

FREMONT ENVIRONMENTAL INC.

November 14, 2018

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

Subject: **Follow-up Site Investigation Report**
 Bates #1, C3-2
 API # 05-123-10929
 SWNE Sec 3, T4N, R64W
 Weld County, Colorado
 Fremont Project No. C018-013
 Facility #319242, Remediation #11124

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Follow-up Site Investigation Report for the Bates #1, C3-2 site in Weld County, Colorado. The enclosed report describes site investigation and sampling efforts to assess soil and ground water quality at the site.

Since two COGCC-compliant semi-annual sampling events have occurred, Noble should request that the COGCC provide a No Further Action Determination (NFA) 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

FOLLOW-UP SITE INVESTIGATION REPORT

NOBLE ENERGY INC.

BATES #1, C3-2

WELD COUNTY, COLORADO

FREMONT PROJECT NO. C018-013

FACILITY #319242, REMEDIATION #11124

Prepared by:

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

November 14, 2018

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FOLLOW-UP SITE INVESTIGATION REPORT

NOBLE ENERGY INC.

BATES #1, C3-2

WELD COUNTY, COLORADO

FREMONT PROJECT NO. C018-013

FACILITY #319242, REMEDIATION #11124

1.0 INTRODUCTION

The purpose of this document is to present soil and ground water quality data collected during a follow-up site investigation at the Bates #1, C3-2 location in Weld County, Colorado. Impacted ground water had been identified at this location during facility abandonment due to a historical release from the facility's water vault. Five temporary monitoring wells were installed at this site on April 6, 2018 to delineate the magnitude and extent of subsurface impacts. An agreement with the landowner required the immediate removal of the temporary monitoring wells installed in April 2018 with a follow-up site investigation to be conducted in November 2018. Five new temporary monitoring wells were installed at the site on November 2, 2018; these wells were removed later that same day after sampling.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Bates #1, C3-2 site is located approximately three miles southeast of Kersey, Colorado in Weld County as shown on Figure 1. The site is located in a rural and agricultural area approximately 0.4 miles southwest of the intersection of County Road 50 and County Road 57. The location is further described as the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 3, Township 4N, Range 64W.

2.2 Site History

The site consists of the former water vault for the Bates #1, C3-2 natural gas wells. The Bates #1 well was drilled in 1982 to a depth of approximately 6,915 feet. Soil impacts were identified at the water vault during abandonment of the facility.

Approximately 150 cubic yards of impacted soil were removed by Cachi's Oilfield Services, Inc. in March 2018 and disposed of at the Waste Management Inc. Northern Colorado landfill in Ault, Colorado as non-hazardous waste.

Laboratory analyses of the soil and ground water samples indicated that ground water impacts in excess of the COGCC's Table 910-1 limits were present in the excavation of the former water vault. The benzene concentration in the ground water sample was 56 ug/L which exceeds the limit of 5 ug/L. These ground water impacts initiated the investigation efforts.

3.0 SITE INVESTIGATION ACTIVITIES

3.1 Soil Borings/Monitoring Wells

A follow-up site investigation was conducted at the facility on November 2, 2018. Five soil borings were advanced utilizing a Geoprobe rig. These borings were temporarily completed as stickup 1-inch diameter monitoring wells; after soil and ground water sampling, each of the wells was abandoned. The five borings/monitoring wells were used to determine soil and ground water quality at the site. The locations of the temporary monitoring wells are illustrated on the attached figures.

Generally, the subsurface consists of sandy clay to a depth of approximately three feet which is then underlain by silty sand to a depth of at least 14 feet. Ground water is

present across the site at a depth of approximately eight feet. Geologic cross sections are presented on Figure 4.

The 1-inch diameter monitoring wells were constructed with 10 feet sections of well screen that were placed at a total depth of approximately 14 feet and temporarily completed as stickup vaults. Soil samples from each of the borings were evaluated in the field using a photoionization detector (PID). Logs of the monitoring wells are presented in Appendix A.

Soil samples were collected from each of the borings and sent to Summit Scientific, Inc. in Golden, Colorado for the analyses of benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, total petroleum hydrocarbons-gasoline range organics (TPH-GRO), and TPH-diesel range organics (TPH-DRO).

Soil impacts were not observed in any of the five borings above the COGCC's Table 910-1 limits for BTEX, naphthalene, TPH-GRO and TPH-DRO. The soil chemistry is presented on Figure 5 and summarized on Table 1. The laboratory's report is provided in Appendix C.

3.2 Ground Water Monitoring

Ground water levels were measured in the five monitoring wells on November 2, 2018 in accordance with the Sampling Plan included in Appendix B. The data are summarized in Table 2.

Water table contours inferred from the April 2018 data are illustrated on Figure 6 because the temporary wells installed in November 2018 were not surveyed. Based on these data,

ground water is inferred to flow to the northeast. The water table gradient had been calculated at approximately 0.013 feet per foot (ft/ft) for the April 2018 data.

