

FREMONT ENVIRONMENTAL INC.

February 13, 2018

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

Subject: **Ground Water Data Submittal**
Weideman PM J28-2, 28-7
API # 05-123-14002 (J28-2)
Weld County, Colorado
Fremont Project No. C016-110
Facility #327010, Remediation #10028

Dear Mr. Evans:

Enclosed please find a copy of the above referenced Ground Water Data Submittal for the Wiedeman PM J28-2, 28-7 site in Weld County, Colorado. The enclosed data describes the ground water quality at the site during the recent quarterly sampling and monitoring event.

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.



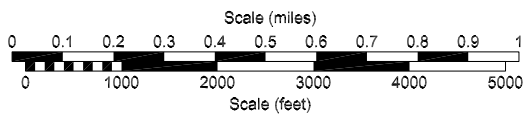
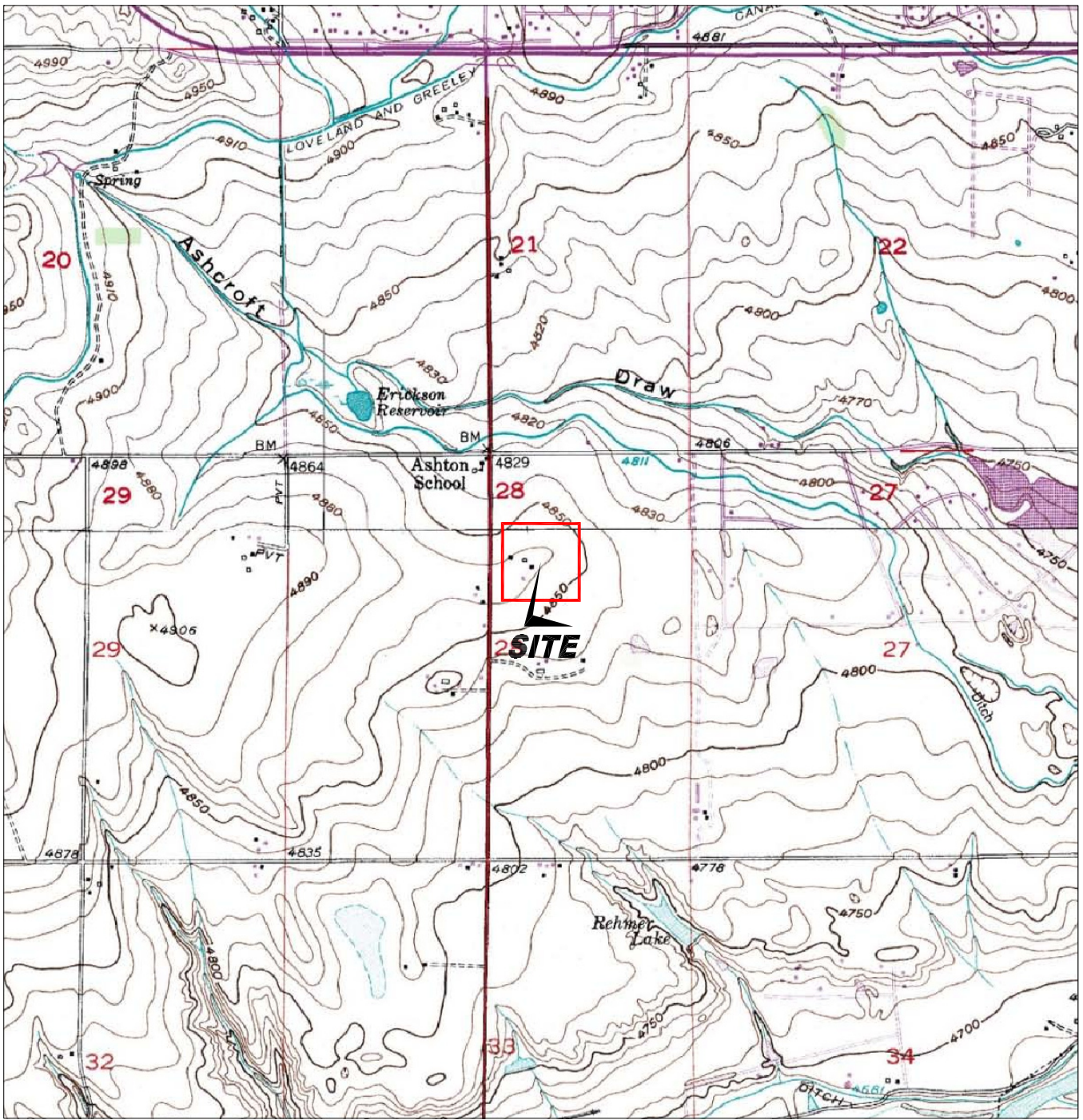
Paul V. Henehan, P.E.
Senior Consultant

