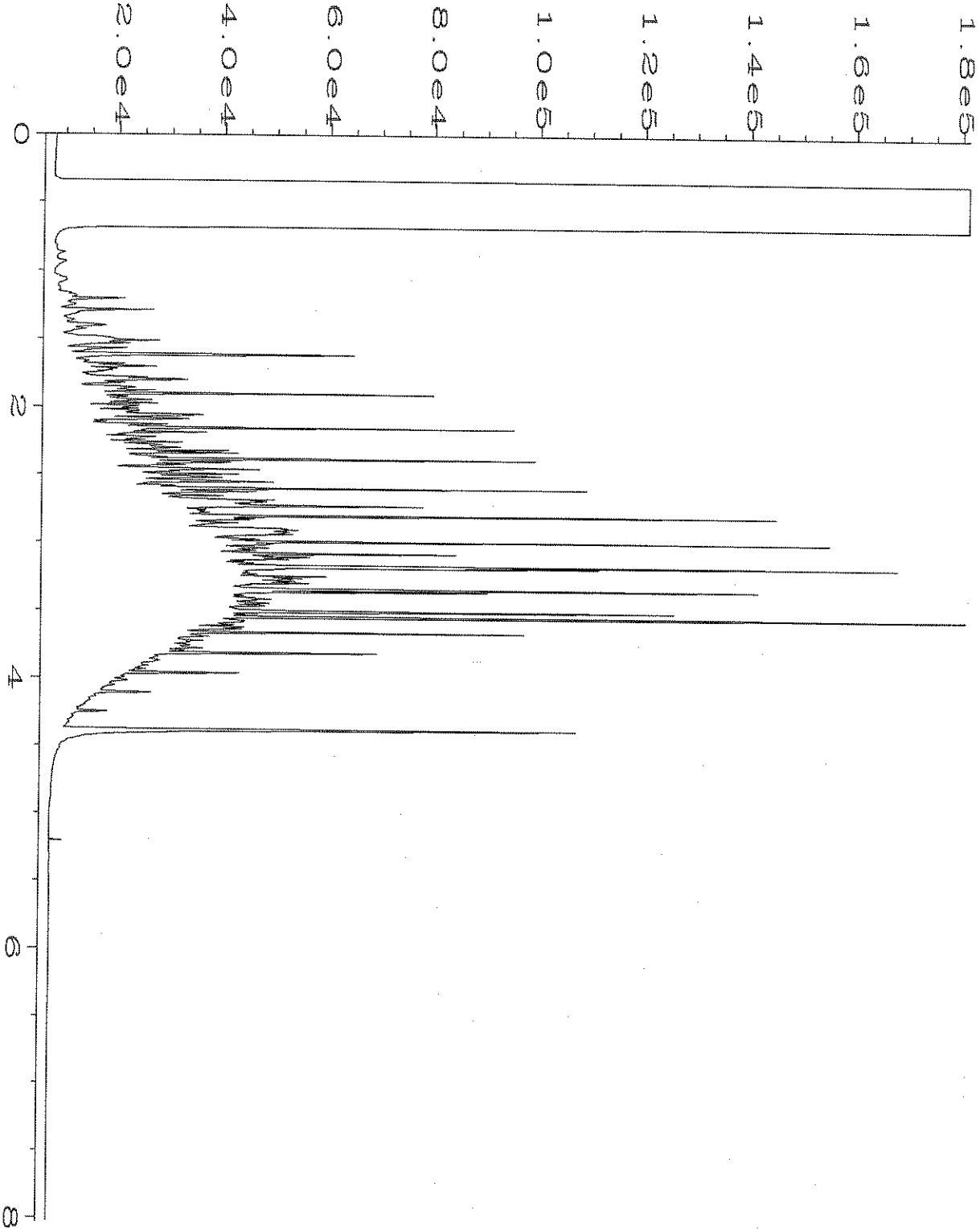


Data File Name	: C:\HPCHEM\1\DATA\03-14-17\051F1201.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 51
Sample Name	: 703084-05 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 12
Acquired on	: 15 Mar 17 05:48 AM	Instrument Method	: DX.MTH
Report Created on:	15 Mar 17 08:37 AM	Analysis Method	: DX1.MTH



Data File Name : C:\HPCHEM\1\DATA\03-14-17\044F0901.D
Operator : mwdl
Instrument : GC1
Sample Name : 07-452 mb sg
Run Time Bar Code:
Acquired on : 14 Mar 17 08:56 PM
Report Created on: 15 Mar 17 08:37 AM

Page Number : 1
Vial Number : 44
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX1.MTH



Data File Name	: C:\HPCHEM\1\DATA\03-14-17\003F0201.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 48-20B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 14 Mar 17 06:13 AM	Instrument Method	: DX.MTH
Report Created on	: 15 Mar 17 08:40 AM	Analysis Method	: DX1.MTH

703084

SAMPLE CHAIN OF CUSTODY

ME 03/03/17 | VW3 | 1/Day

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. SKS SHELL / 0914-001

PO #

REMARKS

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

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C	Dx + SG		Notes
RW03-20170302	RW03	—	01 AD	3/2/17	1622	WATER	4	X	X	X		⊗		
MW99-20170302	MW99	—	02	3/2/17	1652	WATER	4	X	X	X		⊗		⊗ - per RR 3/14/17 MR
## MW108-20170303	MW108 ##	—	03	3/3/17	1350	WATER	4	X	X	X		⊗		
MW108-20170303	MW108	—	04	3/3/17	1404	WATER	4	X	X	X		⊗		
MW110-20170303	MW110	—	05	3/3/17	1447	WATER	4	X	X	X		⊗		

3/3/17

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	JONATHAN LOEFFLER	SOUNDEARTH	3/3/17	1600
Received by:	Matt Lamb	FBInc	3/3/17	1600
Relinquished by:				
Received by:				

Samples received at 3 °C

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

FORMS\COC\COC.DOC

Friedman & Bruya, Inc. #703320 and additional

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, 2017

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Roberts:

Included are the results from the testing of material submitted on March 17, 2017 from the SOU_0914-001_ 20170317, F&BI 703320 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Jonathan Loeffler, Liz Forbes
SOU0323R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2017 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_ 20170317, F&BI 703320 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
703320 -01	MW104-20170317

All quality control requirements were acceptable.