3.3 Ground Water Sampling and Analysis

Ground water samples were collected from the five monitoring wells on November 2, 2018. All ground water samples were submitted to Summit Scientific, Inc. for analyses of BTEX by EPA Method 8260B.

The ground water concentrations for the five monitoring wells were below their respective COGCC Table 910-1 values. The ground water chemistry is shown on Figure 7. The ground water analytical data are summarized in Table 2. A copy of the laboratory's report is presented in Appendix C.

4.0 DISCUSSION

A follow-up site investigation was conducted at the Bates #1, C3-2 location in November 2018 as a result of a release from the former facility's water vault. A total of five temporary monitoring wells were used to delineate the magnitude and extent of ground water impacts.

Soil impacts above the COGCC Table 910-1 limits were not observed in any of the soil borings. Excavation and removal of impacted soil had previously been completed during removal of the water vault in March 2018. Approximately 150 cubic yards of soil were excavated and disposed of at the Waste Management Buffalo Ridge Landfill as non-hazardous waste.

The data collected from the monitoring wells indicated that the ground water flow direction is to the northeast. Further, the BTEX concentrations in the five temporary monitoring wells were less than the COGCC Table 910-1 limits; these data are illustrated

on Figure 7. The temporary wells were abandoned immediately after ground water sampling.

Due to landowner restrictions, Noble completed two semi-annual temporary site investigations. Since both semi-annual sampling events have resulted in COGCC-compliant BTEX concentrations, Noble will request closure of this site.

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.**



Paul V. Henehan, P.E.
Senior Consultant

11/14/18
Date_____

Reviewed by:



Michael R. Gerstner
Senior Geologist

11/14/18
Date_____

TABLES

TABLE 1
SUMMARY OF SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
BATES #1, C3-2, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C018-013

SAMPLE LOCATION	DATE SAMPLED	DEPTH ft	BENZENE mg/kg	TOLUENE mg/kg	ETHYL BENZENE mg/kg	TOTAL XYLENES mg/kg	NAPHTH-ALENE mg/kg	TPH-GRO mg/kg	TPH-DRO mg/kg
MW-1 6 Ft	04/06/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-2 6 Ft	04/06/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-3 6Ft	04/06/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-4 6 Ft	04/06/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-5 6 Ft	04/06/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-1R	11/02/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-2R	11/02/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-3R	11/02/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-4R	11/02/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
MW-5R	11/02/18	6	<0.002	<0.005	<0.005	<0.010	<0.010	<50	<50
COGCC Table 910-1 Concentrations			0.17	85	100	175	23	500*	500*

The TPH-GRO and TPH-DRO concentrations are added together; if the sum of the two is >500 mg/kg, this exceeds the COGCC Table 910-1 limit

TABLE 2
SUMMARY OF GROUND WATER ELEVATION DATA AND CHEMISTRY DATA
NOBLE ENERGY INC.
BATES #1, C3-2, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C018-013

SAMPLE LOCATION	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	TOC ELEVATION (feet)	DEPTH TO GROUND WATER (ft)	GROUND WATER ELEVATION (ft)	FREE PRODUCT THICKNESS (ft)
MW-1	04/06/18	<1.0	<1.0	<1.0	<1.0	100.00	10.11	89.89	NP
MW-1R	11/02/18	<1.0	<1.0	<1.0	<1.0		NM	NM	NP
MW-2	04/06/18	<1.0	<1.0	<1.0	<1.0	98.55	8.88	89.67	NP
MW-2R	11/02/18	<1.0	<1.0	<1.0	<1.0		NM	NM	NP
MW-3	04/06/18	<1.0	<1.0	<1.0	<1.0	98.32	8.85	89.47	NP
MW-3R	11/02/18	<1.0	<1.0	<1.0	<1.0		NM	NM	NP
MW-4	04/06/18	<1.0	<1.0	<1.0	<1.0	98.66	9.04	89.62	NP
MW-4R	11/02/18	<1.0	<1.0	<1.0	<1.0		NM	NM	NP
MW-5	04/06/18	<1.0	<1.0	<1.0	<1.0	98.54	8.87	89.67	NP
MW-5R	11/02/18	<1.0	<1.0	<1.0	<1.0		NM	NM	NP
Table 910-1 Limits		5	560	700	1,400				

Bold face values exceed the COGCC limits

NP - No Free Product

FIGURES



**Figure 2
SITE MAP**

Noble Bates #1, C3-2
SW NE Sec. 3, T4N, R64W - 40.34323°N 104.53432°W
Weld County, Colorado

Project No. C018-013	Prepared by TDA	Drawn by TDA	
Date 11/11/18	Reviewed by	Filename 18013Q	

