

**DOCUMENT #**  
**1313008**

**FREMONT ENVIRONMENTAL INC.**

June 6, 2019

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 6, 2019**

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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 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 previously 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 15, 2019 in accordance with the Sampling Plan included in Appendix A. The data are summarized in Table 1.

Water table contours inferred from the May 2019 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 2019 data.

#### **3.2 Ground Water Sampling and Analysis**

Ground water samples were collected from the six monitoring wells on May 15, 2019 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 2019 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.**



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Paul V. Henahan, P.E.

Senior Consultant

6/6/19  
Date\_\_\_\_\_

## TABLE

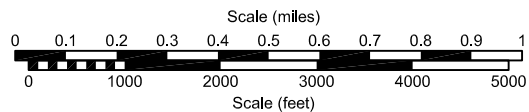
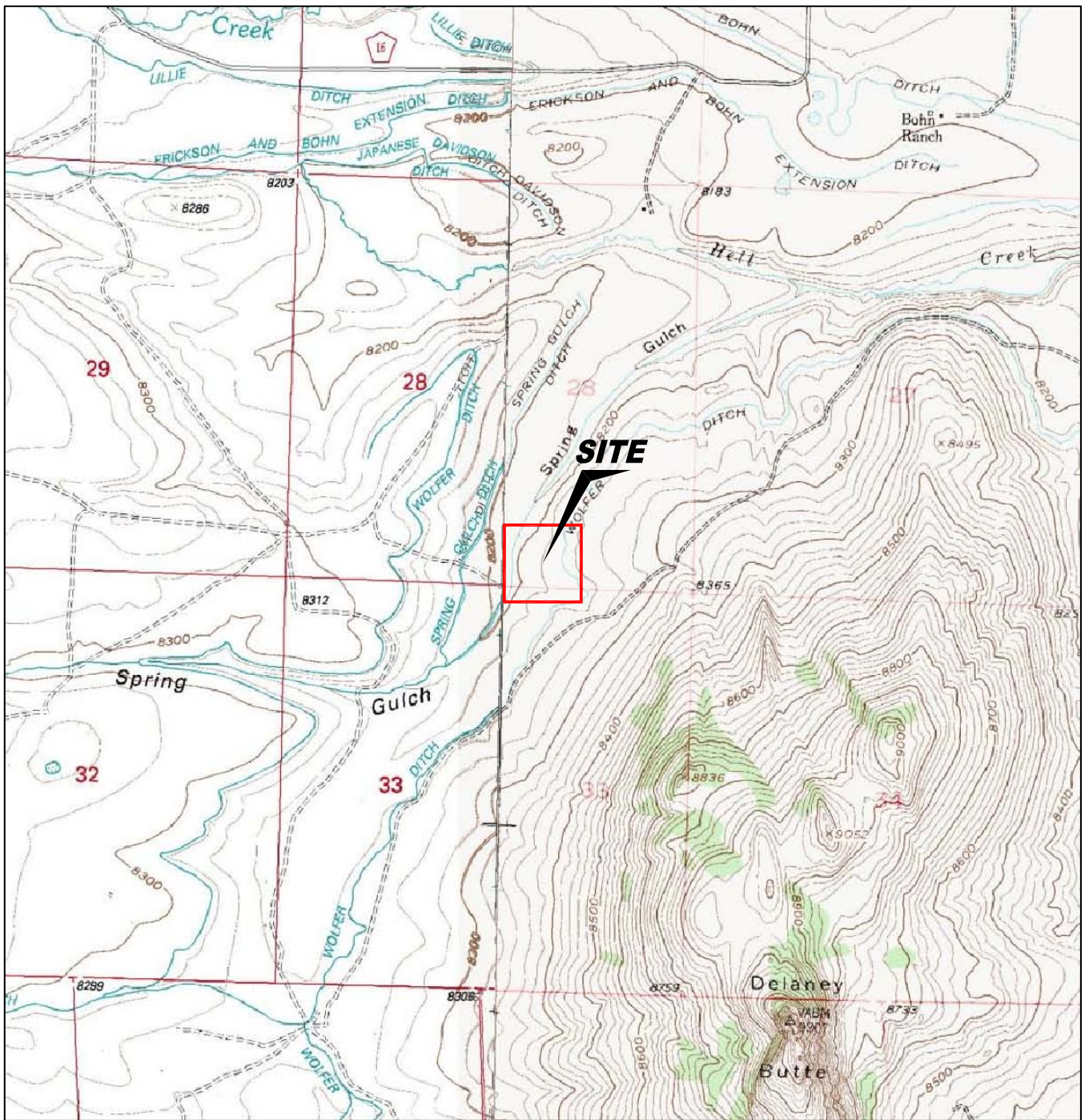
TABLE 1  
SUMMARY OF GROUND WATER ELEVATION DATA AND CHEMISTRY DATA  
COLORADO OIL AND GAS CONSERVATION COMMISSION  
MARGARET SPAULDING WATER TREATMENT SITE - JACKSON COUNTY, COLORADO  
FREMONT PROJECT NO. C016-119

