

## **Cleanup Action Report**

Perrigo Park Phase 2A Remedial Excavation  
Redmond, Washington

*for*

City of Redmond

November 11, 2015



**GEOENGINEERS**   
Earth Science + Technology

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**Redmond, Washington**

File No. 00500-208-00

November 11, 2015

Prepared for:


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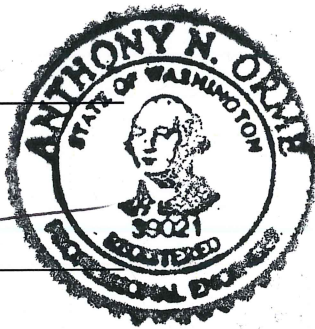
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## EXECUTIVE SUMMARY

This report summarizes the MTCA Cleanup Action of petroleum hydrocarbon (heating oil)-contaminated soil completed at the Perrigo Park Phase 2A project site located in Redmond, Washington. A remedial excavation was conducted in August and September 2015 to remove soil with petroleum hydrocarbons detected at concentrations greater than the MTCA cleanup levels, which was discovered during construction activities at the Park. Contaminated soil was transported to CEMEX's disposal facility in Everett, Washington for permitted disposal. Based on chemical analytical testing, contaminants of concern either were not detected or were detected at concentrations less than the MTCA cleanup levels in the soil at the final limits of the excavation and in groundwater downgradient of the excavation. GeoEngineers is preparing this Cleanup Action Report in accordance with Model Toxics Control Act (MTCA) and associated implementing regulations (i.e., Chapter 173-340 Washington Administrative Code [WAC]). Based on the chemical analytical results, site conditions are protective of human health and the environment.

*This Executive Summary should be used only in the context of the full report for which it is intended.*

## 1.0 INTRODUCTION

This report summarizes the MTCA Cleanup Action of petroleum hydrocarbon contaminated soil completed at the Perrigo Park Phase 2A project site located in Redmond, Washington (herein referred to as the “subject property” or “Site”). The subject property is located at a portion of Perrigo Park that is currently under construction. The construction project consists of installing a stormwater drainage detention system to support a planned asphalt parking lot. During the course of the construction project, diesel-range petroleum hydrocarbon (heating oil)-contaminated soil was encountered and removed from the area. Additionally, groundwater was assessed in two downgradient monitoring wells. The subject property is shown relative to surrounding physical features on the Vicinity Map, Figure 1. The remedial excavation, historic site features, and downgradient monitoring wells are shown relative to the subject property on the Site Plan, Figure 2. GeoEngineers is preparing this Cleanup Action Report in accordance with Model Toxics Control Act (MTCA) and associated implementing regulations (i.e., Chapter 173-340 Washington Administrative Code [WAC]).

### 1.1. Statement of Objective

The objective of this document is to summarize the Independent MTCA Cleanup Action of soil contaminated with petroleum hydrocarbons (heating oil) discovered at concentrations greater than the applicable MTCA cleanup levels on the subject property.

## 2.0 SITE DEFINITION AND DISCOVERY OF RELEASE

### 2.1. Historic Operations and Property Uses

Based on conversations with City of Redmond personnel and a review of information available on King County iMAP, the subject property was formerly developed with a rural residence and barn since at least the mid-1990s. A demolition permit for the former residence and a portion of the existing barn was issued in June 2009 to the City of Redmond to support expansion of the existing Perrigo Park. Historical aerial photographs show the former residence situated in the immediate vicinity of the remedial excavation described in this report (Figure 2).

### 2.2. Site Characterization

#### 2.2.1. In-Situ Characterization Soil Sampling

At the time of this report, the subject property is an active construction site as part of the multi-phase Perrigo Park expansion and upgrade project. The construction project consists of a planned subsurface stormwater drainage detention system and an overlying surface parking lot. Installation of the detention system required excavation of the area shown in blue on Figure 3 to a depth of approximately 11 feet below ground surface (bgs). During the construction excavation, soil with field screening indications of petroleum contamination was encountered at approximately 8.5 feet bgs in the northeast corner of the construction excavation, near the location of the former private residence discussed in Section 2.1.

GeoEngineers obtained four in-situ soil samples (EX-1-11.0, EX-2-8.5, EX-3-8.5 and EX-4-8.5) from the impacted area on August 19, 2015 to characterize the soil for waste disposal. Diesel-range petroleum hydrocarbons (quantified as Diesel No. 2, heating oil) was detected in sample EX-4-8.5 at a concentration of 8,700 milligrams per kilogram (mg/kg), which is greater than the MTCA cleanup level of 2,000 mg/kg.

Diesel No. 2 was detected at concentrations less than the MTCA cleanup level in the remaining four characterization soil samples. Although the contaminants were quantified as heating oil, no heating oil underground storage tank was encountered during the excavation.

A remedial excavation to remove soil represented by samples EX-2-8.5, EX-3-8.5 and EX-4-8.5 was subsequently completed, as described in Section 3.0 below. Sample EX-1-11.0 was located at the base of the construction excavation and soil represented by EX-1-11.0 was not subsequently excavated.

Chemical analytical results for soil characterization sampling are summarized in Table 1. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

### **2.2.2. Groundwater Assessment**

Groundwater samples were obtained from two vicinity wells (Perrigo Domestic and Perrigo Piezometer) located downgradient of the remedial excavation area. Approximate locations of each monitoring well are shown on the Site Plan, Figure 2. The depth to water in the monitoring wells was measured at 21.17 and 20.83 feet below ground surface at the time of sampling, which is approximately 10 feet below the base of the remedial excavation. Potential contaminants of concern were not detected above laboratory reporting limits in both of groundwater samples submitted.

Chemical analytical results for groundwater samples are summarized in Table 2. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

### **2.2.3. Stockpile Characterization Soil Sampling**

Prior to remedial excavation activities and following discovery of petroleum (heating oil)-contaminated soil during the construction excavation, Olson stockpiled excavated soil in three separate stockpiles at the subject property pending characterization for permitted disposal. GeoEngineers obtained three representative characterization samples from each stockpile (a total of nine soil samples) and submitted them for chemical analysis of diesel and heavy oil-range petroleum hydrocarbons.

Based on the chemical analytical results, two of the three soil stockpiles with diesel-range petroleum hydrocarbons present at concentrations greater than 500 mg/kg were transported to CEMEX in Everett, Washington for permitted disposal. Soil in the third stockpile was reused on site as backfill for areas of the remedial excavation for which chemical analytical testing indicated clean vertical and lateral limits had been attained. The total amount of soil reused as backfill is less than 100 cubic yards.

Chemical analytical results for stockpile characterization samples are summarized in Table 3. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

## **2.3. Subsurface Conditions**

### **2.3.1. Soil Conditions**

Soil observed over the course of our remedial excavation generally consisted of little to no fill with the exception of the east portion of the excavation, which consisted of approximately 10 feet of dark brown silty sand with varying gravel and cobble content and building debris (brick, wood, concrete, and ½-inch drainage grade gravel). Native soil observed throughout the excavation consisted of brown fine to medium

silty sand with varying gravel content and occasional cobbles and lenses of gravel and coarse sand with silt to the maximum depth excavated, approximately 14 feet bgs.

### **2.3.2. Groundwater Conditions**

Based on groundwater measurements from two vicinity wells (Perrigo Domestic and Perrigo Piezometer, Figure 2), groundwater is present beneath the subject property at approximately 20 feet bgs. Additionally, perched water was observed during the excavation at approximately 12 feet bgs situated within gravelly lenses.

### **2.3.3. Vapor Conditions**

Vapor conditions were not evaluated at the subject property because the selected remedy (remedial excavation) resulted in the removal of source material that could result in vapor generation.

## **2.4. Contaminants of Concern**

The potential contaminants of concern for soil impacted by a diesel-release quantified as Diesel No. 2 (heating oil) include the following as presented on Table 830-1 in WAC 173-340: diesel-range petroleum hydrocarbons. Based on the chemical analytical results of characterization soil samples obtained prior to the start of remedial excavation activities, diesel-range petroleum hydrocarbons were detected at concentrations above the applicable MTCA Method A cleanup level and are considered the potential contaminants of concern for this study.

## **2.5. Terrestrial Ecological Evaluation**

GeoEngineers completed a simplified Terrestrial Ecological Evaluation (TEE) for the Site in accordance with MTCA. Based on the Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals presented in Table 749-3 of WAC 173-340-7493, Site conditions are protective of human health and the environment.

## **3.0 REMEDIAL EXCAVATION**

Under contract with the City of Redmond, Olson Bros. Excavating, Inc. (Olson) conducted a remedial excavation at the subject property in August and September 2015 to remove petroleum (heating oil)-contaminated soil represented by the characterization soil samples (EX-2-8.5, EX-3-8.5 and EX-4-8.5), as shown on Figures 2 and 3. During the course of the remedial excavation, GeoEngineers performed field screening (visual, headspace and/or water sheen) to assess the lateral and vertical extent of petroleum-contaminated soil in the area of concern. Soil samples were obtained throughout remedial excavation activities to confirm the final vertical and lateral limits of the contaminated soil. Field screening methods are described in Appendix A. The final limits of the remedial excavation and approximate soil sample locations are shown on Figure 3.

### **3.1. Confirmation Sampling**

A total of 17 confirmation soil samples were obtained during remedial excavation activities to remove contaminated soil. The approximate locations of the confirmation soil samples are shown on Figure 3. Sixteen of the samples were submitted to On-Site Environmental in Redmond, Washington for chemical analysis of the contaminant of concern: diesel-range petroleum hydrocarbons by

Northwest Method NWTPH-Dx. One of the soil samples (EX-6-9.0) was not submitted for chemical analysis due to its close proximity to other confirmation soil samples.

Diesel-range petroleum hydrocarbons were not detected above laboratory reporting limits or were detected at concentrations below the MTCA cleanup level in each of the confirmation soil samples that were submitted for chemical analysis, as shown graphically on Figure 3.

Chemical analytical results are summarized in Table 1. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

### **3.2. Contaminated Soil Disposal**

Contaminated soil removed from the remedial excavation area was transported to CEMEX for permitted disposal at their treatment and disposal facility in Everett, Washington. Approximately 987.32 tons (according to weight summaries provided by the disposal facility) of petroleum contaminated soil was removed from the subject property during the remedial excavation.

## **4.0 CONCLUSIONS**

### **4.1. Soil**

Soil with diesel (heating oil)-range petroleum hydrocarbons detected at concentrations greater than MTCA Method A cleanup level was encountered during construction activities at the Perrigo Park Phase 2A project site in Redmond, Washington. A remedial excavation was conducted to remove contaminated soil encountered during the construction activities in August and September 2015. Although a heating oil UST was not discovered during excavation, based on proximity of the release area to the former rural residence and the chemical analytical data, the source of the heating oil-contamination is likely heating oil associated with the former private residence.

Based on the chemical analytical results of the soil samples obtained at the final limits of the remedial excavation, soil with heating oil concentrations greater than the MTCA Method A cleanup levels was successfully removed from the subject property. Based on the weight tickets provided by CEMEX, the total quantity of soil removed for permitted disposal was 987.32 tons. The remedial actions completed resulted in site conditions that are protective of human health and the environment.

### **4.2. Groundwater**

Groundwater is present at approximately 20 feet below the ground surface beneath the subject property. In our opinion, groundwater impacts from the release are unlikely in the area of concern based on the following:

1. The contaminated soil extended to a maximum depth of approximately 8.5 feet below the ground surface and the regional groundwater aquifer is present at a depth of approximately 20 feet below the ground surface. Based on this, the soil to groundwater pathway for contaminant migration is incomplete;
2. The potential source of contaminated groundwater (contaminated soil) was successfully excavated and removed from the site; and,

3. Petroleum hydrocarbons were not detected in groundwater samples obtained from the aquifer at two monitoring wells located downgradient of the release area.

#### **4.3. Vapor**

Vapor conditions were not evaluated at the subject property because the selected remedy (remedial excavation) resulted in the removal of source material that could result in vapor generation. Therefore, these conditions are protective of human health and the environment.

### **5.0 LIMITATIONS**

We have prepared this report for the exclusive use of the City of Redmond, their authorized agents and regulatory agencies. This report is not intended for use by others and the information contained herein is not applicable to other sites. No other party may rely on the product of our services unless we agree in advance, and in writing, to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Our conclusions are based on our site observations, field screening results and chemical analysis of a limited number of soil samples at the site. It is always possible that contaminants remain in areas that were not observed, sampled or tested.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

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Please refer to Appendix D, titled "Report Limitations and Guidelines for Use," for additional information pertaining to use of this report.



**Table 1**  
**Soil Sample Field Screening and Chemical Analytical Data**  
City of Redmond – Perrigo Park 2A Remedial Excavation  
Redmond, Washington

Sample ID <sup>1</sup>	Date Obtained	Depth (feet bgs)	Field Screening <sup>2</sup>		Petroleum Hydrocarbons (mg/kg)	
			Sheen	Headspace (ppm)	Diesel Range <sup>4</sup>	Heavy Oil Range <sup>4</sup>
Remedial Excavation Characterization and Confirmaiton Samples						
EX-1-11.0	08/19/15	11	MS	--	640*	<55
EX-2-8.5	08/19/15	8.5	MS	--	1500*	<63
EX-3-8.5	08/19/15	8.5	MS	--	1000*	<63
EX-4-8.5	08/19/15	8.5	MS	--	8700*	<280
EX-5-9.0	08/19/15	9	NS	--	<32	<65
EX-6-9.0	08/19/15	9	NS	--	--	--
EX-7-9.0	08/27/15	9	NS	--	<28	190
EX-8-9.0	08/27/15	9	NS	--	<28	200
EX-9-11.0	09/08/15	11	SS	--	<29	<58
EX-10-6.0	09/08/15	6	SS	--	<28	<55
EX-11-8.0	09/08/15	8	SS	--	<28	<57
EX-12-11	09/09/15	11	NS	<1	<29	<58
EX-13-9	09/09/15	9	NS	<1	<27	<54
EX-14-8	09/09/15	8	NS	<1	<29	<58
EX-15-13.5	09/09/15	13.5	SS	<1	<27	<53
EX-16-8	09/09/15	8	NS	<1	<29	<57
EX-17-8	09/09/15	8	NS	<1	45	<58
EX-18-12	09/09/15	12	MS	2	47	<60
EX-19-11	09/09/15	11	NS	<1	<28	<57
EX-20-8	09/09/15	8	NS	<1	<35	<69
EX-21-11	09/09/15	11	NS	<1	<27	<53
MTCA Method A Cleanup Level for Unrestricted Land Use					2,000	

**Notes:**

\*The contaminant of concern in this sample was detected as Diesel No. 2 (heating oil). Chromatograms are included in Appendix B.

<sup>1</sup>Approximate sample locations shown on the attached Figure 3. Chemical analytical testing by OnSite Environmental in Redmond, Washington.

<sup>2</sup>Field screening methods are described in Appendix A.

<sup>3</sup>Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.

-- = not tested      bgs = below ground surface      mg/kg = milligrams per kilogram      ppm = parts per million

MTCA = Model Toxics Cleanup Act      NS = no sheen, SS= slight sheen, MS = moderate sheen

Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.

**Table 2**  
**Groundwater Sample Chemical Analytical Data**  
City of Redmond – Perrigo Park 2A Remedial Excavation  
Redmond, Washington

Monitoring Well and Sample ID <sup>1</sup>	Depth to Water (feet bgs)	Petroleum Hydrocarbons <sup>2</sup> (mg/L)	
		Diesel Range	Heavy Oil Range
Perrigo Piezometer	20.83	<0.26	<0.42
Perrigo Domestic	21.17	<0.27	<0.43
<b>MTCA Method A Cleanup Level for Unrestricted Land Use</b>		<b>0.5</b>	<b>0.5</b>

**Notes:**

<sup>1</sup>Approximate monitoring well locations shown on the attached Figure 2. Chemical analytical testing by OnSite Environmental in Redmond, Washington. Samples were obtained September 2, 2015.

<sup>2</sup>Diesel- and heavy oil-range hydrocarbons analyzed using Northwest Method NWTPH-Dx with silica-gel cleanup.

bgs = below ground surface

mg/L = milligrams per liter

MTCA = Model Toxics Cleanup Act

Table 3

Stockpiled Soil Chemical Analytical Data  
City of Redmond – Perrigo Park 2A Remedial Excavation  
Redmond, Washington

Sample ID	Date Obtained	Petroleum Hydrocarbons (mg/kg)			BTEX <sup>3</sup> (mg/kg)				VOCs <sup>3</sup> (mg/kg)							Metals <sup>4</sup> (mg/kg)				
		Gasoline Range <sup>1</sup>	Diesel Range <sup>2</sup>	Heavy Oil Range <sup>2</sup>	Benzene	Toluene	Ethylbenzene	Total Xylenes	n-Propylbenzene	1,3,5-Triethylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	p-Isopropyltoluene	n-Butylbenzene	Naphthalene	Arsenic	Cadmium	Chormium	Lead	Mercury
Stockpile Characterization Samples																				
SP-1	08/19/15	--	980*	<66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-2	08/19/15	--	1600*	<59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-3	08/19/15	<5.7	980*	<57	<0.060	<0.30	<0.060	<0.18	0.094	0.16	0.88	0.12	0.13	0.21	0.46	<11	<0.57	42 <sup>5</sup>	<5.7	<0.28
SP-9-8-1	09/08/15	--	1100*	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-9-8-2	09/08/15	--	760*	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-9-8-3	09/08/15	--	750*	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-C-1	09/08/15	--	<50	340	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-C-2	09/08/15	--	<28	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP-C-3	09/08/15	--	<28	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Level for Unrestricted Land Use		100	2,000		0.03	7	6	9	NE	NE	NE	NE	NE	NE	5	20	2	2,000 <sup>6</sup>	250	2
Notes:												Natural Background Metals Concentrations for Puget Sound Region				7	1	48	24	0.07

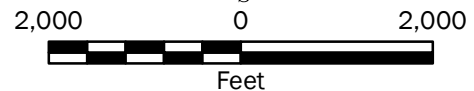
Notes:

- \*The contaminant of concern in this sample was detected as Diesel No. 2 (heating oil). Chromatograms are included in Appendix B.
- <sup>1</sup>Gasoline-range hydrocarbons analyzed using Northwest Method NWTPH-Gx.
- <sup>2</sup>Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.
- <sup>3</sup>Benzene (B), toluene (T), ethylbenzene (E), and total xylenes (X) and other volatile organic compounds (VOCs) analyzed by EPA Method 8260C.
- <sup>4</sup>Total metals analyzed by EPA Method 6010C/7471B.
- <sup>5</sup>The chromium detected in this sample was speciated using EPA Method 7196A modified. Chromium VI was not detected above laboratory reporting limits (1.1 mg/kg).
- <sup>6</sup>Cleanup level for Chromium III.
- = not tested
- mg/kg = milligrams per kilogram
- MTCA = Model Toxics Cleanup Act
- NE = Not Established
- Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentration greater than the MTCA Method A cleanup level.

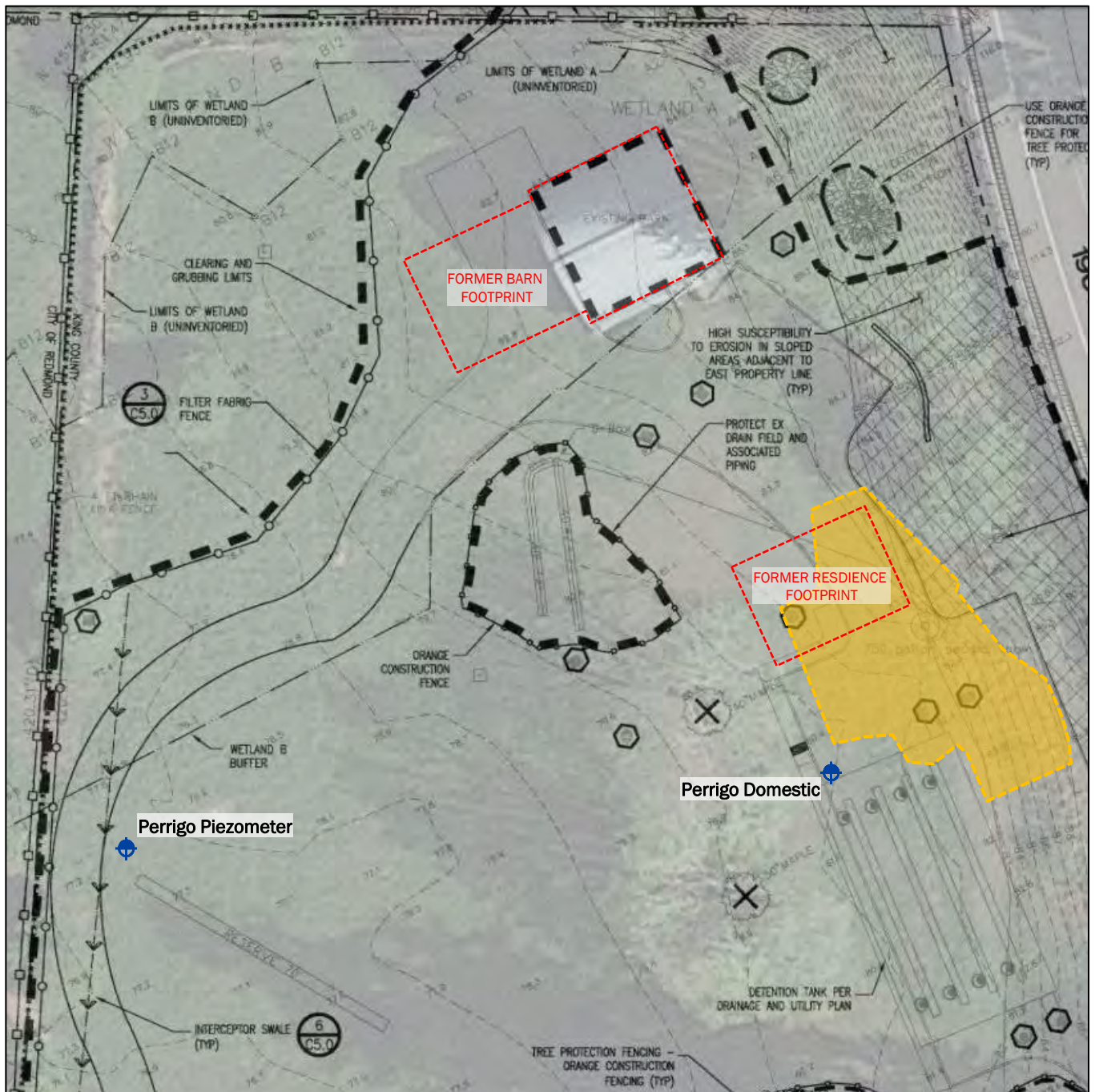




- Projection: NAD 1983 UTM Zone 10N

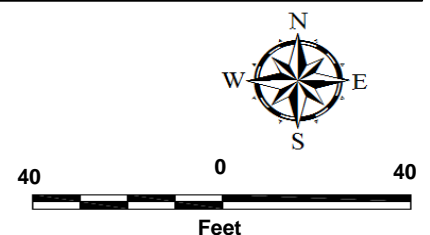


### Figure 1



### Legend

- Approximate Location of Historic Features
- Approximate Extent of Heating Oil Remedial Excavation (Figure 3)
- Approximate Location of Groundwater Monitoring Well



### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

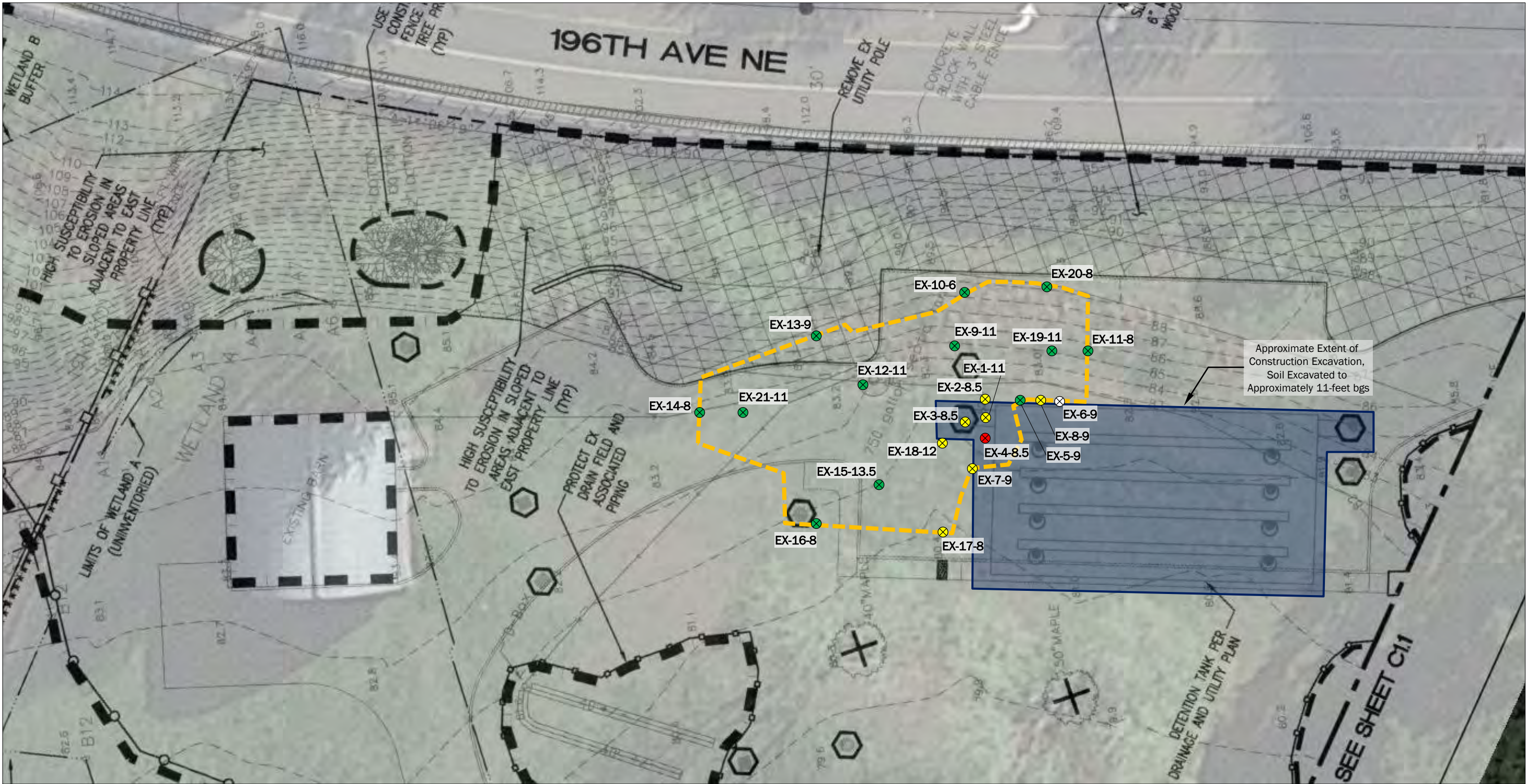
Data Source: Aerial photograph obtained from Google Earth. Basemap titled C1.0, TESC Plan - North, Perrigo Community Park, provided by the City of Redmond

### Site Plan

Perrigo Park Phase 2A Remedial Excavation  
Redmond, Washington

**GEOENGINEERS**

Figure 2



**Legend**

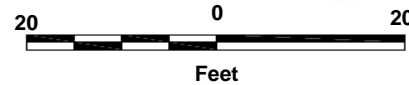
- Approximate Extent of Heating Oil Remedial Excavation
- Approximate Location of Soil Sample Obtained

**Notes:**

- The locations of all features shown are approximate.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

**Chemical Analytical Results**

- Contaminants of concern (COCs) detected above MTCA Method A cleanup levels. Soil represented by this sample was subsequently excavated for permitted disposal to CEMEX in Everett, Washington.
- COCs detected above laboratory reporting limits.
- COCs were not detected.
- Sample was not tested.