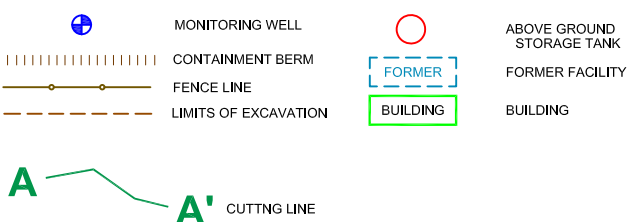
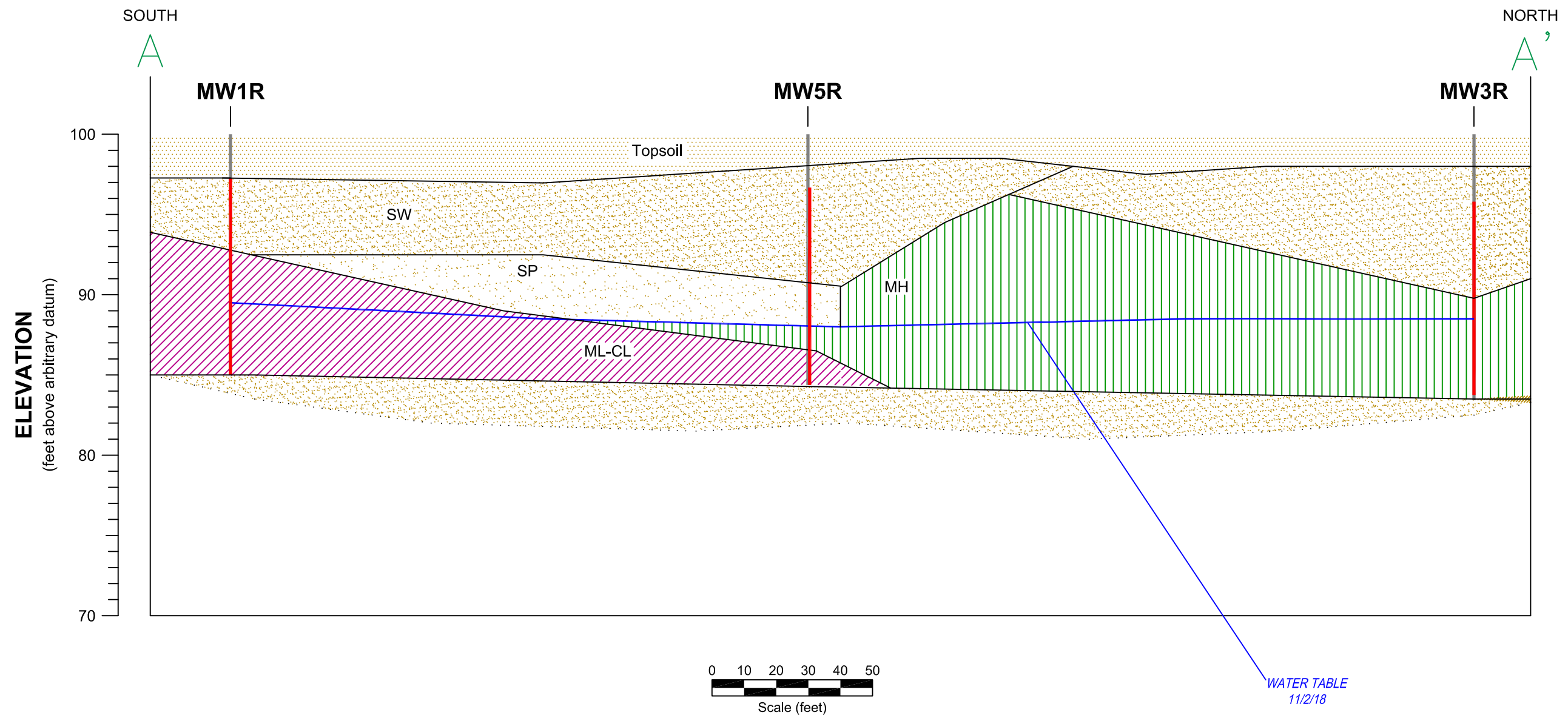


Figure 3
CROSS SECTION A-A' MAP

Noble Bates #1, C3-2
SW NE Sec. 3, T4N, R64W - 40.34323°N 104.53432°W
Weld County, Colorado

Project No. C018-013	Prepared by TDA	Drawn by TDA	
Date 11/13/18	Reviewed by	Filename 18013Q	



