

FREMONT ENVIRONMENTAL INC.

June 13, 2018

Mr. Kris Neidel
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

Subject: **Ground Water Monitoring Report**
Margaret Spaulding Water Treatment Site
SW ¼ SE ¼ Sec 28, T9N, R81W
Jackson County, Colorado
Fremont Project No. C016-119

Dear Mr. Neidel:

Enclosed please find a copy of the above referenced Ground Water Monitoring Report for the Margaret Spaulding site in Jackson County, Colorado. The enclosed report describes monitoring and sampling efforts to assess ground water quality at the 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

GROUND WATER MONITORING REPORT
COLORADO OIL AND GAS CONSERVATION COMMISSION
MARGARET SPAULDING WATER TREATMENT SITE
JACKSON COUNTY, COLORADO
FREMONT PROJECT NO. C016-119

Prepared by:

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June 13, 2018

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GROUND WATER MONITORING REPORT
COLORADO OIL AND GAS CONSERVATION COMMISSION
MARGARET SPAULDING WATER TREATMENT SITE
JACKSON COUNTY, COLORADO
FREMONT PROJECT NO. C016-119

1.0 INTRODUCTION

The purpose of this document is to present ground water quality data at the out-of-service Margaret Spaulding Water Treatment site in Jackson County, Colorado. Fremont Environmental Inc. (Fremont) was retained by the Colorado Oil and Gas Conservation Commission (COGCC) to collect ground water samples and submit these samples to a third-party laboratory for analyses.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Margaret Spaulding Water Treatment site is located approximately 11 miles west of Walden, Colorado in Jackson County as shown on Figure 1. The site is located in a rural and agricultural area approximately 1.5 miles southwest of the intersection of County Road 12 and County Road 16. The location is further described as the SW $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 28, Township 9N, Range 81W.

2.2 Site History

The site is a former water treatment and disposal facility for the Margaret Spaulding 4 and 4B wells. The site facilities include above ground storage tanks, water treatment pits, buried and above ground piping, and various buildings. The two wells on this pad were drilled in 1972 to a depth of approximately 2,400 feet. The facilities have been owned and operated by Lone Pine Gas, Inc. and CM Production, LLC.

3.0 GROUND WATER MONITORING AND REMEDIATION ACTIVITIES

3.1 Ground Water Level Measurements

Ground water levels were measured in the six monitoring wells on May 24, 2018 in accordance with the Sampling Plan included in Appendix A. The data are summarized in Table 1.

Water table contours inferred from the May 2018 data are illustrated on Figure 3. Based on these data, ground water is inferred to flow to the north. The water table gradient was calculated at approximately 0.006 feet per foot (ft/ft) for the May 2018 data.

3.2 Ground Water Sampling and Analysis

Ground water samples were collected from the six monitoring wells on May 24, 2018 to monitor the magnitude and extent of ground water impacts at the site. The ground water samples were submitted to Summit Scientific Inc. in Golden, Colorado for analyses of benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260C. In addition, each sample was analyzed for total petroleum hydrocarbons - gasoline range organics (TPH-GRO), TPH - diesel range organics (TPH-DRO), sulfate, chloride and total dissolved solids (TDS). The ground water chemistry data is illustrated on Figure 4.

The laboratory data indicate that all of the petroleum hydrocarbon constituents were below their respective COGCC Table 910-1 limits for the six wells for the May 2018 sampling event. The ground water analytical data are summarized in Table 1. A copy of the laboratory reports, quality control data, and chain-of-custody documentation are presented in Appendix B.

4.0 DISCUSSION

Ground water samples were collected from the six existing monitoring wells at the subject property. As described above, all petroleum hydrocarbon constituents were less than their respective COGCC Table 910-1 limits.

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.**



6/13/18

Date_____

Paul V. Henehan, P.E.

