

FREMONT ENVIRONMENTAL INC.

December 29, 2017

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

Subject: **Excavation Report**
 Cervi 41-21
 API # 05-123-20820
 NENE Sec 21, T4N, R63W
 Weld County, Colorado
 Fremont Project No. C016-026
 Facility #331518 (Location), Spill #443565

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Excavation Report for the Cervi 41-21 water vault release site in Weld County, Colorado. The enclosed report describes excavation actions to remove impacted soil from the site.

Since the excavation project has removed the subsurface petroleum impacts, 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. Henehan, P.E.
Senior Consultant

Enclosure

1759 REDWING LANE, BROOMFIELD, CO 80020
(303) 956-8714 (DIRECT)

EXCAVATION REPORT

NOBLE ENERGY INC.

CERVI 41-21

WELD COUNTY, COLORADO

FREMONT PROJECT NO. C016-026

FACILITY #331518, SPILL #4483565

Prepared by:

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

December 29, 2017

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 BACKGROUND INFORMATION	1
2.1 Site Location	1
2.2 Site History	1
3.0 FIELD ACTIVITIES	2
4.0 DISCUSSION	3
5.0 REMARKS	4

Table

Table 1: Summary of Petroleum Constituents in Soil Chemistry Data

Figures

Figure 1: Site Location Map

Figure 2: Site Map

Figure 3: Excavation and Sample Locations for Laboratory Analyses

Appendices

Appendix A: Laboratory Documentation

EXCAVATION REPORT
NOBLE ENERGY INC.
CERVI 41-21
WELD COUNTY, COLORADO
FREMONT PROJECT NO. C016-026
FACILITY #331518, SPILL #4483565

1.0 INTRODUCTION

The purpose of this document is to present information collected during the excavation of petroleum-impacted soil at the Cervi 41-21 release location in Weld County, Colorado. Impacted soil was identified at this site due to a historical release from the facility's water vault. This one-day excavation project was completed on October 30, 2017.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Cervi 41-21 site is located approximately eight miles southeast of Kersey, Colorado in Weld County as shown on Figure 1. The site is located in a rural area one mile southwest of the intersection of County Road 69 and Highway 34. The location is further described as the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 21, Township 4N, Range 63W.

2.2 Site History

The site consists of the former water vault for the Cervi 41-21 natural gas well. The Cervi 41-21 well was drilled in 2002 to a depth of approximately 7,555 feet. Soil impacts were identified at the former water vault during abandonment of the facility. These soil impacts initiated this excavation effort.

3.0 FIELD ACTIVITIES

Prior to excavation at the water vault, soil samples were collected using a hand auger. Four soil samples were collected at the northeast, southeast, northwest and southwest points approximately one foot from the water vault. As shown on Table 1, only the soil sample collected from the northwest point exceeded the COGCC Table 910-1 limits; the other three soil samples achieved the Table 910-1 standards. Therefore, remediation was only necessary for the northwest area of the water vault.

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 eight feet. Ground water was not encountered during the excavation work. The 12' x 12' excavated area is shown on Figure 3.

Excavation was initiated at the location of the former water vault on October 30, 2017. Soil removal took place in the area adjacent to and below the former water vault to a depth of approximately eight feet. Excavation continued until all soil impacts were excavated later that same day.

One sidewall sample and one floor sample collected upon completion of the excavation work indicated that no residual petroleum impacts were present. Since the one sidewall sample was collected from the east wall, an additional sidewall sample was collected with a hand auger on November 22, 2017 from the northwestern sample location to confirm no soil impacts were present.

The sidewall samples were collected as grab samples near the lower portion of the excavation wall at depths of five to six feet. One floor sample was collected at a depth of eight 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 reports and chains-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 the soil samples collected from the post-excavation sidewalls and floor achieved the COGCC Table 910-1 limits.