LEGEND

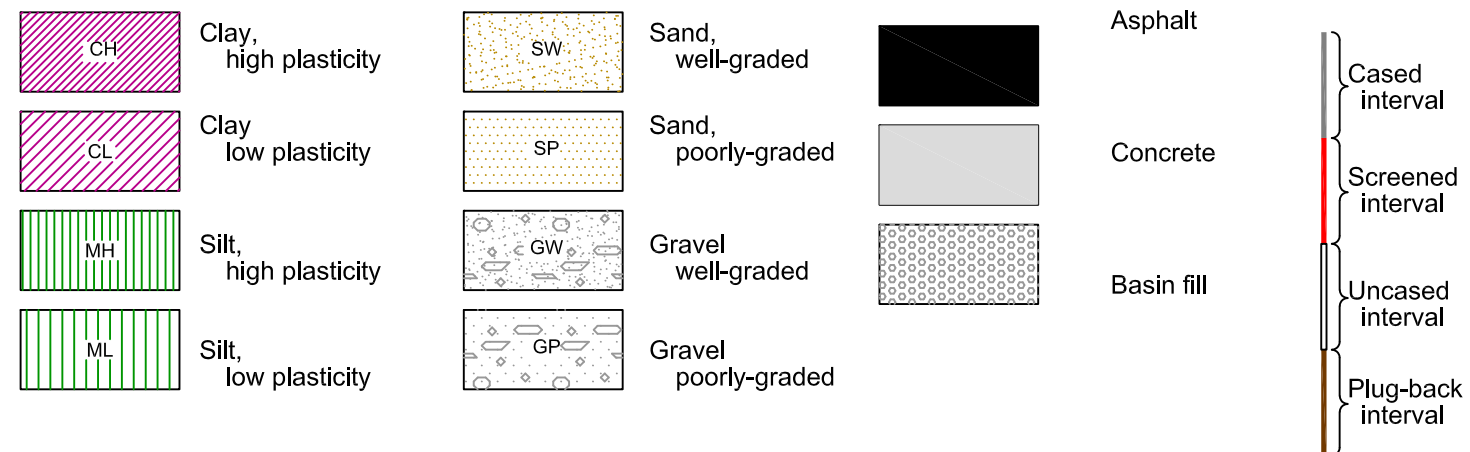


Figure 4
CROSS-SECTION A-A' MAP

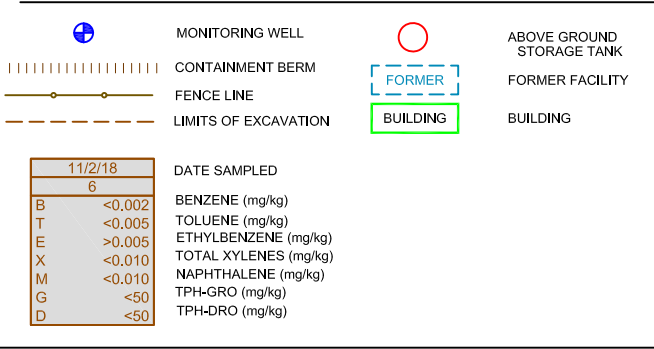
November 2, 2018

Noble - Bates #1, C3-2


SW NE Sec. 3, Section 23, T4N, R64W
Weld County, Colorado

Project No. CO18-013	Prepared by	Drawn by
Date 11/13/18	Reviewed by	Filename 18013X





Noble Bates #1, C3-2
SW NE Sec. 3, T4N, R64W - 40.34323°N 104.53432°W
Weld County, Colorado

Project No. C018-013	Prepared by	Drawn by TDA	
Date 11/11/18	Reviewed by	Filename 18013Q	

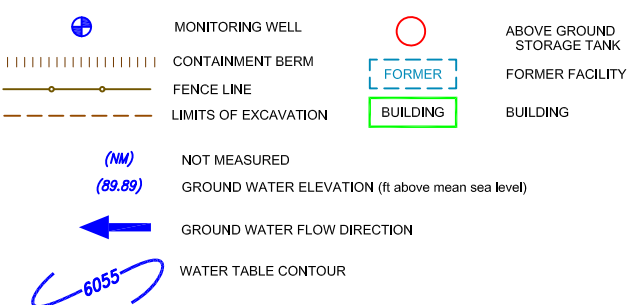


Figure 6
INFERRED GROUND WATER CONTOUR MAP
 November 2, 2018

Noble Bates #1, C3-2
 SW NE Sec. 3, T4N, R64W - 40.34323°N 104.53432°W
 Weld County, Colorado

Project No. C018-013	Prepared by	Drawn by TDA	
Date 11/11/18	Reviewed by	Filename 18013Q	

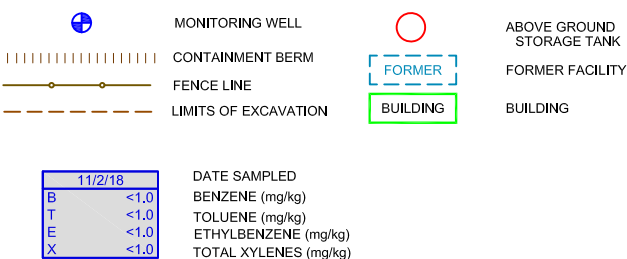


Figure 7
GROUND WATER CHEMISTRY MAP
 November 2, 2018

Noble Bates #1, C3-2
 SW NE Sec. 3, T4N, R64W - 40.34323°N 104.53432°W
 Weld County, Colorado

Project No. C018-013	Prepared by	Drawn by TDA	
Date 11/11/18	Reviewed by	Filename 18013Q	