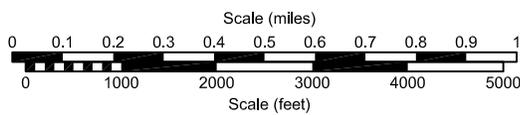
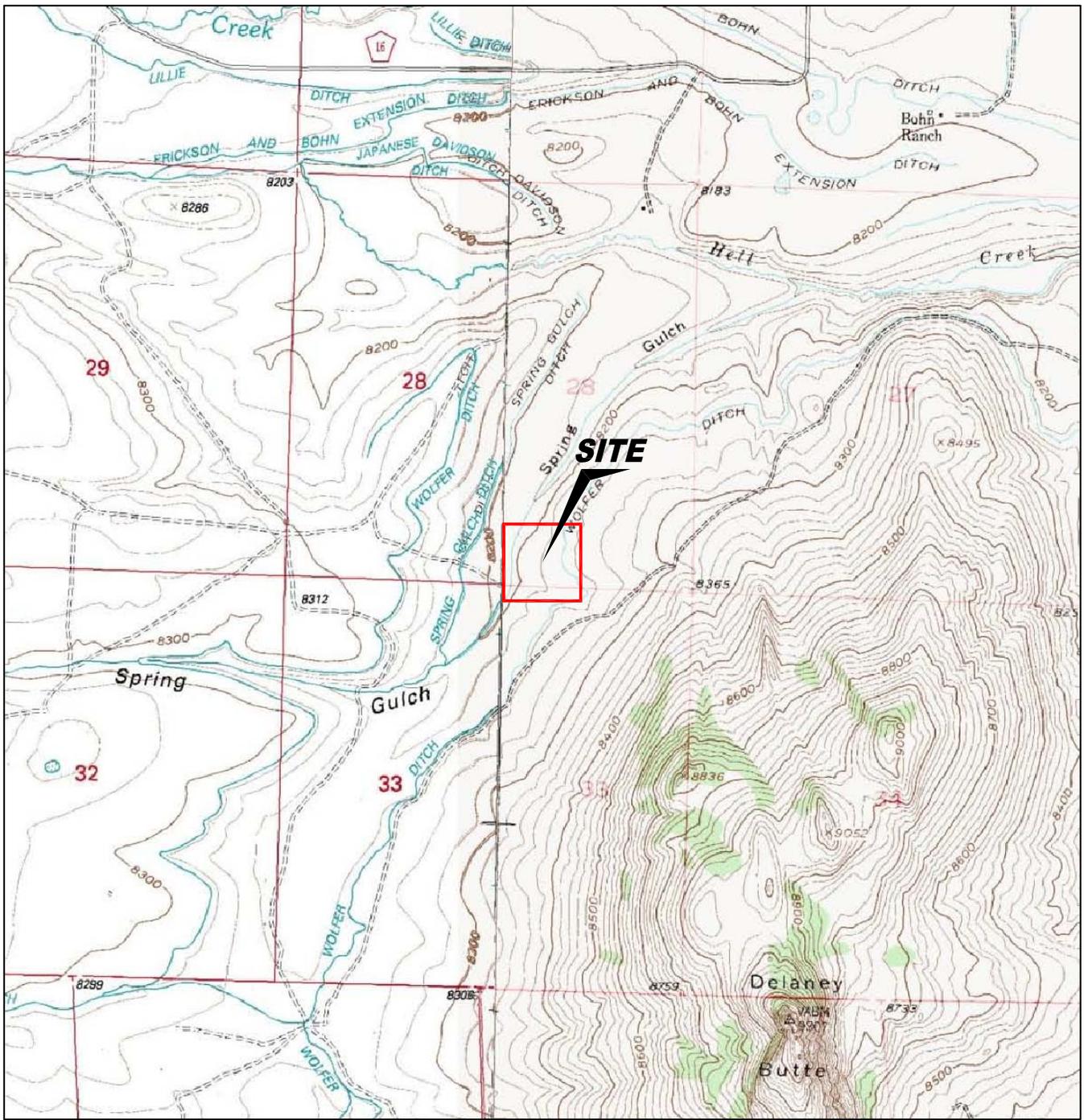
Senior Consultant

TABLE

TABLE 1
SUMMARY OF GROUND WATER ELEVATION DATA AND CHEMISTRY DATA
COLORADO OIL AND GAS CONSERVATION COMMISSION
MARGARET SPAULDING WATER TREATMENT SITE - JACKSON COUNTY, COLORADO
FREMONT PROJECT NO. C016-119