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/20/17
Date Analyzed: 03/20/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW104-20170317 703320-01	<1	<1	8.5	10	1,400	89
Method Blank 07-565 MB	<1	<1	<1	<3	<100	84

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/21/17
Date Analyzed: 03/21/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW104-20170317 703320-01 1/1.6	7,900	<400	79
Method Blank 07-590 MB2	<50	<250	97

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320

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: 703315-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	34	36	6
Toluene	ug/L (ppb)	120 ve	120 ve	0
Ethylbenzene	ug/L (ppb)	100 ve	100 ve	0
Xylenes	ug/L (ppb)	630 ve	630 ve	0
Gasoline	ug/L (ppb)	9,500	9,700	2

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	96	72-122
Ethylbenzene	ug/L (ppb)	50	95	73-126
Xylenes	ug/L (ppb)	150	93	74-118
Gasoline	ug/L (ppb)	1,000	99	69-134

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	114	102	61-133	11

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

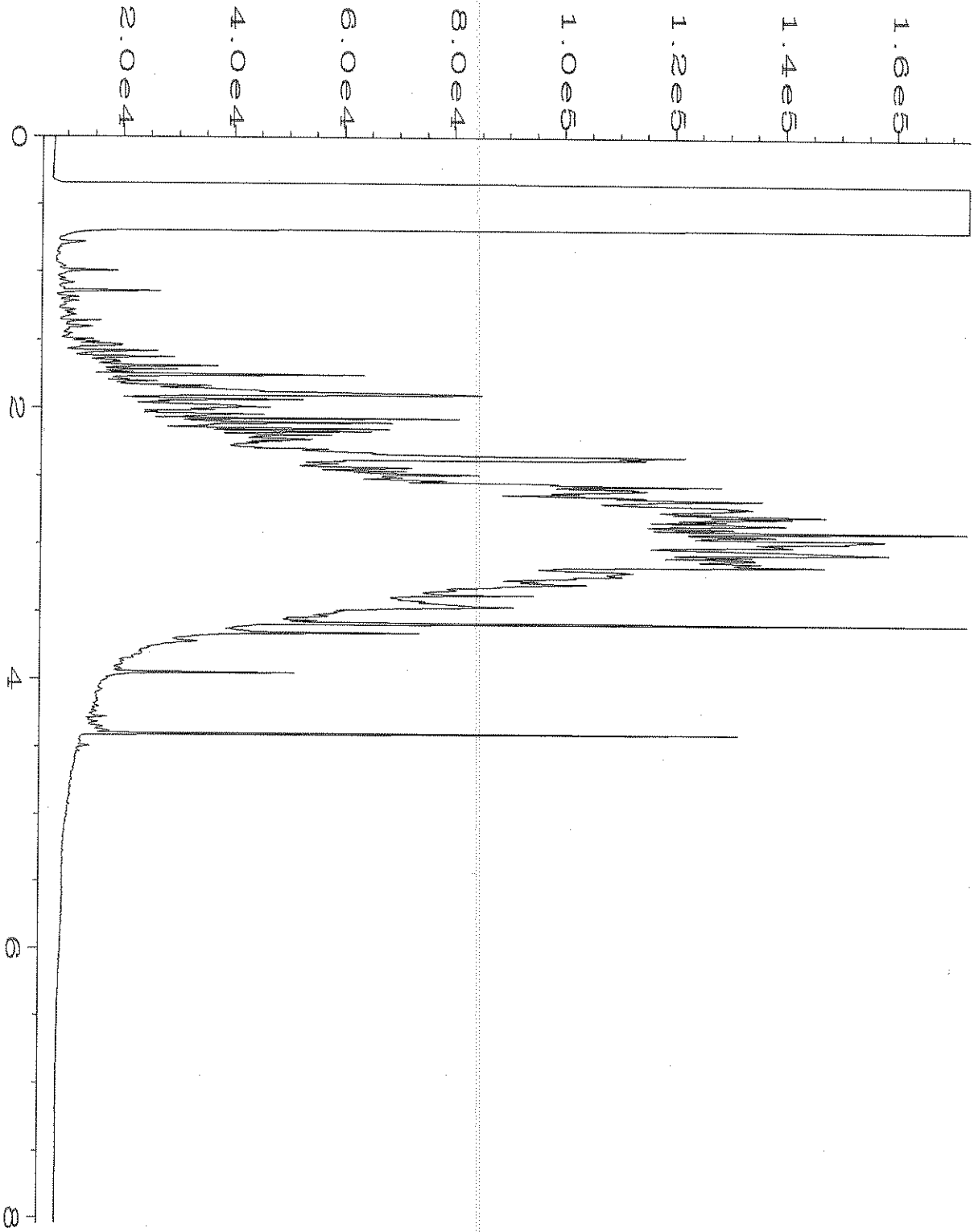
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

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

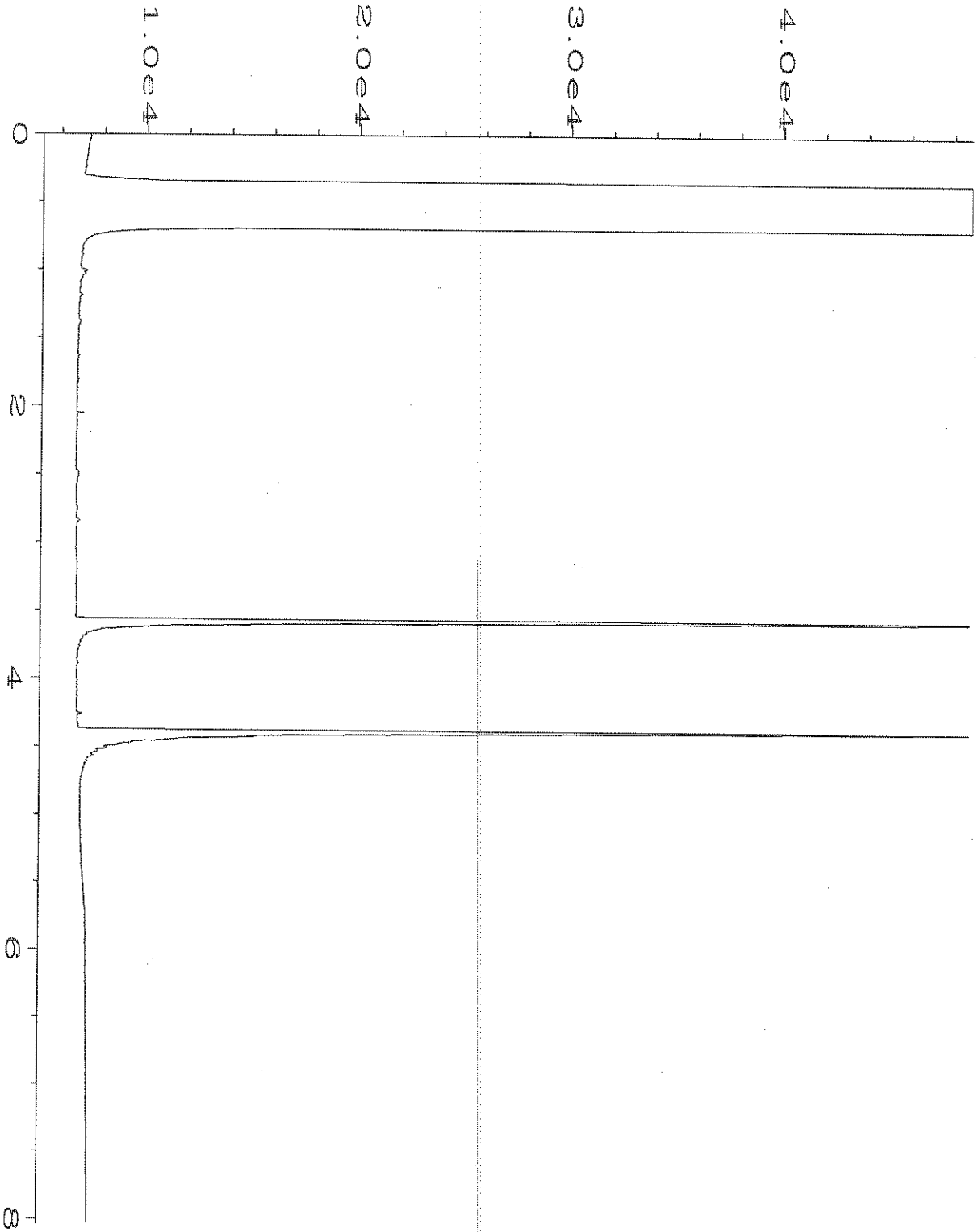
vo - The value reported fell outside the control limits established for this analyte.