APPENDIX A

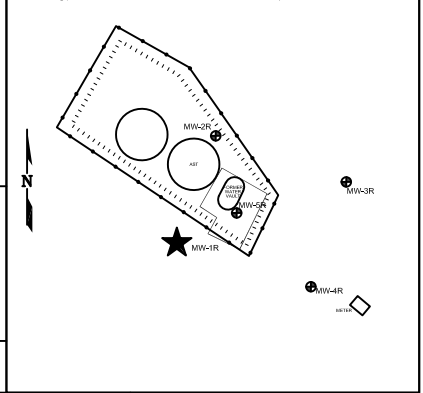
BORING LOGS

BORING/WELL CONSTRUCTION LOG

Page 1 of 1

Boring/Well No. MW-1R	Total Depth 14'	Location Noble Energy Bates #1, C3-2 SW NE Sec 3, T4N, R64W Weld County, Colorado		
Project No./Name C018-013/Noble Bates #1, C3-2		Approved By		
Drilling Contractor/Driller DrillPro		Geologist/Office Paul Henehan		
Drilling Equipment/Method Geoprobe		Size/Type of Bit 2.5" direct push	Sampling Method direct push	Start/Finish Date 11/2/18
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Casing Mtrl./Dia. PVC/1"	Screen: Type Slotted Mtrl. PVC Length 10' Dia. 1" Slot Size 0.010"		
Elevation of: (ft. above datum)	Ground Surface	Top of Well Casing	Top of Screen	Bottom of Screen

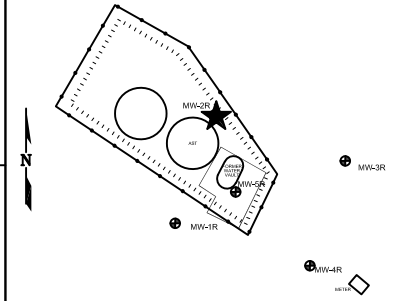
Boring/Well Location Sketch Map



DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
	Bentonite	Blank		Top soil, fine sand, dry, moist				
5	#10-20 Silica Sand	1" Screen		Medium sand, wet, no stain, odor				0
10				Medium sand, wet, no stain, no odor				0
				Fine/medium sand, silty sand, dark gray stain, no odor for two inches				6
				Firmer silt sand, no stain, odor				0
15				TD 14'				
20								

BORING/WELL CONSTRUCTION LOG

Boring/Well Location Sketch Map



Page 1 of

Boring/Well No. MW-2R	Total Depth 14'	Location Noble Energy Bates #1, C3-2 SW NE Sec 3, T4N, R64W Weld County, Colorado			
Project No./Name C018-013/Noble Bates #1, C3-2		Drilling Contractor/Driller DrillPro			
Geologist/Office Paul Henehan		Approved By			
Drilling Equipment/Method Geoprobe		Size/Type of Bit 2.5" direct push	Sampling Method direct push	Start/Finish Date 11/2/18	
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Casing Mtrl./Dia. PVC/1"	Screen: Type Slotted Mtrl. PVC Length 10' Dia. 1" Slot Size 0.010"			
Elevation of: (ft. above datum)					

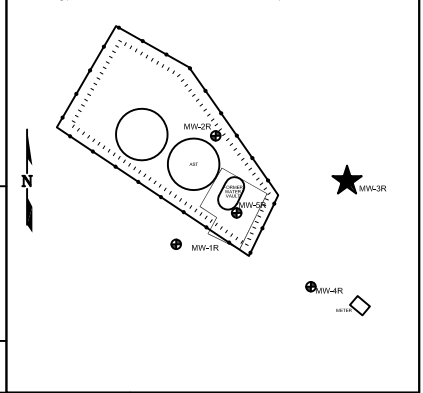
DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
	Bentonite	Blank		Topsoil, sandy clay, moist, no stain, odor				
5				Silty clay to 7', then fine sand to 7.5', then sandy clay, no stain, odor, very moist				0
	#10-20 Silica Sand	1" Screen						0
10				Silty clay to 9', then fine sand, dark gray staining 10'-11' with no odor				0
								105
				Fine sand, wet, water has a rainbow sheen				86
15				TD 14'				2
20								

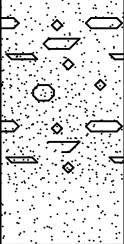
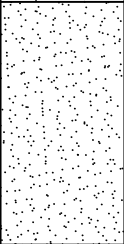
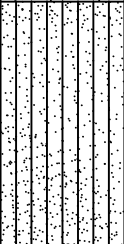
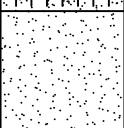
BORING/WELL CONSTRUCTION LOG

Page 1 of 1

Boring/Well No. MW-3R		Total Depth 14'		Location Noble Energy Bates #1, C3-2 SW NE Sec 3, T4N, R64W Weld County, Colorado	
Project No./Name C018-013/Noble Bates #1, C3-2				Approved By	
Drilling Contractor/Driller DrillPro					
Geologist/Office Paul Henehan					
Drilling Equipment/Method Geoprobe				Size/Type of Bit 2.5" direct push	Sampling Method direct push
				Start/Finish Date 11/2/18	
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Casing Mtrl./Dia.	Screen: Type Slotted Mtrl. PVC	Length 10'	Dia. 1"
Elevation of: (ft. above datum)		Ground Surface	Top of Well Casing	Top of Screen	Bottom of Screen
					Ground Water Surface/Date Measured