SAMPLE LOCATION	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	TPH-GRO (mg/L)	TPH-DRO (mg/L)	SULFATE (mg/L)	CHLORIDE (mg/L)	TDS (mg/L)	TOC ELEVATION (feet)	DEPTH TO GROUND WATER (ft)	GROUND WATER ELEVATION (ft)	FREE PRODUCT THICKNESS (ft)
MW-1	07/07/15	2.1	<0.20	8.8	<0.46	339	16	1.2	2.3	316	8227.34	20.13	8207.21	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	1.5	<5.0	8.29	351		23.84	8203.50	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.17	2.45	196		23.63	8203.71	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	3.3	<1.0	145		23.86	8203.48	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	4.71	1.43	199		23.60	8203.74	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	34.2	<1.0	175		19.79	8207.55	NP
MW-2	07/07/15	<0.20	<0.20	<0.20	<0.46	<25	1.54	5.6	1	183	8219.87	11.16	8208.71	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	0.267	<5.0	6.37	55		15.05	8204.82	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	4.56	<1.0	91.3		14.85	8205.02	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	3.68	1.13	126		14.87	8205.00	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	3.18	0.24	114		14.75	8205.12	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	10.7	<1.0	62.1		10.14	8209.73	NP
MW-3	07/07/15	<0.20	<0.20	<0.20	<0.46	<25	<0.17	3.6	0.61	115	8229.00	18.60	8210.40	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	<0.10	<5.0	7.08	120		23.80	8205.20	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.89	<1.0	72.2		23.63	8205.37	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.24	1.95	152		23.60	8205.40	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	1.29	0.47	97.5		23.57	8205.43	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.07	1.07	95.3		17.59	8211.41	NP
MW-4	07/07/15	<0.20	<0.20	<0.20	<0.46	<25	<0.17	5	1.20	112	8235.71	26.65	8209.06	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	<0.10	<5.0	1.27	88		31.52	8204.19	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	4.75	<1.0	97.5		31.34	8204.37	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	5.7	2.66	155		31.49	8204.22	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	0.11	4.07	201		31.40	8204.31	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	7.52	3.97	118		25.90	8209.81	NP
MW-5	07/07/15	<0.20	<0.20	<0.20	<0.46	<25	0.909	11.5	1.40	228	8244.96	36.35	8208.61	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	0.502	NS	NS	NS		41.20	8203.76	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	17.0	1.27	131		40.97	8203.99	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	14.1	3.97	204		41.25	8203.71	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	16.0	1.16	191		41.18	8203.78	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	67	2.76	336		35.90	8209.06	NP
MW-6	07/07/15	<0.20	<0.20	<0.20	<0.46	<25	0.521	8.4	4.70	178	8242.23	30.76	8211.47	NP
	11/18/15	<1.0	<5.0	<1.0	<3.0	<0.5	0.146	5.74	8.73	136		35.75	8206.48	NM
	10/17/16	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.06	1.74	110		35.64	8206.59	NP
	05/01/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	7.54	2.09	185		35.30	8206.93	NP
	10/17/17	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	5.18	1.43	157		35.73	8206.50	NP
	05/24/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	53.8	1.69	118		28.66	8213.57	NP
Table 910-1 Limits		5	560	700	1,400	None	None	<1.25 x BG	<1.25 x BG	<1.25 x BG				

FIGURES



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Margaret Spaulding Treatment Site
SW SE Section 28, T9N, R81W
Jackson County, Colorado

Project No. C016-119	Prepared by JMA	Drawn by JMA
Date 6/7/18	Reviewed by PH	Filename 16119T





LEGEND	
	MONITORING WELL
	PRODUCTION WELL
	FENCE LINE
	BUILDING
	ABOVE GROUND STORAGE TANK

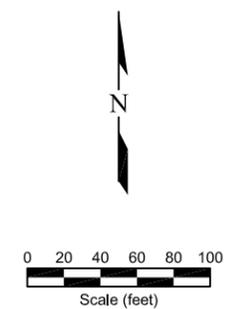


Figure 2
SITE MAP

Margaret Spaulding Treatment Site
SW SE Section 28, T9N, R81W
Jackson County, Colorado