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



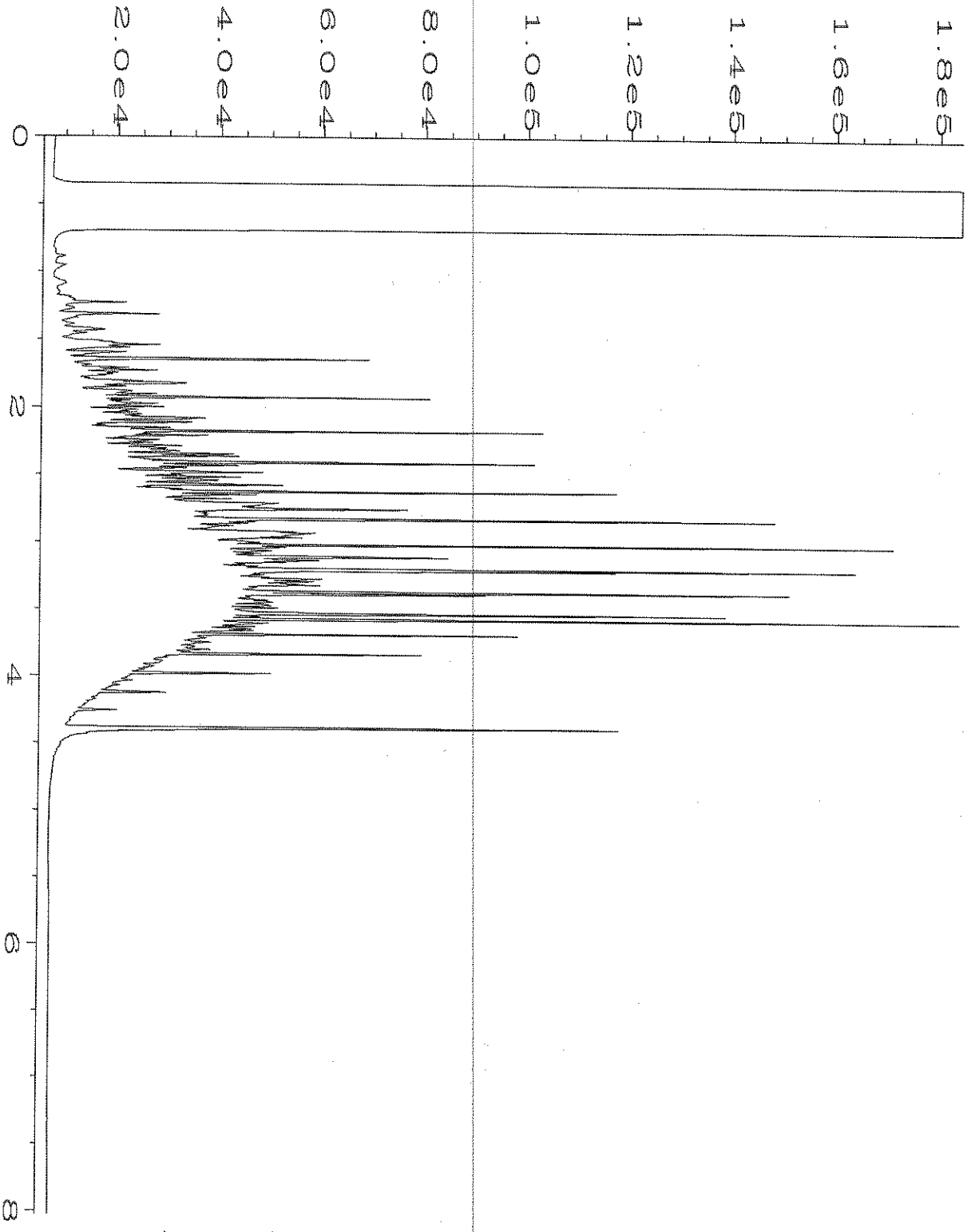
Data File Name : C:\HPCHEM\1\DATA\03-21-17\024F0601.D
Operator : mwdl
Instrument : GC1
Sample Name : 703320-01
Run Time Bar Code:
Acquired on : 21 Mar 17 02:05 PM
Report Created on: 22 Mar 17 08:56 AM

Page Number : 1
Vial Number : 24
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : ISTNDDX.MTH



Data File Name : C:\HPCHEM\1\DATA\03-21-17\017F0401.D
Operator : mwdl
Instrument : GC1
Sample Name : 07-590 mb2
Run Time Bar Code:
Acquired on : 21 Mar 17 11:23 AM
Report Created on: 22 Mar 17 08:56 AM

Page Number : 1
Vial Number : 17
Injection Number : 1
Sequence Line : 4
Instrument Method: DX.MTH
Analysis Method : ISTNDDX.MTH



Data File Name : C:\HPCHEM\1\DATA\03-21-17\003F0201.D
Operator : mwdl
Instrument : GC1
Sample Name : 500 Dx 48-20B
Run Time Bar Code:
Acquired on : 21 Mar 17 06:32 AM
Report Created on: 22 Mar 17 08:56 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : ISTNDDX.MTH

703320

SAMPLE CHAIN OF CUSTODY

MH 3/17/17, EO, VW,

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS *(signature)* Clare Tomm

PROJECT NAME/NO. SKS SHELL / 0914-001

PO #

REMARKS

Page # 1 of 1

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

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C			Notes
MW104-20170317	MW104	—	01	3/17/17	0913	H2O	4	X	X	X				
				CJT	3/17/17									

EO 3/17/17

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Clare Tomm	SoundEarth	3/17/17	1515
Received by:	D Sacks	FedEx SRC	3/17	3:26P
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 30, 2017

Rob Roberts, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr Roberts:

Included are the additional results from the testing of material submitted on March 17, 2017 from the SOU_0914-001_ 20170317, F&BI 703320 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Jonathan Loeffler, Liz Forbes
SOU0330R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2017 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0914-001_ 20170317, F&BI 703320 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
703320 -01	MW104-20170317

All quality control requirements were acceptable.