Boring/Well Location Sketch Map



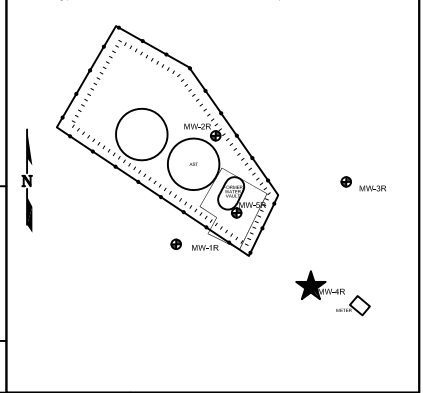
DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
	Bentonite	1" Blank		Topsoil, silty clay, fine sand, no stain, odor				
5				Fine sand, wet, no stain, odor				0
10				Fine sand, silty sand, firm, wet, moist				0
				Fine sand, no stain, odor				0
15				TD 14'				0
20								

BORING/WELL CONSTRUCTION LOG

Page 1 of 1

Boring/Well No. MW-4R		Total Depth 14'		Location Noble Energy Bates #1, C3-2 SW NE Sec 3, T4N, R64W Weld County, Colorado			
Project No./Name C018-013/Noble Bates #1, C3-2				Drilling Contractor/Driller DrillPro			
Geologist/Office Paul Henehan				Approved By			
Drilling Equipment/Method Geoprobe				Size/Type of Bit 2.5" direct push		Sampling Method direct push	
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				Casing Mtrl./Dia. PVC/1"		Screen: Type Slotted Mtrl. PVC Length 10' Dia. 1" Slot Size 0.010"	
Elevation of: (ft. above datum)		Ground Surface		Top of Well Casing		Top of Screen	
						Bottom of Screen	
						Ground Water Surface/Date Measured	

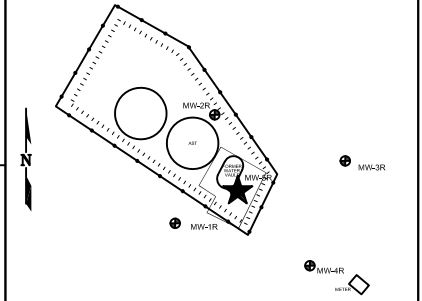
Boring/Well Location Sketch Map



DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
	Bentonite	1" Blank		Topsoil, silty sand, dry, no stain, odor				
5				Light brown, fine sand, very moist, no stain, odor				0
				Wet, fine sand, firm, silt, gray band of staining, no odor				0
10				Firm silt, no stain, odor, dry				0
				TD 14'				0
15								
20								

BORING/WELL CONSTRUCTION LOG

Boring/Well Location Sketch Map



Page 1 of 1

Boring/Well No. MW-5R		Total Depth 14'		Location Noble Energy Bates #1, C3-2 SW NE Sec 3, T4N, R64W Weld County, Colorado	
Project No./Name C018-013/Noble Bates #1, C3-2				Drilling Contractor/Driller DrillPro	
Geologist/Office Paul Henehan				Approved By	
Drilling Equipment/Method GeoProbe				Size/Type of Bit 2.5" direct push	Sampling Method direct push
				Start/Finish Date 11/2/18	
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Casing Mtrl./Dia. PVC/1"		Screen: Type Slotted Mtrl. PVC Length 10' Dia. 1" Slot Size 0.010"	
Elevation of: (ft. above datum)		Ground Surface	Top of Well Casing	Top of Screen	Bottom of Screen
					Ground Water Surface/Date Measured

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
	Bentonite	Blank		Top soil, silt clay, fine to medium sand, dry, no staining, odor				
5				Fine to medium sand, fine sand, gray staining, wet, light odor				0
	#10-20 Silica Sand	1" Screen						0
10				Wet, fine sand, firm silt, gray band				4
								29
				Firm silt, no stain, odor				1
15				TD 14'				1
20								

APPENDIX B

SAMPLING PLAN

SAMPLING METHODS AND PROCEDURES

Water Level Measurements

All ground water level measurements will be obtained using an electric measuring device, which indicates when a probe is in contact with ground water. Measurements will be obtained by lowering the device into the well until the water surface had been encountered, and by measuring the distance from the top of the inside riser pipe to the probe. All of the measurements will be recorded to the nearest 0.01 ft. To minimize cross-contamination, the water level indicator will be decontaminated with isopropyl alcohol and distilled water between each well.

Monitoring Well Sampling

All monitoring wells were sampled from the “cleanest” to the “most contaminated” according to the protocols listed below.