**Remedial Excavation  
and Soil Chemical Analytical Results**

Perrigo Park Phase 2A Remedial Excavation  
Redmond, Washington



**Figure 3**



## **APPENDIX A**

### **Field Methods**

## **APPENDIX A**

### **FIELD METHODS**

#### **Sample Collection and Handling**

Soil samples were obtained from the excavation area using a clean nitrile-gloved hand from the excavator bucket. Each sample was placed in a 4-ounce laboratory-prepared jar filled to minimize headspace. Gloves were changed between samples to prevent cross-contamination. The samples were placed in an iced cooler pending transport to the analytical laboratory.

Each sample submitted for chemical analysis was identified by a unique sample designation that corresponded to its mapped sample location and depth below ground surface. Chain-of-custody procedures were followed in transporting the samples to the laboratory.

#### **Field Screening of Soil Samples**

A representative from our staff performed field screening of soil samples obtained from the excavation. Field screening results are used as a general guideline to delineate areas with possible petroleum hydrocarbons. In addition, screening results are used to aid in the selection of soil samples for chemical analysis. The screening methods used include: (1) visual screening, (2) water sheen screening, and (3) headspace vapor screening.

Visual screening consists of inspecting the soil for stains indicative of petroleum hydrocarbons. Visual screening is generally more effective when hydrocarbons are heavier, such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening is a more sensitive method that can be effective in detecting contamination at concentrations less than regulatory cleanup levels. However, field screening results are site-specific. The effectiveness of field screening varies with temperature, moisture content, organic content, soil type and age of contaminant. The presence or absence of a sheen does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic bag. Air is captured in the bag, and the bag is shaken to expose the soil to the air trapped in the bag. The probe of the PID is inserted into the bag. The PID measures the concentration of photoionizable gases and vapors in the sample bag.

headspace. The PID is designed to quantify photoionizable gases and vapors up to 2,000 parts per million (ppm), and is calibrated with isobutylene. A lower threshold of significance of 1 ppm is used in application.

Field screening results are site- and exploration-specific. The results may vary with temperature, moisture content, soil lithology, organic content and type of contaminant. The presence or absence of sheen or headspace vapors does not necessarily confirm the presence or absence of contaminants in a sample.

## **APPENDIX B**

### **Chemical Analytical Program**

## **APPENDIX B**

### **CHEMICAL ANALYTICAL PROGRAM**

#### **Analytical Methods**

Chain-of-custody procedures were followed during the transport of the field samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality control records are included in this appendix. The analytical results are also summarized in the text and tables of this report.

#### **Analytical Data Review**

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report.

#### **Analytical Data Review Summary**

The following data quality exceptions were noted during our review:

- The practical quantitation limit was elevated due to matrix interference in the following instances:
  - Heavy oil-range petroleum hydrocarbons for samples SP-1 and SP-2; and
  - Diesel-range petroleum hydrocarbons for sample SP-C-1.

Adjusting the practical quantitation limit does not typically impact the sample results.

- The concentrations of heavy oil-range petroleum hydrocarbons detected in samples SP-9-8-2 and SP-9-8-3 may be impacted by hydrocarbons in the diesel-range, indicating the results may be biased high. Because the detected concentrations of heavy oil-range petroleum hydrocarbons are well below their associated MTCA cleanup levels, and the purpose of these samples was characterization for disposal purposes, it is our opinion that these data are of acceptable quality for their intended use.

Based on review of the analytical data, and with these qualifiers, it is our opinion that the analytical data are of acceptable quality for their intended use.



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

September 4, 2015

Jessica Smith  
GeoEngineers, Inc.  
8410 154th Avenue NE  
Redmond, WA 98052

Re: Analytical Data for Project 0500-208-00  
Laboratory Reference No. 1508-199

Dear Jessica:

Enclosed are the analytical results and associated quality control data for samples submitted on August 19, 2015.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish or checkmark.

David Baumeister  
Project Manager

Enclosures

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

### Case Narrative

Samples were collected on August 19, 2015 and received by the laboratory on August 19, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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

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

#### NWTPH Gx Analysis

Method 5035A VOA vials were not provided for sample SP-3. The sample was therefore extracted from a 4-ounce jar and analyzed. Some loss of volatiles may have occurred.

#### Volatiles EPA 8260C Analysis

Method 5035A VOA vials were not provided for sample SP-3. The sample was therefore extracted from a 4-ounce jar and analyzed. Some loss of volatiles may have occurred.

Some MTCA Method A cleanup levels are non-achievable for sample SP-3 due to the necessary dilution of the sample.

**Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.**

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

#### ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
SP-1	08-199-01	Soil	8-19-15	8-19-15	
SP-2	08-199-02	Soil	8-19-15	8-19-15	
SP-3	08-199-03	Soil	8-19-15	8-19-15	
EX-1-11.0	08-199-04	Soil	8-19-15	8-19-15	
EX-2-8.5	08-199-05	Soil	8-19-15	8-19-15	
EX-3-8.5	08-199-06	Soil	8-19-15	8-19-15	
EX-4-8.5	08-199-07	Soil	8-19-15	8-19-15	
EX-5-9.0	08-199-08	Soil	8-19-15	8-19-15	

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

# **NWTPH-Gx**

Matrix: Soil  
 Units: mg/kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>SP-3</b>					
Laboratory ID:	08-199-03					
Gasoline	<b>ND</b>	5.7	NWTPH-Gx	8-20-15	8-20-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	90	68-123				

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>SP-1</b>					
Laboratory ID:	08-199-01					
Diesel Fuel #2	<b>980</b>	29	NWTPH-Dx	8-20-15	8-20-15	
Lube Oil Range Organics	<b>ND</b>	66	NWTPH-Dx	8-20-15	8-20-15	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	111	50-150				
<b>Client ID:</b>	<b>SP-2</b>					
Laboratory ID:	08-199-02					
Diesel Fuel #2	<b>1600</b>	28	NWTPH-Dx	8-20-15	8-20-15	
Lube Oil Range Organics	<b>ND</b>	59	NWTPH-Dx	8-20-15	8-20-15	U1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				
<b>Client ID:</b>	<b>SP-3</b>					
Laboratory ID:	08-199-03					
Diesel Fuel #2	<b>980</b>	28	NWTPH-Dx	8-20-15	8-20-15	
Lube Oil Range Organics	<b>ND</b>	57	NWTPH-Dx	8-20-15	8-20-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	94	50-150				

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

# **NWTPH-Dx**

Matrix: Soil  
 Units: mg/Kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>EX-1-11.0</b>					
Laboratory ID:	08-199-04					
Diesel Fuel #2	<b>640</b>	27	NWTPH-Dx	8-27-15	8-27-15	
Lube Oil Range Organics	<b>ND</b>	55	NWTPH-Dx	8-27-15	8-27-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	106	50-150				
<b>Client ID:</b>	<b>EX-2-8.5</b>					
Laboratory ID:	08-199-05					
Diesel Fuel #2	<b>1500</b>	32	NWTPH-Dx	8-27-15	8-27-15	
Lube Oil Range Organics	<b>ND</b>	63	NWTPH-Dx	8-27-15	8-27-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	96	50-150				
<b>Client ID:</b>	<b>EX-3-8.5</b>					
Laboratory ID:	08-199-06					
Diesel Fuel #2	<b>1000</b>	29	NWTPH-Dx	8-27-15	8-27-15	
Lube Oil Range Organics	<b>ND</b>	58	NWTPH-Dx	8-27-15	8-27-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	90	50-150				
<b>Client ID:</b>	<b>EX-4-8.5</b>					
Laboratory ID:	08-199-07					
Diesel Fuel #2	<b>8700</b>	140	NWTPH-Dx	8-27-15	8-28-15	
Lube Oil Range Organics	<b>ND</b>	280	NWTPH-Dx	8-27-15	8-28-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	105	50-150				
<b>Client ID:</b>	<b>EX-5-9.0</b>					
Laboratory ID:	08-199-08					
Diesel Range Organics	<b>ND</b>	32	NWTPH-Dx	8-27-15	8-27-15	
Lube Oil Range Organics	<b>ND</b>	65	NWTPH-Dx	8-27-15	8-27-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	83	50-150				

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**VOLATILES EPA 8260C**  
 page 1 of 2

Matrix: Soil  
 Units: mg/kg

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<b>Client ID:</b>	<b>SP-3</b>					
<b>Laboratory ID:</b>	<b>08-199-03</b>					
Dichlorodifluoromethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Chloromethane	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Vinyl Chloride	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Bromomethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Chloroethane	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Trichlorofluoromethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloroethene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Acetone	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Iodomethane	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Carbon Disulfide	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Methylene Chloride	ND	0.30	EPA 8260C	8-20-15	8-20-15	
(trans) 1,2-Dichloroethene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Methyl t-Butyl Ether	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Vinyl Acetate	ND	0.30	EPA 8260C	8-20-15	8-20-15	
2,2-Dichloropropane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
(cis) 1,2-Dichloroethene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
2-Butanone	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Bromochloromethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Chloroform	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1,1-Trichloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Carbon Tetrachloride	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloropropene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Benzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2-Dichloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Trichloroethene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2-Dichloropropane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Dibromomethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Bromodichloromethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
2-Chloroethyl Vinyl Ether	ND	0.30	EPA 8260C	8-20-15	8-20-15	
(cis) 1,3-Dichloropropene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Methyl Isobutyl Ketone	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Toluene	ND	0.30	EPA 8260C	8-20-15	8-20-15	
(trans) 1,3-Dichloropropene	ND	0.060	EPA 8260C	8-20-15	8-20-15	

Date of Report: September 4, 2015  
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**VOLATILES EPA 8260C**  
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>SP-3</b>					
Laboratory ID:	08-199-03					
1,1,2-Trichloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Tetrachloroethene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,3-Dichloropropane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
2-Hexanone	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Dibromochloromethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2-Dibromoethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Chlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1,1,2-Tetrachloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Ethylbenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
m,p-Xylene	ND	0.12	EPA 8260C	8-20-15	8-20-15	
o-Xylene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Styrene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Bromoform	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Isopropylbenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Bromobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,1,2,2-Tetrachloroethane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2,3-Trichloropropane	ND	0.060	EPA 8260C	8-20-15	8-20-15	
n-Propylbenzene	0.094	0.060	EPA 8260C	8-20-15	8-20-15	
2-Chlorotoluene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
4-Chlorotoluene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,3,5-Trimethylbenzene	0.16	0.060	EPA 8260C	8-20-15	8-20-15	
tert-Butylbenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2,4-Trimethylbenzene	0.88	0.060	EPA 8260C	8-20-15	8-20-15	
sec-Butylbenzene	0.12	0.060	EPA 8260C	8-20-15	8-20-15	
1,3-Dichlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
p-Isopropyltoluene	0.13	0.060	EPA 8260C	8-20-15	8-20-15	
1,4-Dichlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
1,2-Dichlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
n-Butylbenzene	0.21	0.060	EPA 8260C	8-20-15	8-20-15	
1,2-Dibromo-3-chloropropane	ND	0.30	EPA 8260C	8-20-15	8-20-15	
1,2,4-Trichlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
Hexachlorobutadiene	ND	0.30	EPA 8260C	8-20-15	8-20-15	
Naphthalene	0.46	0.060	EPA 8260C	8-20-15	8-20-15	
1,2,3-Trichlorobenzene	ND	0.060	EPA 8260C	8-20-15	8-20-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>103</i>	<i>76-131</i>				
<i>Toluene-d8</i>	<i>105</i>	<i>82-129</i>				
<i>4-Bromofluorobenzene</i>	<i>102</i>	<i>79-126</i>				

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

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

Matrix: Soil  
 Units: mg/kg (ppm)

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>EPA Method</b>	<b>Date Prepared</b>	<b>Date Analyzed</b>	<b>Flags</b>
<hr/>						
Lab ID:	08-199-03					
<b>Client ID:</b>	<b>SP-3</b>					
<hr/>						
Arsenic	<b>ND</b>	11	6010C	8-21-15	8-21-15	
Cadmium	<b>ND</b>	0.57	6010C	8-21-15	8-21-15	
Chromium	<b>42</b>	0.57	6010C	8-21-15	8-21-15	
Lead	<b>ND</b>	5.7	6010C	8-21-15	8-21-15	
Mercury	<b>ND</b>	0.28	7471B	8-21-15	8-21-15	
<hr/>						

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**SOLUBLE HEXAVALENT CHROMIUM  
WATER EXTRACTION  
EPA 7196A**

Matrix: Soil  
Units: mg/kg (ppm)

				Date	Date	
Analyte	Result	PQL	EPA Method	Prepared	Analyzed	Flags
Lab ID:	08-199-03					
Client ID:	SP-3					
Hexavalent Chromium	ND	1.1	7196A mod	9-3-15	9-3-15	

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**NWTPH-Gx  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0820S1					
Gasoline	<b>ND</b>	5.0	NWTPH-Gx	8-20-15	8-20-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	78	68-123				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	08-163-01									
	ORIG	DUP								
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						87	89	68-123		

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**NWTPH-Dx  
QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0820S1					
Diesel Range Organics	<b>ND</b>	25	NWTPH-Dx	8-20-15	8-20-15	
Lube Oil Range Organics	<b>ND</b>	50	NWTPH-Dx	8-20-15	8-20-15	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	111	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	08-203-04									
	ORIG	DUP								
Diesel Range	ND	ND	NA	NA		NA	NA	NA	NA	
Lube Oil	71.9	65.6	NA	NA		NA	NA	9	NA	
Surrogate:										
o-Terphenyl						101	95	50-150		

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**NWTPH-Dx  
QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0827S1					
Diesel Range Organics	ND	25	NWTPH-Dx	8-27-15	8-27-15	
Lube Oil Range Organics	ND	50	NWTPH-Dx	8-27-15	8-27-15	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	94	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	08-267-02							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	NA
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	NA
Surrogate:								
o-Terphenyl				83	87	50-150		

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**VOLATILES by EPA 8260C**  
**METHOD BLANK QUALITY CONTROL**  
 page 1 of 2

Matrix: Soil  
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB0820S1						
Dichlorodifluoromethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Chloromethane	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Vinyl Chloride	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Bromomethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Chloroethane	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Trichlorofluoromethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloroethene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Acetone	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Iodomethane	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Carbon Disulfide	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Methylene Chloride	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Vinyl Acetate	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
2,2-Dichloropropane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
2-Butanone	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Bromochloromethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Chloroform	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Carbon Tetrachloride	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1-Dichloropropene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Benzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2-Dichloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Trichloroethene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2-Dichloropropane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Dibromomethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Bromodichloromethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Toluene	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**VOLATILES by EPA 8260C**  
**METHOD BLANK QUALITY CONTROL**  
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB0820S1						
1,1,2-Trichloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Tetrachloroethene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,3-Dichloropropane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
2-Hexanone	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Dibromochloromethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2-Dibromoethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Chlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Ethylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
m,p-Xylene	ND	0.0020	EPA 8260C	8-20-15	8-20-15	
o-Xylene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Styrene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Bromoform	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Isopropylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Bromobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
n-Propylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
2-Chlorotoluene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
4-Chlorotoluene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
tert-Butylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
sec-Butylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
p-Isopropyltoluene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
n-Butylbenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
Hexachlorobutadiene	ND	0.0050	EPA 8260C	8-20-15	8-20-15	
Naphthalene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260C	8-20-15	8-20-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>107</i>	<i>76-131</i>				
<i>Toluene-d8</i>	<i>106</i>	<i>82-129</i>				
<i>4-Bromofluorobenzene</i>	<i>104</i>	<i>79-126</i>				

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**VOLATILES by EPA 8260C**  
**SB/SBD QUALITY CONTROL**

Matrix: Soil  
 Units: mg/kg

Analyte	Result		Spike Level		Percent		Recovery		RPD	
					Recovery		Limits	RPD	Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0820S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	0.0472	0.0446	0.0500	0.0500	94	89	66-129	6	15	
Benzene	0.0494	0.0463	0.0500	0.0500	99	93	71-123	6	15	
Trichloroethene	0.0464	0.0454	0.0500	0.0500	93	91	75-115	2	15	
Toluene	0.0457	0.0479	0.0500	0.0500	91	96	75-120	5	15	
Chlorobenzene	0.0442	0.0436	0.0500	0.0500	88	87	75-121	1	15	
Surrogate:										
Dibromofluoromethane					101	99	76-131			
Toluene-d8					93	100	82-129			
4-Bromofluorobenzene					96	97	79-126			

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**TOTAL METALS  
EPA 6010C/7471AB  
METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-21-15

Date Analyzed: 8-21-15

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: MB0821SM1&MB0821S1

Analyte	Method	Result	PQL
Arsenic	6010C	ND	10
Cadmium	6010C	ND	0.50
Chromium	6010C	ND	0.50
Lead	6010C	ND	5.0
Mercury	7471B	ND	0.25

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**TOTAL METALS  
EPA 6010C/7471A  
DUPLICATE QUALITY CONTROL**

Date Extracted: 8-21-15

Date Analyzed: 8-21-15

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 08-199-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	<b>ND</b>	<b>ND</b>	NA	10	
Cadmium	<b>ND</b>	<b>ND</b>	NA	0.50	
Chromium	<b>37.4</b>	<b>41.9</b>	11	0.50	
Lead	<b>ND</b>	<b>ND</b>	NA	5.0	
Mercury	<b>ND</b>	<b>ND</b>	NA	0.25	

Date of Report: September 4, 2015  
 Samples Submitted: August 19, 2015  
 Laboratory Reference: 1508-199  
 Project: 0500-208-00

**TOTAL METALS  
 EPA 6010C/7471A  
 MS/MSD QUALITY CONTROL**

Date Extracted: 8-21-15

Date Analyzed: 8-21-15

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 08-199-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	<b>95.4</b>	95	<b>97.0</b>	97	2	
Cadmium	50.0	<b>48.1</b>	96	<b>49.0</b>	98	2	
Chromium	100	<b>128</b>	91	<b>127</b>	90	1	
Lead	250	<b>229</b>	92	<b>235</b>	94	2	
Mercury	0.500	<b>0.479</b>	96	<b>0.478</b>	96	0	

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**SOLUBLE HEXAVALENT CHROMIUM  
WATER EXTRACTION  
EPA 7196A  
METHOD BLANK QUALITY CONTROL**

Date Extracted: 9-3-15  
Date Analyzed: 9-3-15  
  
Matrix: Soil  
Units: mg/kg (ppm)  
  
Lab ID: MB0903S1

Analyte	Method	Result	PQL
Hexavalent Chromium	7196A mod	<b>ND</b>	1.0

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**SOLUBLE HEXAVALENT CHROMIUM  
WATER EXTRACTION  
EPA 7196A  
DUPLICATE QUALITY CONTROL**

Date Extracted: 9-3-15  
Date Analyzed: 9-3-15  
  
Matrix: Soil  
Units: mg/kg (ppm)  
  
Lab ID: 08-199-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Hexavalent Chromium	<b>ND</b>	<b>ND</b>	NA	1.0	

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

**SOLUBLE HEXAVALENT CHROMIUM  
WATER EXTRACTION  
EPA 7196A  
MS/MSD QUALITY CONTROL**

Date Extracted: 9-3-15  
Date Analyzed: 9-3-15  
  
Matrix: Soil  
Units: mg/kg (ppm)  
  
Lab ID: 08-199-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Hexavalent Chromium	5.00	<b>4.93</b>	99	<b>5.10</b>	102	3	

Date of Report: September 4, 2015  
Samples Submitted: August 19, 2015  
Laboratory Reference: 1508-199  
Project: 0500-208-00

### % MOISTURE

Date Analyzed: 8-19&27-15

Client ID	Lab ID	% Moisture
SP-1	08-199-01	13
SP-2	08-199-02	11
SP-3	08-199-03	12
EX-1-11.0	08-199-04	9
EX-2-8.5	08-199-05	21
EX-3-8.5	08-199-06	13
EX-4-8.5	08-199-07	11
EX-5-9.0	08-199-08	23