Date of Report: 03/30/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/21/17
Date Analyzed: 03/24/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW104-20170317 703320-01 1/1.6	290 x	<400	94
Method Blank 07-590 MB2	<50	<250	95

Date of Report: 03/30/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320

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

Laboratory Code: Laboratory Control Sample 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	76	84	63-142	10

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

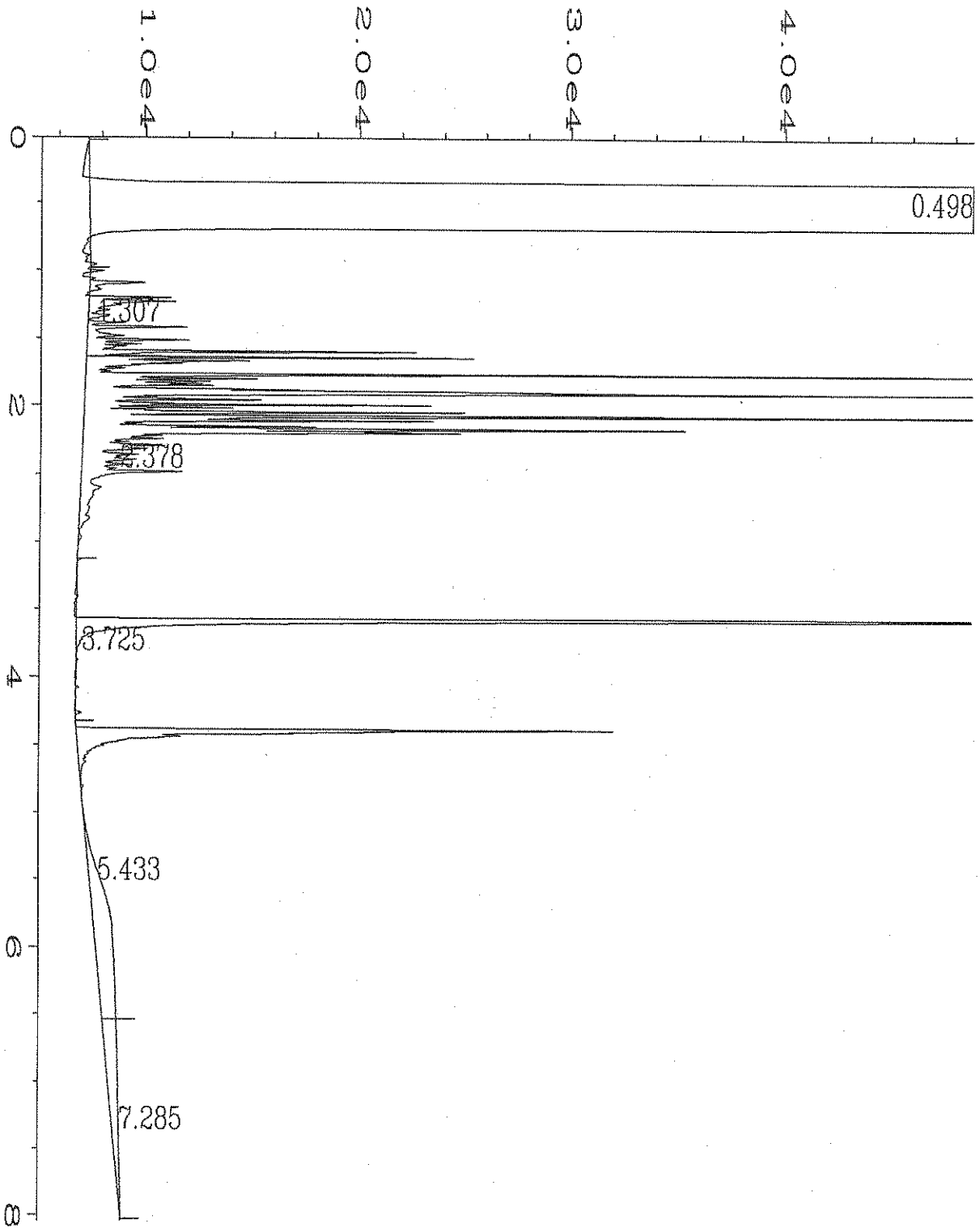
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

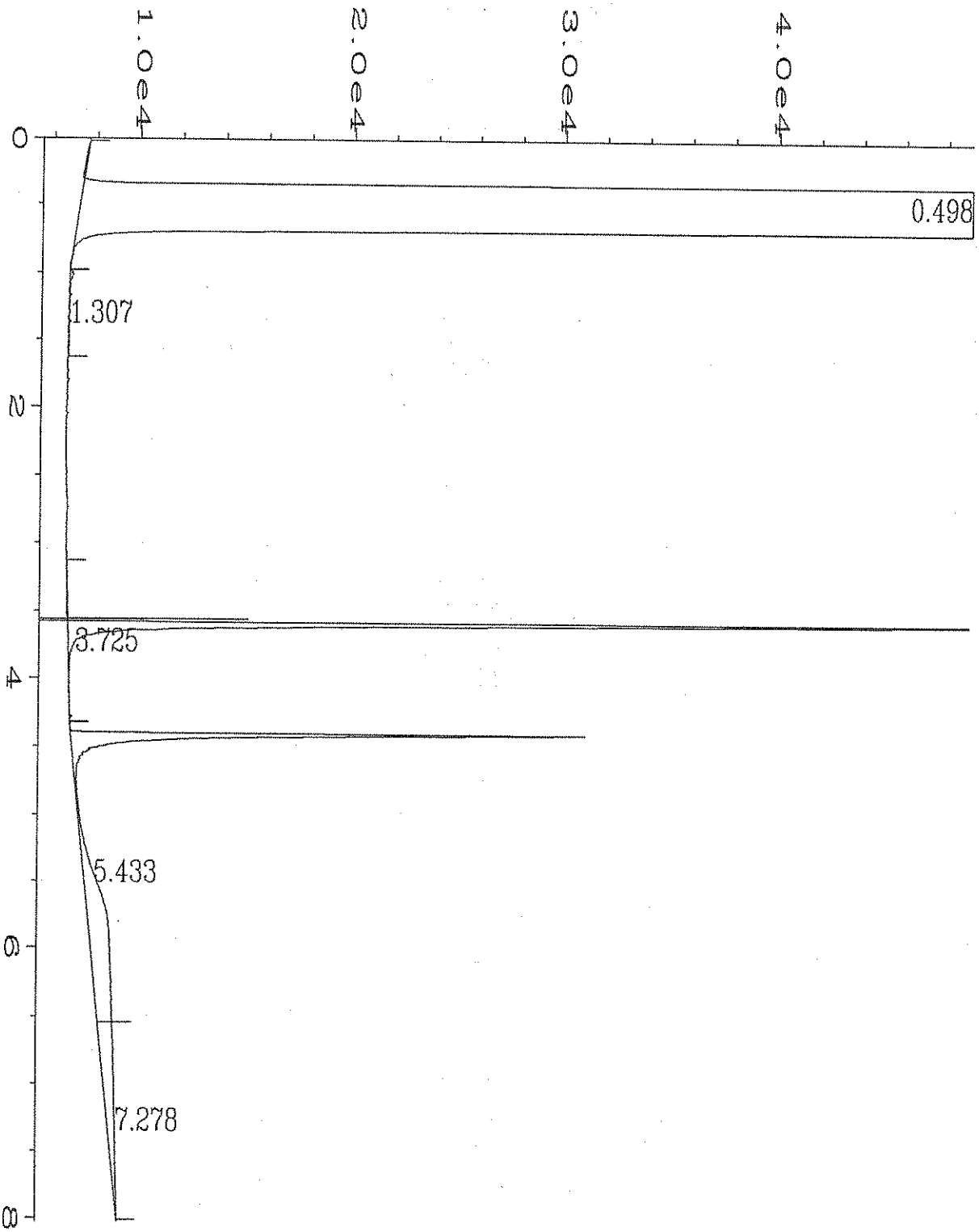
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