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
	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.7	<1.0	102		23.42	8203.92	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	1.41	0.424	65.4		23.52	8203.82	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
	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.05	<1.0	81.2		14.58	8205.29	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.49	0.519	64.8		14.55	8205.32	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
	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.4	2.94	7.3		23.27	8205.73	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	4.87	0.819	93.5		23.34	8205.66	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
	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	2.14	<1.0	81.6		31.03	8204.68	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	5.02	1.41	112		31.27	8204.44	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



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-5	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.74	<1.0	116		40.72	8204.24	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	16.4	5.29	164		41.37	8203.59	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
	11/01/18	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	5.72	2.65	128		35.16	8207.07	NP
	05/15/19	<1.0	<1.0	<1.0	<1.0	<0.5	<5.0	6.14	1.74	98.4		35.27	8206.96	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

Drawn by  
**JMA**

Date  
**6/6/19**

Reviewed by  
**PH**






Filename  
**16119T**







LEGEND



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

Figure 2  
SITE MAP

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

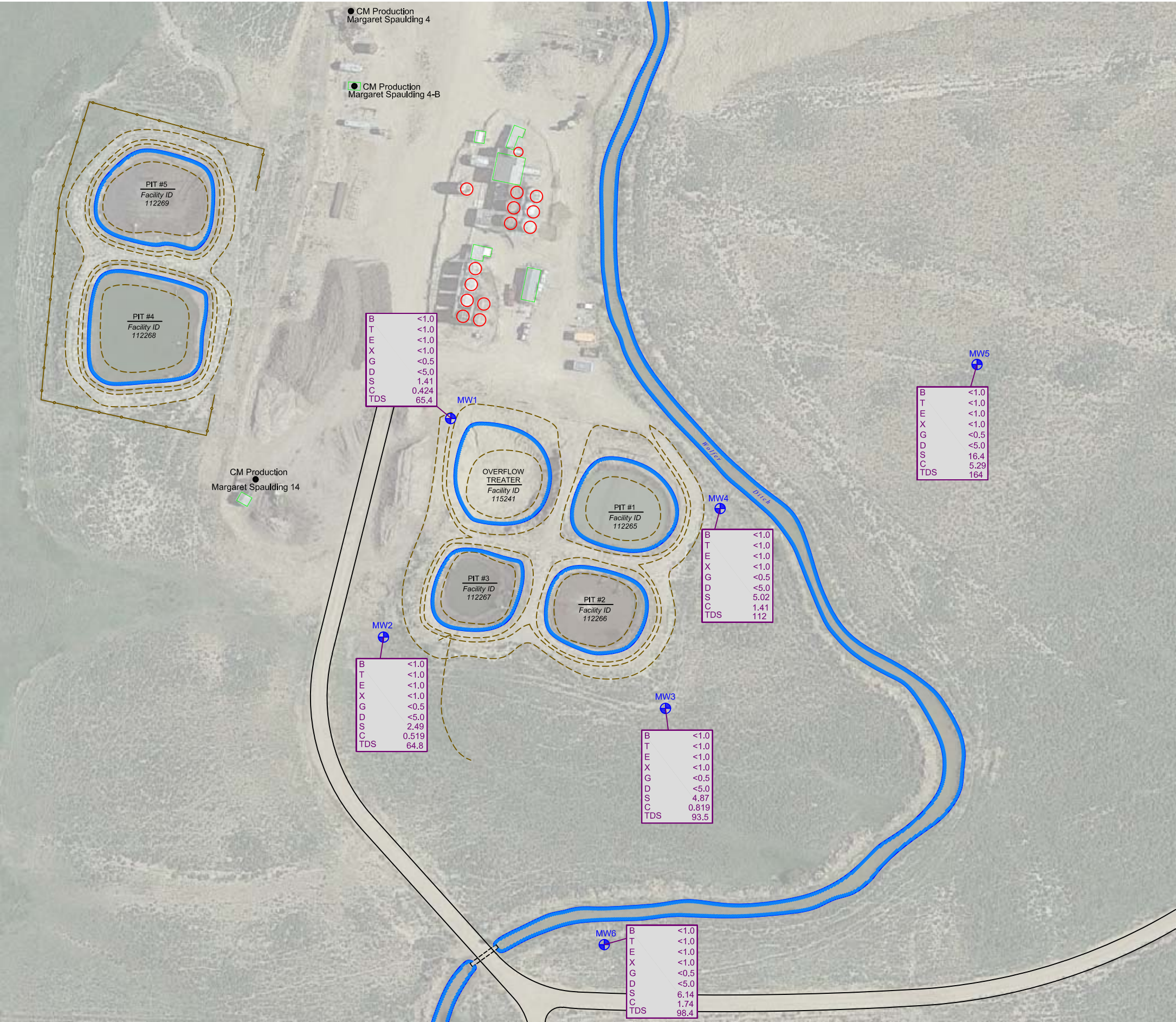
Project No. C016-119	Prepared by JMA	Drawn by JMA
Date 6/6/19	Reviewed by PH	Filename 16119Q

REMONT  
ENVIRONMENTAL









**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-GRO as gasoline (mg/L)
D	<5.0	TPH-DRO as diesel (mg/L)