A total of 20 cubic yards of petroleum impacted soil were removed by Gusher Oilfield Services Inc. from the location during this project. The impacted soil was disposed of at the Waste Management Inc. Northern Colorado landfill in Ault, Colorado as non-hazardous waste. The site was re-contoured to match the surrounding surface after backfilling was completed.

4.0 DISCUSSION

Site remediation of the Cervi 41-21 location was completed on October 30, 2017 by excavation and disposal of impacted soil. Approximately 20 cubic yards of impacted soil were excavated and removed from this site.

As demonstrated by the soil sampling and analyses, the petroleum impacted soil has been 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

12/29/17

Date_____

Mark Taylor

Construction Consultant

Reviewed by:



12/29/17

Date_____

Paul V. Henahan, P.E.

Senior Consultant

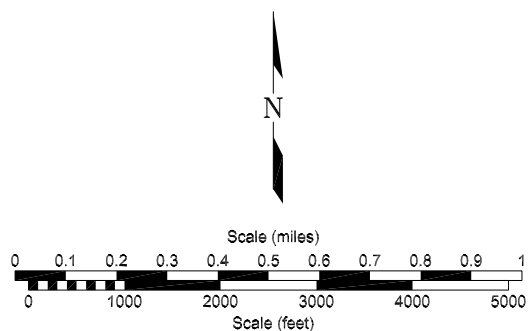
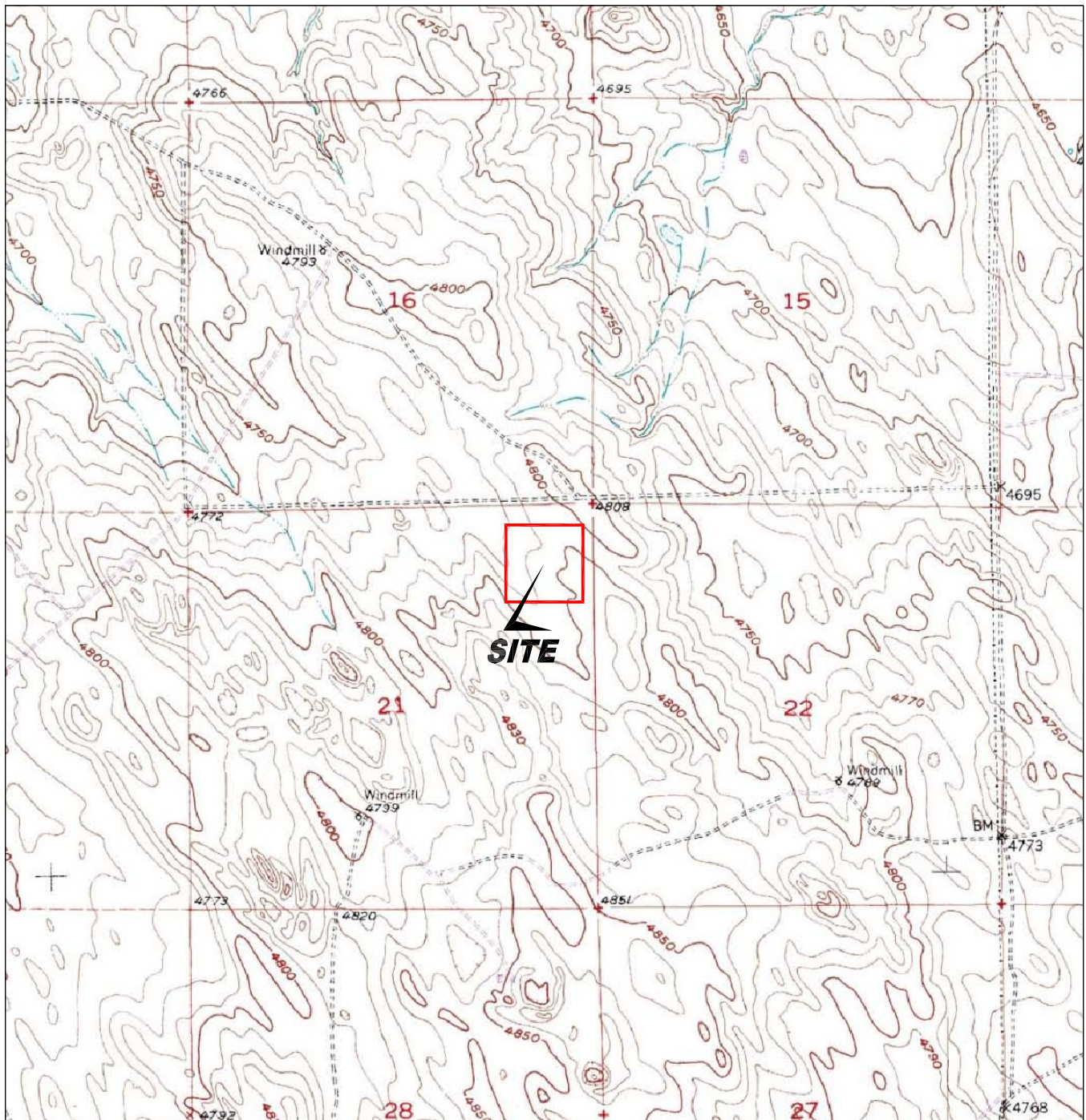
TABLE

