

FREMONT ENVIRONMENTAL INC.

December 15, 2015

Mr. Jacob Evans
Noble Energy Inc.
2115 117th Ave,
Greeley, CO 80634

Subject: **Excavation Report**
 Gutterson USX CC 17-9
 API # 05-123-26254
 SESE Sec 17, T4N, R63W
 Weld County, Colorado
 Fremont Project No. C015-057
 Facility #310332 (Location), Remediation #9071

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Excavation Report for the Gutterson USX CC 17-9 release site in Weld County, Colorado. The enclosed report describes excavation actions to remove impacted soil from the site.

Noble Energy Inc. should request that a No Further Action (NFA) determination be provided by the Colorado Oil and Gas Conservation Commission (COGCC) for this site.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,
FREMONT ENVIRONMENTAL INC.



Paul V. Henahan, P.E.
Senior Consultant

Enclosure

EXCAVATION REPORT
NOBLE ENERGY INC.
GUTTERSON USX CC17-9
WELD COUNTY, COLORADO
FREMONT PROJECT NO. C015-057
FACILITY #310332 (LOCATION), REMEDIATION #9071

Prepared by:

Fremont Environmental Inc.
1759 Redwing Lane
Broomfield, CO 80020
(303) 956-8714

December 15, 2015

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EXCAVATION REPORT
NOBLE ENERGY INC.
GUTTERSON USX CC17-9
WELD COUNTY, COLORADO
FREMONT PROJECT NO. C015-057
FACILITY #310348 (LOCATION), REMEDIATION #9071

1.0 INTRODUCTION

The purpose of this document is to present information collected during the excavation of petroleum-impacted soil at the Gutterson USX CC 17-9 release location in Weld County, Colorado. Impacted soil was identified at this location due to a historical release from the VOC burner piping. Source removal consisted of the excavation and landfill disposal of the impacted soil. This excavation project was completed on December 8, 2015.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Gutterson USX CC 17-9 site is located on the Gutterson Ranch approximately eight miles southeast of Kersey, Colorado in Weld County as shown on Figure 1. The site is located in a rural area three miles south of the intersection of County Road 50 and Highway 34. The location is further described as the SE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 17, Township 4N, Range 63W.

2.2 Site History

The site consists of the piping between the VOC burner and the separator for the Gutterson USX CC 17-9 natural gas well. This well was drilled in 2008 to a depth of approximately 6,895 feet. Soil impacts were identified above the piping during routine maintenance. These soil impacts initiated this excavation effort.

3.0 FIELD ACTIVITIES

Remediation efforts consisted of the excavation of petroleum-impacted soil at this site. The soil consisted of roadbase which was underlain by sand to a depth of at least seven feet. Ground water was not encountered during the excavation work. The 8' x 12' excavated area is shown on Figure 3.

Excavation was initiated in the approximate location of the VOC burner piping on December 8, 2015. The soil was excavated to a depth of seven feet around the piping. Soil removal took place in the area adjacent to and below an elbow in the two inch piping. Excavation continued until all soil impacts were excavated later that same day.

The sidewall samples were collected as grab samples near the lower portion of the excavation wall at a depth of five to six feet. A floor sample was collected at a depth of seven feet. The soil samples were analyzed by Summit Scientific Inc. of Golden, Colorado for benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, Total Petroleum Hydrocarbons - Gasoline Range Organics (TPH-GRO) by EPA method 8260C, and TPH - Diesel Range Organics (TPH-DRO) by EPA method 8015. The laboratory report and chain-of-custody documentation are included in Appendix A.

A summarization of the laboratory data is included in Table 1, which presents the laboratory analyses for each soil sample. The laboratory analyses indicated that all five soil samples collected from the sidewalls and floor achieved the COGCC Table 910-1 limits.

Approximately 20 cubic yards of petroleum impacted soil were removed by Saucedo Oilfield Services Inc. from the location during the course of this project. The impacted soil was disposed of at the Waste Management Inc. Buffalo Ridge landfill in Keenesburg, Colorado as non-hazardous waste.

4.0 DISCUSSION

Site remediation of the Gutterson USX CC 17-9 location was completed on December 8, 2015 by excavation and removal of impacted soil. Approximately 20 cubic yards of impacted soil were removed and transported to the landfill.

As demonstrated by the soil sampling and analyses, the petroleum impacted soil was removed from the site by excavation. This was confirmed by the analyses of the soil samples collected from the excavation floor and sidewalls which were below the COGCC Table 910-1 limits. Therefore, Noble should request a no further action (NFA) determination from the COGCC.