S	2.7	TOTAL SULFATE (mg/L)
C	<1.0	TOTAL CHLORIDE (mg/L)
TDS	128	TOTAL TDS (mg/L)

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	1.41
C	0.424
TDS	65.4

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	16.4
C	5.29
TDS	164

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	5.02
C	1.41
TDS	112

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	2.49
C	0.519
TDS	64.8

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	4.87
C	0.819
TDS	93.5

B	<1.0
T	<1.0
E	<1.0
X	<1.0
G	<0.5
D	<5.0
S	6.14
C	1.74
TDS	98.4

N

0 20 40 60 80 100

Scale (feet)

**Figure 4**

**GROUND WATER CHEMISTRY MAP**

**May 15, 2019**

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

Project No. <b>C016-119</b>	Prepared by	Drawn by <b>JMA</b>	
Date <b>6/6/19</b>	Reviewed by <b>PH</b>	Filename <b>16119Q</b>	

**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 – 8260B

**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)
<b>COGCC 910-1</b>		<b>0.005</b>	<b>0.56</b>	<b>0.7</b>	<b>1.4</b>	<b>N/A</b>	<b>N/A</b>
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)
<b>COGCC 910-1</b>		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>CDPHE-WQCC Reg 41</b>		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	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 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

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 28, 2019

Paul Henehan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549  
RE: Margaret Spaulding  
Work Order # 1905203

Enclosed are the results of analyses for samples received by Summit Scientific on 05/16/19 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	1905203-01	Water	05/15/19 00:00	05/16/19 16:00
MW-2	1905203-02	Water	05/15/19 00:00	05/16/19 16:00
MW-3	1905203-03	Water	05/15/19 00:00	05/16/19 16:00
MW-4	1905203-04	Water	05/15/19 00:00	05/16/19 16:00
MW-5	1905203-05	Water	05/15/19 00:00	05/16/19 16:00
MW-6	1905203-06	Water	05/15/19 00:00	05/16/19 16:00