TABLE 1
SUMMARY OF SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
CERVI 41-21
FREMONT PROJECT NO. C016-026

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
NE Wall 6 Ft	6	8/28/2017	Wall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	230
SE Wall 5 Ft	5	8/28/2017	Wall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	73
NW Wall 5 Ft	5	8/28/2017	Wall	Fail	<0.002	<0.005	<0.005	<0.01	<0.01	<50	1100
SW Wall 6 Ft	6	8/28/2017	Wall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	75
E Wall 3 Ft	3	10/30/2017	Wall	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
Floor 8 Ft	8	10/30/2017	Floor	Pass	<0.002	<0.005	<0.005	<0.01	<0.01	<50	<50
NW Wall 5 Ft	5	11/22/2017	Wall	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 Cervi 41-21
NE NE Section 21, T3N, R63W
Weld County, Colorado

Project No. C016-026	Prepared by	Drawn by JMA
Date 12/28/17	Reviewed by	Filename 16026T





Figure 2
SITE MAP

Noble Cervi 41-21
NE NE Sec. 21, T3N, R63W - 40.30273°N 104.435816°W
Weld County, Colorado

Project No. C016-026	Prepared by	Drawn by JMA	
Date 12/28/17	Reviewed by	Filename 16026Q	



SOIL SAMPLE LOCATION

10/30/17 Wall - 3'	
B	<0.002
T	<0.005
E	<0.01
X	<0.01
N	<0.01
G	<50
D	<50

DATE SAMPLED
 LOCATION and DEPTH (ft)
 BENZENE (mg/kg)
 TOLUENE (mg/kg)
 ETHYLBENZENE (mg/kg)
 TOTAL XYLENES (mg/kg)
 NAPHTHALENE (mg/kg)
 TPH-GRO (mg/kg)
 TPH-DRO (mg/kg)

Figure 3
EXCAVATION SOIL CHEMISTRY

Noble Cervi 41-21
 NE NE Sec. 21, T3N, R63W - 40.30273°N 104.435816°W
 Weld County, Colorado

Project No.
C016-026

Prepared by

Drawn by
JMA

Date
12/28/17

Reviewed by

Filename
16026Q



APPENDIX A

LABORATORY DOCUMENTATION

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 06, 2017

Paul Henehan
Fremont Environmental
1759 Redwing Lane
Broomfield, CO 80020
RE: Noble - Cervi 41-21

Enclosed are the results of analyses for samples received by Summit Scientific on 08/28/17 16:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NE 6 FT	1708277-01	Soil	08/28/17 00:00	08/28/17 16:25
SE 5 FT	1708277-02	Soil	08/28/17 00:00	08/28/17 16:25
NW 5 FT	1708277-03	Soil	08/28/17 00:00	08/28/17 16:25
SW 6 FT	1708277-04	Soil	08/28/17 00:00	08/28/17 16:25

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.