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



Data File Name	: C:\HPCHEM\1\DATA\03-24-17\009F0301.D		
Operator	: mwdl	Page Number	: 1
Instrument	: GC1	Vial Number	: 9
Sample Name	: 703320-01 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 24 Mar 17 09:10 AM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 17 09:22 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\1\DATA\03-24-17\006F0301.D
Operator : mwdl
Instrument : GC1
Sample Name : 07-590 mb2 sg
Run Time Bar Code:
Acquired on : 24 Mar 17 08:37 AM
Report Created on: 24 Mar 17 08:46 AM

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH

703320

SAMPLE CHAIN OF CUSTODY

MH 3/17/17, EQ 1/VW,

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Clare Tousa

PROJECT NAME/NO. SKS SHELL / 0914-001

PO #

REMARKS

Page # 1 of 1

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

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C	Dx w/ SG		Notes
MW104-20170317	MW104	—	01	3/17/17	0913	H2O	4	X	X	X		X		X - per RR 3/23/17 MH
				CJT	3/17/17									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Clare Tousa	SoundEarth	3/17/17	1515
Received by:	D Sauls	FedEx SEA	3/17	3:26P
Relinquished by:				
Received by:				

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

ATTACHMENT B
DATA VALIDATION REPORT

Validata, LLC #703084 & 703320

DATA VALIDATION REPORT

SKS SHELL
First Quarter 2017

Prepared for:
Sound Earth Strategies, Inc.
2811 Fairview Ave East, Suite 2000
Seattle, Washington 98102

Prepared by:
Validata, LLC
3346 NE 178th St.
Lake Forest Park, Washington 98155

PROJECT NARRATIVE

Data Validation

This report summarizes the results of the summary level validation (Stage 2A) performed on water samples for the SKS Shell sampling project. A complete list of samples is provided in the Sample Index. Samples were analyzed by Friedman & Bruya, Inc. laboratory, Seattle, Washington. The analytical methods are listed below:

Sample Index

ANALYSIS	METHOD	Reviewer
BTEX, TPH as Gasoline Range	SW8021B/NWTPH-Gx	C. Jensen
Total Petroleum Hydrocarbons – Diesel Range, Motor Oil	NWTPH-Dx	C. Jensen

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *USEPA National Functional Guidelines for Organic Data Review* (EPA, 1999 & 2008).

The goal of data validation is to assign data assessment qualifiers for assistance in data interpretation. Results assigned as estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. For results assigned an R, the data are rejected and should not be used for site evaluation purposes. Unqualified data implies the data meet the data quality objectives as stated in the documents and methods referenced above. A summary of the data qualifiers used in validation are included in Appendix A. The summary of Qualified Data are provided in Appendix B. All validation worksheets are provided in Appendix C.

SAMPLE INDEX

SDG	Sample ID	Lab Sample ID	BTEX	NWTPH-Gx	NWTPH-Dx
703084	RW03-20170302	703084-01	X	X	X
703084	MW99-20170302	703084-02	X	X	X
703084	MW109-20170303	703084-03	X	X	X
703084	MW108-20170303	703084-04	X	X	X
703084	MW110-20170303	703084-05	X	X	X
703320	MW104-20170317	703322-01	X	X	X

DATA VALIDATION REPORT
Volatile Organic Compounds - Method SW8081B – Benzene, Toluene, Ethylbenzene, Xylenes

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Friedman & Bruya, Inc. laboratory, Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL

703084	4	STAGE 2A
703320	1	STAGE 2A

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables for a Stage 2A review. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Sample IDs and results reported in the data summary spreadsheet were verified (10% verification) by comparing the spreadsheet the laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

Sample Receipt, Preservation, and Holding Times	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
Laboratory Blanks	Field Duplicates
Field Blanks	Target Analyte List
Surrogate Compounds	Reporting Limits
Laboratory Control Samples (LCS)	Reported Results

Sample Receipt, Preservation, and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 0° to 6°C. For volatiles analysis, no action is taken if the cooler temperature is<10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). With the exceptions noted below, the laboratory received the sample coolers within the advisory temperature range.

SDG 703084, 703320: The cooler temperatures were within the recommended temperature range.

Method and Field Blanks

The method blanks were all reported as undetected for target compounds. Field blanks were not submitted with this sampling event.

Surrogate Compounds

Surrogates were added to all samples. All surrogate recoveries were within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were not specifically analyzed for this dataset. The laboratory demonstrated precision and accuracy through the analysis of laboratory control samples (LCS) with acceptable results.

Field Duplicates

For water samples, the RPD control limit is 20% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 1x the RL.
SDG 703084, 703220: Sample pair RW03-20170302/MW99-20170203 were identified as a field duplicate pair. Field precision was acceptable.

Target Analyte List

A sampling plan was not available for review.

Reporting Limits

The laboratory reporting limits were sufficiently above the MTCA Method A cleanup levels provided in appendix B.

Reported Results

Reported results were considered acceptable.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the surrogate, LCS recovery values. With the exceptions noted above, precision was also acceptable as demonstrated by the LCS and field duplicate RPD values. All data are acceptable for use.

DATA VALIDATION REPORT
TPH as Gasoline Range Organics - Method NWTPH-Gx

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Friedman & Bruya, Inc. laboratory, Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
703084	4	STAGE 2A
703320	1	STAGE 2A

DATA PACKAGE COMPLETENESS

With the exception noted below, the laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Sample IDs and results reported in the data summary spreadsheet were verified (10% verification) by comparing the spreadsheet the laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

Sample Receipt, Preservation, and Holding Times	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
Laboratory Blanks	Field Duplicates
Field Blanks	Target Analyte List
Surrogate Compounds	Reporting Limits
Laboratory Control Samples (LCS)	Reported Results

Sample Receipt, Preservation, and Holding Times

As stated in the validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C-6°C and samples must be analyzed within 14 days. For volatiles analysis, no action is taken if the cooler temperature is <10°C. If the cooler temperature is >10°C, associated sample results are estimated (J/UJ-1). The following exceptions were noted during validation:

SDG 703084, 703320: The cooler temperatures were within the recommended temperature range.

Method and Field Blanks

The method blanks were all reported as undetected for target compounds. Field blanks were not submitted with this sampling event.

Surrogate Compounds

Surrogates were added to all samples. All surrogate recoveries were within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were not specifically analyzed for this dataset. The laboratory demonstrated precision and accuracy through the analysis of laboratory control samples (LCS) with acceptable results.

Field Duplicates

For water samples, the RPD control limit is 20% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 1x the RL.

SDG 703084, 703220: Sample pair RW03-20170302/MW99-20170203 were identified as a field duplicate pair. Field precision was acceptable.