Project No. C016-119	Prepared by JMA	Drawn by JMA	
Date 6/7/18	Reviewed by PH	Filename 16119Q	



LEGEND	
	MONITORING WELL
	PRODUCTION WELL
	FENCE LINE
	BUILDING
	ABOVE GROUND STORAGE TANK

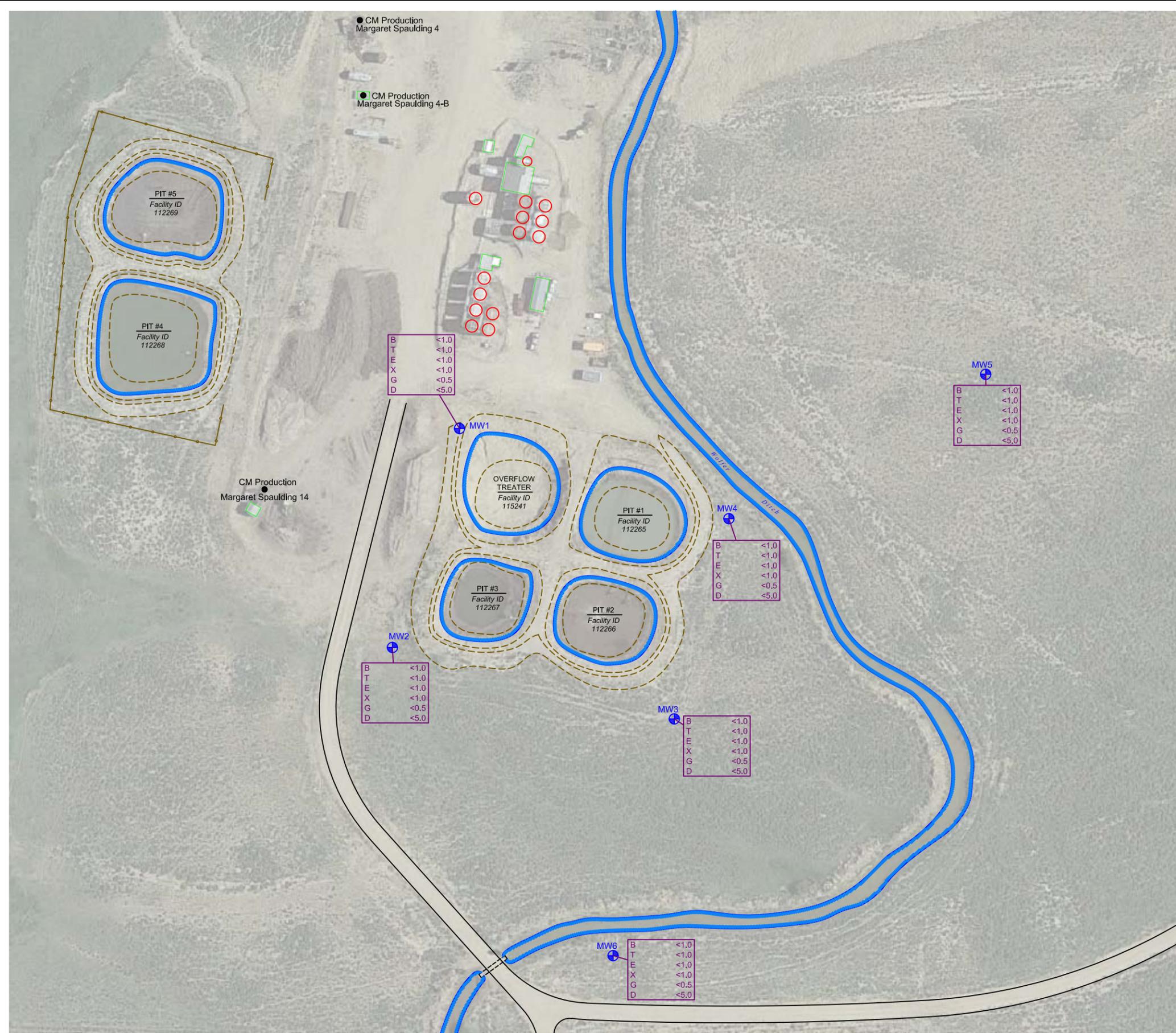
NOT MEASURED
 GROUND WATER FLOW DIRECTION