Summit Scientific

1708277

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

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O. Box 1289

E-Mail: paulh@fremontenv.com

City/State/Zip: PO Box 1829 Wellington, CO 80549

Bill to Jacob

Phone: 303-956-8714

Fax:

Project Name: NOBLE - CERVI 41-21

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	GRO/DRO	Napthalene	SAR	EC	Ph		
1	NE 6 FT	8/28/17		1			✓			✓				✓	✓	✓				
2	SE 5 FT			1			✓			✓				✓	✓	✓				
3	NW 5 FT			1			✓			✓				✓	✓	✓				
4	SW 6 FT			1			✓			✓				✓	✓	✓				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: <i>Paul Henehan</i>	Date/Time: 8/28/17 16:25	Received by: <i>IA 8-28-17</i>	Date/Time: 16:25	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ <u>Standard</u> _____ 48 hours _____ Sample Integrity: Temperature Upon Receipt: _____ Intact: Yes No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

1708277

Sample Receipt Checklist

S2 Work Order: _____

Client: Fremont-Noble

Client Project ID: _____

Noble-
Cervi 41-21

Shipped Via: _____

H.D.

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Cooler ID					
Temp (°C)					

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?				
Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Murip.
Custodian Printed NameLD 8-28-17
Signature or Initials of Custodian18:00
Date/Time



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

NE 6 FT
1708277-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	230	50	mg/kg	1	1708301	08/31/17	09/01/17	8015M	

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708302	"	08/31/17	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: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.2 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

SE 5 FT
1708277-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	73	50	mg/kg	1	1708301	08/31/17	09/01/17	8015M	

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708302	"	09/01/17	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: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.8 %	21-167		"	"	"	"	

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

NW 5 FT
1708277-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1100	50	mg/kg	1	1708301	08/31/17	09/01/17	8015M	

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708302	"	09/01/17	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: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	21-167		"	"	"	"	

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

SW 6 FT
1708277-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	75	50	mg/kg	1	1708301	08/31/17	09/05/17	8015M	

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1708302	"	09/01/17	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: **08/28/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1708301 - EPA 3550A

Blank (1708301-BLK1)

Prepared & Analyzed: 08/31/17

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 13.3 " 12.5 106 30-150

LCS (1708301-BS1)

Prepared & Analyzed: 08/31/17

C10-C28 (DRO) 440 50 mg/kg 499 88.1 73-134

Surrogate: o-Terphenyl 12.1 " 12.5 97.2 30-150

Matrix Spike (1708301-MS1)

Source: 1708276-01

Prepared & Analyzed: 08/31/17

C10-C28 (DRO) 615 50 mg/kg 499 258 71.6 50-148

Surrogate: o-Terphenyl 11.9 " 12.5 95.0 30-150

Matrix Spike Dup (1708301-MSD1)

Source: 1708276-01

Prepared & Analyzed: 08/31/17

C10-C28 (DRO) 671 50 mg/kg 499 258 82.9 50-148 8.78 20

Surrogate: o-Terphenyl 12.2 " 12.5 97.7 30-150

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21
Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

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

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

Batch 1708302 - EPA 5030 Soil MS

Blank (1708302-BLK1)

Prepared & Analyzed: 08/31/17

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0425		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0400		94.0	21-167			

LCS (1708302-BS1)

Prepared & Analyzed: 08/31/17

Naphthalene	0.00768	0.010	mg/kg				66-138			
Benzene	0.0835	0.0020	"	0.100		83.5	58-130			
Toluene	0.0962	0.0050	"	0.100		96.2	61-134			
Ethylbenzene	0.114	0.0050	"	0.0992		114	74-139			
m,p-Xylene	0.229	0.010	"	0.200		115	73-137			
o-Xylene	0.107	0.0050	"	0.0980		109	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0423		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.6	21-167			