Enclosure

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-4	01/11/18	<1.0	<1.0	<1.0	<1.0	96.80	15.22	81.58	NP	
MW-5	10/12/16	<1.0	<1.0	<1.0	2.9	95.98	11.50	84.48	NP	
	01/06/17	<1.0	<1.0	<1.0	2.8		15.24	80.74	NP	
	04/05/17	Dry	Dry	Dry	Dry		Dry	Dry	Dry	
	08/14/17	<1.0	<1.0	<1.0	<1.0		5.74	90.24	NP	
	10/11/17	<1.0	<1.0	<1.0	<1.0		11.13	84.85	NP	
	01/11/18	<1.0	<1.0	<1.0	<1.0		14.70	81.28	NP	
MW-6	10/12/16	<1.0	<1.0	<1.0	<1.0	100.00	14.63	85.37	NP	
	01/06/17	<1.0	<1.0	<1.0	<1.0		18.27	81.73	NP	
	04/05/17	Dry	Dry	Dry	Dry		Dry	Dry	Dry	
	08/14/17	<1.0	<1.0	<1.0	<1.0		9.23	90.77	NP	
	10/11/17	<1.0	<1.0	<1.0	<1.0		14.31	85.69	NP	
	01/11/18	<1.0	<1.0	<1.0	<1.0		18.33	81.67	NP	
MW-7	10/12/16	<1.0	<1.0	<1.0	<1.0	97.02	11.80	85.22	NP	
	01/06/17	<1.0	<1.0	<1.0	<1.0		14.91	82.11	NP	
	04/05/17	Dry	Dry	Dry	Dry		Dry	Dry	Dry	
	08/14/17	<1.0	<1.0	<1.0	<1.0		9.55	87.47	NP	
	10/11/17	inaccessible	inaccessible	inaccessible	inaccessible		inaccessible	inaccessible	inaccessible	inaccessible
	01/11/18	not found	not found	not found	not found		not found	not found	not found	not found
Table 910-1 Limits		5	560	700	1,400					

Bold face values exceed the COGCC limits

NP - No Free Product



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP







Noble Wiedeman PM J28-2, 28-7
NE SW Section 28, T5N, R66W
Weld County, Colorado

Project No. C016-110	Prepared by	Drawn by JMA
Date 10/2/16	Reviewed by	Filename 16110T