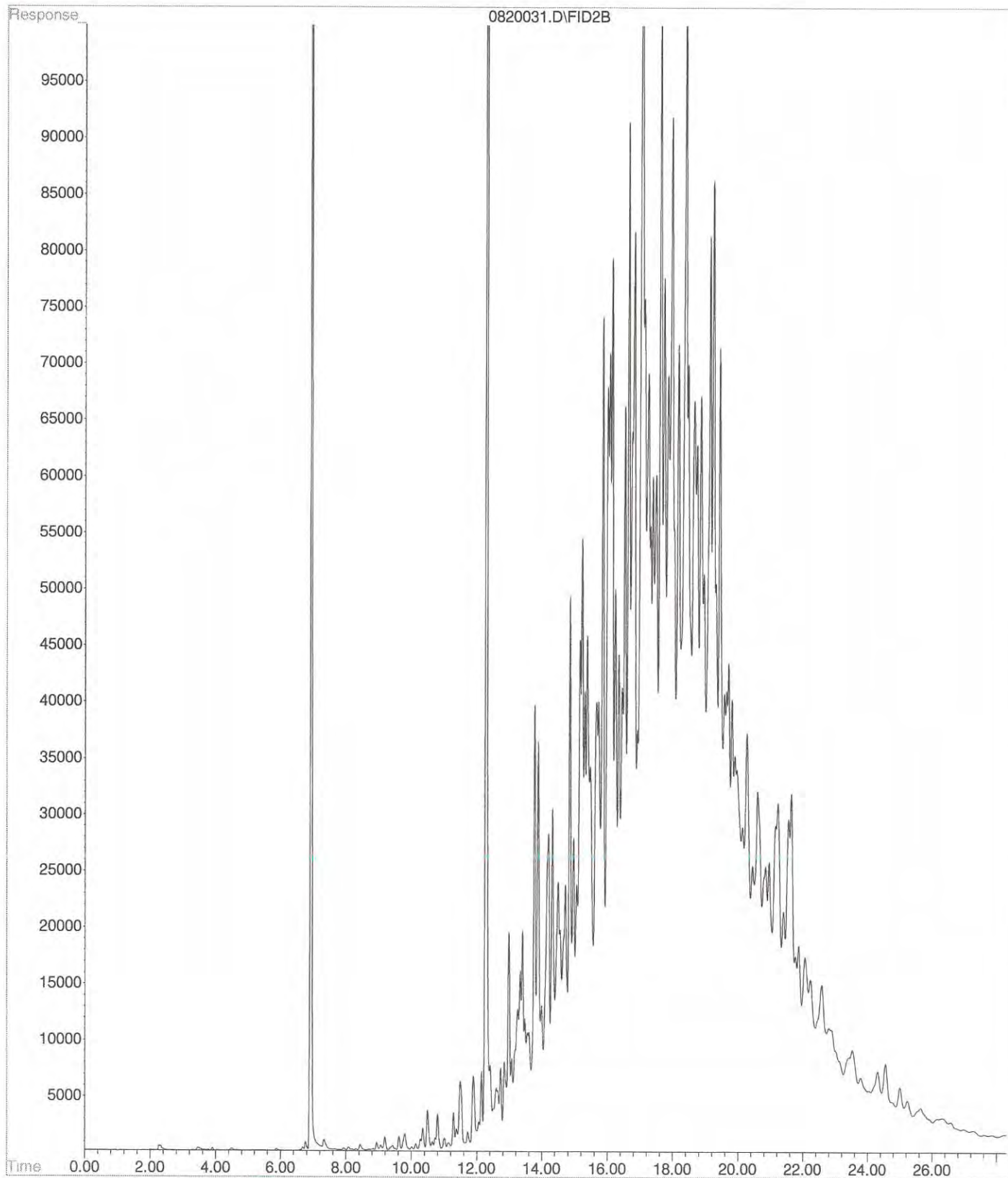


### Data Qualifiers and Abbreviations

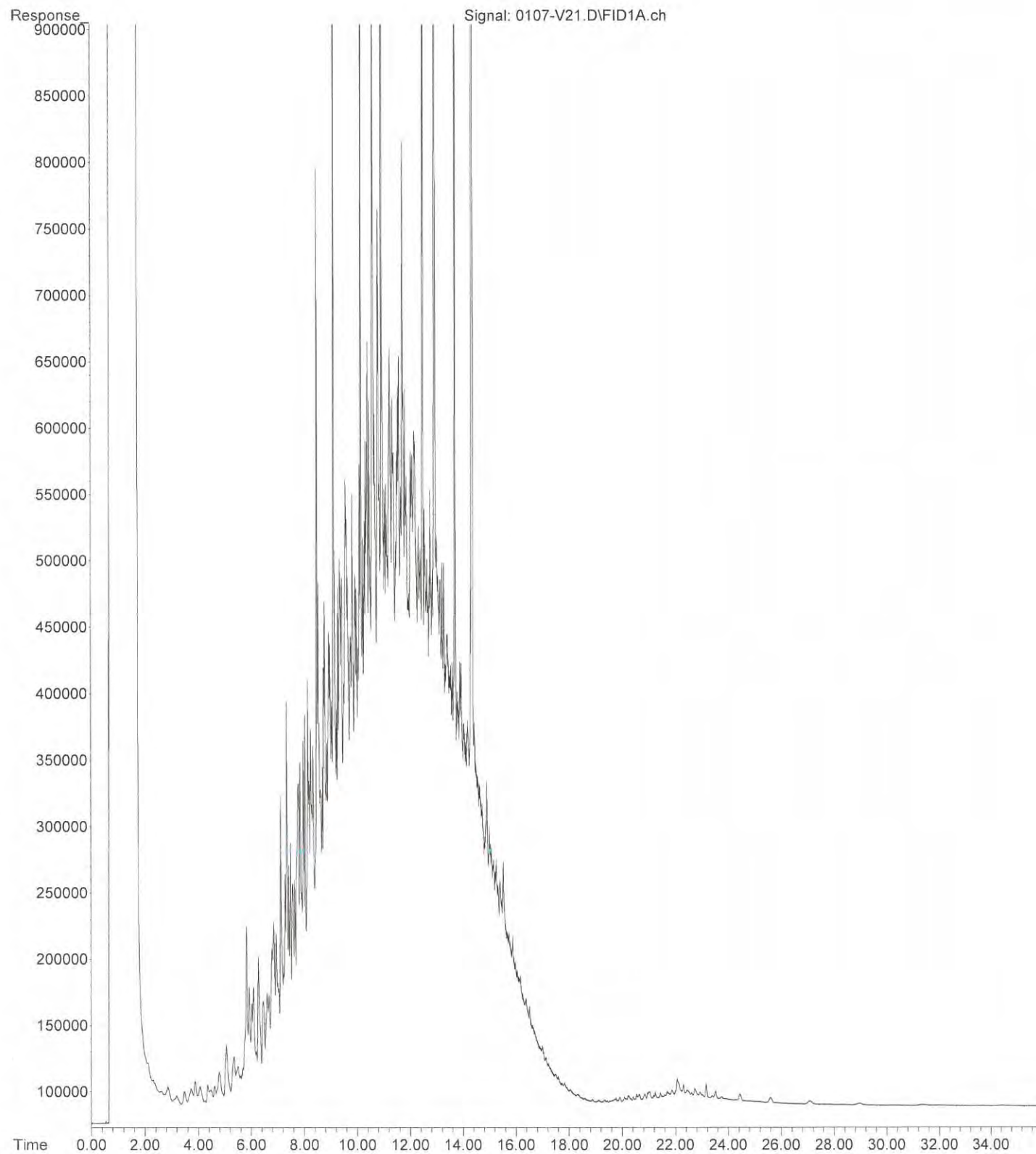
- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five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

ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference

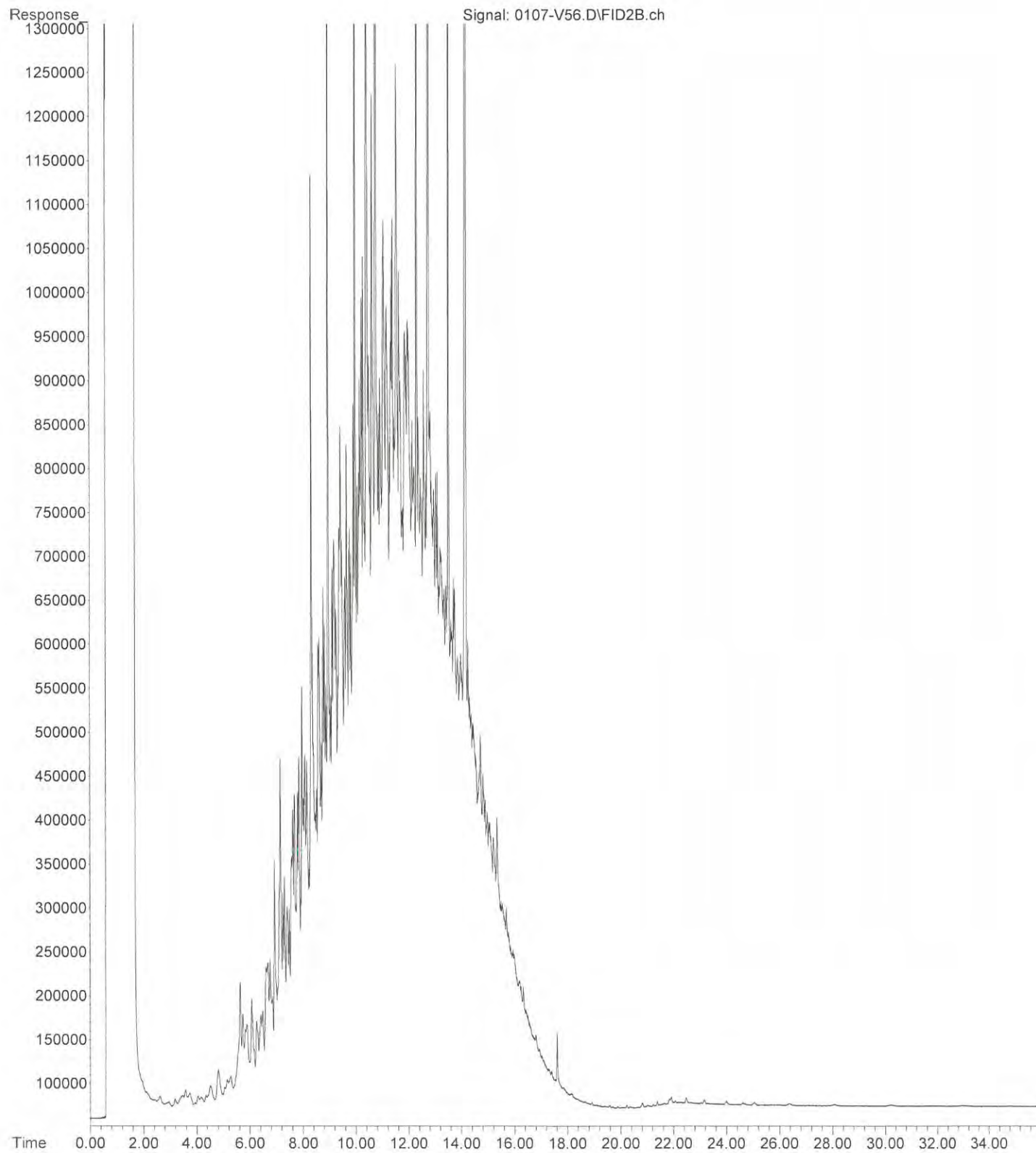
File : X:\BTEX\DARYL\DATA\D150820\0820031.D  
Operator :  
Acquired : 21 Aug 2015 6:59 using AcqMethod 150709B.M  
Instrument : Daryl  
Sample Name: 08-199-03s  
Misc Info : V2-37-21  
Vial Number: 31



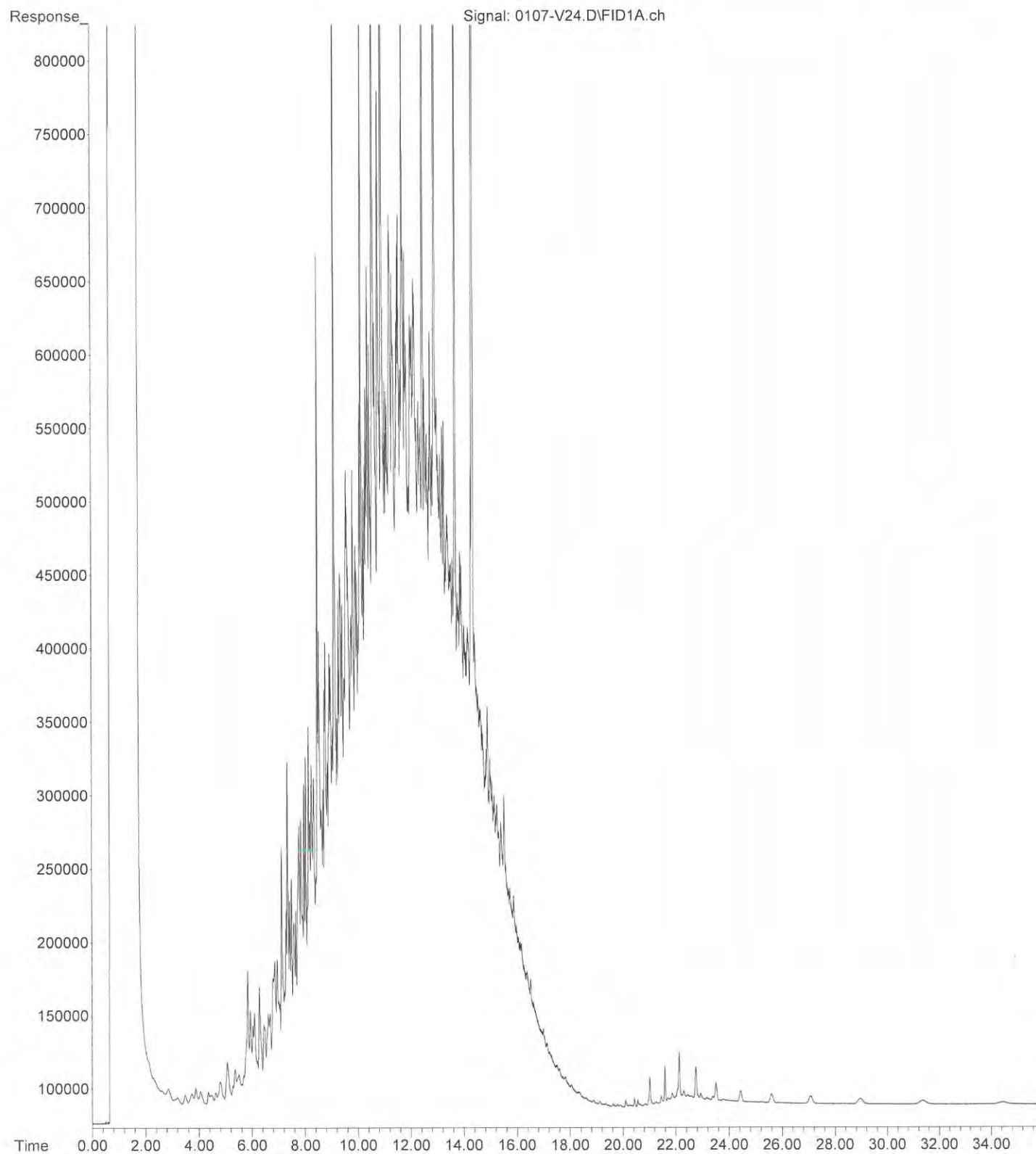
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Operator :  
Acquired : 21 Aug 2015 4:54 using AcqMethod V150507F.M  
Instrument : Vigo  
Sample Name: 08-199-01  
Misc Info :  
Vial Number: 21



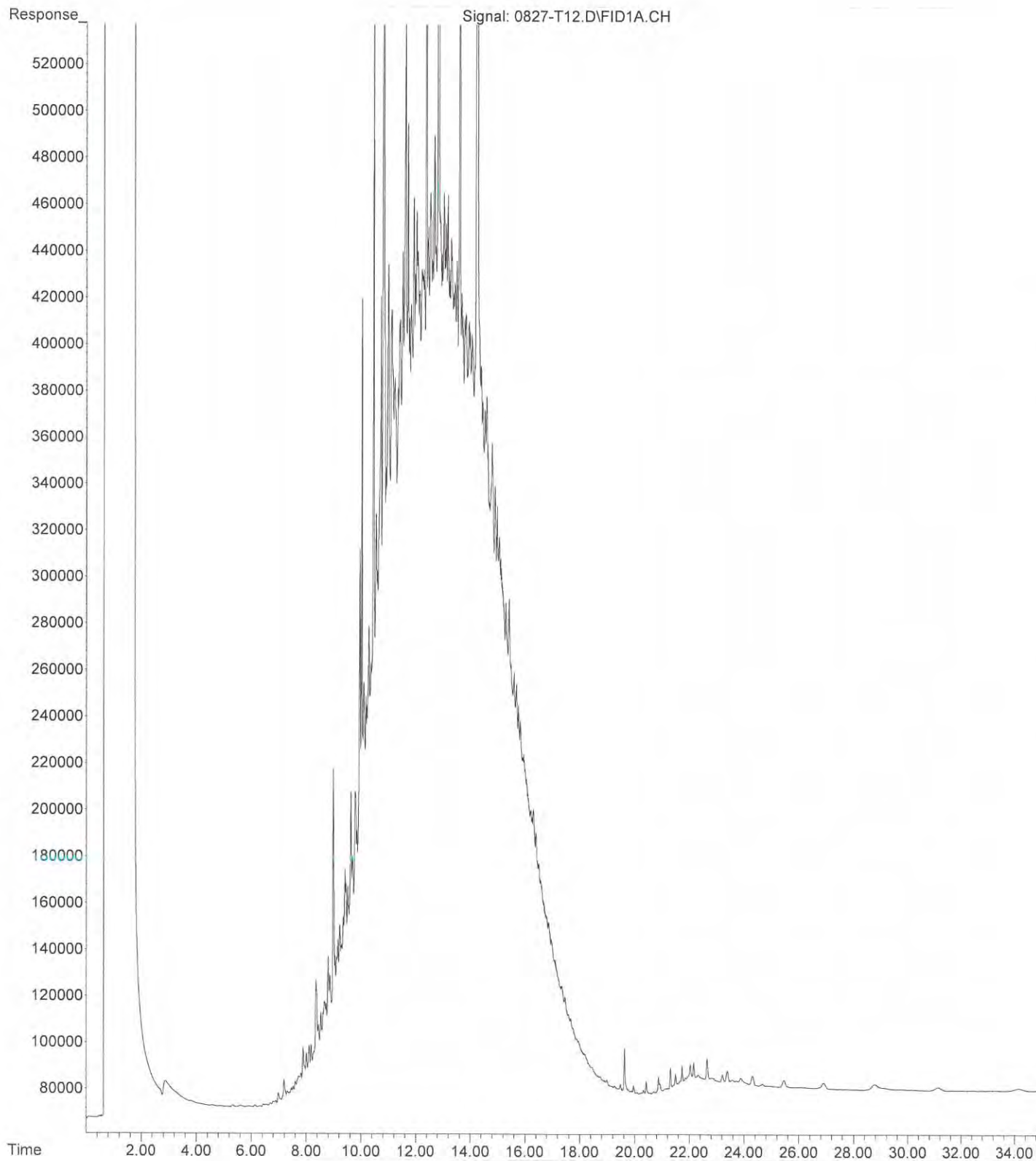
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Operator :  
Acquired : 20 Aug 2015 18:36 using AcqMethod V150507F.M  
Instrument : Vigo  
Sample Name: 08-199-02  
Misc Info :  
Vial Number: 56



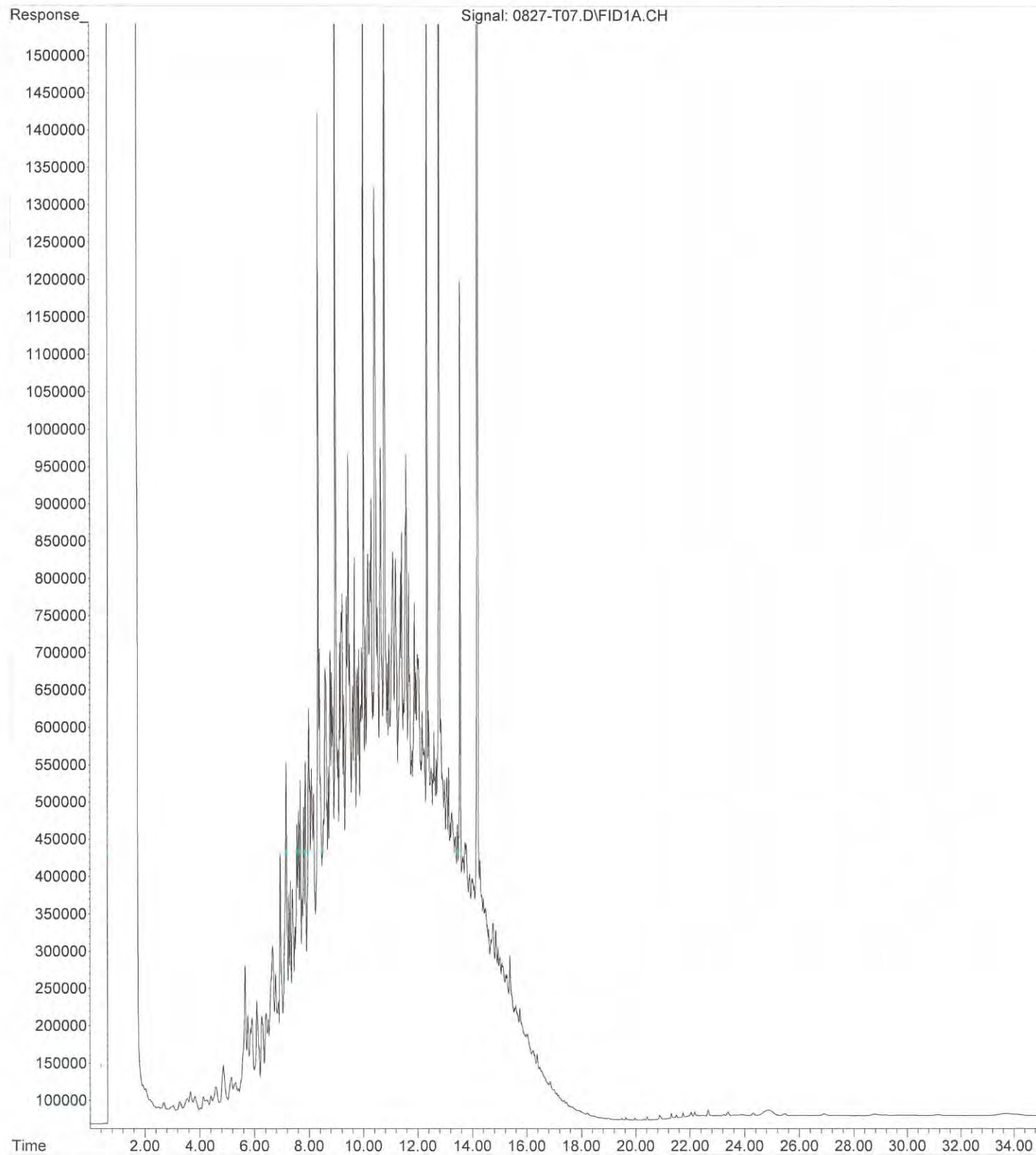
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Operator :  
Acquired : 21 Aug 2015 6:57 using AcqMethod V150507F.M  
Instrument : Vigo  
Sample Name: 08-199-03  
Misc Info :  
Vial Number: 24



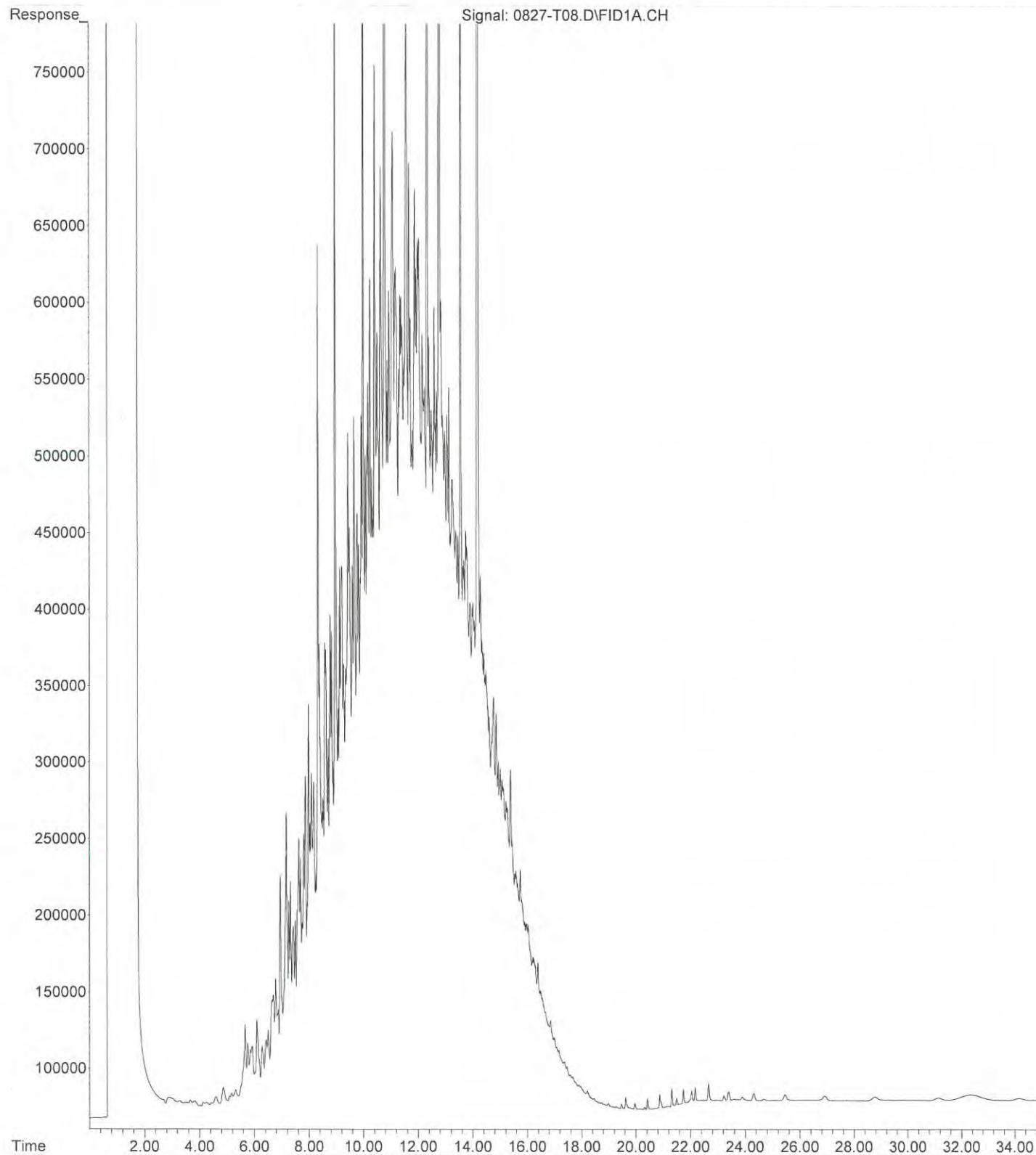
File :X:\DIESELS\TERI\DATA\T150827\0827-T12.D  
Operator : ZT  
Acquired : 27 Aug 2015 23:30 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-199-04  
Misc Info :  
Vial Number: 12