Matrix Spike (1708302-MS1)

Source: 1708277-01

Prepared & Analyzed: 08/31/17

Naphthalene	0.00741	0.010	mg/kg		0.00750		10-158			
Benzene	0.0837	0.0020	"	0.100	ND	83.7	30-131			
Toluene	0.0940	0.0050	"	0.100	ND	94.0	30-134			
Ethylbenzene	0.110	0.0050	"	0.0992	ND	111	22-153			
m,p-Xylene	0.213	0.010	"	0.200	ND	107	10-159			
o-Xylene	0.104	0.0050	"	0.0980	ND	106	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0376		"	0.0400		94.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.6	21-167			

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

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

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

Batch 1708302 - EPA 5030 Soil MS

Matrix Spike Dup (1708302-MSD1)		Source: 1708277-01			Prepared & Analyzed: 08/31/17					
Naphthalene	0.00756	0.010	mg/kg		0.00750		10-158	2.00	42	
Benzene	0.0845	0.0020	"	0.100	ND	84.5	30-131	0.963	34	
Toluene	0.0977	0.0050	"	0.100	ND	97.7	30-134	3.88	30	
Ethylbenzene	0.119	0.0050	"	0.0992	ND	120	22-153	7.96	24	
m,p-Xylene	0.232	0.010	"	0.200	ND	116	10-159	8.73	68	
o-Xylene	0.114	0.0050	"	0.0980	ND	116	31-151	9.32	38	
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
09/06/17 06:48

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 07, 2017

Paul Henehan
Fremont Environmental
1759 Redwing Lane
Broomfield, CO 80020
RE: Noble - Cervi 41-21

Enclosed are the results of analyses for samples received by Summit Scientific on 10/31/17 15:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E Wall 3 Ft	1710339-01	Soil	10/30/17 00:00	10/31/17 15:20
Floor 8 Ft	1710339-02	Soil	10/30/17 00:00	10/31/17 15:20

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.

Summit Scientific

S₂

1710339

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

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O. Box 1289

E-Mail: paulh@fremontenv.com

BILL TO: HOWARD

City/State/Zip: PO Box 1829 Wellington, CO 80549

Phone: 303-956-8714

Fax:

Project Name: *NOBLE - CERV 41-21*

Sampler Name: *HENEHAN*

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTEX	GRO/DRO	Napthalene	SAR	EC	Ph		
1	<i>E. WALL 3 FT</i>	<i>10/30/17</i>		<i>1</i>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
2	<i>FLOOR 8 FT</i>	<i>"</i>		<i>1</i>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> <u>Standard</u> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>13.1</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
<i>PA/FE</i>	<i>10/31/17 15:20</i>	<i>DA</i>	<i>10-31-17 15:20</i>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

1710339

Sample Receipt Checklist

S2 Work Order: _____

Client: FREMONT/NOBLE Client Project ID: NOBLE - CERVI 41-21Shipped Via: H.D. ONICE
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Cooler ID					
Temp (°C)	13.1				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	y			
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	x			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			x	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	x			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			x	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			x	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			x	
If dissolved metals are requested, were samples field filtered?			x	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

Murip.
Custodian Printed Name

10-31-17
Signature or Initials of Custodian

10:30
Date/Time



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21
Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

**E Wall 3 Ft
1710339-01 (Soil)**

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 10/30/17 00:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1711010	11/01/17	11/02/17	8015M	

Date Sampled: 10/30/17 00:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/30/17 00:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1711009	"	11/01/17	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: 10/30/17 00:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.4 %	21-167		"	"	"	"	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: 10/30/17 00:00									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	5400	11.9	mg/kg dry	1	1711029	11/02/17	11/02/17	EPA 6020/Mod. USDA60 6(2, 3A)	