5.0 REMARKS

The discussion and conclusions contained in this report represent our professional opinions. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by **FREMONT ENVIRONMENTAL INC.**

 For MVA

12/15/15

Date _____

Mark Taylor
Construction Consultant

Reviewed by:

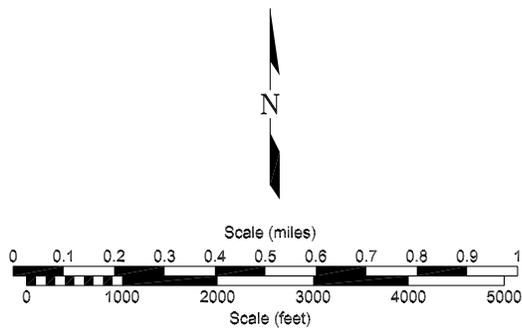
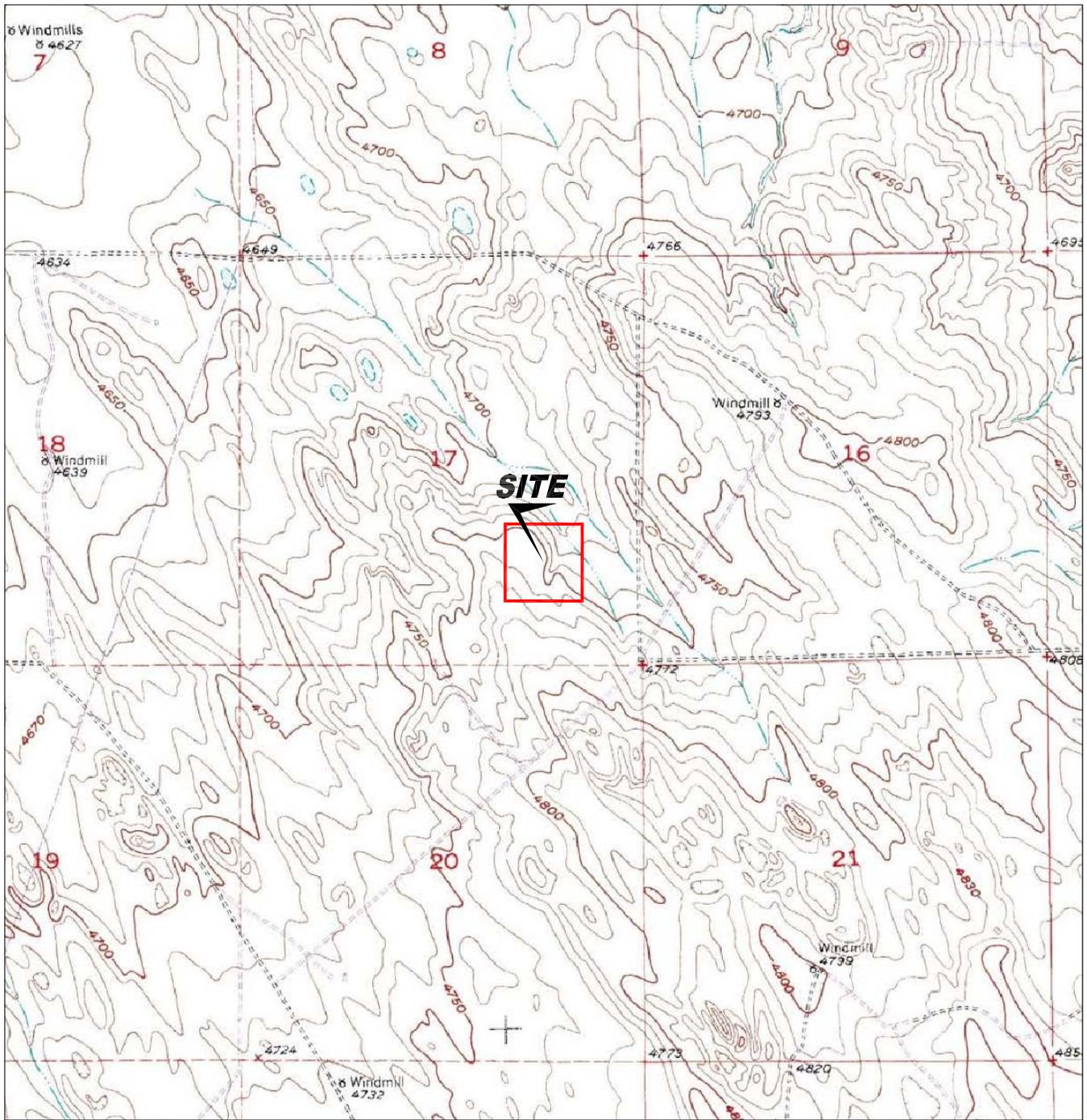
TABLES

TABLE 1
SUMMARY OF SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
GUTTERSON USX CC 17-9, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C015-057