LEGEND

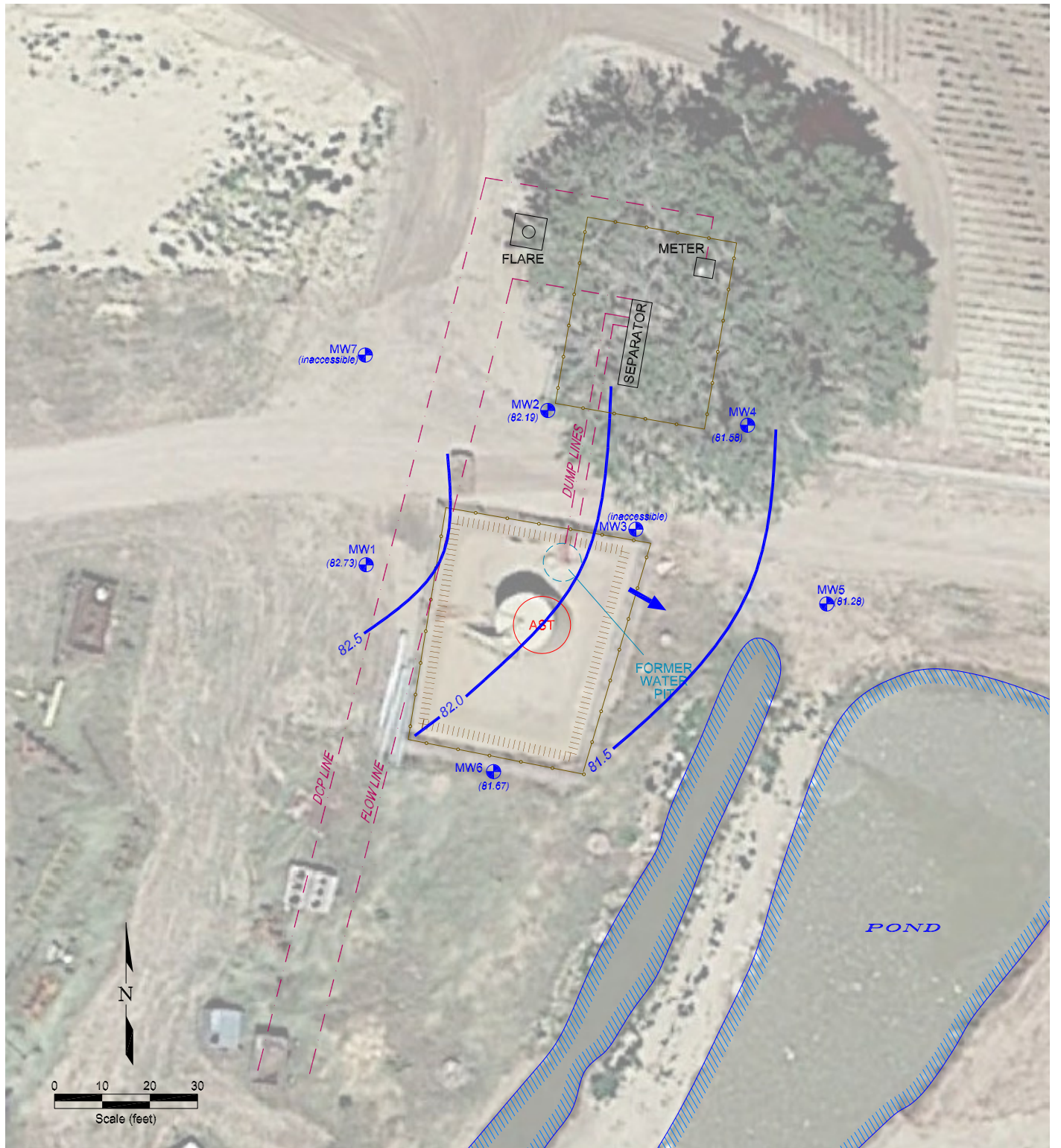
-  MONITORING WELL
-  FENCE LINE
-  CONTAINMENT BERM
-  PIPELINE
-  ABOVE GROUND STORAGE TANK
-  FORMER FACILITY

**Figure 2
SITE MAP**

Noble Wiedeman PM J28-2, 28-7
NE SW Section 28, T5N, R66W
Weld County, Colorado

Project No. C016-110	Prepared by	Drawn by JMA
Date 9/25/17	Reviewed by	Filename 16110Q