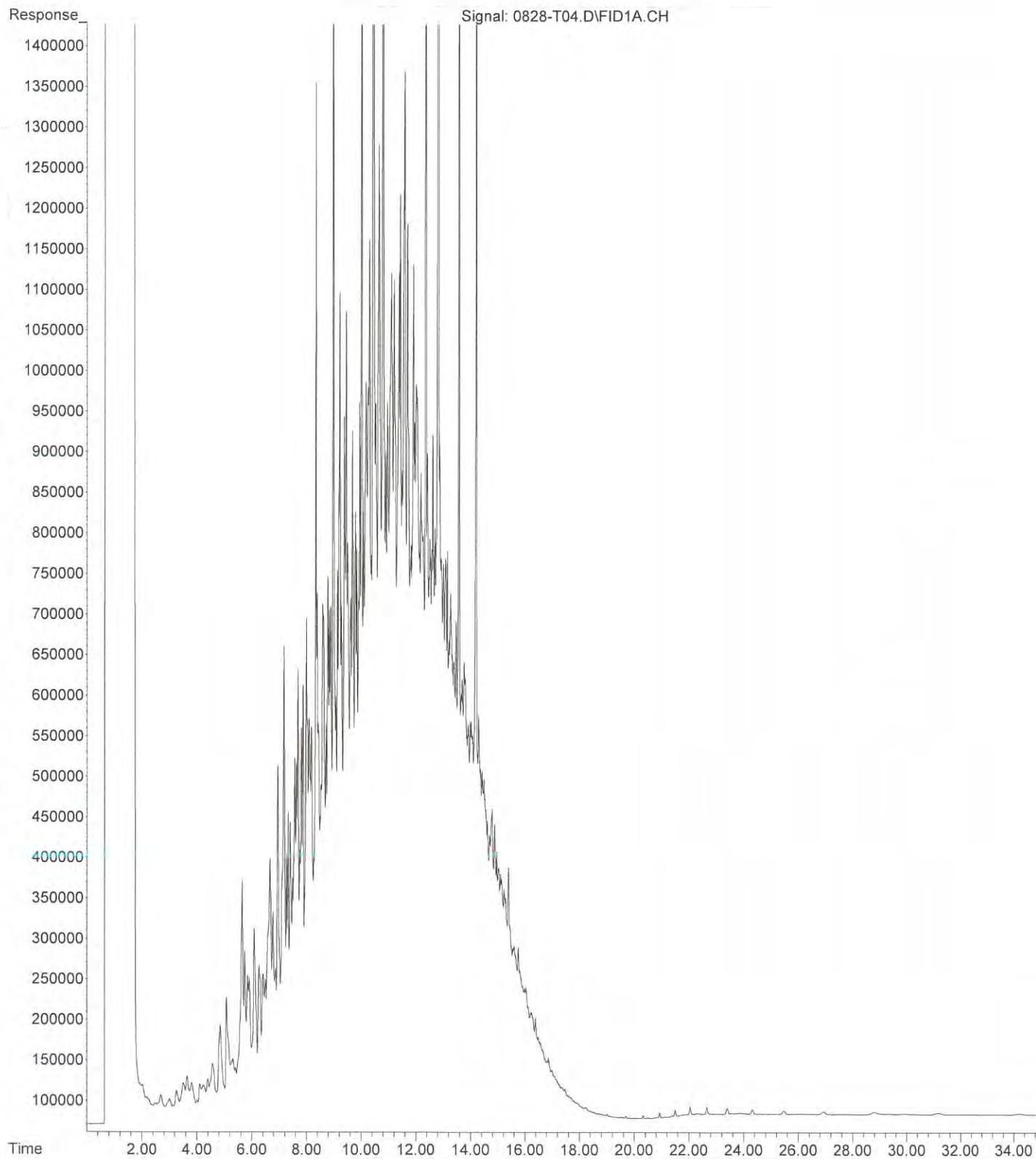
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Operator : ZT  
Acquired : 27 Aug 2015 19:52 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-199-05  
Misc Info :  
Vial Number: 7



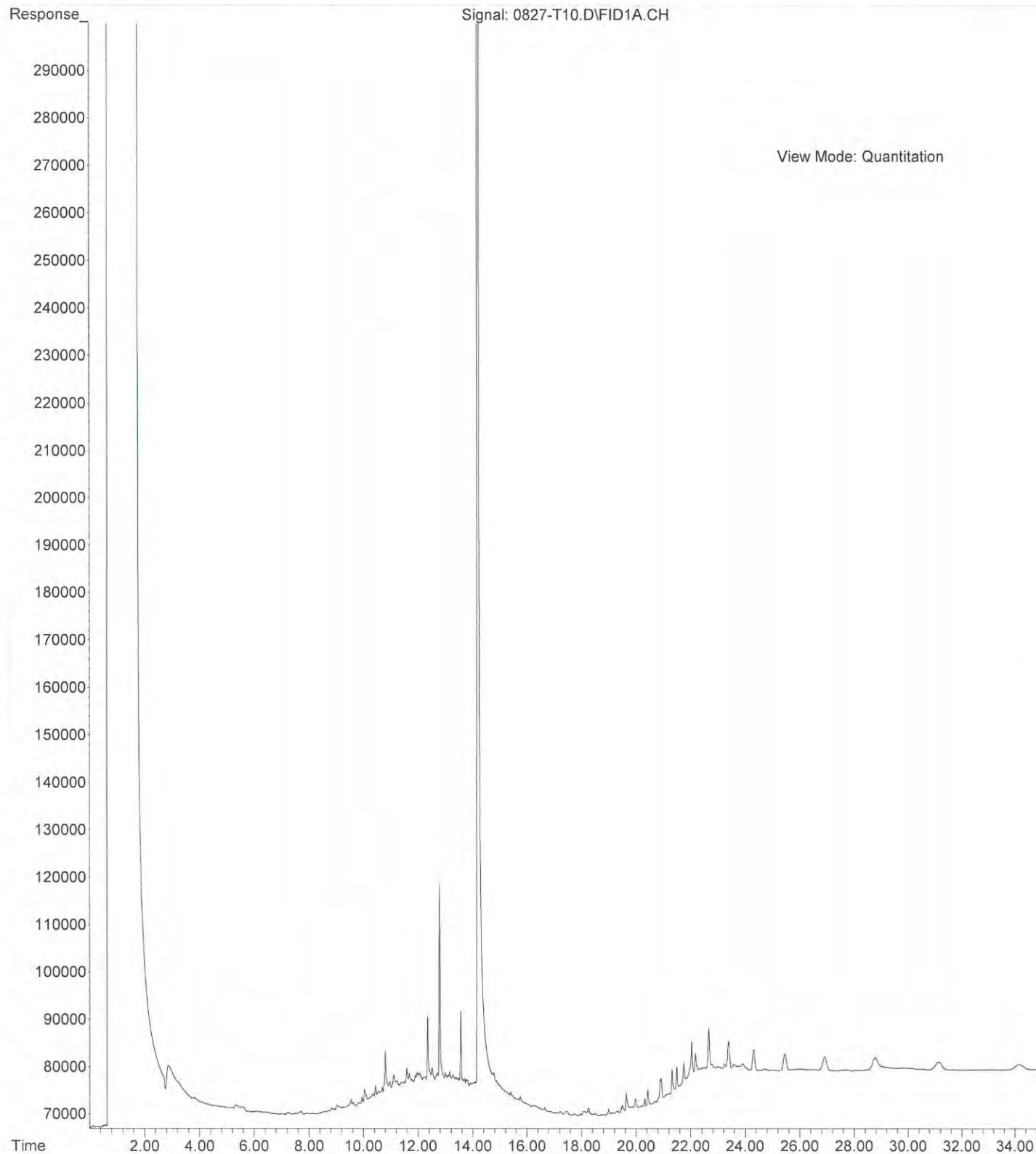
File :X:\DIESELS\TERI\DATA\T150827\0827-T08.D  
Operator : ZT  
Acquired : 27 Aug 2015 20:36 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-199-06  
Misc Info :  
Vial Number: 8



File :X:\DIESELS\TERI\DATA\T150828\0828-T04.D  
Operator : ZT  
Acquired : 28 Aug 2015 14:13 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-199-07 5X  
Misc Info :  
Vial Number: 4



File :X:\DIESELS\TERI\DATA\T150827\0827-T10.D  
Operator : ZT  
Acquired : 27 Aug 2015 22:03 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-199-08  
Misc Info :  
Vial Number: 10





**Analytical Laboratory Testing Services**  
14648 NE 95th Street • Redmond, WA 98052  
Phone: (425) 883-3881 • [www.onsite-env.com](http://www.onsite-env.com)

## Chain of Custody

Page 7 of 7

Environmental Inc.

Analytical Laboratory Testing Services  
14648 NE 95th Street • Redmond, WA 98052  
Phone: (425) 883-3881 • www.onsite-env.com

Turnaround Request  
(in working days)

Laboratory Number:

08-199

(Check One)

☐ Same Day ☒ 1 Day

☐ 2 Days ☐ 3 Days

☐ Standard (7 Days)  
(TPH analysis 5 Days)

☐  
(other)

Number of Containers:

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260C

Halogenated Volatiles 8260C

Semivolatiles 8270D/SIM  
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082A

Organochlorine Pesticides 8081B

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA Metals

Total MTCA Metals

TCLP Metals

HEM (oil and grease) 1664A

Hold

Hexavalent Chromium

% Moisture

Company:  
Gee Engineers

Project Name:  
City of Redmond - Perrigo Park ZA

Sampled by:  
Jessica Smith

Sydney Bronson

Lab ID Sample Identification

SP-1

SP-2

SP-3

Ex-1-11.0

Ex-2-8.5

Ex-3-8.5

Ex-4-8.5

Ex-5-9.0

Ex-6-9.0

Signature

Company

Date

Time

Comments/Special Instructions

Relinquished

Received

Relinquished

Received

Relinquished

Received

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Syll Brn

GeeEngineers

08/14/15

1612

Jessica Smith to  
Control for additional  
analyses

Added gills.DJ  
CS Data TRF

X Added 8/27/15 SC  
I B data TA



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

September 3, 2015

Jessica Smith  
GeoEngineers, Inc.  
8410 154th Avenue NE  
Redmond, WA 98052

Re: Analytical Data for Project 0500-208-00  
Laboratory Reference No. 1508-270

Dear Jessica:

Enclosed are the analytical results and associated quality control data for samples submitted on August 27, 2015.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish or checkmark.

David Baumeister  
Project Manager

Enclosures

Date of Report: September 3, 2015  
Samples Submitted: August 27, 2015  
Laboratory Reference: 1508-270  
Project: 0500-208-00

### **Case Narrative**

Samples were collected on August 27, 2015 and received by the laboratory on August 27, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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

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

Date of Report: September 3, 2015  
Samples Submitted: August 27, 2015  
Laboratory Reference: 1508-270  
Project: 0500-208-00

#### ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
EX-7-9.0	08-270-04	Soil	8-27-15	8-27-15	
EX-8-9.0	08-270-05	Soil	8-27-15	8-27-15	

Date of Report: September 3, 2015  
 Samples Submitted: August 27, 2015  
 Laboratory Reference: 1508-270  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>EX-7-9.0</b>					
Laboratory ID:	08-270-04					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-2-15	9-2-15	
Lube Oil	<b>190</b>	57	NWTPH-Dx	9-2-15	9-2-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	77	50-150				
<b>Client ID:</b>	<b>EX-8-9.0</b>					
Laboratory ID:	08-270-05					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-2-15	9-2-15	
Lube Oil	<b>200</b>	57	NWTPH-Dx	9-2-15	9-2-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	81	50-150				

Date of Report: September 3, 2015  
 Samples Submitted: August 27, 2015  
 Laboratory Reference: 1508-270  
 Project: 0500-208-00

**NWTPH-Dx  
QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0902S1					
Diesel Range Organics	<b>ND</b>	25	NWTPH-Dx	9-2-15	9-2-15	
Lube Oil Range Organics	<b>ND</b>	50	NWTPH-Dx	9-2-15	9-2-15	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	83	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	09-020-01							
	ORIG	DUP						
Diesel Fuel #2	<b>756</b>	<b>669</b>	NA	NA	NA	12	NA	
Lube Oil Range	<b>ND</b>	<b>ND</b>	NA	NA	NA	NA	NA	
Surrogate:								
<i>o</i> -Terphenyl				81	84	50-150		

Date of Report: September 3, 2015  
Samples Submitted: August 27, 2015  
Laboratory Reference: 1508-270  
Project: 0500-208-00

### % MOISTURE

Date Analyzed: 9-2-15

Client ID	Lab ID	% Moisture
EX-7-9.0	08-270-04	12
EX-8-9.0	08-270-05	12

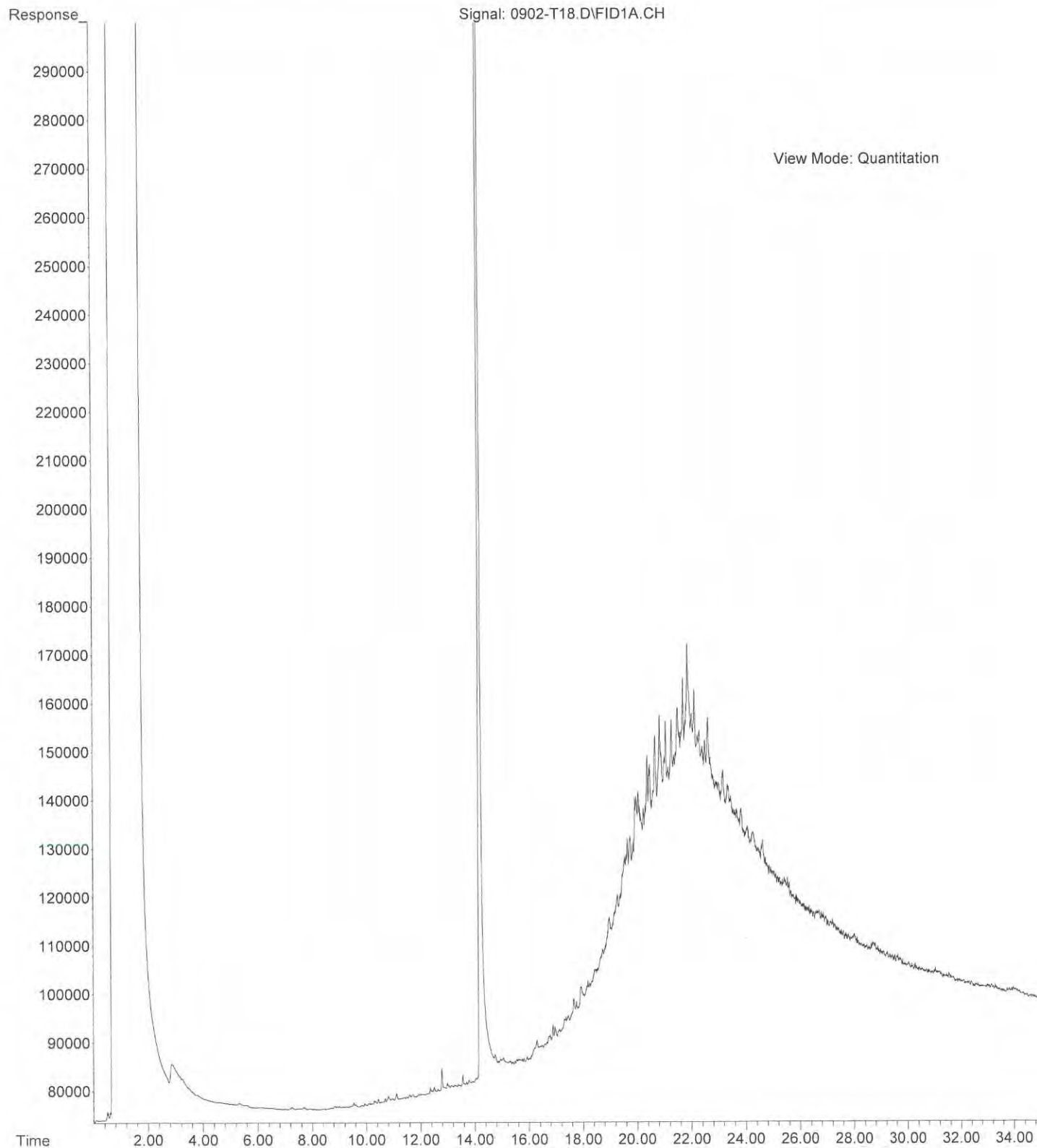


### Data Qualifiers and Abbreviations

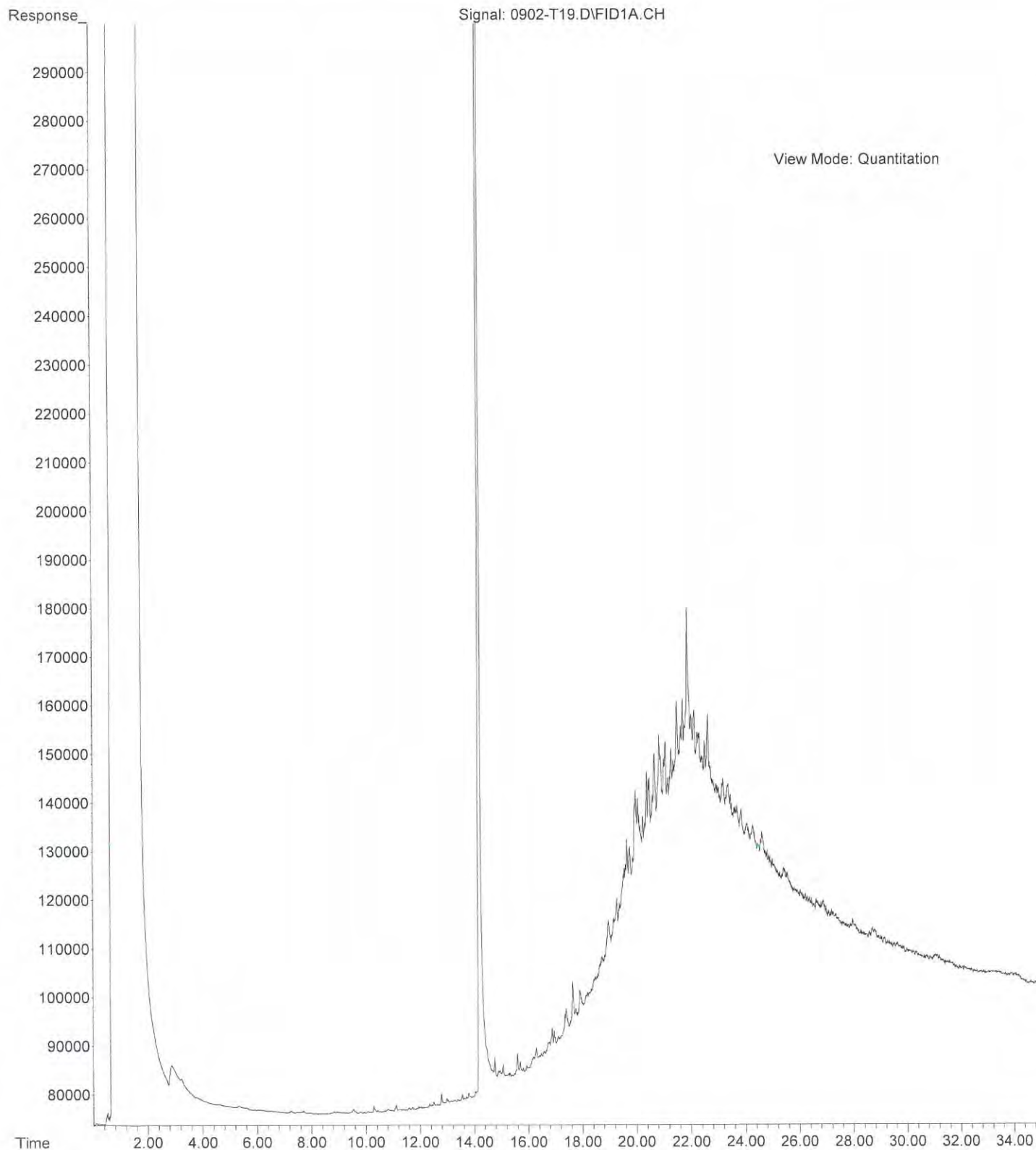
- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five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



File :X:\DIESELS\TERI\DATA\T150902\0902-T18.D  
Operator : ZT  
Acquired : 03 Sep 2015 0:36 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-270-04  
Misc Info :  
Vial Number: 18



File :X:\DIESELS\TERI\DATA\T150902\0902-T19.D  
Operator : ZT  
Acquired : 03 Sep 2015 1:18 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 08-270-05  
Misc Info :  
Vial Number: 19





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

September 9, 2015

Jessica Smith  
GeoEngineers, Inc.  
8410 154th Avenue NE  
Redmond, WA 98052

Re: Analytical Data for Project 0500-208-00  
Laboratory Reference No. 1509-038

Dear Jessica:

Enclosed are the analytical results and associated quality control data for samples submitted on September 2, 2015.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish or checkmark.