Sample	Depth (ft)	Date Sampled	Location	Pass or Fail	Benzene mg/kg	Toluene mg/kg	Ethyl-Benzene mg/kg	Xylenes mg/kg	Naphthalene mg/kg	TPH GRO mg/kg	TPH DRO mg/kg
Floor - 7 Ft	7	12/8/2015	Floor	Pass	<0.002	<0.005	<0.005	0.085	0.024	<50	220
N. Wall - 6 Ft	6	12/8/2015	Sidewall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
S. Wall - 5 Ft	5	12/8/2015	Sidewall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
E. Wall - 5 Ft	5	12/8/2015	Sidewall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
W. Wall - 5 Ft	5	12/8/2015	Sidewall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
COGCC Table 910 Limits					0.17	85	100	175	23	500	500

Bold faced values exceed the COGCC Table 910-1 concentrations

FIGURES



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Gutteresen USX CC 17-9
SE SE Section 17, T4N, R63W
Weld County, Colorado

Project No. C015-057	Prepared by	Drawn by JMA
Date 1/11/16	Reviewed by	Filename 15057T





LEGEND

-  CONTAINMENT BERM
-  FENCE LINE
-  VAPOR LINE TO VOC BURNER
-  ABOVE GROUND STORAGE TANK

**Figure 2
SITE MAP**

Noble Guttersen USX CC 17-9
SE SE Section 17, T4N, R63W
Weld County, Colorado

Project No. C015-057	Prepared by	Drawn by JMA
Date 1/11/16	Reviewed by	Filename 15057R





LEGEND

- CONTAINMENT BERM
- FENCE LINE
- VAPOR LINE TO VOC BURNER
- ABOVE GROUND STORAGE TANK

SOIL SAMPLE LOCATION

	12/8/15	DATE SAMPLED
B	5	DEPTH (ft) and LOCATION
T	<0.002	BENZENE (mg/kg)
E	<0.005	ETHYLBENZENE (mg/kg)
X	<0.005	TOLUENE (mg/kg)
N	<0.01	TOTAL XYLENES (mg/kg)
G	<0.01	NAPHTHALENE (mg/kg)
D	<50	TPH-CRO (mg/kg)
	<50	TPH-DRO (mg/kg)

Figure 3
EXCAVATION SOIL CHEMISTRY

Noble Gutteresen USX CC 17-9
SE SE Section 17, T4N, R63W
Weld County, Colorado

Project No. C015-057	Prepared by JMA	Drawn by JMA
Date 1/11/16	Reviewed by	Filename 15057R



APPENDIX A

LABORATORY DOCUMENTATION

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 09, 2015

Paul Henehan
Fremont Environmental
1759 Redwing Lane
Broomfield, CO 80020

RE: Noble - Gutterson USX CC 17-23

Enclosed are the results of analyses for samples received by Summit Scientific on 12/08/15 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Floor 7 ft	1512062-01	Soil	12/08/15 00:00	12/08/15 18:00
N. Wall 6 ft	1512062-02	Soil	12/08/15 00:00	12/08/15 18:00
S. Wall 5 ft	1512062-03	Soil	12/08/15 00:00	12/08/15 18:00
E. Wall 5 ft	1512062-04	Soil	12/08/15 00:00	12/08/15 18:00
W. Wall 5 ft	1512062-05	Soil	12/08/15 00:00	12/08/15 18:00

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

Summit Scientific 1512062

S₂

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: FREMONT / NOBCE Project Manager: PAUL HENEHAN
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: 303 956 8714 Fax: _____ Project Name: NOBLE - GUTTERSON USX CC 17-23
Sampler Name: HENEHAN Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions	
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTEX	GAPOBRO	NAPHTH			
1	FLOOR 7 FT	12/8/15		1			✓			✓				✓	✓	✓		
2	N. WALL 6 FT			1			✓			✓				✓	✓	✓		
3	S. WALL 5 FT			1			✓			✓				✓	✓	✓		
4	E. WALL 5 FT			1			✓			✓				✓	✓	✓		
5	W. WALL 5 FT			1			✓			✓				✓	✓	✓		
6																		
7																		
8																		
9																		
10																		

Relinquished by: <u>[Signature]</u> Date/Time: <u>12/8/15 16:33</u>	Received by: <u>[Signature]</u> Date/Time: <u>12-8-15 16:33</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ WED AM PLZ.	Notes:
Relinquished by: <u>[Signature]</u> Date/Time: <u>12-8-15 16:00</u>	Received by: _____ Date/Time: _____	Sample Integrity: Temperature Upon Receipt: <u>18.3°C</u>	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

www.s2scientific.com



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

**Floor 7 ft
1512062-01 (Soil)**

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	220	50	mg/kg	1	1512078	12/08/15	12/08/15	8015M	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.024	0.010	mg/kg	1	1512077	12/08/15	12/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.085	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		81.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