Figure 3
INFERRED GROUNDWATER CONTOUR
 May 24, 2018

Margaret Spaulding Treatment Site
 SW SE Section 28, T9N, R81W
 Jackson County, Colorado

Project No. C016-119	Prepared by JMA	Drawn by TDA	
Date 6/7/18	Reviewed by PH	Filename 16119Q	



LEGEND

	MONITORING WELL
	PRODUCTION WELL
	FENCE LINE
	BUILDING
	ABOVE GROUND STORAGE TANK

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)
G	<0.5	TPH as gasoline (mg/L)
D	<5.0	TPH as diesel (mg/L)

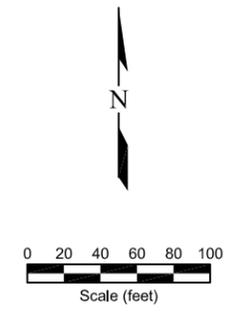


Figure 4
GROUND WATER CHEMISTRY MAP
 May 24, 2018

Margaret Spaulding Treatment Site
 SW SE Section 28, T9N, R81W
 Jackson County, Colorado

Project No. C016-119	Prepared by JMA	Drawn by TDA
Date 6/7/18	Reviewed by PH	Filename 16119Q

APPENDIX A

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 or 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 – 8260C

APPENDIX B

HISTORICAL GROUND WATER DATA

Appendix B - Historical Analytical Results
Groundwater Analytical Results
Summary of Volatile Organic Compounds and Total Petroleum Hydrocarbons
CM Production Inc. - Lone Pine Field Pits

Station ID#	Date Sampled	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)
COGCC 910-1		0.005	0.56	0.7	1.4	N/A	N/A
MW-1	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	4.3
	1/8/2013	< 0.001	0.0032	< 0.001	< 0.001	0.057	2.1
	9/19/2013	< 0.001	< 0.002	0.00073 J	< 0.001	NA	26.8
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	6.5
	3/25/2014	< 0.001	< 0.001	< 0.002	< 0.001	NA	2.26
	6/26/2014	0.0029	< 0.001	0.0081	< 0.001	< 0.2	6.6
	9/22/2014	< 0.001	< 0.001	0.0089 J	< 0.001	< 0.2	8.57
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	4.1
MW-2	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.1
	1/8/2013	< 0.001	0.0029	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	< 0.40
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.48
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.31
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	1.44
MW-3	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	3.9
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 1.0
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	NA	0.441
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	0.418
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	0.399
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	0.214
MW-4	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.2
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	1.7
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	3.12
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.65
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.21
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.05	1.09
MW-5	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	2.63
	11/19/2014	NS	NS	NS	NS	NS	NS
MW-6	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.57
	11/19/2014	NS	NS	NS	NS	NS	NS

COGCC 910-1 Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels

mg/L milligrams per liter

N/A Not Applicable (COGCC has not established a Table 910-1 Concentration Level for GRO or DRO in Groundwater)

< or ND Not Detected NA Not Analyzed NS Not Sampled

Appendix B - Historical Analytical Results
Groundwater Analytical Results
Semi-Volatile Organic Compounds - Polycyclic Aromatic Hydrocarbons
CM Production Inc. - Lone Pine Field Pits