Target Analyte List

A sampling plan was not available for review.

Reporting Limits

The laboratory reporting limits were sufficiently above the MTCA Method A cleanup levels provided in appendix B.

Reported Results

Results reported were deemed acceptable.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the surrogate and LCS recovery values. Precision was also acceptable as demonstrated by the LCS and laboratory and field duplicate RPD values. All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
Diesel Range, Motor Oil - Method NWTPH-Dx

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Friedman & Bruya, Inc. laboratory, Seattle, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
703084	4	STAGE 2A
703320	1	STAGE 2A

DATA PACKAGE COMPLETENESS

With the exception noted below, the laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

SDG 703084, 703320: No problems were noted.

SDG 703084: The laboratory analyzed samples RW03-20170302, MW99-20170302, MW109-20170303, MW108-20170303 and MW110-20170303 following the standard methodology and additionally by passing the samples through a silica gel column prior to analysis. Both sets of results are included in this validation report.

SDG 703320: The laboratory analyzed sample MW104-20170317 following the standard methodology and additionally by passing the samples through a silica gel column prior to analysis. Both sets of results are included in this validation report.

EDD TO HARDCOPY VERIFICATION

Sample IDs and results reported in the data summary spreadsheet were verified (10% verification) by comparing the spreadsheet the laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

Sample Receipt, Preservation, and Holding Times	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
Laboratory Blanks	Field Duplicates
Field Blanks	Target Analyte List
Surrogate Compounds	Reporting Limits
Laboratory Control Samples (LCS)	Reported Results

Sample Preservation and Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of 0°C - 6°C and be extracted within 7 days for aqueous samples and 14 days for soil samples. Sample extracts must be analyzed within 40 days of extraction.

SDGs 703084, 703320: No problems were noted.

Method and Field Blanks

The method blanks were all reported as undetected for target compounds. Field blanks were not submitted with this sampling event.

Surrogate Compounds

Surrogates were added to all samples. All surrogate recoveries were within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were not specifically analyzed for this dataset. The laboratory demonstrated precision and accuracy through the analysis of laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) with acceptable results.

Field Duplicates

For water samples, the RPD control limit is 20% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 1x the RL.

SDG 703084, 703220: Sample pair RW03-20170302/MW99-20170202 were identified as a field duplicate pair. Field precision was acceptable.

Target Analyte List

A sampling plan was not available for review.

Reporting Limits

The laboratory reporting limits were sufficiently above the MTCA Method A cleanup levels provided in appendix B.

Reported Results

SDG 703084: Samples RW03-20170302, MW99-20170202, MW109-20170203, MW108-20170203 and MW110-20170203 were qualified as estimated (J+) and reason code 2 for both the non-silica gel cleanup samples and also the sample extracts passed through a silica gel column. The laboratory reported the diesel range results as "x" indicating the chromatographic pattern does not match the standard.

SDG 703320: Sample MW104-20170317 was qualified as estimated (J+) and reason code 2 only for the sample extract that was passed through a silica gel column. The untreated extract did not have this issue. The laboratory reported the diesel range results as "x" indicating the chromatographic pattern does not match the standard.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD and laboratory and field duplicate relative percent difference values. The data were qualified due to sample versus fuel reference material not matching, as indicated by the laboratory. All data, as reported, are acceptable for use.

APPENDIX A
DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

NJ - The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents the approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or
absence of the analyte cannot be verified.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler)
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
Instrument Performance	5A	Initial Calibration (RF, %RSD, r2)
Instrument Performance	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)1 where appropriate
Instrument Performance	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)1 where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
Blank Contamination	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)1 for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)1 where appropriate
Precision and Accuracy	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
Precision and Accuracy	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)1 where appropriate
Precision and Accuracy	12	Reference Material Use bias flags (H,L)1 where appropriate
Precision and Accuracy	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)1 where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
Interferences	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)1 where appropriate
Interferences	19	Internal Standard Performance (i.e., area, retention time, recovery)
Interferences	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
Interferences	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
Identification and Quantitation	3	2nd column confirmation (RPD or %D)
Identification and Quantitation	4	Tentatively Identified Compound (TIC) (associated with NJ only)
Identification and Quantitation	20	Calibration Range or Linear Range Exceeded
Identification and Quantitation	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, reextractions, etc. Associated with “R” and “DNR” only)
Miscellaneous	14	Other (See DV report for details)
Miscellaneous	26	Method QC information not provided

DATA VALIDATION CRITERIA

Volatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8260, analyzed by SW8021B)

QC Element	**Acceptance Criteria**	**Source of Criteria**		Action for Non-Conformance	Reason Code	Discussion and Comments
		Blanks				
Method Blank (MB)	MB: One per matrix per batch (of ≤ 20 sample) No TICs present	NFG (2) Method (3)		U (pos) if result is < 5X or 10X action level R (pos) TICs using 10X rule	7	10X action level for methylene chloride, acetone, & 2-butanone. 5X for all other target analytes Hierarchy of blank review: #1 - Review MB, qualify as needed #2 - Review TB, qualify as needed #3 - Review FB, qualify as needed Note: Actions as per NFG 1999
Trip Blank (TB)	No detected compounds > MDL	NFG (2) Method (3)		U (pos) if result is < 5X or 10X action level	6	
Field Blank (FB)	No detected compounds > MDL	NFG (2) Method (3)		U (pos) if result is < 5X or 10X action level	6	
		Precision and Accuracy				
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples)	Method (3))		J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)4	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits.
LCS/LCSD RPD	If LCSD analyzed RPD < lab limits	Method (3)		J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	Standard review		J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)4	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Surrogates	Added to all samples Within ethod/laboratory control limits	NFG (1) Method (3)		J (pos) if %R >UCL J (pos)/UJ (ND) if %R <LCL J (pos)/R (ND) if <10%	13 (H,L)4	No action if there are 4+ surrogates and only 1 outlier. Qualify all compounds if qualification is required.
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)		J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use PJ	19	Qualify compounds quantified using particular internal standard
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (3)		J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)4	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (3)		J (pos) If RPD > control limit	9	Qualify parent sample only
Field Duplicates	Solids: RPD < 50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <	Standard review		J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified

	35% OR difference < 1X RL (for results < 5X RL)					
Compound Identification and Quantitation						
Retention Time Relative Ion Intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG (1) Method (3)		U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG (1) Method (3)		NJ TIC R (pos) if common laboratory contaminants	4	Common laboratory contaminants: aldol condensation products, solvent preservatives, and reagent contaminants
Calibration Range	Results greater than highest calibration standard	Standard review		Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Reextractions and/or Reanalyses	Report only one result per analyte	Standard review		Report best result	11	Best value reported

1 National Functional Guidelines for Organic Data Review, June, 2008 (pos): Positive Result
2 National Functional Guidelines for Organic Data Review, Oct, 1999 (ND): Non-detect
3 Method SW846 8260C Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
4 NFG 2013 suggests using "+ / -" to indicate bias; validation uses "H" = high bias indicated; "L" = low bias indicated.