David Baumeister  
Project Manager

Enclosures

Date of Report: September 9, 2015  
Samples Submitted: September 2, 2015  
Laboratory Reference: 1509-038  
Project: 0500-208-00

### **Case Narrative**

Samples were collected on September 2, 2015 and received by the laboratory on September 2, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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

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

Date of Report: September 9, 2015  
Samples Submitted: September 2, 2015  
Laboratory Reference: 1509-038  
Project: 0500-208-00

#### ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
PERIGO PIEZOMETER	09-038-01	Water	9-2-15	9-2-15	
PERIGO DOMESTIC	09-038-02	Water	9-2-15	9-2-15	

Date of Report: September 9, 2015  
 Samples Submitted: September 2, 2015  
 Laboratory Reference: 1509-038  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Water  
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID: PERIGO PIEZOMETER</b>						
Laboratory ID:	09-038-01					
Diesel Range Organics	ND	0.26	NWTPH-Dx	9-8-15	9-8-15	X1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	9-8-15	9-8-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

<b>Client ID: PERIGO DOMESTIC</b>						
Laboratory ID:	09-038-02					
Diesel Range Organics	ND	0.27	NWTPH-Dx	9-8-15	9-8-15	X1
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	9-8-15	9-8-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	96	50-150				

Date of Report: September 9, 2015  
 Samples Submitted: September 2, 2015  
 Laboratory Reference: 1509-038  
 Project: 0500-208-00

**NWTPH-Dx  
QUALITY CONTROL**

Matrix: Water  
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0908W1					
Diesel Range Organics	<b>ND</b>	0.25	NWTPH-Dx	9-8-15	9-8-15	X1
Lube Oil Range Organics	<b>ND</b>	0.40	NWTPH-Dx	9-8-15	9-8-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	09-038-02							
	ORIG	DUP						
Diesel Range	<b>ND</b>	<b>ND</b>	NA	NA	NA	NA	NA	X1
Lube Oil Range	<b>ND</b>	<b>ND</b>	NA	NA	NA	NA	NA	X1
<i>Surrogate:</i>								
<i>o-Terphenyl</i>				96	93	50-150		



### Data Qualifiers and Abbreviations

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

ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference

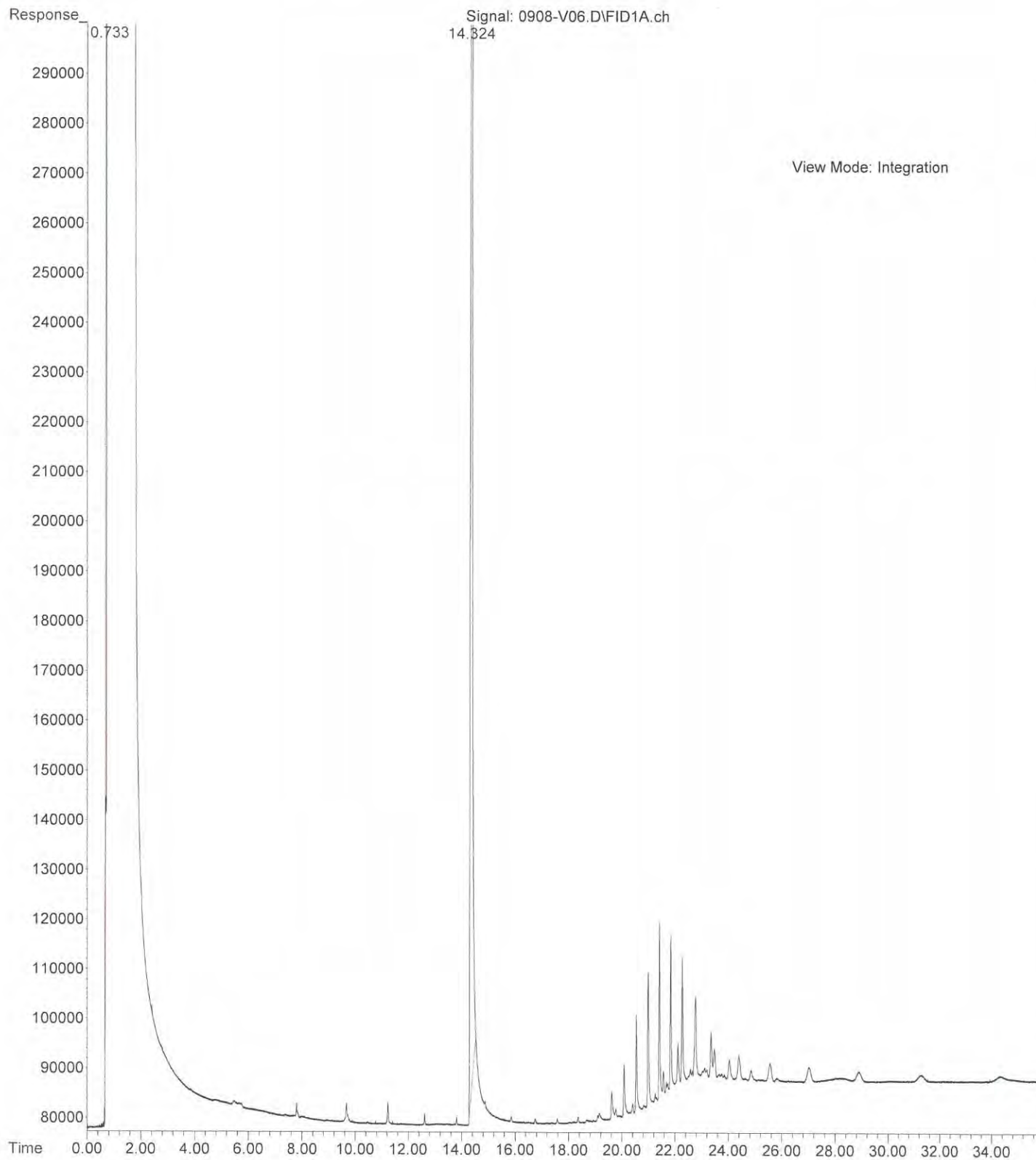


# Chain of Custody

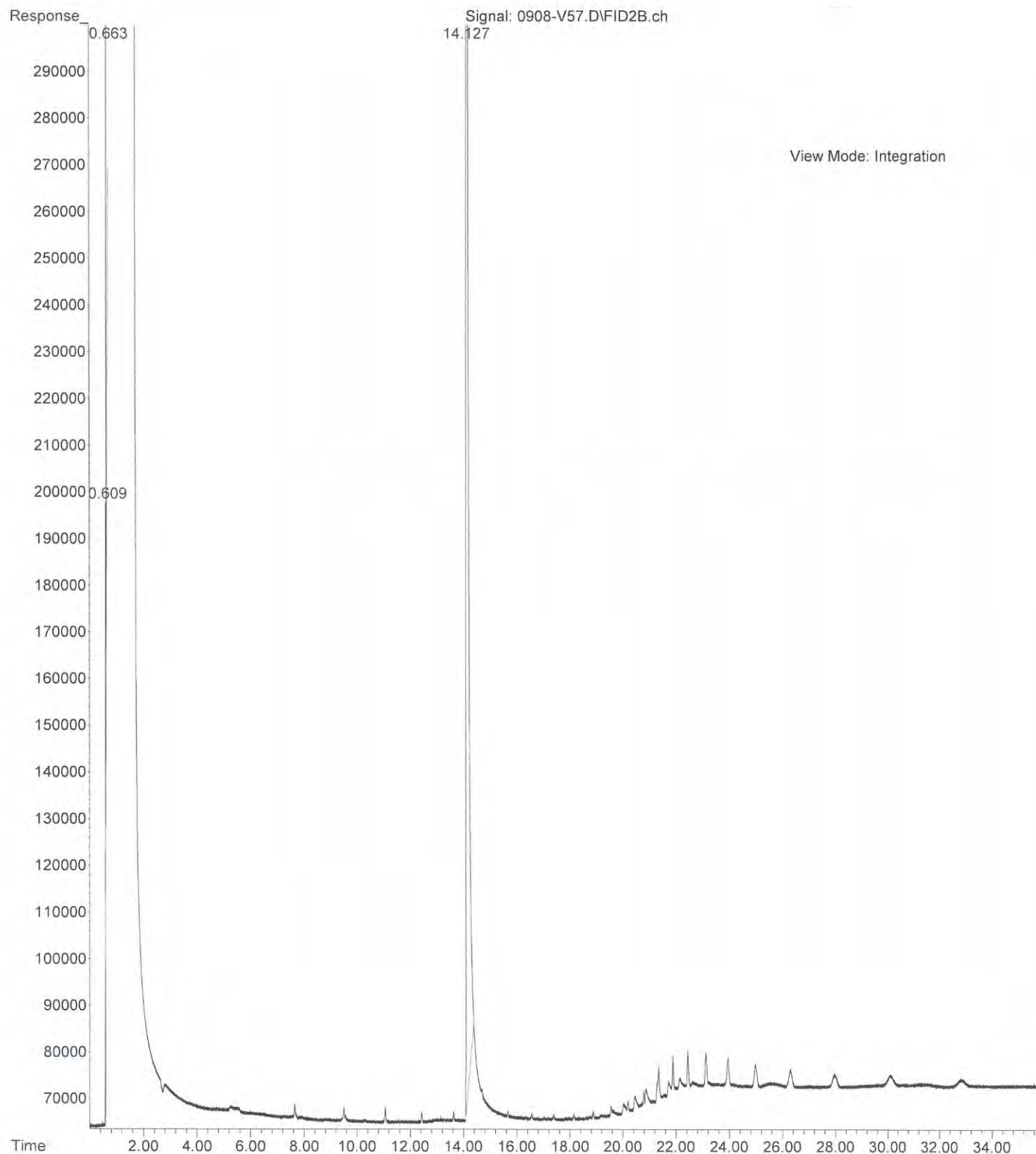
Page 7 of 11

[illegible]

File :X:\DIESELS\VIGO\DATA\V150908\0908-V06.D  
Operator :  
Acquired : 8 Sep 2015 17:25 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-038-01 ACU  
Misc Info :  
Vial Number: 6



File :X:\DIESELS\VIGO\DATA\V150908.SEC\0908-V57.D  
Operator :  
Acquired : 8 Sep 2015 18:06 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-038-02 ACU  
Misc Info :  
Vial Number: 57





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

September 10, 2015

Jessica Smith  
GeoEngineers, Inc.  
8410 154th Avenue NE  
Redmond, WA 98052

Re: Analytical Data for Project 0500-208-00  
Laboratory Reference No. 1509-067

Dear Jessica:

Enclosed are the analytical results and associated quality control data for samples submitted on September 8, 2015.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish or checkmark.

David Baumeister  
Project Manager

Enclosures

Date of Report: September 10, 2015  
Samples Submitted: September 8, 2015  
Laboratory Reference: 1509-067  
Project: 0500-208-00

### **Case Narrative**

Samples were collected on September 8, 2015 and received by the laboratory on September 8, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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

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

Date of Report: September 10, 2015  
Samples Submitted: September 8, 2015  
Laboratory Reference: 1509-067  
Project: 0500-208-00

#### ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
EX-9-11.0	09-067-01	Soil	9-8-15	9-8-15	
EX-10-6.0	09-067-02	Soil	9-8-15	9-8-15	
EX-11-8.0	09-067-03	Soil	9-8-15	9-8-15	
SP-9-8-1	09-067-04	Soil	9-8-15	9-8-15	
SP-9-8-2	09-067-05	Soil	9-8-15	9-8-15	
SP-9-8-3	09-067-06	Soil	9-8-15	9-8-15	
SP-C-1	09-067-07	Soil	9-8-15	9-8-15	
SP-C-2	09-067-08	Soil	9-8-15	9-8-15	
SP-C-3	09-067-09	Soil	9-8-15	9-8-15	

Date of Report: September 10, 2015  
 Samples Submitted: September 8, 2015  
 Laboratory Reference: 1509-067  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>EX-9-11.0</b>					
Laboratory ID:	09-067-01					
Diesel Range Organics	<b>ND</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	58	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	80	50-150				

<b>Client ID:</b>	<b>EX-10-6.0</b>					
Laboratory ID:	09-067-02					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	55	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	93	50-150				

<b>Client ID:</b>	<b>EX-11-8.0</b>					
Laboratory ID:	09-067-03					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	57	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	90	50-150				

<b>Client ID:</b>	<b>SP-9-8-1</b>					
Laboratory ID:	09-067-04					
Diesel Fuel #2	<b>1100</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>200</b>	58	NWTPH-Dx	9-9-15	9-9-15	N1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				

<b>Client ID:</b>	<b>SP-9-8-2</b>					
Laboratory ID:	09-067-05					
Diesel Fuel #2	<b>760</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>140</b>	58	NWTPH-Dx	9-9-15	9-9-15	N1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				

<b>Client ID:</b>	<b>SP-9-8-3</b>					
Laboratory ID:	09-067-06					
Diesel Fuel #2	<b>750</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>71</b>	57	NWTPH-Dx	9-9-15	9-9-15	N1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	93	50-150				

Date of Report: September 10, 2015  
 Samples Submitted: September 8, 2015  
 Laboratory Reference: 1509-067  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>SP-C-1</b>					
Laboratory ID:	09-067-07					
Diesel Range Organics	<b>ND</b>	50	NWTPH-Dx	9-9-15	9-9-15	U1
Lube Oil	<b>340</b>	57	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	107	50-150				
<b>Client ID:</b>	<b>SP-C-2</b>					
Laboratory ID:	09-067-08					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil	<b>170</b>	56	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	108	50-150				
<b>Client ID:</b>	<b>SP-C-3</b>					
Laboratory ID:	09-067-09					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil	<b>250</b>	56	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	109	50-150				

Date of Report: September 10, 2015  
 Samples Submitted: September 8, 2015  
 Laboratory Reference: 1509-067  
 Project: 0500-208-00

**NWTPH-Dx  
QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0909S1					
Diesel Range Organics	ND	25	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	ND	50	NWTPH-Dx	9-9-15	9-9-15	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	93	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	09-059-03							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	
Surrogate:								
o-Terphenyl				102	88	50-150		

Date of Report: September 10, 2015  
Samples Submitted: September 8, 2015  
Laboratory Reference: 1509-067  
Project: 0500-208-00

### % MOISTURE

Date Analyzed: 9-9-15

Client ID	Lab ID	% Moisture
EX-9-11.0	09-067-01	13
EX-10-6.0	09-067-02	9
EX-11-8.0	09-067-03	12
SP-9-8-1	09-067-04	14
SP-9-8-2	09-067-05	13
SP-9-8-3	09-067-06	12
SP-C-1	09-067-07	11
SP-C-2	09-067-08	11
SP-C-3	09-067-09	11



### Data Qualifiers and Abbreviations

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



Company:

Project Number:

Project Name:

Project Manager:

Sampled by:

Lab ID

### Sample Identification

Sampled

Sampled

### Matrix

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260C

Halogenated Volatiles 8260C

Semivolatiles 8270D/SIM  
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082A

Organochlorine Pesticides 8081B

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA Metals

Total MTCA Metals

TCLP Metals

HEM (oil and grease) 1664A

% Moisture

Turnaround Request  
(in working days)

(Check One)

☐ Same Day☒ 1 Day☐ 2 Days☐ 3 Days

☐ Standard (7 Days)  
(TPH analysis 5 Days)

☐ \_\_\_\_\_ (other)

Laboratory Number:

290-60

## Chain of Custody

Page 1 of 1

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished				
Received	GEI	09/08/15	1700	
Relinquished				
Received				
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date	Reviewed/Date	Chromatograms with final report <input type="checkbox"/>		

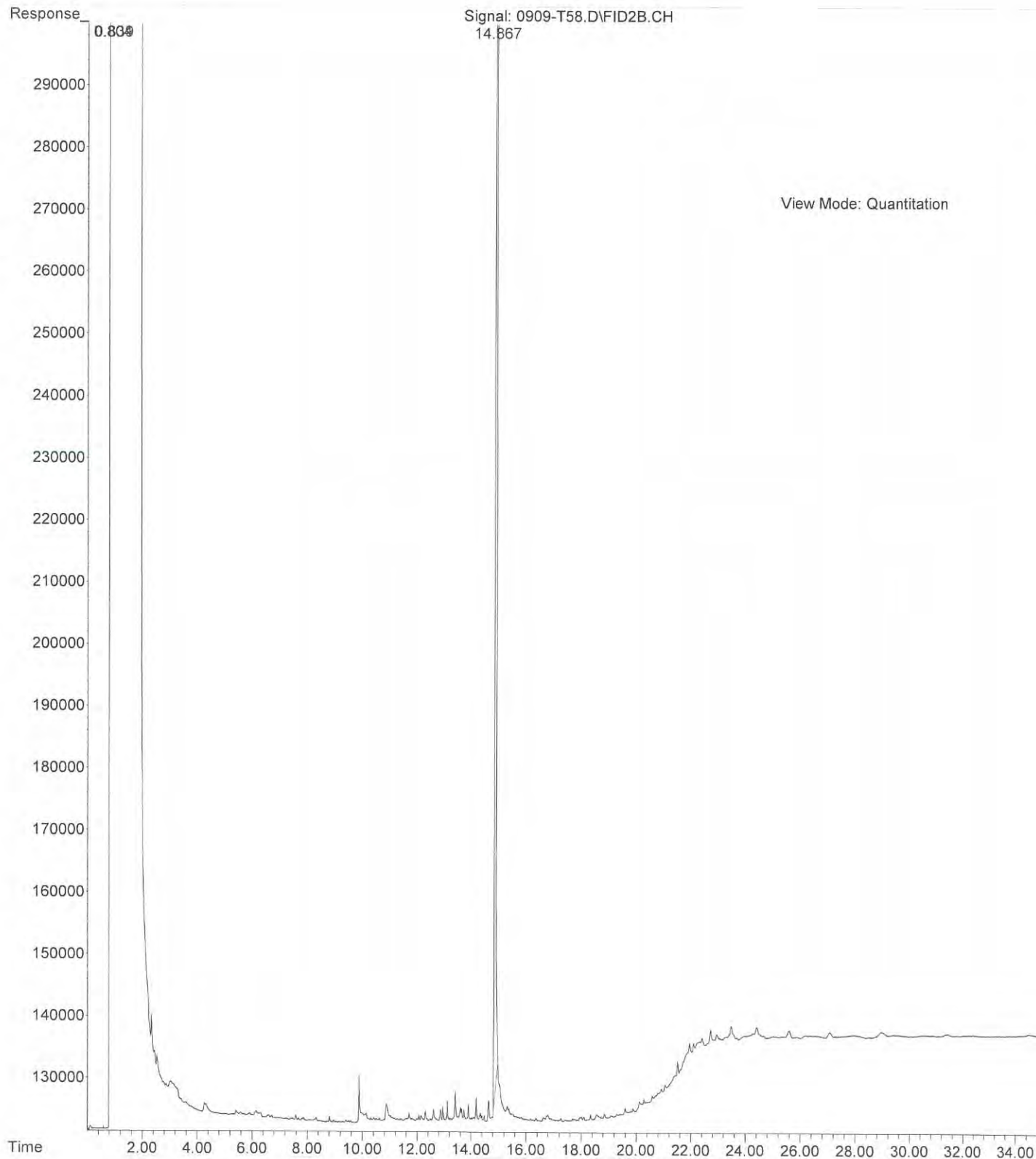
Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐

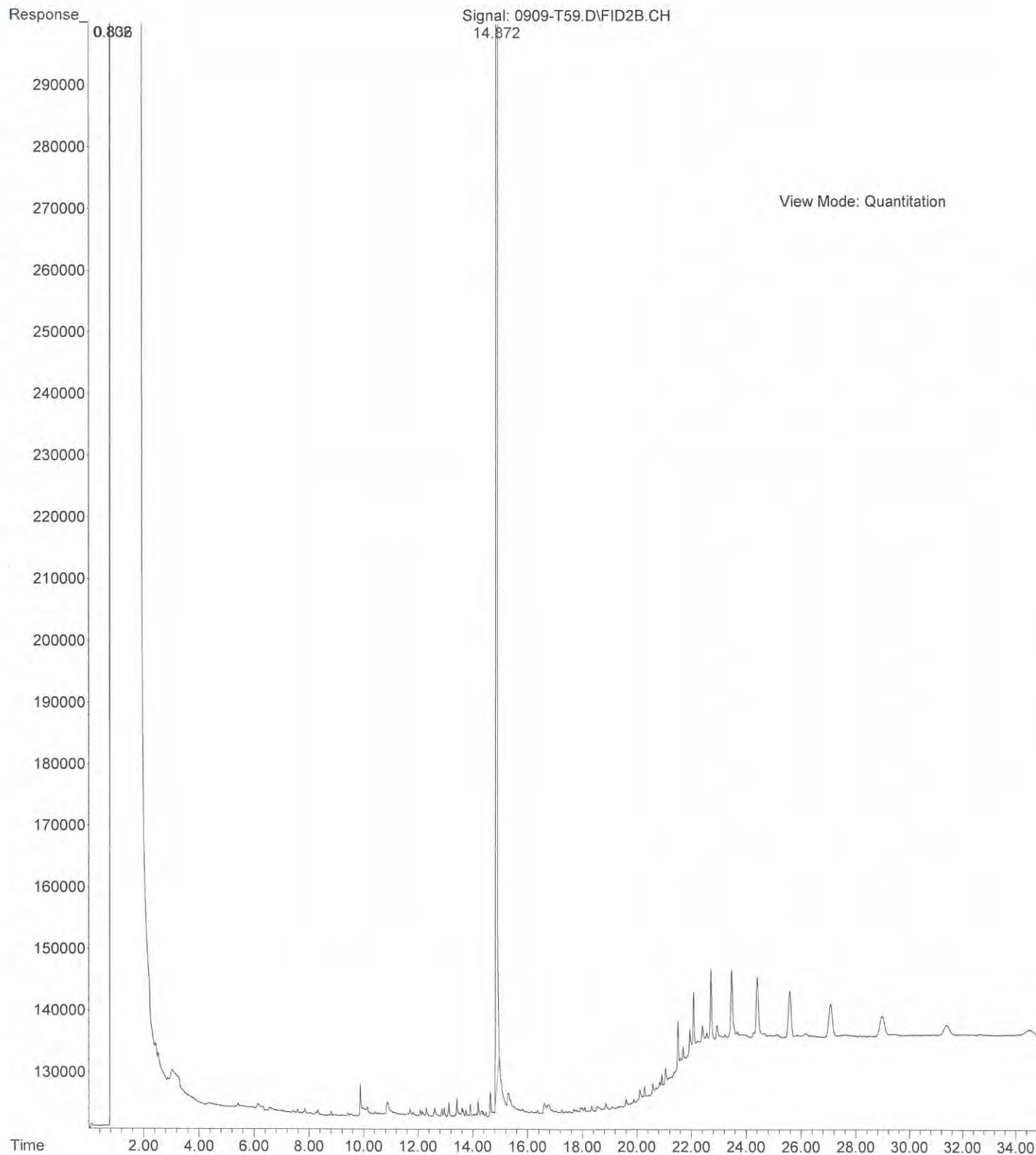
Electronic Data Deliverables (EDDs) ☐

188

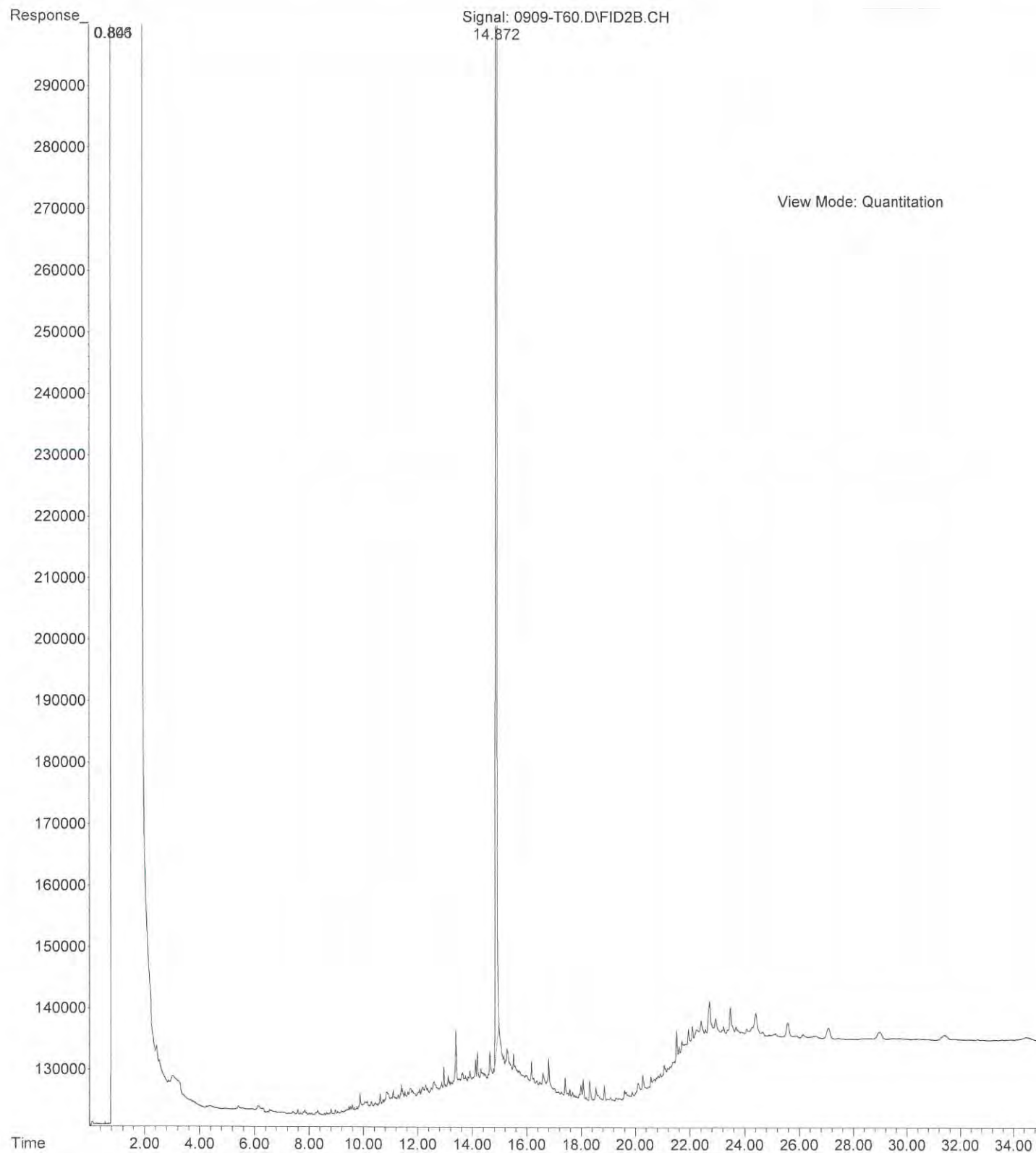
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Operator : ZT  
Acquired : 09 Sep 2015 16:58 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 09-067-01  
Misc Info :  
Vial Number: 58