Station ID#	Date Sampled	Acenaphthene (mg/l)	Anthracene (mg/l)	Benzo(a)anthracene (mg/l)	Benzo(b)fluoranthene (mg/l)	Benzo(a)pyrene (mg/l)	Chrysene (mg/l)	Dibenzo(a,h)anthracene (mg/l)	Fluoranthene (mg/l)	Fluorene (mg/l)	Indeno (1,2,3-cd) pyrene (mg/l)	Naphthalene (mg/l)	Pyrene (mg/l)	DRO (mg/l)
COGCC 910-1		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CDPHE-WQCC Reg 41		0.42	2.1	0.00048	0.00048	0.00048	0.00048	0.00048	0.28	0.28	0.00048	0.14	0.21	NE
MW-1	9/19/2013	0.0003	< 0.00019	< 0.000095	< 0.000095	< 0.00019	0.00014	< 0.000095	< 0.00019	0.002	< 0.00019	0.00036	< 0.00019	26.8
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.5
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	2.26
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	6.6
	9/22/2014	0.00038	< 0.00019	< 0.000095	< 0.000095	< 0.000095	0.00017	< 0.000095	< 0.00019	< 0.00019	0.000071	< 0.00019	< 0.00019	8.57
	11/19/2014	< 0.0047	< 0.0047	< 0.0047	< 0.00094	< 0.00094	< 0.00094	< 0.00094	< 0.0047	< 0.0047	< 0.00094	< 0.0047	< 0.0047	4.1
MW-2	9/19/2013	< 0.00038	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00038	< 0.00039	< 0.00039	< 0.00038	< 0.40
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	1.48
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	1.31
	11/19/2014	< 0.0047	< 0.0047	< 0.000094	< 0.000094	< 0.00094	< 0.00094	< 0.000094	< 0.0047	< 0.0047	< 0.000094	< 0.0047	< 0.0047	1.44
MW-3	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.000019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	0.441
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.418
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	0.399
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.214
MW-4	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.7
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	3.12
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.65
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	1.21
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-5	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2.63
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.57
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

OGCC 910- Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels

mg/L milligrams per liter

N/A Not Applicable- Total PAH (polycyclic aromatic hydrocarbons)

NE None Established - the COGCC has Table 910-1 Concentration Levels for PAHs in soil, but has not established PAH concentrations in Groundwater

< Not Detected above the laboratory reporting limit

NS Not Sampled

Note: Upgradient wells MW-5 and MW-6 were not sampled.

Appendix B - Historical Analytical Results
Summary of Inorganic Compounds in Groundwater
CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Chloride (mg/L)	Iron (mg/L)	TDS (mg/L)	Sulfate (mg/L)
COGCC T 910-1		< 1.25 x background	NE	< 1.25 x background	< 1.25 x background
MW-1	4/17/2012	9.41		360	3.43
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	4.6		452	2.5
	9/23/2014	2.7	30.1	470	2.6
	11/19/2014	3.9	42.1	384	4.5
MW-2	4/17/2012	1.71		120	4.48
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	1.3		156	6.0
	9/22/2014	1.0	29.2	230	4.0
	11/19/2014	0.8	66.8	156	3.2
MW-3	4/17/2012	6.8		160	10.04
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	0.93		133	4.9
	9/23/2014	0.51	49.1	130	2.3
	11/19/2014	1.3	71.5	100	2.6
MW-4	4/17/2012	6.34		160	4.47
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	2.3		134	4.7
	9/22/2014	0.84	64.7	144	4.2
	11/19/2014	0.71	44.4	90.0	3.2
MW-5	4/17/2012	NS		NS	NS
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	NS		NS	NS
	9/22/2014	1.0	27.7	150	8.8
	11/19/2014	NS	NS	NS	NS
MW-6	4/17/2012	NS		NS	NS
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	NS		NS	NS
	9/22/2014	2.1	74.8	168	6.8
	11/19/2014	NS	NS	NS	NS

mg/L milligrams per liter

ND Not Detected

NS Not Sampled

APPENDIX C

LABORATORY DOCUMENTATION

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 05, 2018

Paul Henehan
Fremont Environmental
PO Box 1289
Wellington, CO 80549
RE: COGCC-Spaulding

Enclosed are the results of analyses for samples received by Summit Scientific on 05/29/18 16:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Ben Shrewsbury
Laboratory Manager



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	1805345-01	Water	05/24/18 10:15	05/29/18 16:40
MW-2	1805345-02	Water	05/24/18 10:30	05/29/18 16:40
MW-3	1805345-03	Water	05/24/18 10:45	05/29/18 16:40
MW-4	1805345-04	Water	05/24/18 11:00	05/29/18 16:40
MW-5	1805345-05	Water	05/24/18 11:15	05/29/18 16:40
MW-6	1805345-06	Water	05/24/18 11:30	05/29/18 16:40

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.