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.*



# Summit Scientific

S<sub>2</sub>

1905203

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 (f)

Page / of /

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O Box 1289

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

City/State/Zip: Wellington, CO 80549

Bill to: PAUL

Phone: 303-956-8714

Project Name: MARGARET SPAULDING

Sampler Name: HENEHAN

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	GRO	DRO	SULFATES	CHLORIDE	TDS		
1	MW-1	5/15/19		7			✓		✓					✓		✓	✓	✓	✓		
2	MW-2																				
3	MW-3																				
4	MW-4																				
5	MW-5																				
6	MW-6																				
7																					
8																					
9																					
10																					

Relinquished by: <u>PA/KE</u>	Date/Time: <u>5/16/19 12:15</u>	Received by: <u>[Signature]</u>	Date/Time: <u>5/16/19 1600</u>	Turn Around Time (Check)	Notes:
				Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	
				48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: <u>2.8</u>	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

# Sample Receipt Checklist

1905203

S2 Work Order \_\_\_\_\_

Client: Fremont Environmental Client Project ID: MARGARET SPAULDING

Shipped Via: (H.D.) P.U./FedEx/UPS/USPS/Other Airbill #: \_\_\_\_\_

Matrix (check all that apply): \_\_\_\_\_ Air \_\_\_\_\_ Soil/Solid X Water \_\_\_\_\_ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	2.8
-----------	-----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?		X		Standard TAT
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

RJ  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

05-16-19 18:00  
Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-1**  
**1905203-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	58.9-148		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	0.424	0.0600	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Sulfate	1.41	0.300	"	"	"	"	"	"	

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: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-1**  
**1905203-01 (Water)**

**Summit Scientific**

**Anions by EPA Method 300.0**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>65.4</b>	10.0		mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

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: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-2**  
**1905203-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	58.9-148		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	<b>0.519</b>	0.0600	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Sulfate	<b>2.49</b>	0.300	"	"	"	"	"	"	

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: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-2**  
**1905203-02 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>64.8</b>	10.0		mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

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: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-3**  
**1905203-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		184 %	58.9-148		"	"	"	"	S-02

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sulfate	<b>4.87</b>	0.300	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Chloride	<b>0.819</b>	0.0600	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-3**  
**1905203-03 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Total Dissolved Solids</b>	<b>93.5</b>	10.0	mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-4**  
**1905203-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		94.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		114 %	58.9-148		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	1.41	0.0600	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Sulfate	5.02	0.300	"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-4**  
**1905203-04 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Total Dissolved Solids</b>	<b>112</b>	10.0	mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

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PO Box 1289  
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Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-5**  
**1905203-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	58.9-148		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	16.4	0.300	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Chloride	5.29	0.0600	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-5**  
**1905203-05 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>164</b>	10.0		mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-6**  
**1905203-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905292	05/22/19	05/24/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	5.0	mg/L	1	1905296	05/22/19	05/23/19	EPA 8015M	

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		107 %	58.9-148		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sulfate	<b>6.14</b>	0.300	mg/L	1	1905302	05/22/19	05/22/19	EPA 300.0	
Chloride	<b>1.74</b>	0.0600	"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

**MW-6**  
**1905203-06 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Total Dissolved Solids</b>	<b>98.4</b>	10.0	mg/L	1	1905255	05/17/19	05/17/19	SM2540C	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

Reported:

05/28/19 07:03

## 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 1905292 - EPA 5030 Water MS

##### Blank (1905292-BLK1)

Prepared: 05/22/19 Analyzed: 05/24/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Gasoline Range Hydrocarbons	ND	500	"							
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		105	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.5	21-167			

##### LCS (1905292-BS1)

Prepared: 05/22/19 Analyzed: 05/24/19

Benzene	49.1	1.0	ug/l	50.0		98.2	70-130			
Toluene	45.8	1.0	"	50.0		91.5	70-130			
Ethylbenzene	44.1	1.0	"	50.0		88.2	70-130			
m,p-Xylene	82.4	2.0	"	100		82.4	70-130			
o-Xylene	43.9	1.0	"	50.0		87.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		108	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	21-167			