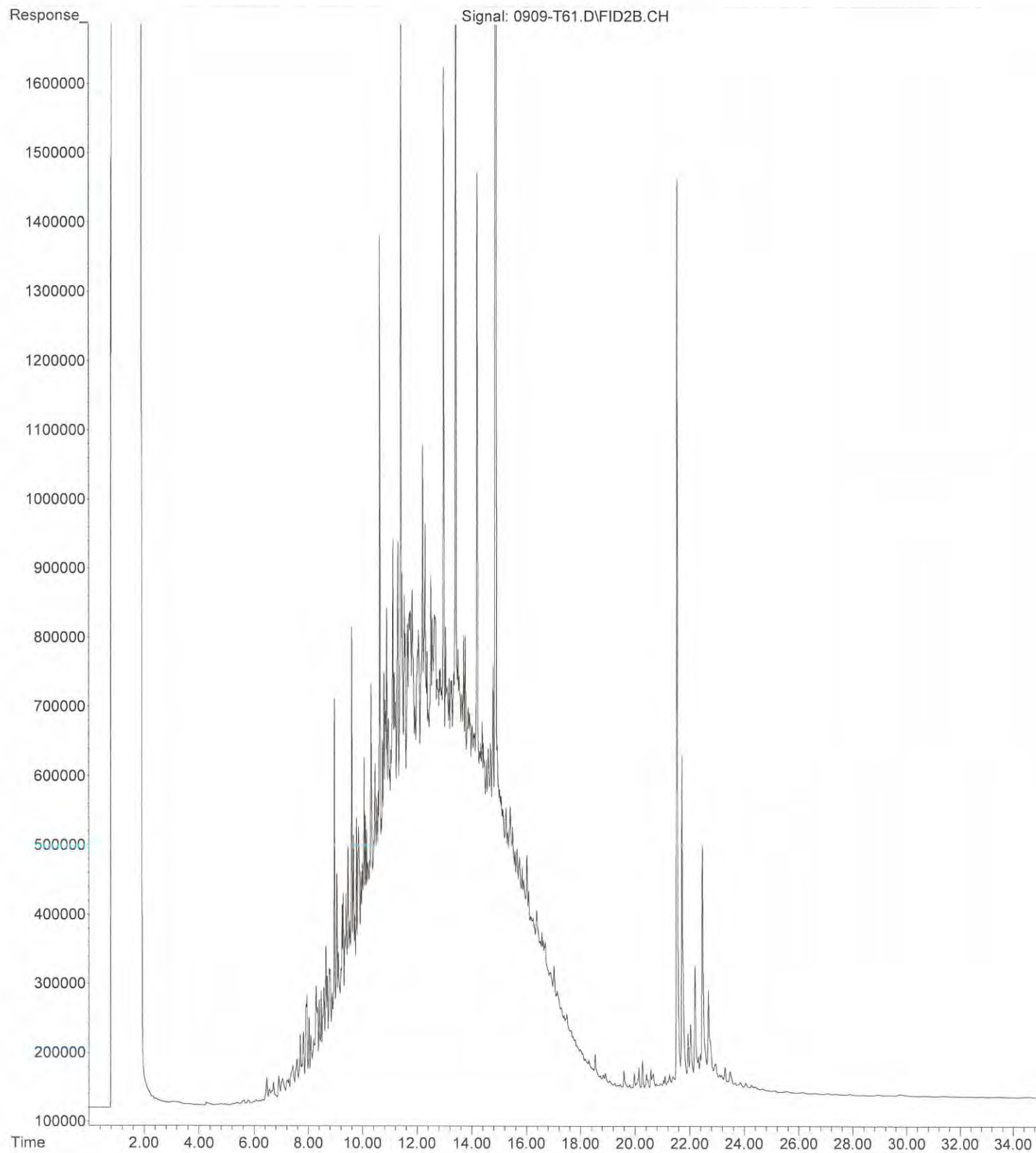
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Operator : ZT  
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Instrument : Teri  
Sample Name: 09-067-02  
Misc Info :  
Vial Number: 59



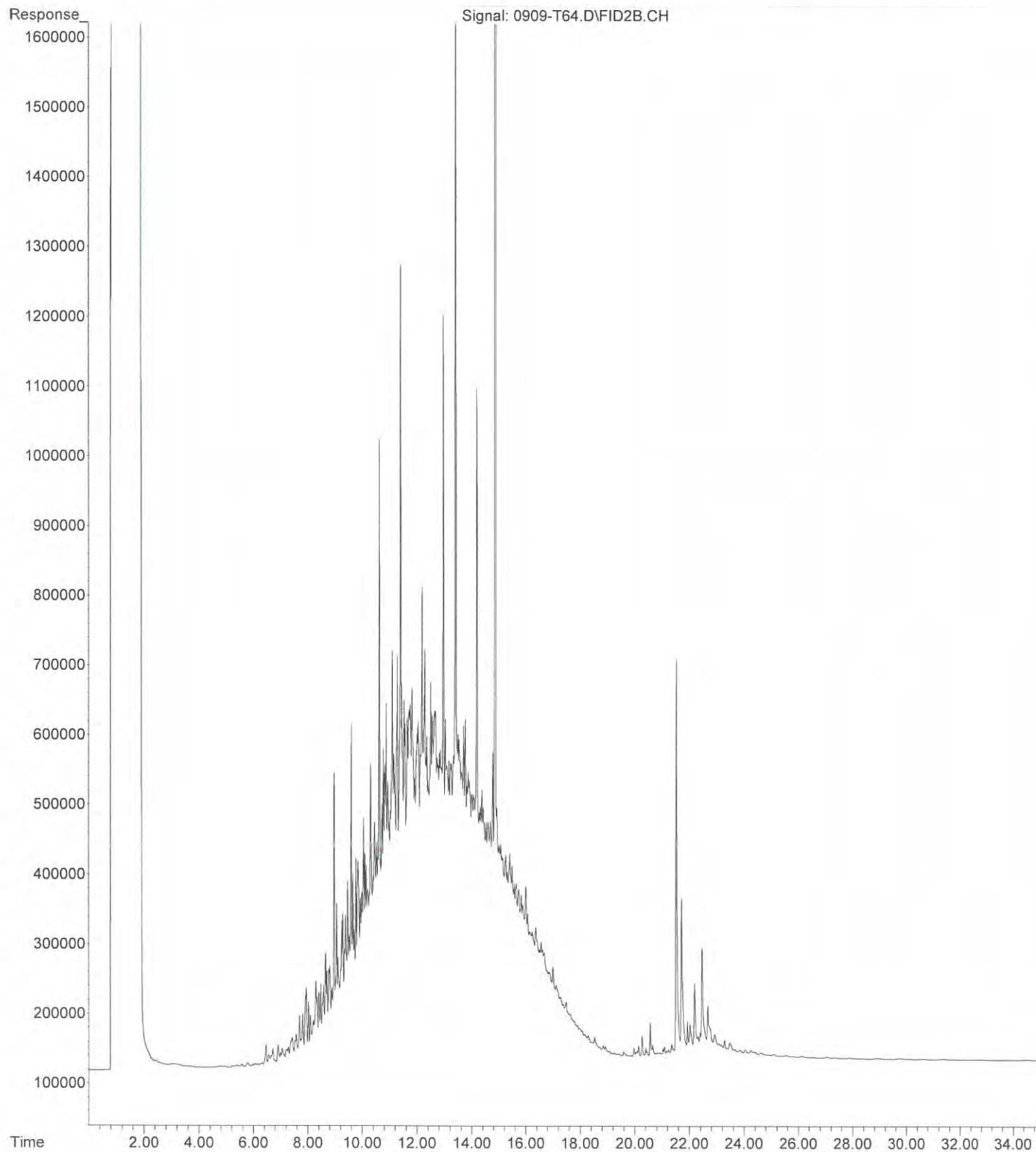
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Instrument : Teri  
Sample Name: 09-067-03  
Misc Info :  
Vial Number: 60



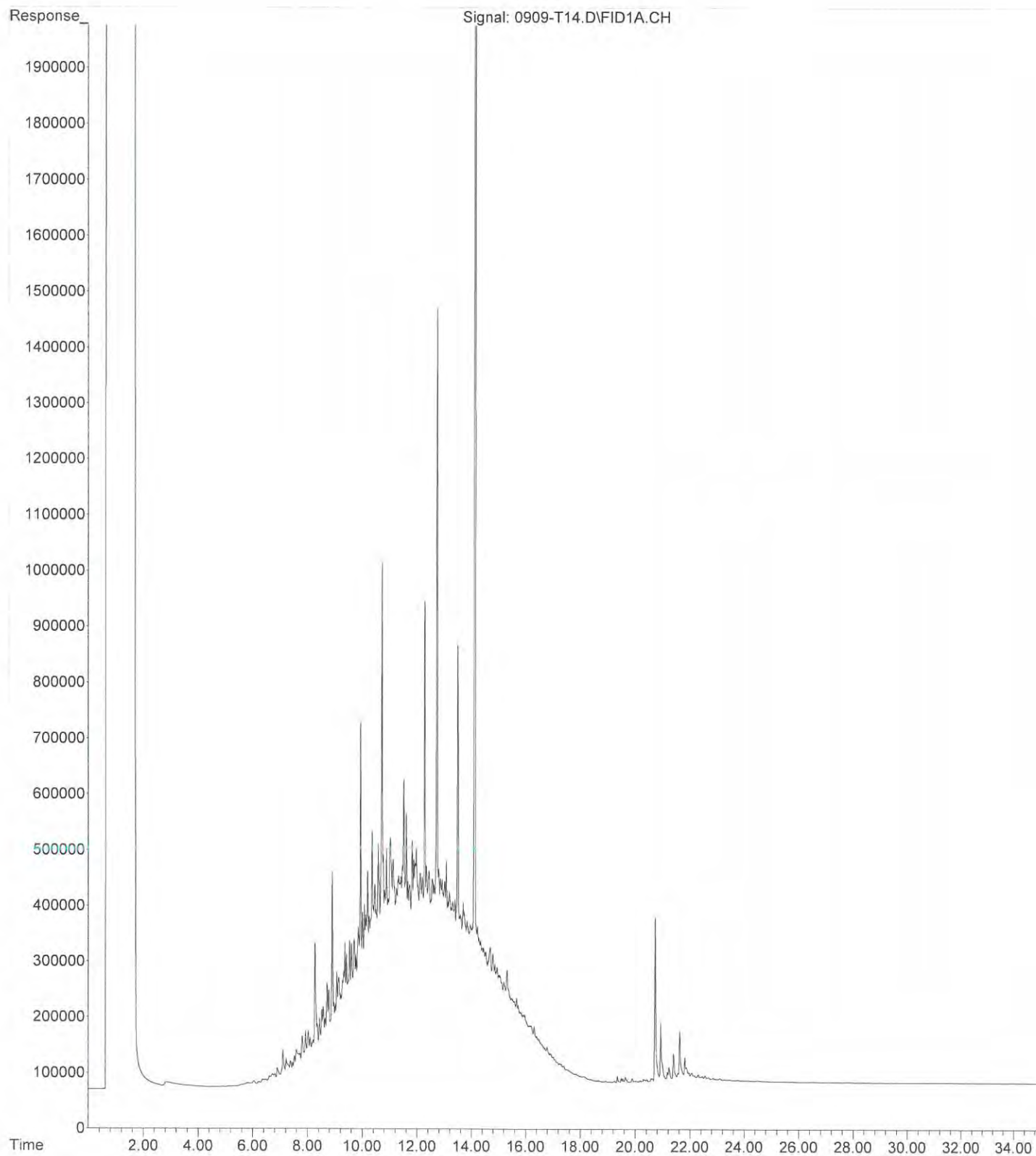
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Instrument : Teri  
Sample Name: 09-067-04  
Misc Info :  
Vial Number: 61



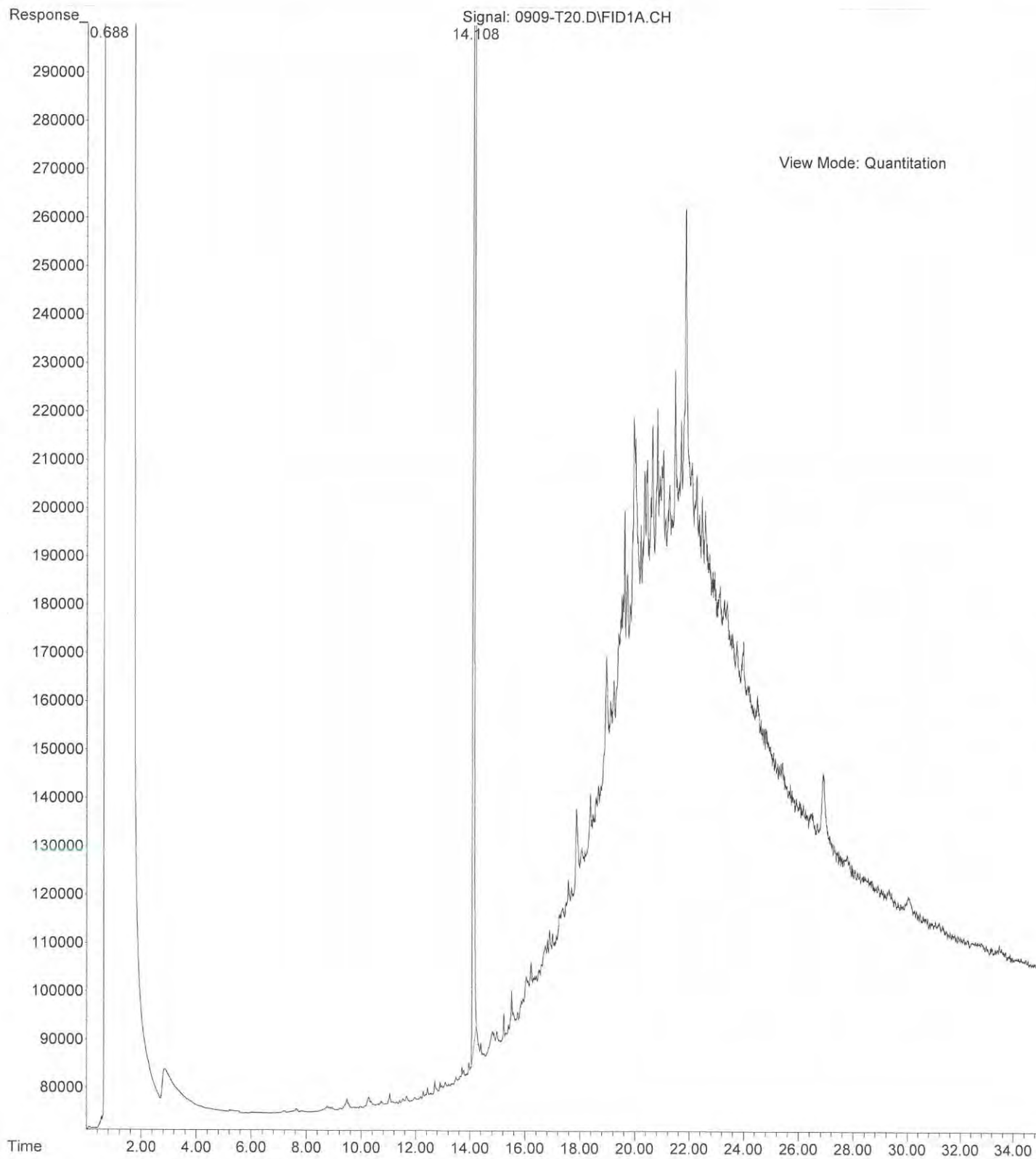
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Instrument : Teri  
Sample Name: 09-067-05  
Misc Info :  
Vial Number: 64



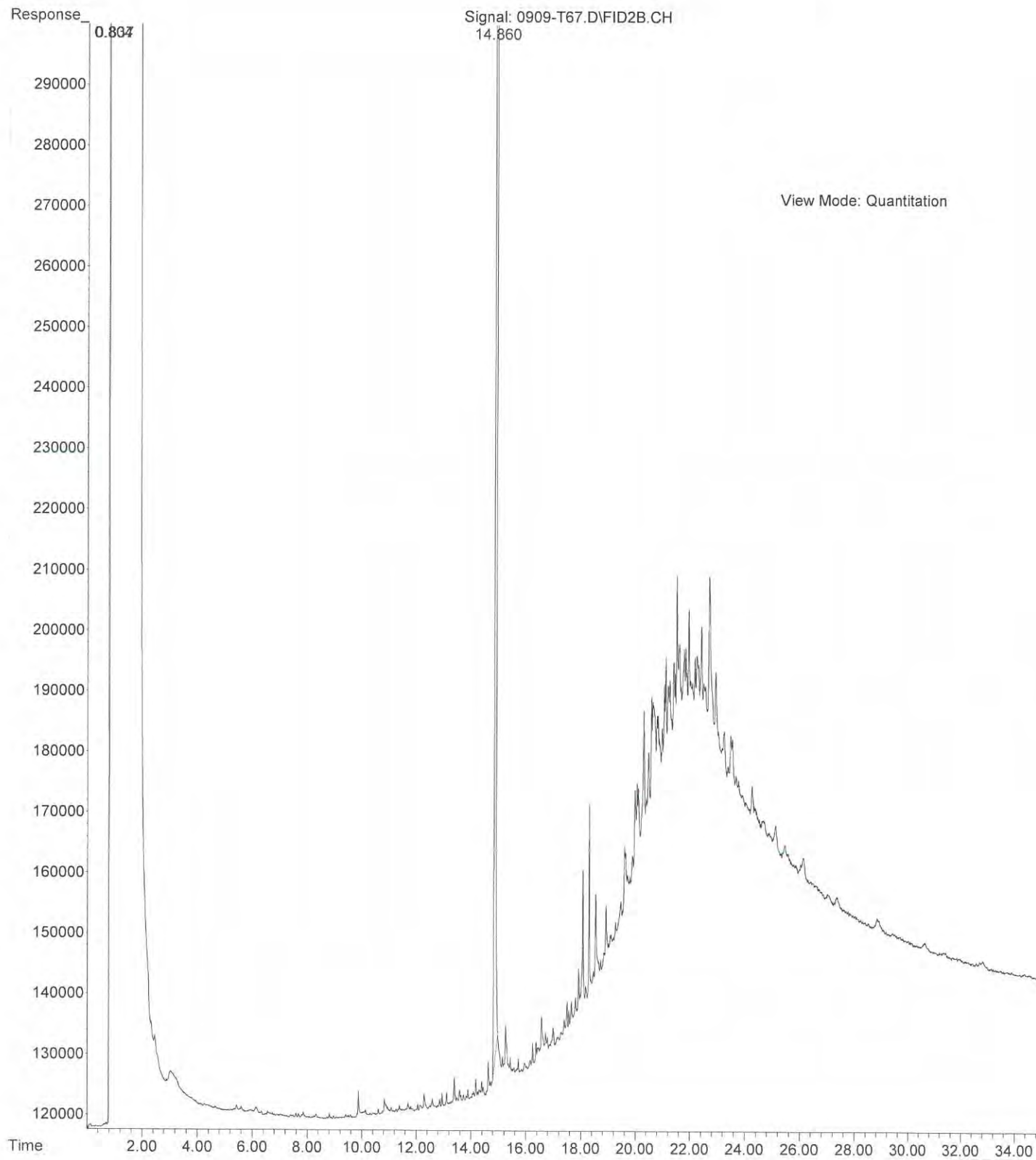
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Operator : ZT  
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Instrument : Teri  
Sample Name: 09-067-06  
Misc Info :  
Vial Number: 14



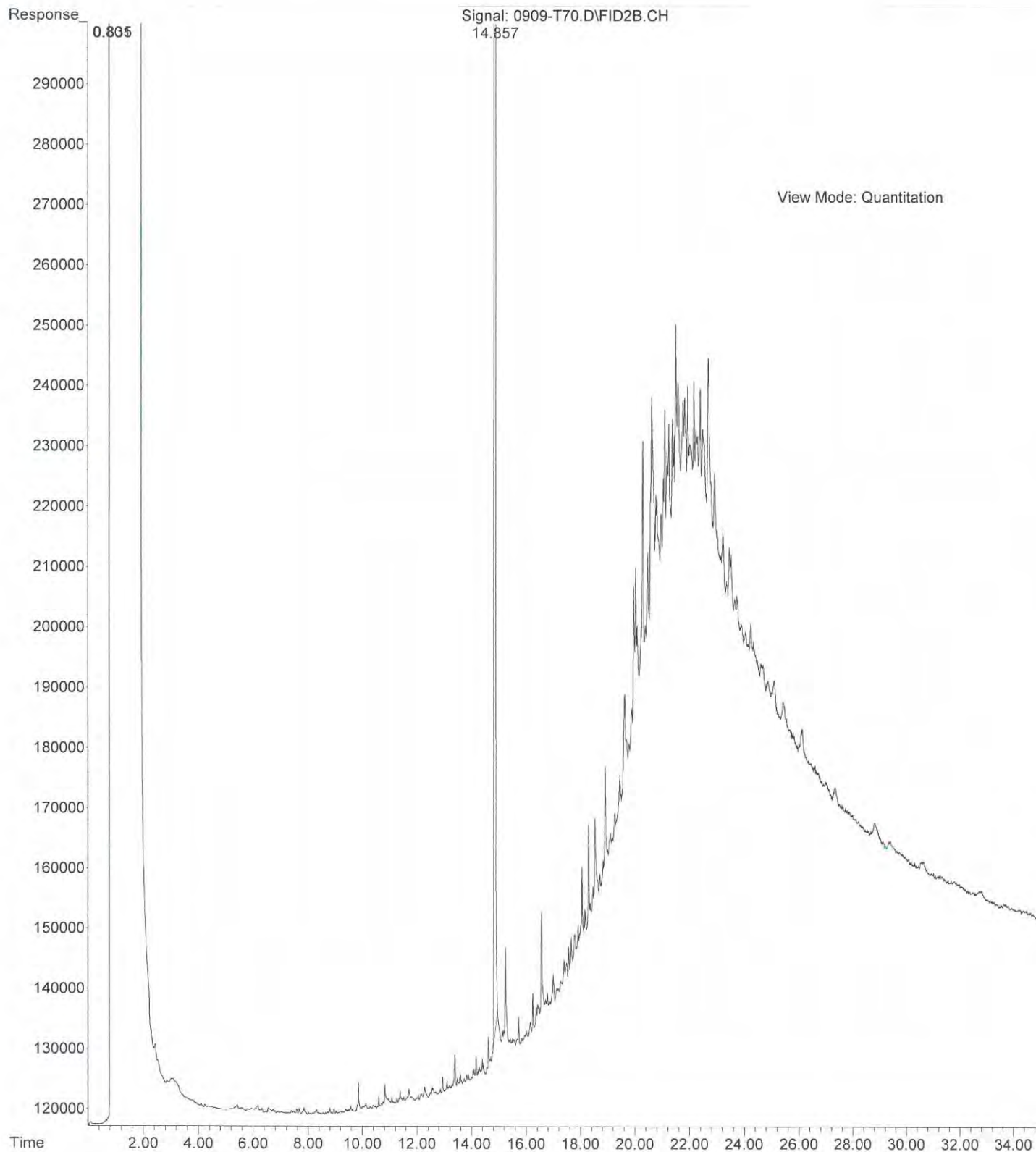
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Operator : ZT  
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Instrument : Teri  
Sample Name: 09-067-07  
Misc Info :  
Vial Number: 20



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Operator : ZT  
Acquired : 09 Sep 2015 23:29 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 09-067-08  
Misc Info :  
Vial Number: 67



File :X:\DIESELS\TERI\DATA\T150909.SEC\0909-T70.D  
Operator : ZT  
Acquired : 10 Sep 2015 1:38 using AcqMethod T150713F.M  
Instrument : Teri  
Sample Name: 09-067-09  
Misc Info :  
Vial Number: 70





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

September 10, 2015

Tony Orme  
GeoEngineers, Inc.  
8410 154th Avenue NE  
Redmond, WA 98052

Re: Analytical Data for Project 0500-208-00  
Laboratory Reference No. 1509-078

Dear Tony:

Enclosed are the analytical results and associated quality control data for samples submitted on September 9, 2015.