Field Protocol

- | | |
|--------|--|
| Step 1 | Measure water level in each well. |
| Step 2 | Purge each monitoring well by evacuating a minimum of three well bore volumes using a disposable polyethylene bailer. |
| Step 3 | Collect water samples using a disposable polyethylene bailer. |
| Step 4 | Cool samples to approximately 4°C for transportation. |
| Step 5 | Store water samples and transport to a specific laboratory, following all documentation and chain-of-custody procedures. |

Upon completion of ground water sampling, a chain-of-custody log will be completed. Chain-of-custody records include the following information: project, project number, shipped by, shipped to, suspected hazard, sampling point, location, field identification number, date collected, sample type, number of containers, analysis required, and sampler's signature.

The chain-of-custody records will be shipped with the samples to the laboratory. Upon arrival at the laboratory the samples will be checked in and signed by the appropriate laboratory personnel. Laboratory identification numbers will be noted on the chain-of-custody record. Upon completion of the laboratory analysis, the completed chain-of-custody record will be returned to the project manager.

Analytical Methods

The following list identifies the various chemical constituents and analytical methods which will be used for their quantification.

<u>Chemical Parameter</u>	<u>Method</u>
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)	EPA Method – 8260B

APPENDIX C

LABORATORY DOCUMENTATION

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

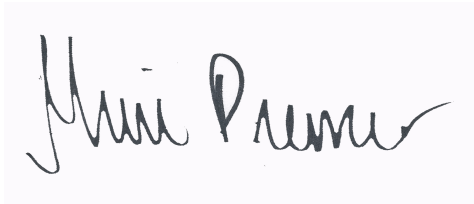
303.277.9310

November 08, 2018

Paul Henehan
Fremont Environmental
PO Box 1289
Wellington, CO 80549
RE: Noble - Bates #1

Enclosed are the results of analyses for samples received by Summit Scientific on 11/02/18 17:13. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer", is displayed on a light purple rectangular background.

Muri Premer For Ben Shrewsbury
Laboratory Manager



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1R	1811036-01	Soil	11/02/18 00:00	11/02/18 17:13
MW-2R	1811036-02	Soil	11/02/18 00:00	11/02/18 17:13
MW-3R	1811036-03	Soil	11/02/18 00:00	11/02/18 17:13
MW-4R	1811036-04	Soil	11/02/18 00:00	11/02/18 17:13
MW-5R	1811036-05	Soil	11/02/18 00:00	11/02/18 17:13
MW-1	1811036-06	Water	11/02/18 00:00	11/02/18 17:13
MW-2	1811036-07	Water	11/02/18 00:00	11/02/18 17:13
MW-3	1811036-08	Water	11/02/18 00:00	11/02/18 17:13
MW-4	1811036-09	Water	11/02/18 00:00	11/02/18 17:13
MW-5	1811036-10	Water	11/02/18 00:00	11/02/18 17:13

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.

1811036

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O Box 1289

E-Mail: paulh@fremontenv.com, kenr@fremontenv.com

City/State/Zip: Wellington, CO 80549

Bill to: JACOB

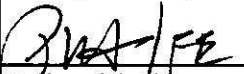

Phone: 303-956-8714

Project Name: NOBLE - BATES #1

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	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	GRO	DRO	SAR	EC	pH		
1	MW-1R	11/2/18		1			✓			✓				✓	✓	✓	✓				
2	MW-2R			1										✓	✓	✓	✓				
3	MW-3R			1										✓	✓	✓	✓				
4	MW-4R			1										✓	✓	✓	✓				
5	MW-5R			1										✓	✓	✓	✓				
6	MW-1			2					✓					✓	✓	✓	✓				
7	MW-2			2										✓	✓	✓	✓				
8	MW-3			2										✓	✓	✓	✓				
9	MW-4			2										✓	✓	✓	✓				
10	MW-5			2										✓	✓	✓	✓				

Relinquished by: 	Date/Time: 11/2/18 1713	Received by: 	Date/Time: 11.2.18 1713	Turn Around Time (Check) Same Day — 72 hours 24 hours — Standard <input checked="" type="checkbox"/> 48 hours — Sample Integrity: Temperature Upon Receipt: 7.5 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 1811036

Client: Fremont Client Project ID: Noble - Bates #1

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other H.D. Airbill #: _____

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

Temp (°C)	<u>7.5</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met 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 samples with holding times due within 48 hours sample 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⁾ ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.

UP
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

11.2.18 1850
Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-1R
1811036-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1811049	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		94.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1811048	11/05/18	11/06/18	EPA 8015M	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		97.2 %	30-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:

11/08/18 10:16

MW-2R
1811036-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811049	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811048	11/05/18	11/06/18	EPA 8015M	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.2 %	30-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-3R
1811036-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811049	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811048	11/05/18	11/06/18	EPA 8015M	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		91.2 %	30-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:

11/08/18 10:16

MW-4R
1811036-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811049	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811048	11/05/18	11/06/18	EPA 8015M	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		91.8 %	30-150		"	"	"	"	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-5R
1811036-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1811049	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1811048	11/05/18	11/06/18	EPA 8015M	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.5 %	30-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-1
1811036-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811046	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:

11/08/18 10:16

MW-2

1811036-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811046	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		126 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:

11/08/18 10:16

MW-3

1811036-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811046	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	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
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-4
1811036-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811046	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	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
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]