1805-345-

Summit Scientific

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

Client: FREMONT
 Address: _____
 City/State/Zip: _____
 Phone: _____ Fax: _____
 Sampler Name: HENEHAN

Page 1 of 1

Project Manager: HENEHAN BILL TO: PAUL HENEHAN
 E-Mail: _____
 Project Name: COGCC - SPAULDING
 Project Number: CO16-119

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:					Special Instructions			
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX	GRU/DRO	TDS	CHLORIDES		SULFATE		
MW-1	5/24/18	10:15	7			✓		✓					✓	✓	✓	✓			
MW-2	}	10:30	}																
MW-3		10:45																	
MW-4		11:00																	
MW-5		11:15																	
MW-6		11:30																	
Relinquished by: <u>Paul Henahan</u> Date/Time: <u>5/29/18 1640</u>				Received by: <u>Paul Henahan</u> Date/Time: <u>5/29/18 1640</u>				Turn Around Time (Check)					Notes:						
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____				Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/>											
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____				24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>											
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____				Sample Integrity: Temperature Upon Receipt: <u>68</u>											
								Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>											

Sample Receipt Checklist

S2 Work Order: 1805345

Client: Fremont Client Project ID: COGCC - SPAULDING

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

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

Temp (°C) 6.8

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.				
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample 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.				

LD
 Custodian Printed Name or Initials

[Signature]
 Signature or Initials of Custodian

6/29/18 1651
 Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-1
1805345-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		91.8 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Sulfate	34.2	1.00	"	"	"	"	"	"	

Summit Scientific

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



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: COGCC-Spaulding
 Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-1
1805345-01 (Water)

Summit Scientific

Anions by EPA Method 300.0

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	175	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-2
1805345-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.1 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Sulfate	10.7	1.00	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-2
1805345-02 (Water)

Summit Scientific

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	62.1	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-3
1805345-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.0 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	6.07	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Chloride	1.07	1.00	"	"	"	"	"	"	

Summit Scientific

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



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: COGCC-Spaulding
 Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-3
1805345-03 (Water)

Summit Scientific

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	95.3	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

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: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-4
1805345-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.3 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	3.97	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Sulfate	7.52	1.00	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: COGCC-Spaulding
 Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-4
1805345-04 (Water)

Summit Scientific

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	118	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-5
1805345-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.2 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	67.0	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Chloride	2.76	1.00	"	"	"	"	"	"	

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Project: COGCC-Spaulding
 Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-5
1805345-05 (Water)

Summit Scientific

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	336	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

Summit Scientific

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PO Box 1289
Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

MW-6
1805345-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1806032	06/04/18	06/04/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		93.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1806033	06/04/18	06/05/18	EPA 8015M	

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.2 %	58.9-148		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	53.8	1.00	mg/L	1	1805362	05/31/18	05/31/18	EPA 300.0	
Chloride	1.69	1.00	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
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Project: COGCC-Spaulding

Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

MW-6
1805345-06 (Water)

Summit Scientific

Total Dissolved Solids by SM2540C

Date Sampled: **05/24/18 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	118	10.0	mg/L	1	1805364	05/31/18	05/31/18	SM2450C	

Summit Scientific

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Fremont Environmental
PO Box 1289
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Project: COGCC-Spaulding

Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

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 1806032 - EPA 5030 Water MS

Blank (1806032-BLK1)

Prepared & Analyzed: 06/04/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Gasoline Range Hydrocarbons	ND	500	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.9</i>		<i>"</i>	<i>13.2</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>21-167</i>			

LCS (1806032-BS1)

Prepared & Analyzed: 06/04/18

Benzene	47.4	1.0	ug/l	50.0		94.7	70-130			
Toluene	46.3	1.0	"	50.0		92.6	70-130			
Ethylbenzene	46.5	1.0	"	50.0		92.9	70-130			
m,p-Xylene	96.0	2.0	"	100		96.0	70-130			
o-Xylene	47.4	1.0	"	50.0		94.8	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.8</i>		<i>"</i>	<i>13.2</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>21-167</i>			