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

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

Sincerely,

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

David Baumeister  
Project Manager

Enclosures

Date of Report: September 10, 2015  
Samples Submitted: September 9, 2015  
Laboratory Reference: 1509-078  
Project: 0500-208-00

### **Case Narrative**

Samples were collected on September 9, 2015 and received by the laboratory on September 9, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

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

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

Date of Report: September 10, 2015  
Samples Submitted: September 9, 2015  
Laboratory Reference: 1509-078  
Project: 0500-208-00

**ANALYTICAL REPORT FOR SAMPLES**

<b>Client ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Date Sampled</b>	<b>Date Received</b>	<b>Notes</b>
EX-12-11	09-078-01	Soil	9-9-15	9-9-15	
EX-13-9	09-078-02	Soil	9-9-15	9-9-15	
EX-14-8	09-078-03	Soil	9-9-15	9-9-15	
EX-15-13.5	09-078-04	Soil	9-9-15	9-9-15	
EX-16-8	09-078-05	Soil	9-9-15	9-9-15	
EX-17-8	09-078-06	Soil	9-9-15	9-9-15	
EX-18-12	09-078-07	Soil	9-9-15	9-9-15	
EX-19-11	09-078-08	Soil	9-9-15	9-9-15	
EX-20-8	09-078-09	Soil	9-9-15	9-9-15	
EX-21-11	09-078-10	Soil	9-9-15	9-9-15	

Date of Report: September 10, 2015  
 Samples Submitted: September 9, 2015  
 Laboratory Reference: 1509-078  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>EX-12-11</b>					
Laboratory ID:	09-078-01					
Diesel Range Organics	<b>ND</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	58	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				

<b>Client ID:</b>	<b>EX-13-9</b>					
Laboratory ID:	09-078-02					
Diesel Range Organics	<b>ND</b>	27	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	54	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	109	50-150				

<b>Client ID:</b>	<b>EX-14-8</b>					
Laboratory ID:	09-078-03					
Diesel Range Organics	<b>ND</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	58	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	87	50-150				

<b>Client ID:</b>	<b>EX-15-13.5</b>					
Laboratory ID:	09-078-04					
Diesel Range Organics	<b>ND</b>	27	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	53	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	112	50-150				

<b>Client ID:</b>	<b>EX-16-8</b>					
Laboratory ID:	09-078-05					
Diesel Range Organics	<b>ND</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	57	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	107	50-150				

<b>Client ID:</b>	<b>EX-17-8</b>					
Laboratory ID:	09-078-06					
Diesel Range Organics	<b>45</b>	29	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	58	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	101	50-150				

Date of Report: September 10, 2015  
 Samples Submitted: September 9, 2015  
 Laboratory Reference: 1509-078  
 Project: 0500-208-00

### NWTPH-Dx

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>EX-18-12</b>					
Laboratory ID:	09-078-07					
Diesel Range Organics	<b>47</b>	30	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	60	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	120	50-150				

<b>Client ID:</b>	<b>EX-19-11</b>					
Laboratory ID:	09-078-08					
Diesel Range Organics	<b>ND</b>	28	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	57	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	103	50-150				

<b>Client ID:</b>	<b>EX-20-8</b>					
Laboratory ID:	09-078-09					
Diesel Range Organics	<b>ND</b>	35	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	69	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	92	50-150				

<b>Client ID:</b>	<b>EX-21-11</b>					
Laboratory ID:	09-078-10					
Diesel Range Organics	<b>ND</b>	27	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	53	NWTPH-Dx	9-9-15	9-9-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	110	50-150				

Date of Report: September 10, 2015  
 Samples Submitted: September 9, 2015  
 Laboratory Reference: 1509-078  
 Project: 0500-208-00

**NWTPH-Dx  
 QUALITY CONTROL**

Matrix: Soil  
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0909S2					
Diesel Range Organics	<b>ND</b>	25	NWTPH-Dx	9-9-15	9-9-15	
Lube Oil Range Organics	<b>ND</b>	50	NWTPH-Dx	9-9-15	9-9-15	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	111	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	09-078-01									
	ORIG	DUP								
Diesel Range	ND	ND	NA	NA		NA	NA	NA	NA	
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						99	102	50-150		

Date of Report: September 10, 2015  
Samples Submitted: September 9, 2015  
Laboratory Reference: 1509-078  
Project: 0500-208-00

**% MOISTURE**

Date Analyzed: 9-9-15

Client ID	Lab ID	% Moisture
EX-12-11	09-078-01	14
EX-13-9	09-078-02	8
EX-14-8	09-078-03	13
EX-15-13.5	09-078-04	6
EX-16-8	09-078-05	13
EX-17-8	09-078-06	14
EX-18-12	09-078-07	17
EX-19-11	09-078-08	11
EX-20-8	09-078-09	28
EX-21-11	09-078-10	6



### Data Qualifiers and Abbreviations

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



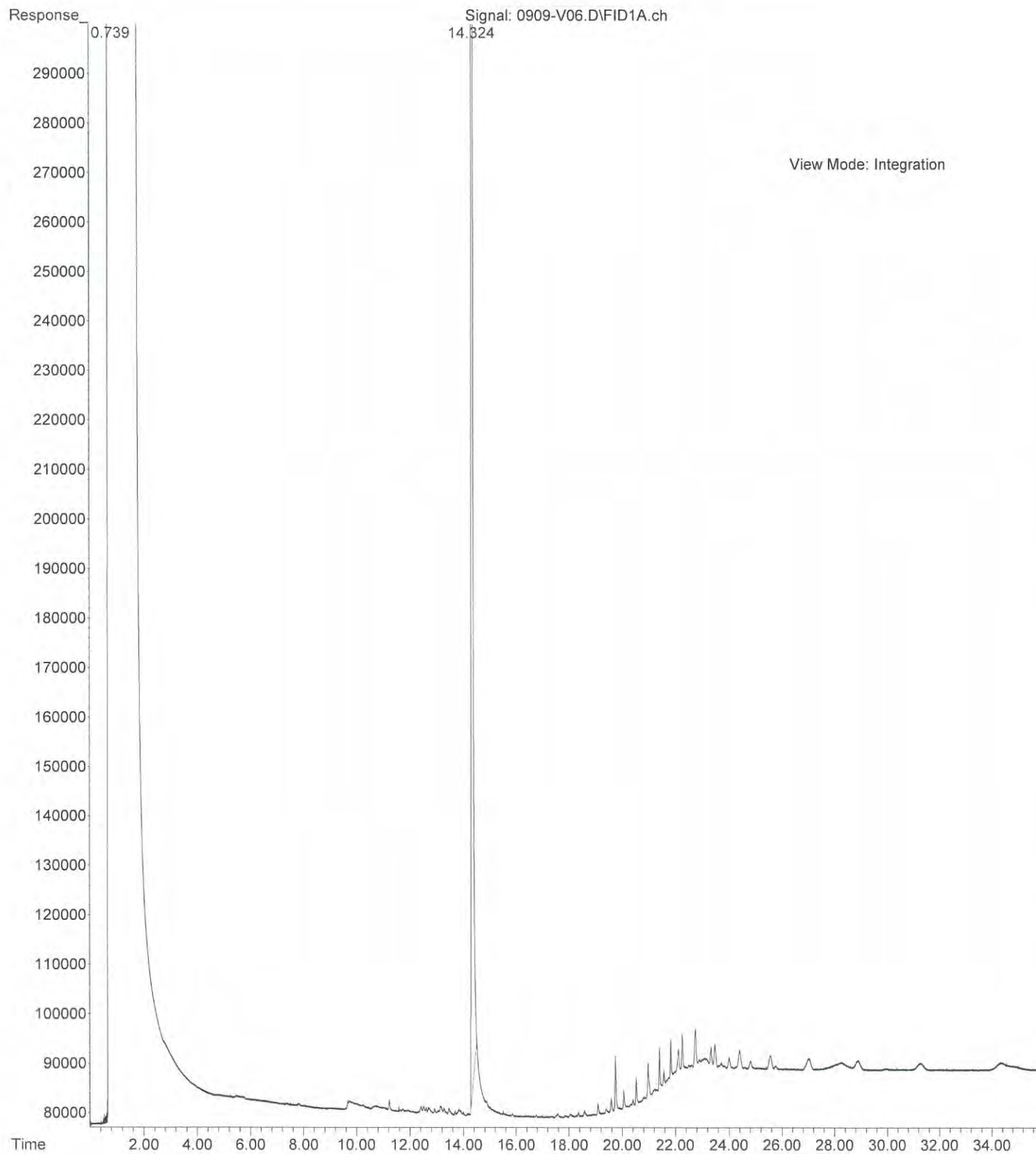
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## Chain of Custody

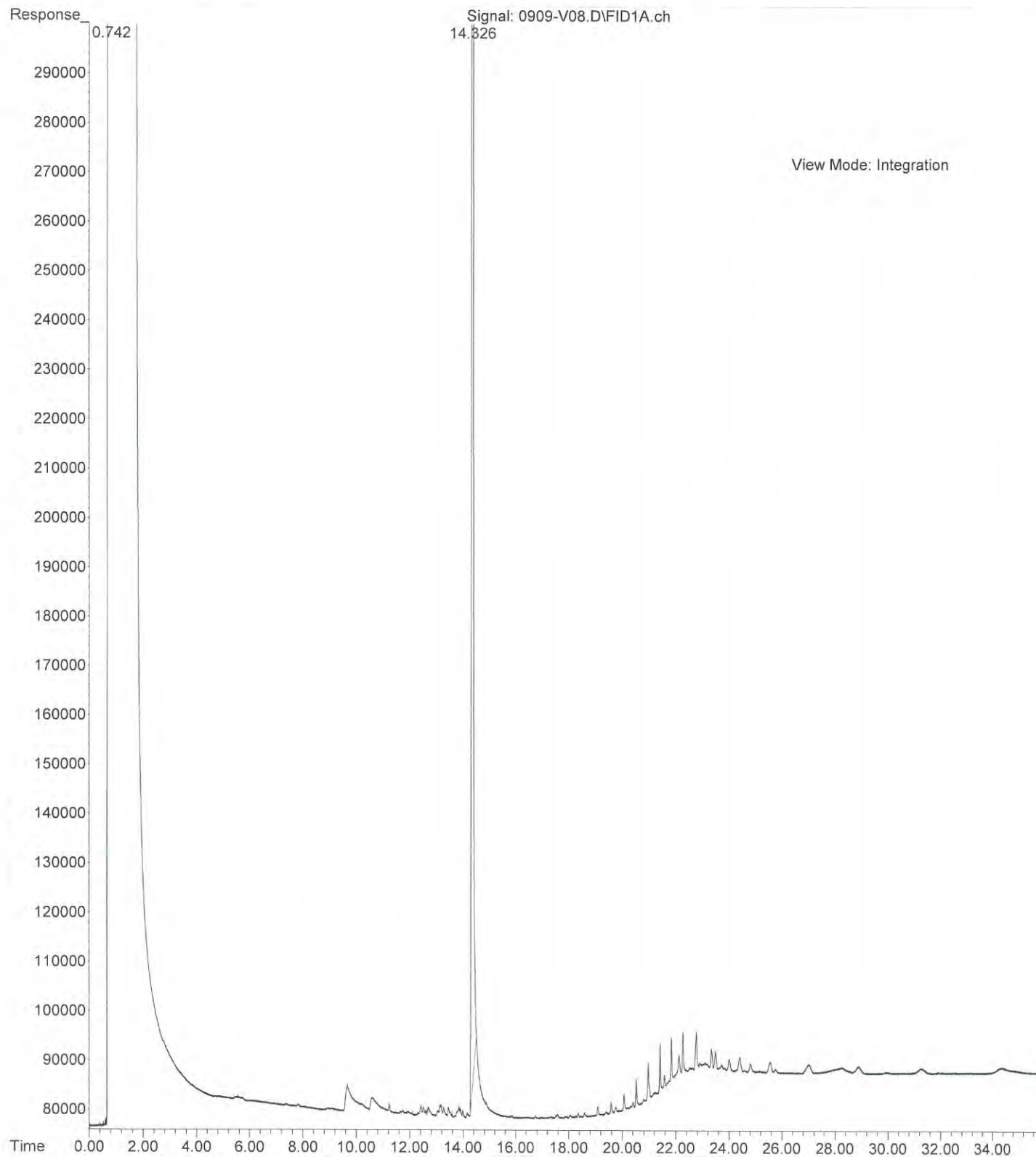
Page 1 of 1

Analytical Laboratory Testing Services 14648 NE 95th Street • Redmond, WA 98052 Phone: (425) 883-3881 • www.on-site-env.com									
Environmental Engineering Inc.									
Company: <u>Environmental Engineering Inc.</u>									
Project Number: <u>00500-208-00</u>									
Project Name: <u>Parago Park Ph 2A</u>									
Project Manager: <u>Tony Orme</u>									
Sampled by: <u>Ali Cernava</u>									
<div><div>Turnaround Request (in working days)</div><div>(Check One) <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> Standard (7 Days) (TPH analysis 5 Days) <input checked="" type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days <input type="checkbox"/> (other) _____</div></div>									
Laboratory Number: <b>09-078</b>									
Number of Containers									
NWT PH-HCID									
NWT PH-Gx/BTEX									
NWT PH-Gx									
NWT PH-Dx									
Volatiles 8260C									
Halogenated Volatiles 8260C									
Semivolatiles 8270D/SIM (with low-level PAHs)									
PAHs 8270D/SIM (low-level)									
PCBs 8082A									
Organochlorine Pesticides 8081B									
Organophosphorus Pesticides 8270D/SIM									
Chlorinated Acid Herbicides 8151A									
Total RCRA Metals									
Total MTCA Metals									
TCLP Metals									
HEM (oil and grease) 1664A									
% Moisture									
Lab ID									
Sample Identification									
Date Sampled									
Time Sampled									
Matrix									
1 EX-12-11 9/9 0741 Soil 1									
2 EX-13-9 9/9 0808 1									
3 EX-14-8 0843 1									
4 EX-15-13.5 0945 1									
5 EX-16-8 1100 1									
6 EX-17-8 1121 1									
7 EX-18-12 1115 1									
8 EX-19-11 1140 1									
9 EX-20-8 1147 1									
10 EX-21-11 1150 1									
Signature: <u>[Signature]</u>									
Company: <u>EEI</u>									
Date: <u>9/9/15</u>									
Time: <u>1340</u>									
Comments/Special Instructions									
Relinquished									
Received									
Relinquished									
Received									
Relinquished									
Received									
Reviewed/Date									
Reviewed/Date									
Chromatograms with final report									

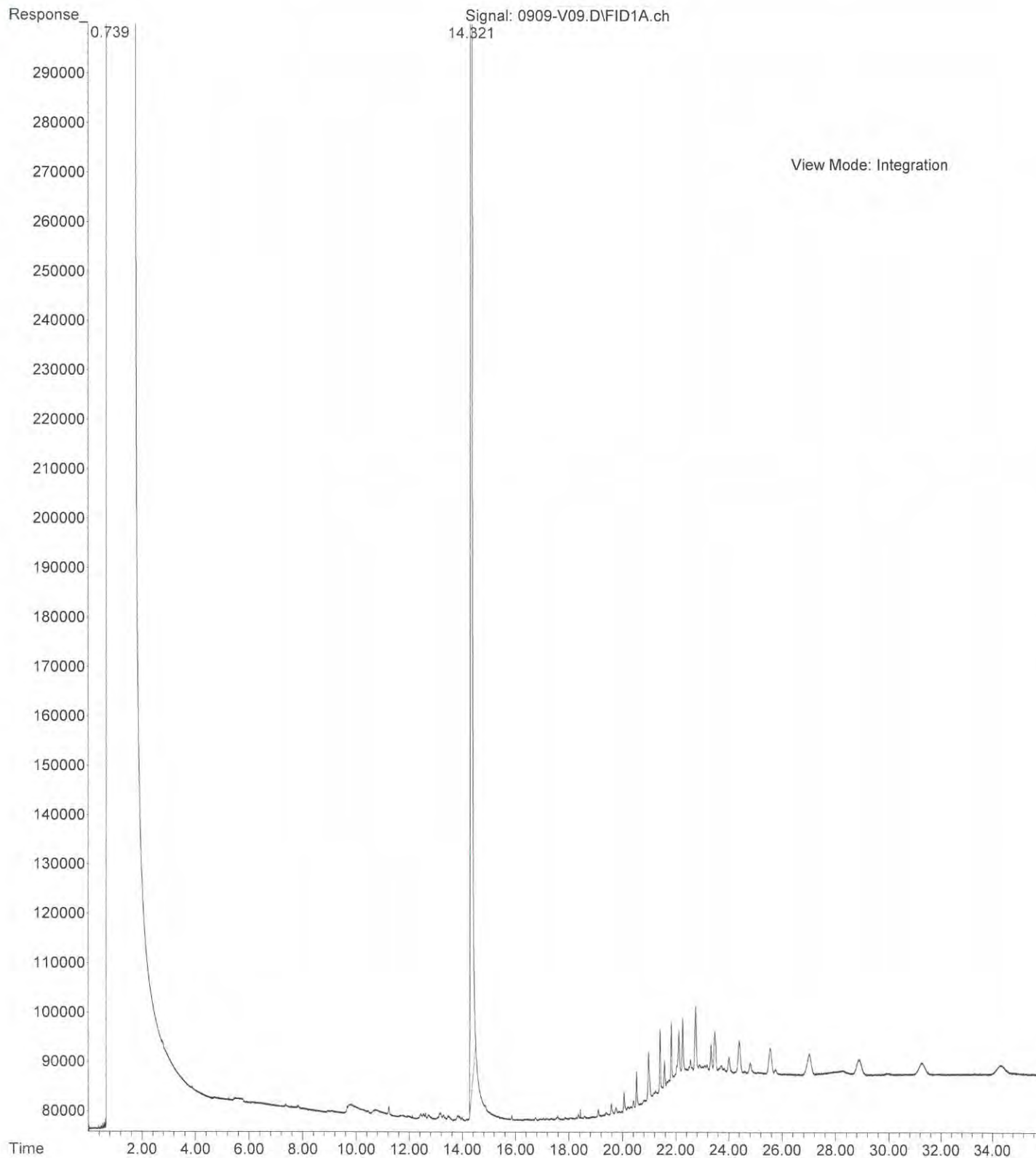
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Operator :  
Acquired : 9 Sep 2015 18:39 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-01  
Misc Info :  
Vial Number: 6



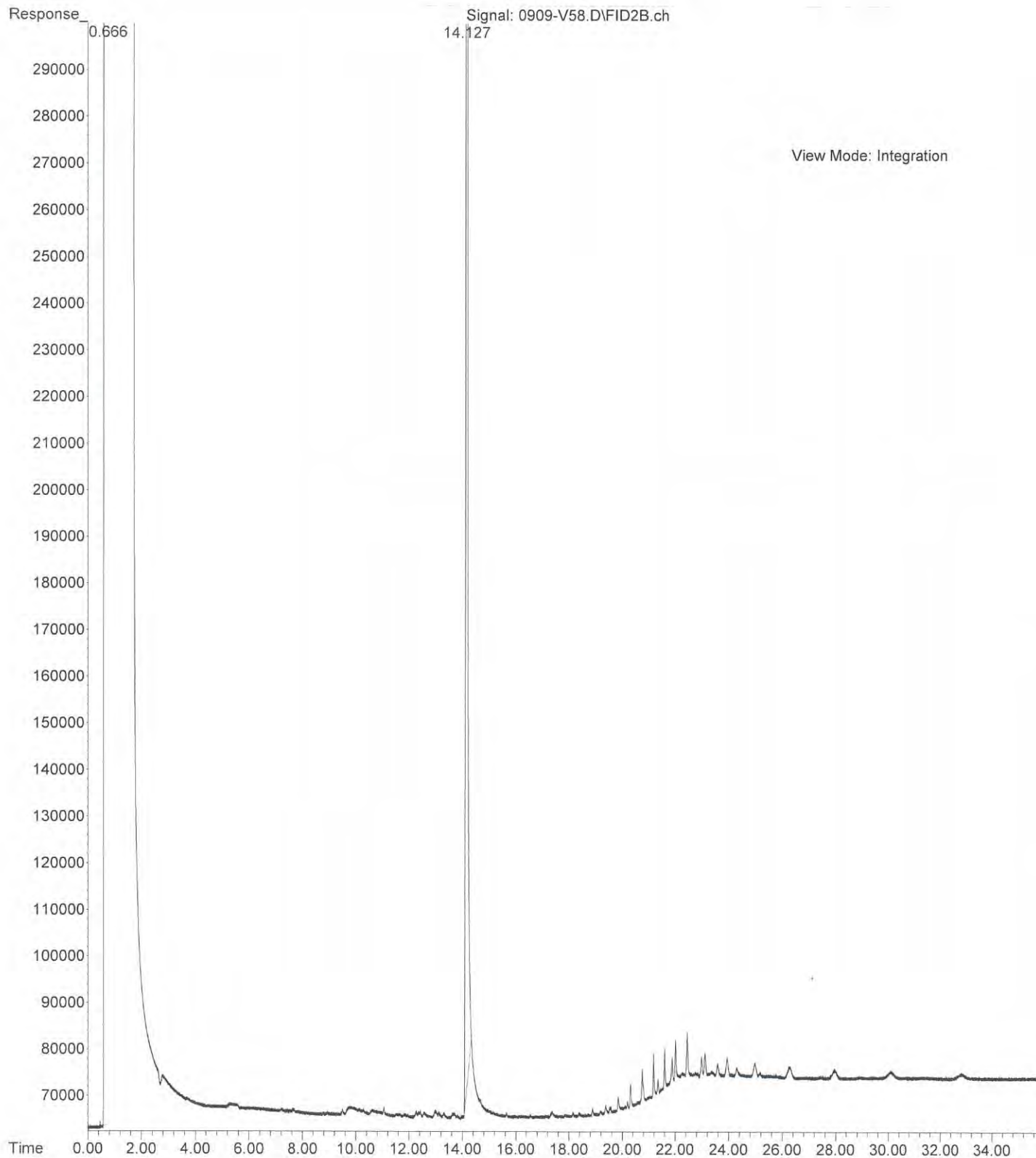
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Operator :  
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Instrument : Vigo  
Sample Name: 09-078-02  
Misc Info :  
Vial Number: 8



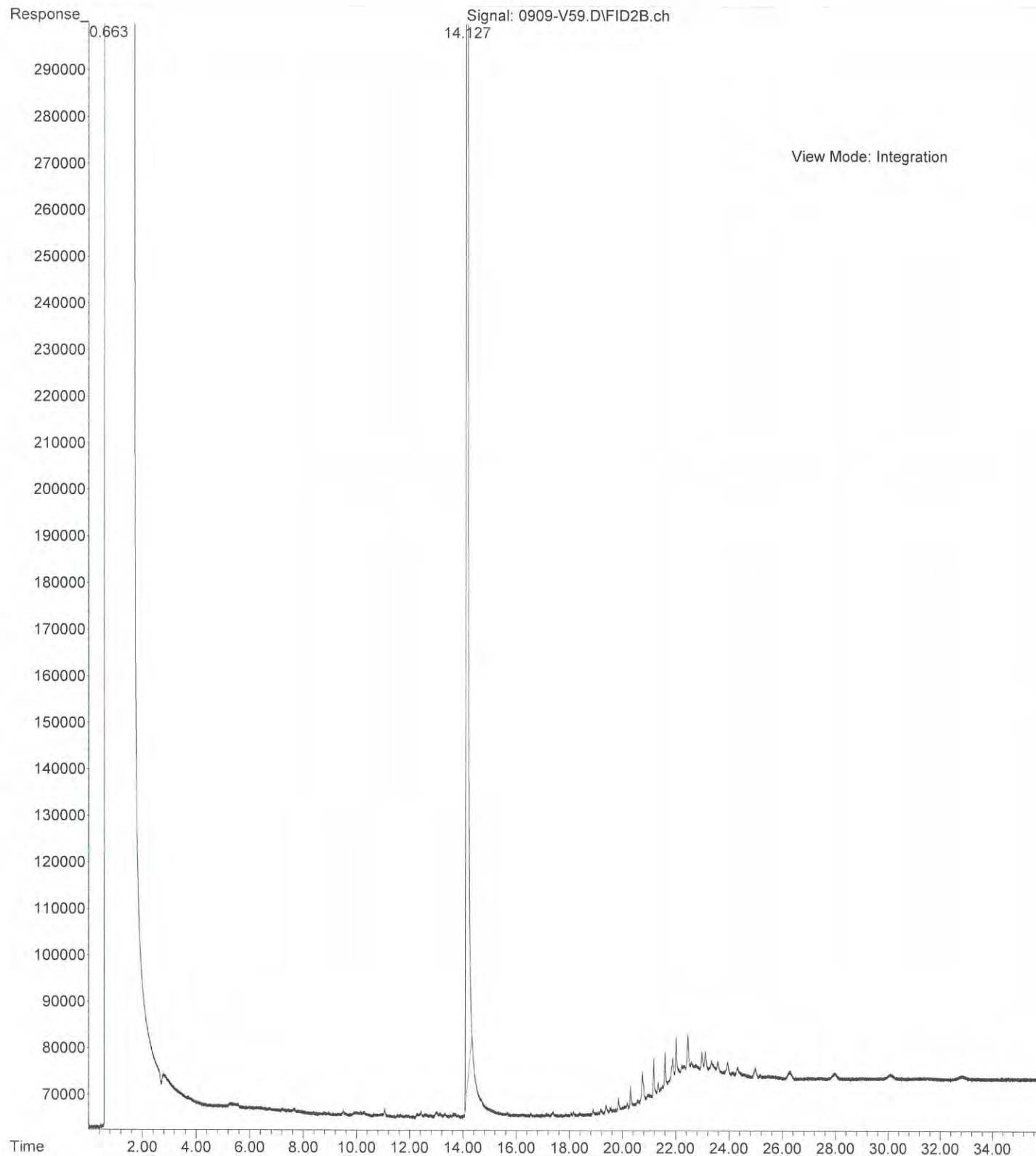
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Operator :  
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Instrument : Vigo  
Sample Name: 09-078-03  
Misc Info :  
Vial Number: 9