DATA VALIDATION CRITERIA

Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range
(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6°C	1	
Holding Time	Waters: 14 days preserved 7 days unpreserved Solids: 14 Days	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: r2 ≥0.990 If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r2 <0.990 J(+)/UJ(-) if %RSD > 20% 5A Mid-range Calibration Check Std. Analyzed before and after each analysis shift & every 20 samples. Recovery range 80% to 120%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 80% to 120%	Narrate if frequency not met. J(+)/UJ(-) if %R < 80% J(+) if %R >120%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤10 samples)	U (at the RL) if sample result is < RL & < 5X blank result. U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Trip Blank (if required by project)	No results >RL	Action is same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned.	18	
Field Blanks (if required by project)	No results >RL	remaining in field blank after method and trip blank qualifiers are assigned.	6	
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	1,4-difluorobenzene added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R >UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits.	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP default: water: RPD < 35% solids: RPD < 50%	Narrate outliers If required by project, qualify with J(+)/UJ(-)	9	
Compound ID and Calculation				

Two analyses for one sample (e.g., dilution)	Report only one result per analyte	best value chosen	11	

DATA VALIDATION CRITERIA

Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range (Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

QC Element	Acceptance Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling				
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C	1	
Holding Time	Ext. Waters: 14 days preserved 7 days unpreserved Ext. Solids: 14 Days Analysis: 40 days from extraction	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X	1	Professional Judgement
Instrument Performance				
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: r2≥0.990 If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if r2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A	
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 85% to 115%	Narrate if frequency not met. J(+)/UJ(-) if %R < 85% J(+) if %R >115%	5B	
Blank Contamination				
Method Blank	At least one per batch (≤20 samples) Method Blank No results >R	U (at the RL) if sample result is < RL & < 5X blank result. 7 U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7	
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in the field blank after method blank qualifiers are assigned.	6	
Precision and Accuracy				
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked.	8	Use Professional Judgement if only one %R outlier
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9	
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10%	10	Professional Judgement
Surrogates	2-fluorobiphenyl, p-terphenyl, o-terphenyl, and/or pentacosane added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits	13	Professional Judgement
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2	
Field Duplicates	Use project control limits, if stated in QAPP default: water: RPD < 35% solids: RPD < 50%	Narrate (Use Professional Judgement to qualify)	9	
Compound ID and Calculation				
Two analyses for one sample (dilution)	Report only one result per analyte	all results that should not be reported.	11	

APPENDIX B
QUALIFIED DATA SUMMARY TABLE

l ID	Sample Date	GRPH[2]	Benzene[3]	Toluene[3]	Ethyl-benzene[3]	Total Xylenes[3]	DRPH[2]	validation qualifier	DRPH with Silica Gel[4]	validation qualifier	ORPH[2]	ORPH with Silica Gel[4]
MW104	03/17/17	**1,400**	<1	<1	9	10	**7,900**		290[x]	J+, 2	<400	<400
RW03	03/02/17	**4,900**	**150**	<10	220	190	**11,000**[x]	**J+, 2**	**880**[x]	**J+, 2**	<250	<250
MW108	03/02/17	<100	<1	<1	<1	<3	<80		<80		<400	<400
MW109	03/02/17	370	<1	<1	1.2	<3	490[x]	**J+, 2**	55[x]	**J+, 2**	<250	<250
MW110	03/02/17	570	2.1	<1	9.3	4.7	**1,000**[x]	**J+, 2**	110[x]	**J+, 2**	<250	<250
MTCA GW criteria		**1,000/800**[6]	**5**	**1,000**	**700**	**1,000**	**500**		**500**		**500**	**500**

Red indicates concentrations exceeding MTCA Method A cleanup levels for groundwater.

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

[1]Elevation reference datum North American Vertical Datum of 1988 (Dowl HKM November 2012).

[2]Analyzed by Method NWTPH-Gx (gasoline) and NWTPH-Dx (diesel and oil).

[3]Analyzed by EPA Method 8260B or 8260C.

[4]Analyzed by Method NWTPH-Dx; sample extracts passed through a silica gel column prior to analysis.

[5]MTCA Cleanup Regulation, Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

[6]1,000 µg/L when benzene is not present and 800 µg/L when benzene is present.

Laboratory Note:

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

Validation qualifiers

J+ numerical value is the approximate concentration

Validation Codes

2 Chromatographic pattern in sample does not match pattern of calibration standard

DRPH = diesel-range petroleum hydrocarbons

EPA = U.S. Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

SoundEarth = SoundEarth Strategies, Inc.

APPENDIX C
DATA VALIDATION CHECKLISTS

VALIDATION WORKSHEET

Method: DRO/MRO silica gel
Date Reviewed: 4.3.17
Sample Collection Dates: 3.17.17

SDG: 703320
Reviewer: C Jensen

The following data validation areas were reviewed:

Sample Identification / Validation Criteria	1 MW104-20170317	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Completeness of Analyses	A																			
Holding Times	A																			
Initial Calibration	NA																			
Continuing Calibration	NA																			
Method Blanks	A																			
LCS/LCSD	A																			
Surrogate %R or duplicate RPD																				
MS/MSD:																				
Reporting Limits	A																			
Completeness of Analyte List																				
Field Duplicate Pair :																				
Equip /Field Blank																				

Note:X = Criteria were evaluated and not met. A = Criteria were evaluated and met. N = Data was not available for review. NA = Not applicable.

Comments:

Spike 3/7/17
24hr 3/21/17
MW 3/24/17

Y - pattern does not match J+2 Diesel
MW104-20170317

VALIDATION WORKSHEET

Method: BTEX/GRO DRO/MRO

SDG: 703320

Reviewer: C Jensen

Date Reviewed: 3.24.17

Sample Collection Dates: 3.17.17

The following data validation areas were reviewed:

Sample Identification / Validation Criteria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sample Identification	MW104-20170317		MW104-20170317																	
Completeness of Analyses	BTEX GRO		DRO MRO																	
Holding Times	A		A																	
Initial Calibration	NA		NA																	
Continuing Calibration	NA		NA																	
Method Blanks	A		A																	
LCS/LCSD	A		A																	
~~Surrogate %R or~~ duplicate RPD	A		LCS/LCSD ok																	
~~MS/MSD:~~																				
Reporting Limits	A		A																	
Completeness of Analyte List	A		A																	
Field Duplicate Pair :																				
Equip /Field Blank																				

Note: X = Criteria were evaluated and not met. A = Criteria were evaluated and met. N = Data was not available for review. NA = Not applicable.

Comments:

BTEX/GRO HT 3.17.17 3.20.17 3.20.17

DRO/MRO HT 3.17.17 3.21.17 3.21.17

batch lab dup. ok, all RPD (limit 20) met
VE footnote by lab - range exceedance. no flag - batch QC

VALIDATION WORKSHEET

Method: BTEX/GRO
Date Reviewed: 3/21/17
Sample Collection Dates: 3.2.17/3.3.17

SDG: 703084 (70384 struck through)
Reviewer: C Jensen

The following data validation areas were reviewed:

Sample Identification / Validation Criteria	1 RW07-20170302	2 MW99-20170302	3 MW09-20170303	4 MW08-20170302	5 MW10-20170303	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Completeness of Analyses	A	→	→	→	→															
Holding Times	A	→	→	→	→															
Initial Calibration	NA	→	→	→	→															
Continuing Calibration	NA	→	→	→	→															
Method Blanks	A	→	→	→	→															
LCS	A	→	→	→	→															
Surrogate %R or duplicate RPD	A	→	→	→	→															
MS/MSD:																				
Reporting Limits	A	→	→	→	→															
Completeness of Analyte List																				
Field Duplicate Pair :																				
Equip /Field Blank																				

Note: X = Criteria were evaluated and not met. A = Criteria were evaluated and met. N = Data was not available for review. NA = Not applicable.