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

E Wall 3 Ft
1710339-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Magnesium	463	5.97 mg/kg dry	1	1711029	11/02/17	11/02/17	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium	131	5.97 "	"	"	"	"	"
Sodium Adsorption Ratio	0.459	units	"	1711053	11/03/17	11/03/17	"

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/17 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.69	0.100	pH Units	1	1711032	11/02/17	11/02/17	EPA 9045	
Specific Conductance (EC)	0.756	0.0100	mmhos/cm	"	1711033	11/02/17	11/02/17	SM 2510B	
% Solids	83.7		%	"	1711031	11/02/17	11/03/17	% calculation	

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

Floor 8 Ft
1710339-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1711010	11/01/17	11/02/17	8015M	

Date Sampled: **10/30/17 00:00**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1711009	"	11/01/17	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: **10/30/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.6 %	21-167		"	"	"	"	

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1711010 - EPA 3550A

Blank (1711010-BLK1)

Prepared & Analyzed: 11/01/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.6		"	12.5		101	30-150			

LCS (1711010-BS1)

Prepared & Analyzed: 11/01/17

C10-C28 (DRO)	506	50	mg/kg	499		101	73-134			
Surrogate: o-Terphenyl	13.1		"	12.5		105	30-150			

Matrix Spike (1711010-MS1)

Source: 1710337-01

Prepared & Analyzed: 11/01/17

C10-C28 (DRO)	510	50	mg/kg	499	27.4	96.7	50-148			
Surrogate: o-Terphenyl	15.1		"	12.5		121	30-150			

Matrix Spike Dup (1711010-MSD1)

Source: 1710337-01

Prepared: 11/01/17 Analyzed: 11/02/17

C10-C28 (DRO)	548	50	mg/kg	499	27.4	104	50-148	7.14	20	
Surrogate: o-Terphenyl	12.8		"	12.5		103	30-150			

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21
Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

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

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

Batch 1711009 - EPA 5030 Soil MS

Blank (1711009-BLK1)

Prepared & Analyzed: 11/01/17

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0517		"	0.0400		129	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		95.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0354		"	0.0400		88.4	21-167			

LCS (1711009-BS1)

Prepared & Analyzed: 11/01/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0699	0.0020	"	0.100		69.9	58-130			
Toluene	0.0893	0.0050	"	0.100		89.3	61-134			
Ethylbenzene	0.106	0.0050	"	0.0992		107	74-139			
m,p-Xylene	0.215	0.010	"	0.200		108	73-137			
o-Xylene	0.103	0.0050	"	0.0980		105	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0378		"	0.0400		94.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0400		90.2	21-167			

Matrix Spike (1711009-MS1)

Source: 1710338-01

Prepared & Analyzed: 11/01/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0615	0.0020	"	0.100	ND	61.5	30-131			
Toluene	0.0804	0.0050	"	0.100	ND	80.4	30-134			
Ethylbenzene	0.0888	0.0050	"	0.0992	ND	89.5	22-153			
m,p-Xylene	0.178	0.010	"	0.200	ND	89.3	10-159			
o-Xylene	0.0874	0.0050	"	0.0980	ND	89.1	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0521		"	0.0400		130	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	21-167			

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

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

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

Batch 1711009 - EPA 5030 Soil MS

Matrix Spike Dup (1711009-MSD1)		Source: 1710338-01			Prepared & Analyzed: 11/01/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0625	0.0020	"	0.100	ND	62.5	30-131	1.65	34	
Toluene	0.0805	0.0050	"	0.100	ND	80.5	30-134	0.112	30	
Ethylbenzene	0.0876	0.0050	"	0.0992	ND	88.3	22-153	1.43	24	
m,p-Xylene	0.176	0.010	"	0.200	ND	88.1	10-159	1.36	68	
o-Xylene	0.0855	0.0050	"	0.0980	ND	87.3	31-151	2.12	38	
Surrogate: 1,2-Dichloroethane-d4	0.0536		"	0.0400		134	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.3	21-167			