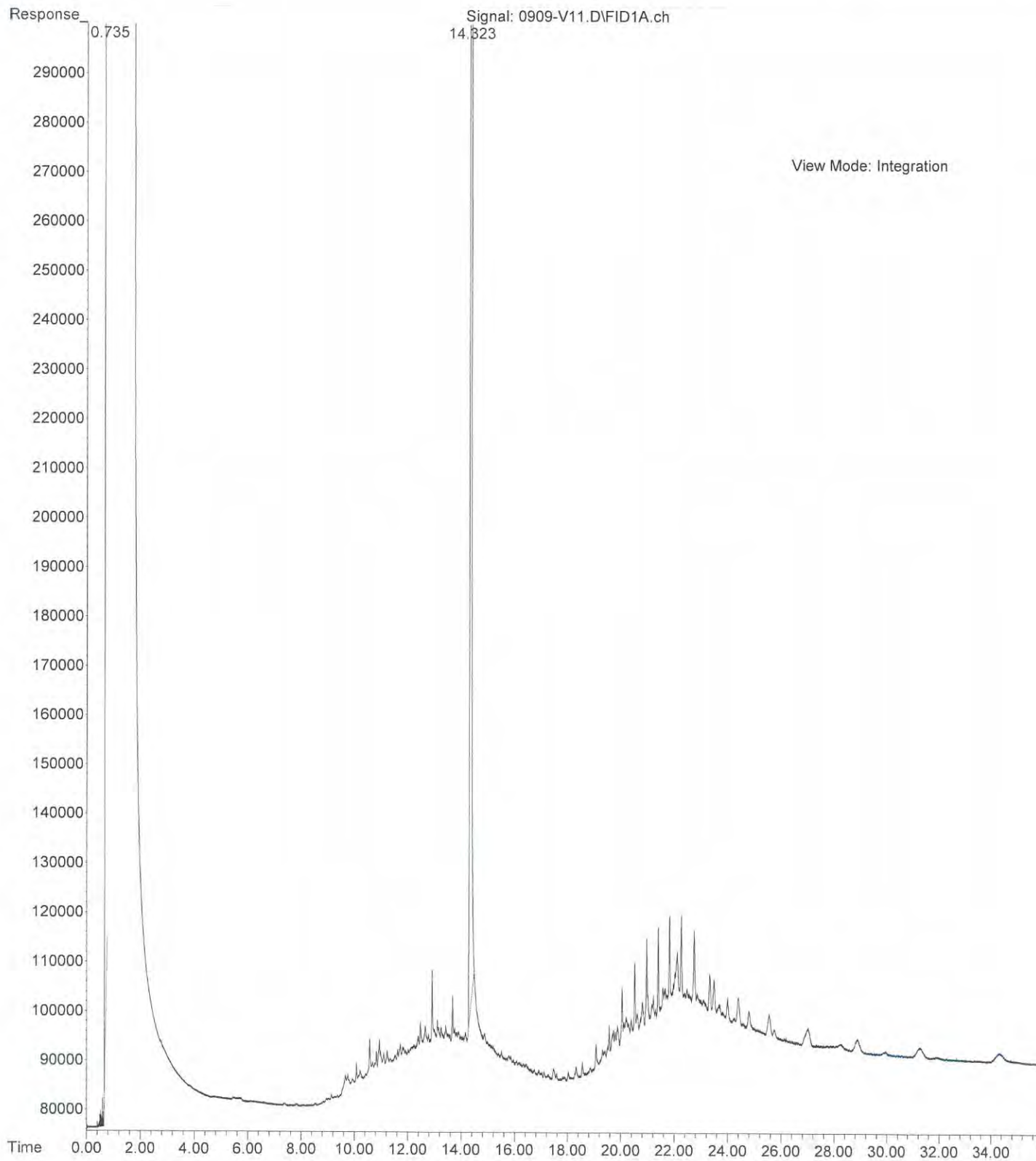
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Operator :  
Acquired : 9 Sep 2015 20:02 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-04  
Misc Info :  
Vial Number: 58



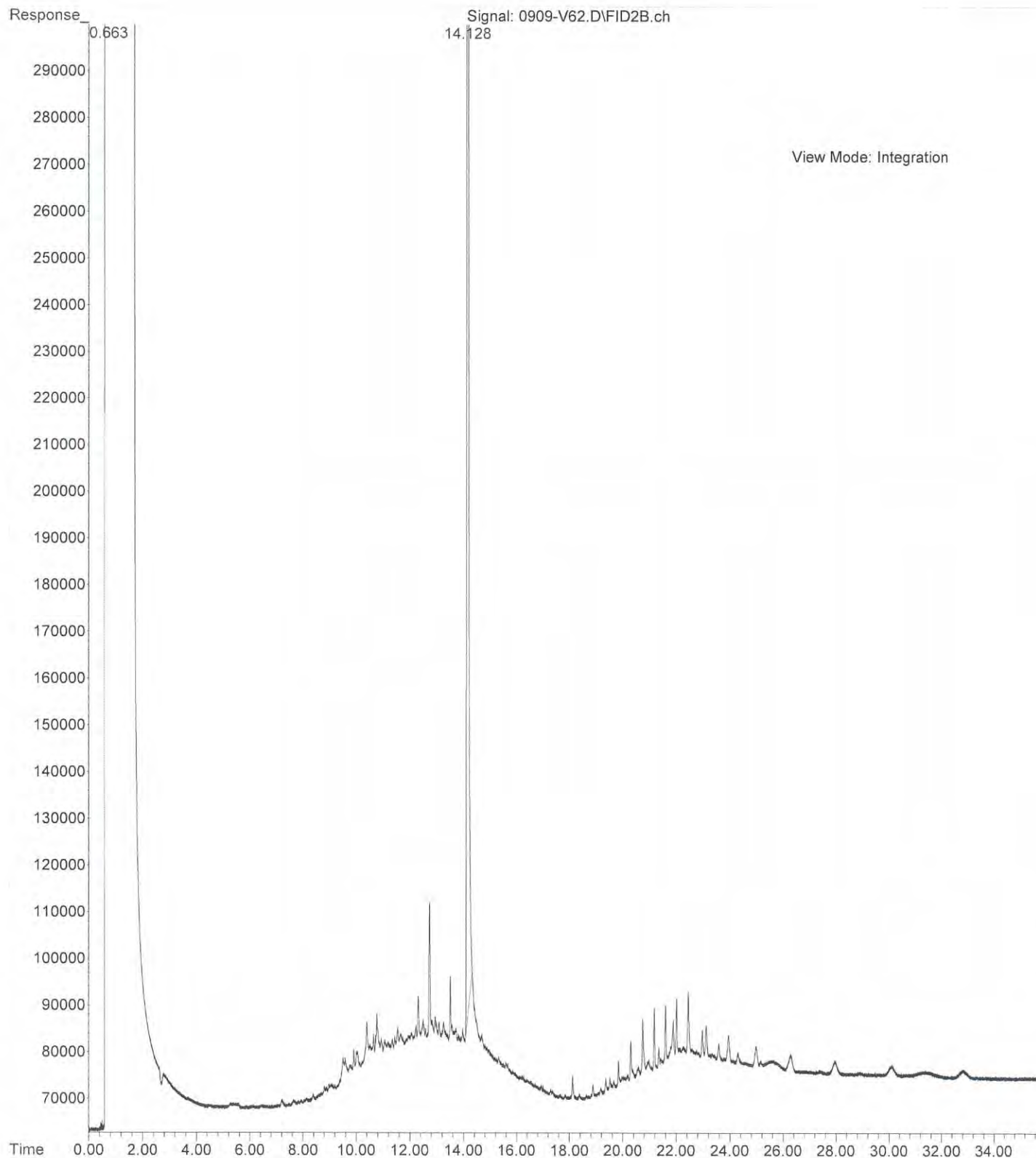
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Operator :  
Acquired : 9 Sep 2015 20:43 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-05  
Misc Info :  
Vial Number: 59



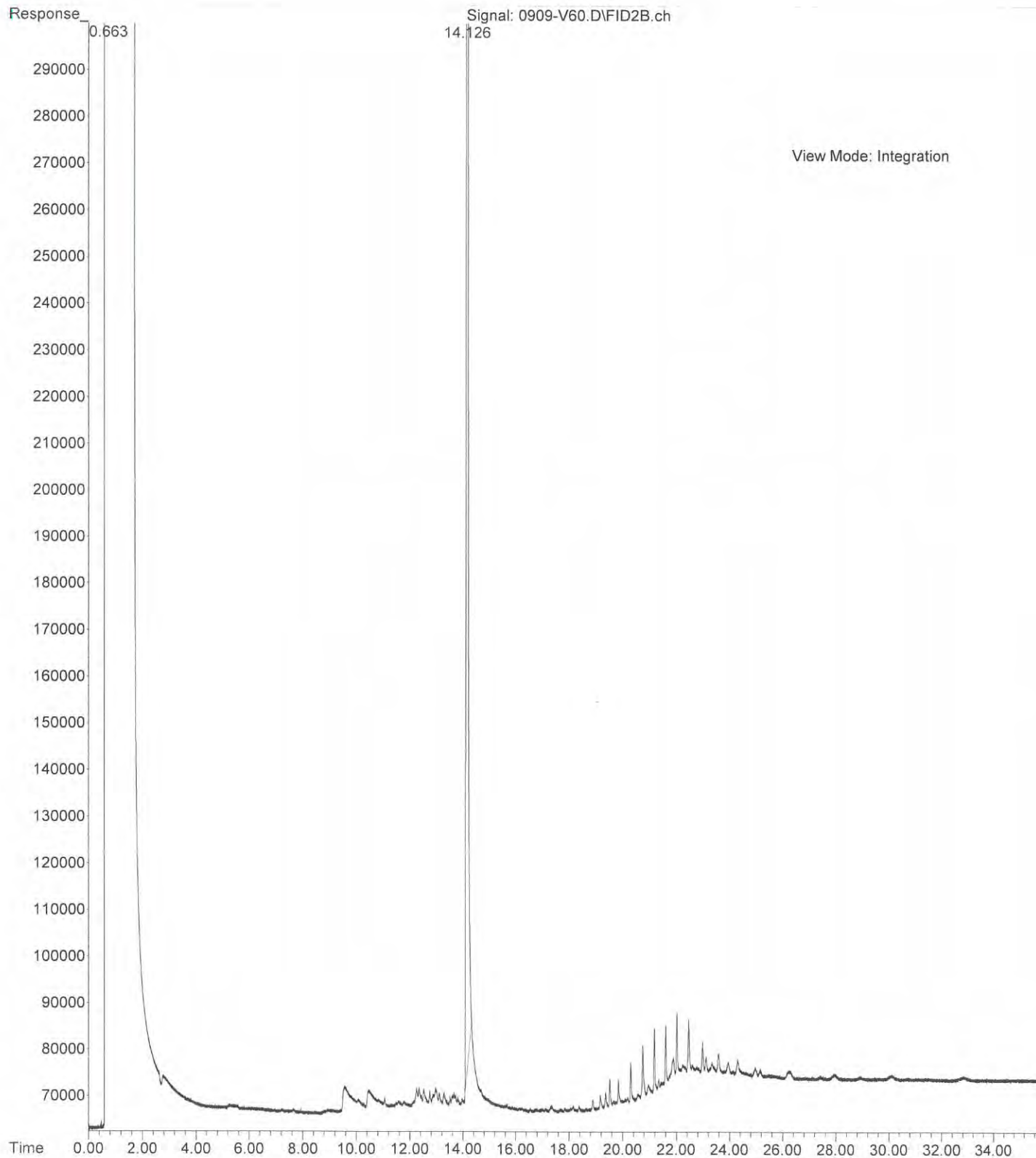
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Operator :  
Acquired : 9 Sep 2015 22:06 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-06  
Misc Info :  
Vial Number: 11



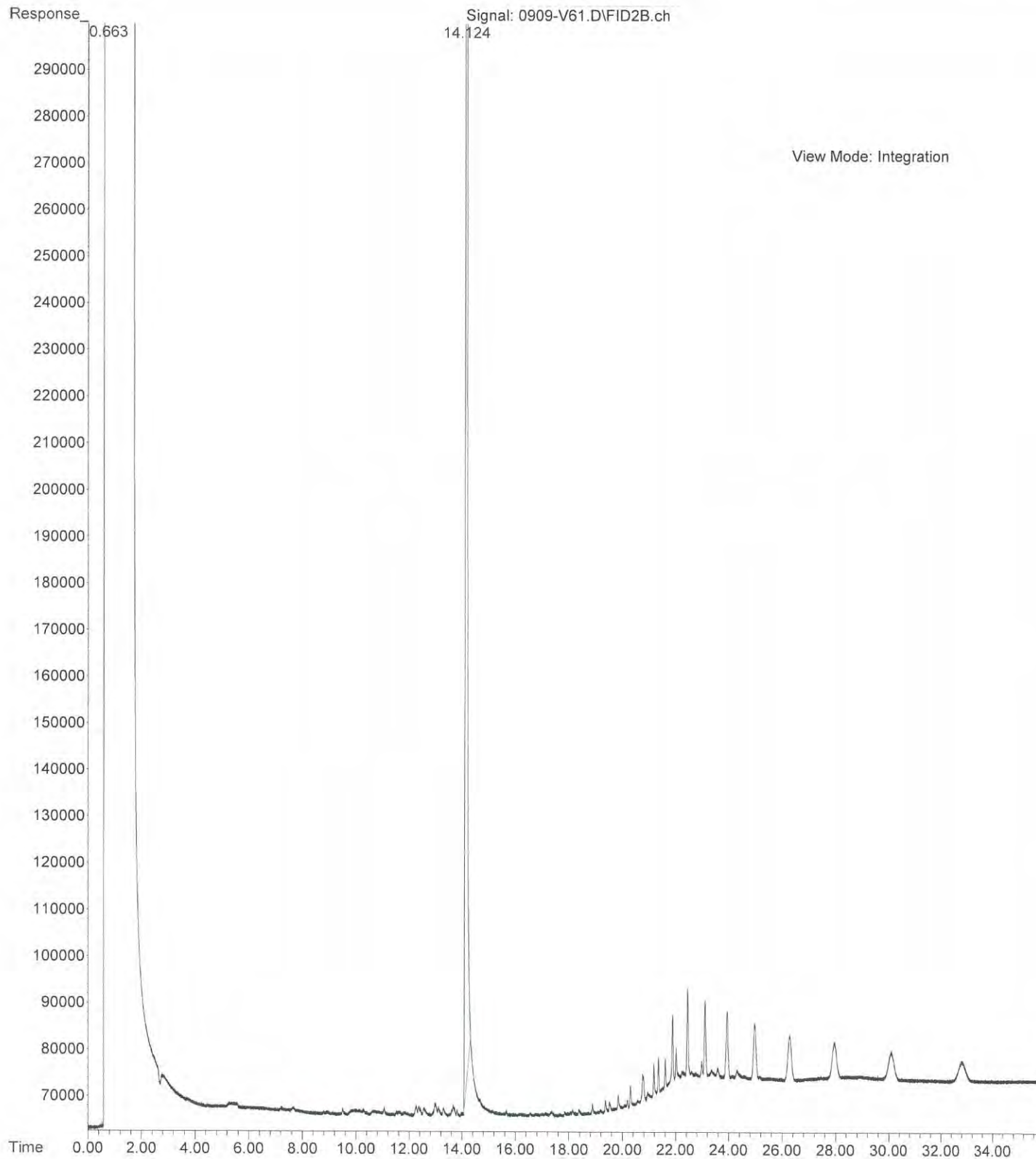
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Operator :  
Acquired : 9 Sep 2015 22:47 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-07  
Misc Info :  
Vial Number: 62



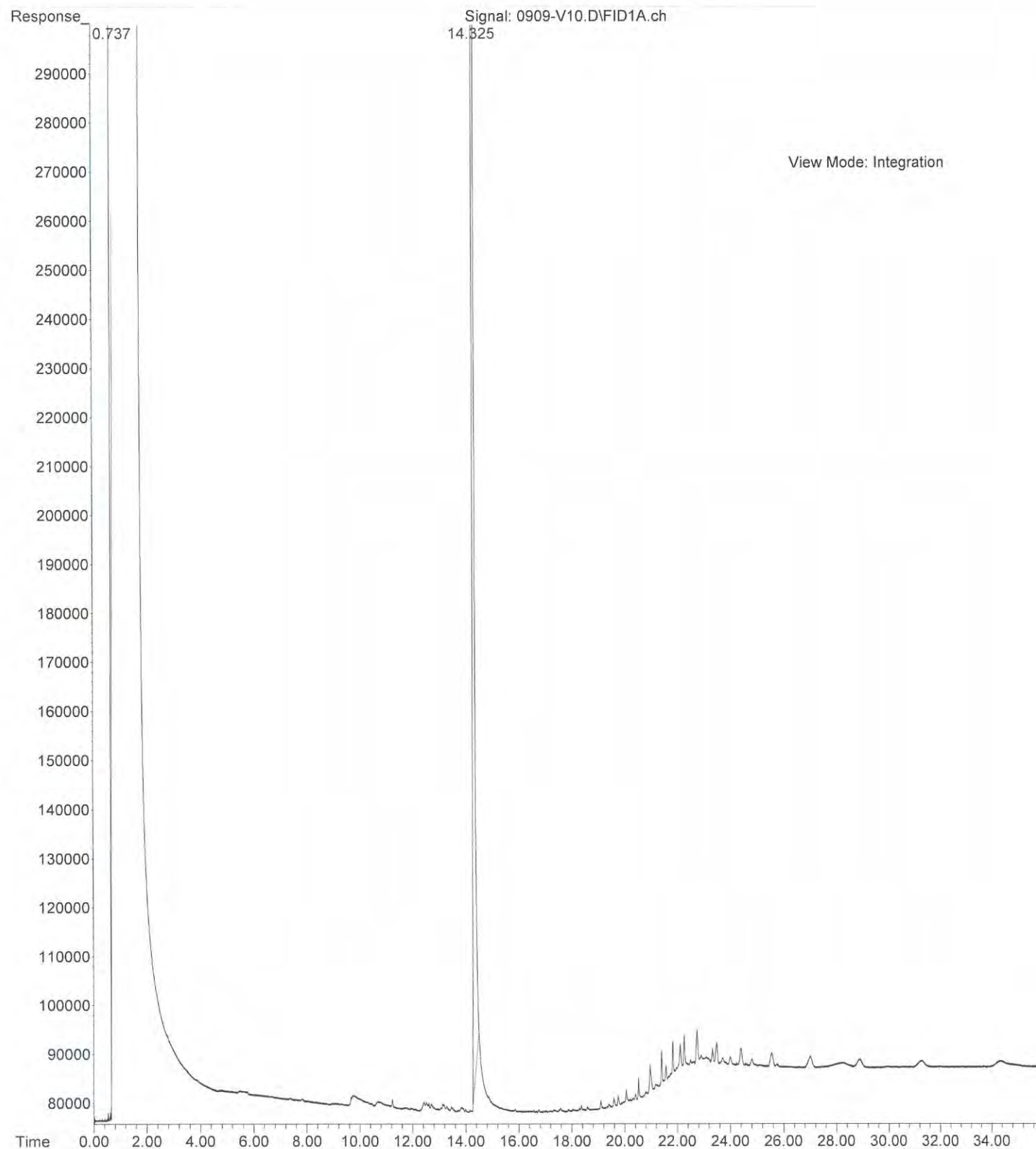
File :X:\DIESELS\VIGO\DATA\V150909.SEC\0909-V60.D  
Operator :  
Acquired : 9 Sep 2015 21:24 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-08  
Misc Info :  
Vial Number: 60



File :X:\DIESELS\VIGO\DATA\V150909.SEC\0909-V61.D  
Operator :  
Acquired : 9 Sep 2015 22:06 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-09  
Misc Info :  
Vial Number: 61



File :X:\DIESELS\VIGO\DATA\V150909\0909-V10.D  
Operator :  
Acquired : 9 Sep 2015 21:24 using AcqMethod V150209F.M  
Instrument : Vigo  
Sample Name: 09-078-10  
Misc Info :  
Vial Number: 10

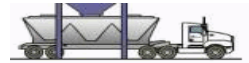


## **APPENDIX C**

### **Soil Disposal Quantities**



## Ticket List By Customer\Order\Product



Date From 09/01/2015 To 10/05/2015  
Location(s) 1876  
Order: 41032316

Date	TicketNo	Delivery Address	Vehicle	TimeIn	TicketTime	Qty	Unit	S h i p	C a s h	V o i d
Scale Tickets										
OLSON BROS EXCAVATING INC										
41032316										
1192508										
9/4/15	1876082994	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	7:49:00	8:00:00	36.31	TON	R		
9/4/15	1876082995	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	8:16:00	8:30:00	31.98	TON	R		
9/4/15	1876082996	P:76: PERRIGO PARK	OB10T,OLSON BROTHERS	8:34:00	9:01:00	33.61	TON	R		
9/4/15	1876083003	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	10:12:00	29.18	TON			
9/4/15	1876083008	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	10:28:00	23.52	TON			
9/4/15	1876083011	P:76: PERRIGO PARK	OB10T,OLSON BROTHERS	0:00:00	10:56:00	27.63	TON			
9/4/15	1876083013	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	12:13:00	25.96	TON			
9/4/15	1876083014	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	12:40:00	16.65	TON			
9/4/15	1876083019	P:76: PERRIGO PARK	OB10T,OLSON BROTHERS	0:00:00	13:00:00	23.10	TON			
9/9/15	1876083082	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	7:55:00	34.25	TON	R		
9/9/15	1876083101	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	10:49:00	26.97	TON			
9/9/15	1876083120	P:76: PERRIGO PARK	OB10T,OLSON BROTHERS	0:00:00	12:58:00	29.12	TON			
9/9/15	1876083123	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	13:25:00	31.01	TON			
9/10/15	1876083142	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	9:23:00	9:34:00	31.31	TON	R		
9/10/15	1876083143	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	9:24:00	9:39:00	29.83	TON	R		
9/10/15	1876083178	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	13:02:00	29.22	TON			
9/10/15	1876083179	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	13:03:00	26.91	TON			
9/11/15	1876083203	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	7:52:00	28.05	TON			
9/11/15	1876083205	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	8:08:00	24.75	TON			

								S	C	V
Date	TicketNo	Delivery Address	Vehicle	TimeIn	TicketTime	Qty	Unit	h	a	o
9/11/15	1876083208	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	8:36:00	30.47	TON	i	s	i
9/11/15	1876083216	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	10:15:00	30.47	TON	p	h	d
9/11/15	1876083217	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	10:17:00	26.59	TON			
9/11/15	1876083224	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	10:57:00	30.16	TON			
9/11/15	1876083245	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	12:15:00	30.39	TON			
9/11/15	1876083247	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	12:23:00	30.20	TON			
9/11/15	1876083251	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	13:05:00	32.61	TON	R		
9/11/15	1876083265	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	14:13:00	30.41	TON			
9/11/15	1876083272	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	14:32:00	31.73	TON	R		
9/11/15	1876083275	P:76: PERRIGO PARK	OB32T,OLSON BROTHERS	0:00:00	14:58:00	29.43	TON			
9/14/15	1876083279	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	8:59:00	27.49	TON			
9/14/15	1876083308	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	11:26:00	31.25	TON	R		
9/14/15	1876083322	P:76: PERRIGO PARK	OB30T,OLSON BROTHERS	0:00:00	12:37:00	29.06	TON			
9/14/15	1876083328	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	13:12:00	28.74	TON			
9/14/15	1876083347	P:76: PERRIGO PARK	OB31T,OLSON BROTHERS	0:00:00	15:05:00	28.96	TON			
Product Totals		34			Qty	987.32	TON			
Order Totals		34			Qty	987.32	TON			
Customer Totals		34			Qty	987.32	TON			
Grand Total					Qty	987.32	TON			

## **APPENDIX D**

### **Report Limitations and Guidelines for Use**

## **APPENDIX D**

### **REPORT LIMITATIONS AND GUIDELINES FOR USE<sup>1</sup>**

This Appendix provides information to help you manage your risks with respect to the use of this report.

#### **Read These Provisions Closely**

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

#### **Environmental Services Are Performed for Specific Purposes, Persons and Projects**

This report has been prepared for the exclusive use of the City of Redmond. This report may be provided to regulatory agencies for review. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except City of Remond should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

#### **This Environmental Report Is Based on a Unique Set of Project-Specific Factors**

This report has been prepared for the environmental cleanup activities at the Perrigo Park 2A Project. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

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<sup>1</sup> Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; [www.asfe.org](http://www.asfe.org).

### **Reliance Conditions for Third Parties**

Our report was prepared for the exclusive use of the City of Redmond. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the City of Redmond and generally accepted environmental practices in this area at the time this report was prepared.

### **Environmental Regulations Are Always Evolving**

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

### **Uncertainty May Remain after Completion of Remedial Activities**

Remediation activity completed in a portion of a site cannot wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

### **Subsurface Conditions Can Change**

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

### **Soil and Groundwater End Use**

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

### **Most Environmental Findings Are Professional Opinions**

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface

conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

### **Geotechnical, Geologic and Geoenvironmental Reports Should Not Be Interchanged**

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

### **Biological Pollutants**

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If the City of Redmond desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

Have we delivered World Class Client Service?

Please let us know by visiting [\*\*www.geoengineers.com/feedback\*\*](http://www.geoengineers.com/feedback).