Matrix Spike (1806032-MS1)

Source: 1805343-01

Prepared & Analyzed: 06/04/18

Benzene	50.6	1.0	ug/l	50.0	ND	101	70-130			
Toluene	49.5	1.0	"	50.0	ND	98.9	70-130			
Ethylbenzene	49.5	1.0	"	50.0	ND	99.0	70-130			
m,p-Xylene	99.2	2.0	"	100	ND	99.2	70-130			
o-Xylene	50.7	1.0	"	50.0	ND	101	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.9</i>		<i>"</i>	<i>13.2</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>99.2</i>	<i>21-167</i>			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: COGCC-Spaulding

Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

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 1806032 - EPA 5030 Water MS

Matrix Spike Dup (1806032-MSD1)	Source: 1805343-01			Prepared & Analyzed: 06/04/18						
Benzene	49.2	1.0	ug/l	50.0	ND	98.4	70-130	2.73	30	
Toluene	48.1	1.0	"	50.0	ND	96.2	70-130	2.83	30	
Ethylbenzene	48.3	1.0	"	50.0	ND	96.5	70-130	2.52	30	
m,p-Xylene	98.1	2.0	"	100	ND	98.1	70-130	1.13	30	
o-Xylene	49.7	1.0	"	50.0	ND	99.4	70-130	1.95	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.7</i>		<i>"</i>	<i>13.2</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>21-167</i>			

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Project: COGCC-Spaulding

Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1806033 - EPA 3520B

Blank (1806033-BLK1)

Prepared & Analyzed: 06/04/18

C10-C28 (DRO) ND 5.0 mg/L

LCS (1806033-BS1)

Prepared & Analyzed: 06/04/18

C10-C28 (DRO) 41.4 5.0 mg/L 50.0 82.9 70-130

Matrix Spike (1806033-MS1)

Source: 1805345-01

Prepared & Analyzed: 06/04/18

C10-C28 (DRO) 42.4 5.0 mg/L 50.0 2.70 79.5 70-130

Matrix Spike Dup (1806033-MSD1)

Source: 1805345-01

Prepared: 06/04/18 Analyzed: 06/05/18

C10-C28 (DRO) 42.2 5.0 mg/L 50.0 2.70 78.9 70-130 0.659 20

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Fremont Environmental
 PO Box 1289
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Project: COGCC-Spaulding
 Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch 1805362 - General Preparation

Blank (1805362-BLK1)

Prepared & Analyzed: 05/31/18

Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	"							

LCS (1805362-BS1)

Prepared & Analyzed: 05/31/18

Chloride	3.09	1.00	mg/L	3.00	103	90-110				
Sulfate	16.5	1.00	"	15.0	110	90-110				

Duplicate (1805362-DUP1)

Source: 1805309-01

Prepared & Analyzed: 05/31/18

Sulfate	922	50.0	mg/L		883		4.35	200		
Chloride	196	50.0	"		193		1.42	200		

Matrix Spike (1805362-MS1)

Source: 1805309-01

Prepared & Analyzed: 05/31/18

Chloride	333	50.0	mg/L	150	193	93.7	80-120			
Sulfate	1620	50.0	"	750	883	98.1	80-120			

Summit Scientific

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Project: COGCC-Spaulding

Project Number: CO16-119
 Project Manager: Paul Henehan

Reported:
 06/05/18 17:43

**Total Dissolved Solids by SM2540C - Quality Control
 Summit Scientific**

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

Batch 1805364 - General Preparation

Blank (1805364-BLK1)

Prepared & Analyzed: 05/31/18

Total Dissolved Solids ND 10.0 mg/L

Duplicate (1805364-DUP1)

Source: 1805345-01

Prepared & Analyzed: 05/31/18

Total Dissolved Solids 175 10.0 mg/L 175 0.343 200

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Project: COGCC-Spaulding
Project Number: CO16-119
Project Manager: Paul Henehan

Reported:
06/05/18 17:43

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