Comments:

cooler 3°C

Lab dup - Batch QC. All in RPDs.

surr. limits 52-124

LCS - all within lab acceptance criteria

HTS sple 3/2 + 3/3/17
extr 3.6.17
run 3.6 + 3.7.17

VALIDATION WORKSHEET

Method: Diesel (C10-C25) / Motor Oil (C25-C36)

Date Reviewed: 3.24.17

Sample Collection Dates: 3.2.17, 3.3.17

SDG: 703054 / 70384

Reviewer: C Jensen

The following data validation areas were reviewed:

Sample Identification / Validation Criteria	1 MW-03-20170302	2 MW-99-20170302	3 MW-109-20170303	4 MW108-20170303	5 MW110-20170303	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
									TWO sets of data for same samples											
Completeness of Analyses	A	→	→	→	→															
Holding Times	A	→	→	→	→															
Initial Calibration	NA	N	→	→	→															
Continuing Calibration	NA	N	→	→	→															
Method Blanks	A	→	→	→	→															
LCS / LCSD	A	→	→	→	→															
~~Surrogate %R or duplicate RPD~~	A	→	→	→	→															
MS/MSD:	N																			
Reporting Limits	A	→	→	→	→															
Completeness of Analyte List	A	→	→	→	→															
Field Duplicate Pair : ②																				
Equip /Field Blank																				

Note: X = Criteria were evaluated and not met. A = Criteria were evaluated and met. N = Data was not available for review. NA = Not applicable.

Comments:

Cooler 3°C ok ② FD MW03/MW99

Surr. Limits. 45-152 ok

LCS/LCSD limits 63-147

x flag- Std pattern not match fuel req STD

① spiked 3.2/3.3.17

ext 3.6.17

run 3.14.17

x-flag-pattern not matching J+flag. Diesel Range MW-03-20170302

MW99-20170302

MW109-20170303

MW110-20170303

Code 2

Sample ID	lab ID	analyte	RW03	MW99	RPD
RW03-20170302	70384-01	DRO	880	940	6.6%
MW99-20170302	70384-02	MO	<250	<250	0.0%
		DRO (2)	11000	13000	16.7%
		MO (2)	<250	<300	0.0%
		Benzene	150	150	0.0%
		Toluene	<10	<10	0.0%
		Ebenz	220	220	0.0%
		Xylenes	190	190	0.0%
		GRO	4900	4600	6.3%

703084

SAMPLE CHAIN OF CUSTODY

ME 03/03/17 | VW3 | 1 of 1 DAY

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. SKS SHELL / 0914-001

PO #

REMARKS

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

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C	Dx+/SG		Notes
RW03-20170302	RW03	—	01A-D	3/2/17	1622	WATER	4	X	X	X		⊗		⊗ per RR
MW99-20170302	MW99	—	02	3/2/17	1652	WATER	4	X	X	X		⊗		3/14/17
JJ MW108-20170303	MW108 JJ	—	03	3/3/17	1350	WATER	4	X	X	X		⊗		MS
MW108-20170303	MW108	—	04	3/3/17	1404	WATER	4	X	X	X		⊗		
MW110-20170303	MW110	—	05	3/3/17	1447	WATER	4	X	X	X		⊗		

3/3/17

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	JONATHAN LOEFFLER	SOUNDEARTH	3/3/17	1600
Received by:	Matt Lewis	FBTec	3/3/17	1600
Relinquished by:				
Received by:				

Samples received at 3 °C

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

703320

SAMPLE CHAIN OF CUSTODY

MH 3/17/17, EO/VW,

Page # 1 of 1

Send Report to Rob Roberts, cc: Jonathan Loeffler, Liz Forbes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Clare Tochin

PROJECT NAME/NO.: SKS SHELL / 0914-001

PO #:

REMARKS:

TURNAROUND TIME: ~~Standard (2 Weeks)~~ RUSH

Rush charges authorized by:

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	CVOCs by 8260C	Dx + SG		Notes
MW104-20170317	MW104	—	01A	3/17/17	0913	H2O	4	X	X	X		X		(X) - per RR 3/23/17 MH
				CJT	3/17/17									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Clare Tochin	SoundEarth	3/17/17	1515
Received by:	D Sauls	FedEx SFO	3/17	3:26P
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/20/17
Date Analyzed: 03/20/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW104-20170317 703320-01	<1	<1	8.5	10	1,400	89
Method Blank 07-565 MB	<1	<1	<1	<3	<100	84

94417

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/06/17 and 03/07/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
RW03-20170302 703084-01 1/10	150	<10	220	190	4,900	81
MW99-20170302 703084-02 1/10	150	<10	220	190	4,600	83
MW109-20170303 703084-03	<1	<1	1.2	<3	370	81
MW108-20170303 703084-04	<1	<1	<1	<3	<100	81
MW110-20170303 703084-05	2.1	<1	9.3	4.7	570	83
Method Blank 07-422 MB	<1	<1	<1	<3	<100	71

94417

Date of Report: 03/23/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/21/17
Date Analyzed: 03/21/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW104-20170317 703320-01 1/1.6	7,900	<400	79
Method Blank 07-590 MB2	<50	<250	97

94417

Date of Report: 03/09/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/06/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
RW03-20170302 703084-01	11,000 x J+Z	<250	95
MW99-20170302 703084-02 1/1.2	13,000 x J+Z	<300	122
MW109-20170303 703084-03	490 x J+Z	<250	128
MW108-20170303 703084-04 1/1.6	<80	<400	119
MW110-20170303 703084-05	1,000 x J+Z	<250	111
Method Blank 07-452 MB	<50	<250	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/20/17
Date Received: 03/03/17
Project: SOU_0914-001_ 20170303, F&BI 703084
Date Extracted: 03/06/17
Date Analyzed: 03/14/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
RW03-20170302 703084-01	880 x J+Z	<250	120
MW99-20170302 703084-02 1/1.2	940 x J+Z	<300	133
MW109-20170303 703084-03	55 x J+Z	<250	125
MW108-20170303 703084-04 1/1.6	<80	<400	117
MW110-20170303 703084-05	110 x J+Z	<250	135
Method Blank 07-452 MB	<50	<250	105

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/30/17
Date Received: 03/17/17
Project: SOU_0914-001_ 20170317, F&BI 703320
Date Extracted: 03/21/17
Date Analyzed: 03/24/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW104-20170317 703320-01 1/1.6	290 x J+ 2	<400	94
Method Blank 07-590 MB2	<50	<250	95

4/4/17