LEGEND










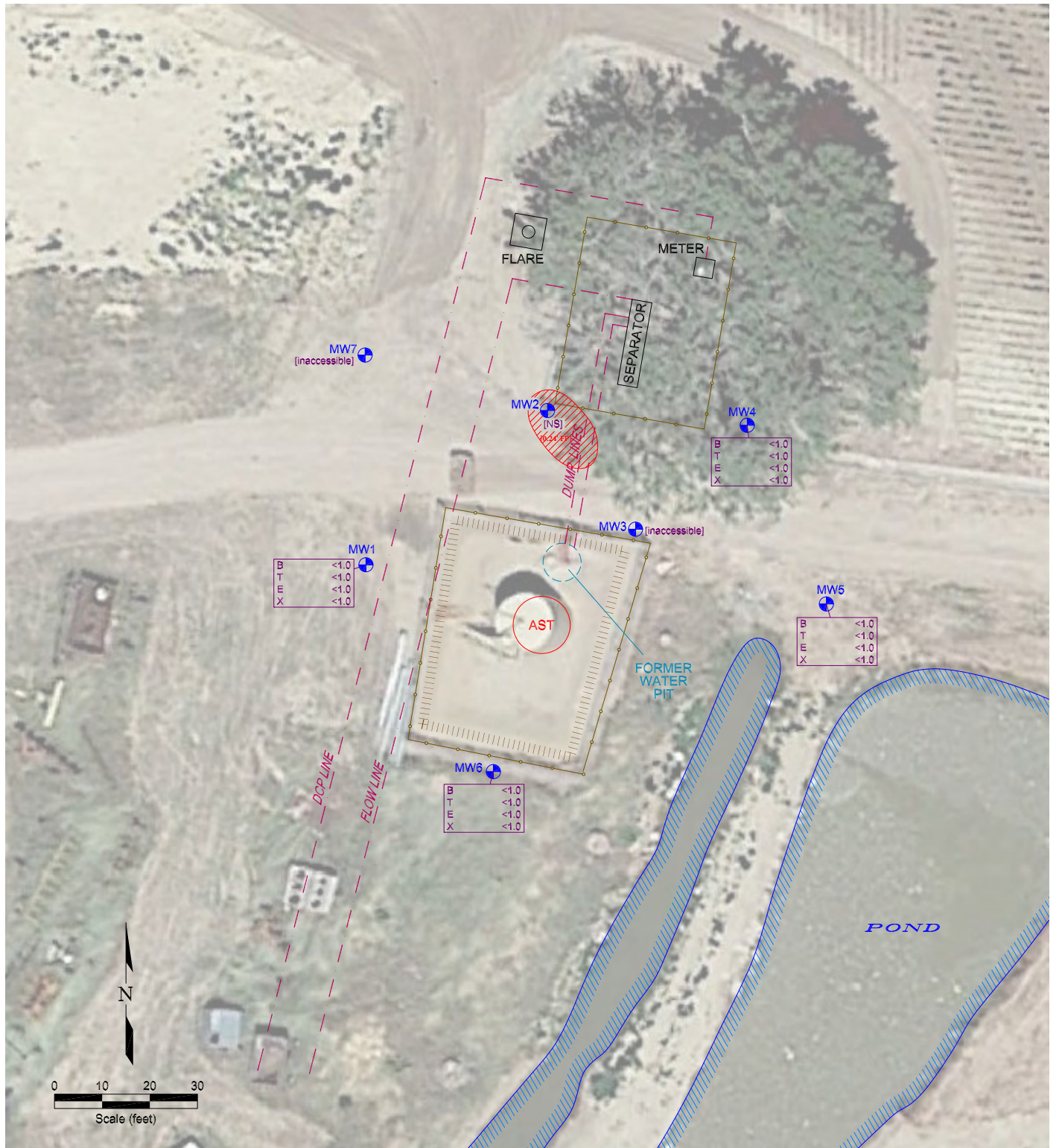
-  MONITORING WELL
-  FENCE LINE
-  CONTAINMENT BERM
-  PIPELINE
-  ABOVE GROUND STORAGE TANK
-  FORMER FACILITY
-  GROUND WATER ELEVATION (ft above arbitrary datum)
-  WATER TABLE CONTOUR
-  GROUND WATER FLOW DIRECTION

Figure 3
INFERRED GROUNDWATER CONTOUR
JANUARY 11, 2018

Noble Wiedeman PM J28-2, 28-7
 NE SW Section 28, T5N, R66W
 Weld County, Colorado

Project No. C016-110	Prepared by	Drawn by JMA
Date 2/9/18	Reviewed by	Filename 16110Q





LEGEND

	MONITORING WELL		ABOVE GROUND STORAGE TANK
	FENCE LINE		FORMER FACILITY
	CONTAINMENT BERM		
	PIPELINE		

B	<1.0	BENZENE (ug/L)
T	<1.0	TOLUENE (ug/L)
E	<1.0	ETHYLBENZENE (ug/L)
X	<1.0	TOTAL XYLENES (ug/L)

NS	NOT SAMPLED
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	EXTENT OF FREE PRODUCT
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Figure 4
GROUND WATER CHEMISTRY MAP
 JANUARY 11, 2018

Noble Wiedeman PM J28-2, 28-7
 NE SW Section 28, T5N, R66W
 Weld County, Colorado

Project No. C016-110	Prepared by	Drawn by JMA
Date 2/13/18	Reviewed by	Filename 16110Q



Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 19, 2018

Paul Henehan
Fremont Environmental
1759 Redwing Lane
Broomfield, CO 80020

RE: Noble - Weideman PMJ 28-2-7

Enclosed are the results of analyses for samples received by Summit Scientific on 01/12/18 15:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	1801139-01	Water	01/11/18 10:40	01/12/18 15:15
MW-4	1801139-02	Water	01/11/18 11:00	01/12/18 15:15
MW-5	1801139-03	Water	01/11/18 11:10	01/12/18 15:15
MW-6	1801139-04	Water	01/11/18 10:50	01/12/18 15:15