Project Manager: Paul Henehan

Reported:
11/08/18 10:16

MW-5
1811036-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811046	11/05/18	11/07/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/02/18 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		133 %	21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

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 1811046 - EPA 5030 Water MS

Blank (1811046-BLK1)

Prepared: 11/05/18 Analyzed: 11/06/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.2		101	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		96.5	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		100	21-167			

LCS (1811046-BS1)

Prepared: 11/05/18 Analyzed: 11/06/18

Benzene	25.5	1.0	ug/l	33.3		76.5	70-130			
Toluene	26.4	1.0	"	33.3		79.2	70-130			
Ethylbenzene	26.6	1.0	"	33.3		79.7	70-130			
m,p-Xylene	57.0	2.0	"	66.7		85.5	70-130			
o-Xylene	28.4	1.0	"	33.3		85.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.2		101	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.3	21-167			

Matrix Spike (1811046-MS1)

Source: 1811036-06

Prepared: 11/05/18 Analyzed: 11/06/18

Benzene	31.4	1.0	ug/l	33.3	ND	94.2	70-130			
Toluene	31.8	1.0	"	33.3	ND	95.3	70-130			
Ethylbenzene	33.7	1.0	"	33.3	ND	101	70-130			
m,p-Xylene	67.9	2.0	"	66.7	ND	102	70-130			
o-Xylene	33.2	1.0	"	33.3	ND	99.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		100	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		95.8	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.6	21-167			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

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 1811046 - EPA 5030 Water MS

Matrix Spike Dup (1811046-MSD1)				Source: 1811036-06		Prepared: 11/05/18 Analyzed: 11/06/18				
Benzene	23.7	1.0	ug/l	33.3	ND	71.0	70-130	28.1	30	
Toluene	25.1	1.0	"	33.3	ND	75.4	70-130	23.3	30	
Ethylbenzene	27.8	1.0	"	33.3	ND	83.5	70-130	19.1	30	
m,p-Xylene	56.0	2.0	"	66.7	ND	84.0	70-130	19.2	30	
o-Xylene	27.7	1.0	"	33.3	ND	83.2	70-130	17.9	30	
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.2		101	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.8	21-167			

Batch 1811049 - EPA 5030 Soil MS

Blank (1811049-BLK1)				Prepared: 11/05/18 Analyzed: 11/06/18						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0400		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

LCS (1811049-BS1)				Prepared: 11/05/18 Analyzed: 11/06/18						
Benzene	0.0765	0.0020	mg/kg	0.100		76.5	70-130			
Toluene	0.0792	0.0050	"	0.100		79.2	70-130			
Ethylbenzene	0.0796	0.0050	"	0.100		79.6	70-130			
m,p-Xylene	0.171	0.010	"	0.200		85.5	70-130			
o-Xylene	0.0852	0.0050	"	0.100		85.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0400		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0400		97.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

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 1811049 - EPA 5030 Soil MS

Matrix Spike (1811049-MS1)		Source: 1811033-02			Prepared: 11/05/18 Analyzed: 11/06/18					
Benzene	0.0942	0.0020	mg/kg	0.100	ND	94.2	70-130			
Toluene	0.0952	0.0050	"	0.100	ND	95.2	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130			
o-Xylene	0.0996	0.0050	"	0.100	ND	99.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0396		100	23-173			
Surrogate: Toluene-d8	0.0383		"	0.0400		95.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.6	21-167			
Matrix Spike Dup (1811049-MSD1)		Source: 1811033-02			Prepared: 11/05/18 Analyzed: 11/06/18					
Benzene	0.0710	0.0020	mg/kg	0.100	ND	71.0	70-130	28.1	30	
Toluene	0.0754	0.0050	"	0.100	ND	75.4	70-130	23.3	30	
Ethylbenzene	0.0835	0.0050	"	0.100	ND	83.5	70-130	19.1	30	
m,p-Xylene	0.168	0.010	"	0.200	ND	84.0	70-130	19.2	30	
o-Xylene	0.0832	0.0050	"	0.100	ND	83.2	70-130	17.9	30	
Surrogate: 1,2-Dichloroethane-d4	0.0399		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

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 1811048 - EPA 3550A

Blank (1811048-BLK1)

Prepared: 11/05/18 Analyzed: 11/06/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1811048-BS1)

Prepared: 11/05/18 Analyzed: 11/06/18

C10-C28 (DRO) 531 50 mg/kg 500 106 70-130

Matrix Spike (1811048-MS1)

Source: 1811033-02

Prepared: 11/05/18 Analyzed: 11/06/18

C10-C28 (DRO) 586 50 mg/kg 500 18.4 113 70-130

Matrix Spike Dup (1811048-MSD1)

Source: 1811033-02

Prepared: 11/05/18 Analyzed: 11/06/18

C10-C28 (DRO) 576 50 mg/kg 500 18.4 112 70-130 1.67 20

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Bates #1

Project Number: [none]
Project Manager: Paul Henehan

Reported:
11/08/18 10:16

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