N. Wall 6 ft
1512062-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1512078	12/08/15	12/08/15	8015M	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		101 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1512077	12/08/15	12/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		80.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.9 %	21-167		"	"	"	"	

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

S. Wall 5 ft
1512062-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1512078	12/08/15	12/08/15	8015M	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		100 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1512077	12/08/15	12/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		86.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.7 %	21-167		"	"	"	"	

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

**E. Wall 5 ft
1512062-04 (Soil)**

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1512078	12/08/15	12/08/15	8015M	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		95.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1512077	12/08/15	12/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.0 %	21-167		"	"	"	"	

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1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

**W. Wall 5 ft
1512062-05 (Soil)**

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1512078	12/08/15	12/08/15	8015M	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		94.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1512077	12/08/15	12/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 12/08/15 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.9 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike Level	Source		%REC		RPD		Notes
	Result	Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch 1512078 - EPA 3550A

Blank (1512078-BLK1)

Prepared & Analyzed: 12/08/15

C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.4		"	12.5		98.9	30-150				

LCS (1512078-BS1)

Prepared & Analyzed: 12/08/15

C10-C28 (DRO)	552	50	mg/kg	499		111	73-134				
<i>Surrogate: o-Terphenyl</i>	13.2		"	12.5		105	30-150				

Matrix Spike (1512078-MS1)

Source: 1512063-02

Prepared & Analyzed: 12/08/15

C10-C28 (DRO)	502	50	mg/kg	488	34.0	95.9	50-148				
<i>Surrogate: o-Terphenyl</i>	11.9		"	12.2		97.0	30-150				

Matrix Spike Dup (1512078-MSD1)

Source: 1512063-02

Prepared & Analyzed: 12/08/15

C10-C28 (DRO)	500	50	mg/kg	492	34.0	94.8	50-148	0.386	13		
<i>Surrogate: o-Terphenyl</i>	11.8		"	12.3		95.9	30-150				

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 1512077 - EPA 5030 Soil MS

Blank (1512077-BLK1)

Prepared & Analyzed: 12/08/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>21-167</i>			

LCS (1512077-BS1)

Prepared & Analyzed: 12/08/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0782	0.0020	"	0.100		78.2	58-130			
Toluene	0.0822	0.0050	"	0.100		82.2	61-134			
Ethylbenzene	0.0964	0.0050	"	0.0992		97.1	74-139			
m,p-Xylene	0.184	0.010	"	0.200		92.4	73-137			
o-Xylene	0.0884	0.0050	"	0.0984		89.8	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0382</i>		<i>"</i>	<i>0.0400</i>		<i>95.5</i>	<i>21-167</i>			

Matrix Spike (1512077-MS1)

Source: 1512063-03

Prepared & Analyzed: 12/08/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0764	0.0020	"	0.0975	ND	78.4	30-131			
Toluene	0.0804	0.0050	"	0.0975	ND	82.5	30-134			
Ethylbenzene	0.0962	0.0050	"	0.0967	ND	99.5	22-153			
m,p-Xylene	0.185	0.010	"	0.195	ND	94.9	10-159			
o-Xylene	0.0886	0.0050	"	0.0959	ND	92.4	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0390</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0380</i>		<i>"</i>	<i>0.0390</i>		<i>97.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0380</i>		<i>"</i>	<i>0.0390</i>		<i>97.3</i>	<i>21-167</i>			

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Gutterson USX CC 17-23

Project Number: [none]
Project Manager: Paul Henehan

Reported:
12/09/15 06:50

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch 1512077 - EPA 5030 Soil MS

Matrix Spike Dup (1512077-MSD1)	Source: 1512063-03			Prepared & Analyzed: 12/08/15						
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158			42	
Benzene	0.0737	0.0020	"	0.0945	ND	78.0	30-131	3.65	34	
Toluene	0.0781	0.0050	"	0.0945	ND	82.6	30-134	2.93	30	
Ethylbenzene	0.0931	0.0050	"	0.0938	ND	99.3	22-153	3.25	24	
m,p-Xylene	0.180	0.010	"	0.189	ND	95.5	10-159	2.44	68	
o-Xylene	0.0857	0.0050	"	0.0930	ND	92.2	31-151	3.34	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0390</i>		<i>"</i>	<i>0.0378</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0369</i>		<i>"</i>	<i>0.0378</i>		<i>97.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0376</i>		<i>"</i>	<i>0.0378</i>		<i>99.4</i>	<i>21-167</i>			

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Reported:
12/09/15 06:50

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

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