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

1801139

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

Page 1 of 1

Client: Fremont Environmental Project Manager: Paul Henchan
Address: P.O. Box 1289 E-Mail: paulh@fremontenv.com
City/State/Zip: PO Box 1829 Wellington, CO 80549
Phone: 303-956-8714 Fax: Project Name: Nettle Wiseman PM J28-2, 28-7
Sampler Name: Ken Rogowski Project Number: 2016-110

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	MW-1	1.11.18	1040	2			X		X				X						
2	MW-4	1.11.18	1100	2			X		X				X						
3	MW-5	1.11.18	1110	2			X		X				X						
4	MW-6	1.11.18	1050	2			X		X				X						
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>[Signature]</u>	Date/Time: <u>1.11.18/1515</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1/12/18 1515</u>	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ <input checked="" type="checkbox"/> Standard 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>7.2°C</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

1801139

Sample Receipt Checklist

S2 Work Order: _____

Client: Fremont Env. Client Project ID: Noble-Wiedeman Pm J28-2, 28-7

Shipped Via: P/U Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Cooler ID				
Temp (°C)	7.2			

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.		✓		
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
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⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? 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⁾ ? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

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

Nakita
Custodian Printed Name

[Signature]
Signature or Initials of Custodian

1/12/18 1550
Date/Time



Fremont Environmental
1759 Redwing Lane
Broomfeld CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

MW-1
1801139-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/11/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801156	01/19/18	01/19/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/11/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	45-146		"	"	"	"	

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
Broomfeld CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

MW-4
1801139-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/11/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801156	01/19/18	01/19/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/11/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.1 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfeld CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

MW-5
1801139-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/11/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801156	01/19/18	01/19/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/11/18 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.3 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.2 %	45-146		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfeld CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

MW-6
1801139-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/11/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801156	01/19/18	01/19/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/11/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.4 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	45-146		"	"	"	"	

Summit Scientific

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1801156 - EPA 5030 Water MS

Blank (1801156-BLK1)

Prepared & Analyzed: 01/18/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.5		"	13.3		93.8	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.2	45-149			
Surrogate: 4-Bromofluorobenzene	12.1		"	13.3		90.6	45-146			

LCS (1801156-BS1)

Prepared & Analyzed: 01/18/18

Benzene	33.5	1.0	ug/l	33.3		100	51-132			
Toluene	35.1	1.0	"	33.3		105	51-138			
Ethylbenzene	37.6	1.0	"	33.1		114	58-146			
m,p-Xylene	71.7	2.0	"	66.5		108	57-144			
o-Xylene	34.7	1.0	"	32.7		106	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		98.8	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.9	45-146			

Matrix Spike (1801156-MS1)

Source: 1801139-01

Prepared & Analyzed: 01/18/18

Benzene	33.2	1.0	ug/l	33.3	ND	99.6	34-141			
Toluene	34.9	1.0	"	33.3	ND	105	27-151			
Ethylbenzene	37.7	1.0	"	33.1	ND	114	29-160			
m,p-Xylene	72.2	2.0	"	66.5	ND	108	20-166			
o-Xylene	34.8	1.0	"	32.7	ND	107	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.3		99.5	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.1	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.8	45-146			

Summit Scientific

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1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

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

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

Batch 1801156 - EPA 5030 Water MS

Matrix Spike Dup (1801156-MSD1)	Source: 1801139-01			Prepared & Analyzed: 01/18/18						
Benzene	33.6	1.0	ug/l	33.3	ND	101	34-141	1.29	32	
Toluene	35.2	1.0	"	33.3	ND	106	27-151	1.08	25	
Ethylbenzene	38.1	1.0	"	33.1	ND	115	29-160	1.16	50	
m,p-Xylene	72.8	2.0	"	66.5	ND	109	20-166	0.869	36	
o-Xylene	35.4	1.0	"	32.7	ND	108	33-159	1.54	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.6</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.4</i>		<i>"</i>	<i>13.3</i>		<i>93.0</i>	<i>45-146</i>			

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Fremont Environmental
1759 Redwing Lane
Broomfield CO, 80020

Project: Noble - Weideman PMJ 28-2-7

Project Number: C016-010
Project Manager: Paul Henehan

Reported:
01/19/18 16:33

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