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 1711029 - General Preparation

Blank (1711029-BLK1)

Prepared & Analyzed: 11/02/17

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	ND	5.00	"

LCS (1711029-BS1)

Prepared & Analyzed: 11/02/17

Calcium	471	10.0	mg/kg wet	500	94.1	82.9-118
Magnesium	455	5.00	"	500	91.1	77.1-123
Sodium	441	5.00	"	500	88.3	71-129

Duplicate (1711029-DUP1)

Source: 1710287-02

Prepared & Analyzed: 11/02/17

Calcium	1140	10.4	mg/kg dry	1080	4.87	200
Magnesium	59.3	5.21	"	52.2	12.8	200
Sodium	28.8	5.21	"	25.9	10.4	200

Matrix Spike (1711029-MS1)

Source: 1710287-02

Prepared & Analyzed: 11/02/17

Calcium	1540	10.4	mg/kg dry	521	1080	87.2	75-125
Magnesium	537	5.21	"	521	52.2	93.0	75-125
Sodium	459	5.21	"	521	25.9	83.0	75-125

Matrix Spike Dup (1711029-MSD1)

Source: 1710287-02

Prepared & Analyzed: 11/02/17

Calcium	1570	10.4	mg/kg dry	521	1080	94.5	75-125	2.43	25
Magnesium	531	5.21	"	521	52.2	91.9	75-125	1.16	25
Sodium	470	5.21	"	521	25.9	85.2	75-125	2.45	25

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 - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 1711031 - General Preparation

Duplicate (1711031-DUP1) **Source: 1710287-02** Prepared: 11/02/17 Analyzed: 11/03/17

% Solids	95.9		%		95.9			0.00	20	
----------	------	--	---	--	------	--	--	------	----	--

Batch 1711032 - General Preparation

LCS (1711032-BS1) Prepared & Analyzed: 11/02/17

pH	9.18	0.100	pH Units	9.16	100	95-105
----	------	-------	----------	------	-----	--------

Duplicate (1711032-DUP1) **Source: 1710339-01** Prepared & Analyzed: 11/02/17

pH	8.68	0.100	pH Units	8.69		0.115	20
----	------	-------	----------	------	--	-------	----

Batch 1711033 - General Preparation

Blank (1711033-BLK1) Prepared & Analyzed: 11/02/17

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1711033-BS1) Prepared & Analyzed: 11/02/17

Specific Conductance (EC)	0.754	0.0100	mmhos/cm	0.750	100	90-110
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Duplicate (1711033-DUP1) **Source: 1710339-01** Prepared & Analyzed: 11/02/17

Specific Conductance (EC)	0.712	0.0100	mmhos/cm	0.756		6.06	20
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Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 41-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/07/17 08:37

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 30, 2017

Paul Henehan
Fremont Environmental
1759 Redwing Lane
Broomfield, CO 80020
RE: Noble - Cervi 42-21

Enclosed are the results of analyses for samples received by Summit Scientific on 11/22/17 14:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
Laboratory Manager



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NW 5FT	1711302-01	Soil	11/22/17 00:00	11/22/17 14:15

Summit Scientific

A handwritten signature in black ink, appearing to be 'P. Henehan'.

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.

Summit Scientific

1711302

S₂

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401

303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O. Box 1289

E-Mail: paulh@fremontenv.com

Invoice to: JACOB

City/State/Zip: PO Box 1829 Wellington, CO 80549

Phone: 303-956-8714

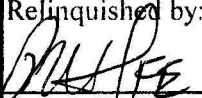

Fax:

Project Name: NOBLE - CERY, 42-21

Sampler Name: HENEHAN

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTEX	GRO/DRO	Napthalene	SAR	EC	Ph		
1	NW 5ft	11/22/17		1			✓			✓				✓	✓	✓				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: 	Date/Time: 11/22/17 14:15	Received by: 	Date/Time: 11-22-17 14:15	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ <u>Standard</u> 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>10.8</u> Intact: <u>Yes</u> No _____	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order: 1711302Client: FREMONT/NOBLE Client Project ID: NOBLE-CERVI 42-21Shipped Via: H.D. ON ICE
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): _____ Air ☒ Soil/Solid _____ Water _____ Other: _____
(Describe)

Cooler ID				
Temp (°C)	<u>12.8</u>			

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.Muri P.
Custodian Printed NameVA 11-22-17
Signature or Initials of Custodian15:00
Date/Time



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

NW 5FT
1711302-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/22/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1711336	11/27/17	11/27/17	8015M	

Date Sampled: **11/22/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		86.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/22/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1711337	11/27/17	11/27/17	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: **11/22/17 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

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 - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1711336 - EPA 3550A

Blank (1711336-BLK1)

Prepared & Analyzed: 11/27/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.9		"	12.5		103	30-150			

LCS (1711336-BS1)

Prepared & Analyzed: 11/27/17

C10-C28 (DRO)	595	50	mg/kg	499		119	73-134			
Surrogate: o-Terphenyl	14.1		"	12.5		113	30-150			

Matrix Spike (1711336-MS1)

Source: 1711302-01

Prepared & Analyzed: 11/27/17

C10-C28 (DRO)	455	50	mg/kg	499	20.7	87.0	50-148			
Surrogate: o-Terphenyl	13.0		"	12.5		104	30-150			

Matrix Spike Dup (1711336-MSD1)

Source: 1711302-01

Prepared & Analyzed: 11/27/17

C10-C28 (DRO)	486	50	mg/kg	499	20.7	93.2	50-148	6.55	20	
Surrogate: o-Terphenyl	12.0		"	12.5		95.7	30-150			

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

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

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

Batch 1711337 - EPA 5030 Soil MS

Blank (1711337-BLK1)

Prepared & Analyzed: 11/27/17

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400		105	21-167			

LCS (1711337-BS1)

Prepared & Analyzed: 11/27/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0875	0.0020	"	0.100		87.5	58-130			
Toluene	0.0916	0.0050	"	0.100		91.6	61-134			
Ethylbenzene	0.0962	0.0050	"	0.0992		97.0	74-139			
m,p-Xylene	0.184	0.010	"	0.200		92.1	73-137			
o-Xylene	0.0904	0.0050	"	0.0980		92.3	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0442		"	0.0400		111	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

Matrix Spike (1711337-MS1)

Source: 1711297-02

Prepared & Analyzed: 11/27/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0970	0.0020	"	0.100	ND	97.0	30-131			
Toluene	0.103	0.0050	"	0.100	ND	103	30-134			
Ethylbenzene	0.109	0.0050	"	0.0992	ND	110	22-153			
m,p-Xylene	0.208	0.010	"	0.200	ND	104	10-159			
o-Xylene	0.106	0.0050	"	0.0980	ND	108	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	21-167			

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

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

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

Batch 1711337 - EPA 5030 Soil MS

Matrix Spike Dup (1711337-MSD1)		Source: 1711297-02			Prepared & Analyzed: 11/27/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.106	0.0020	"	0.100	ND	106	30-131	9.21	34	
Toluene	0.112	0.0050	"	0.100	ND	112	30-134	8.29	30	
Ethylbenzene	0.125	0.0050	"	0.0992	ND	126	22-153	13.7	24	
m,p-Xylene	0.236	0.010	"	0.200	ND	118	10-159	12.7	68	
o-Xylene	0.121	0.0050	"	0.0980	ND	123	31-151	13.4	38	
Surrogate: 1,2-Dichloroethane-d4		0.0475	"	0.0400		119	23-173			
Surrogate: Toluene-d8		0.0416	"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene		0.0418	"	0.0400		104	21-167			

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Cervi 42-21

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/30/17 15:25

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