##### Matrix Spike (1905292-MS1)

Source: 1905203-01

Prepared: 05/22/19 Analyzed: 05/24/19

Benzene	67.9	1.0	ug/l	66.7	ND	102	70-130			
Toluene	69.7	1.0	"	66.7	ND	105	70-130			
Ethylbenzene	72.0	1.0	"	66.7	ND	108	70-130			
m,p-Xylene	138	2.0	"	133	1.36	102	70-130			
o-Xylene	69.7	1.0	"	66.7	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	16.0		"	13.3		120	23-173			
Surrogate: Toluene-d8	13.5		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.6	21-167			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

## 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 1905292 - EPA 5030 Water MS

Matrix Spike Dup (1905292-MSD1)	Source: 1905203-01			Prepared: 05/22/19 Analyzed: 05/24/19						
Benzene	75.4	1.0	ug/l	66.7	ND	113	70-130	10.4	30	
Toluene	78.2	1.0	"	66.7	ND	117	70-130	11.5	30	
Ethylbenzene	77.8	1.0	"	66.7	ND	117	70-130	7.75	30	
m,p-Xylene	150	2.0	"	133	1.36	111	70-130	8.62	30	
o-Xylene	75.7	1.0	"	66.7	ND	113	70-130	8.16	30	
Surrogate: 1,2-Dichloroethane-d4	18.4		"	13.3		138	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	21-167			

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**

05/28/19 07:03

## Extractable Petroleum Hydrocarbons by 8015 - Quality Control

### Summit Scientific

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

#### Batch 1905296 - EPA 3535

##### Blank (1905296-BLK1)

Prepared: 05/22/19 Analyzed: 05/23/19

C10-C28 (DRO) ND 5.0 mg/L

##### LCS (1905296-BS1)

Prepared: 05/22/19 Analyzed: 05/23/19

C10-C28 (DRO) 57.2 5.0 mg/L 50.0 114 70-130

##### Matrix Spike (1905296-MS1)

Source: 1905176-02

Prepared: 05/22/19 Analyzed: 05/23/19

C10-C28 (DRO) 53.9 5.0 mg/L 50.0 4.95 98.0 70-130

##### Matrix Spike Dup (1905296-MSD1)

Source: 1905176-02

Prepared: 05/22/19 Analyzed: 05/23/19

C10-C28 (DRO) 57.7 5.0 mg/L 50.0 4.95 106 70-130 6.78 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

### Anions by EPA Method 300.0 - Quality Control

#### Summit Scientific

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

#### Batch 1905302 - General Preparation

##### Blank (1905302-BLK1)

Prepared & Analyzed: 05/22/19

Sulfate	ND	0.300	mg/L
Chloride	ND	0.0600	"

##### LCS (1905302-BS1)

Prepared & Analyzed: 05/22/19

Sulfate	14.6	0.300	mg/L	15.0	97.1	90-110
Chloride	2.99	0.0600	"	3.00	99.7	90-110

##### Duplicate (1905302-DUP1)

Source: 1905203-01

Prepared & Analyzed: 05/22/19

Sulfate	1.41	0.300	mg/L	1.41	0.142	20
Chloride	0.430	0.0600	"	0.424	1.41	20

##### Matrix Spike (1905302-MS1)

Source: 1905203-01

Prepared & Analyzed: 05/22/19

Chloride	2.94	0.0600	mg/L	3.00	0.424	84.0	80-120
Sulfate	15.0	0.300	"	15.0	1.41	90.9	80-120

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**  
05/28/19 07:03

### Total Dissolved Solids by SM2540C - Quality Control

#### Summit Scientific

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

#### Batch 1905255 - General Preparation

##### Blank (1905255-BLK1)

Prepared & Analyzed: 05/17/19

Total Dissolved Solids ND 10.0 mg/L

##### Duplicate (1905255-DUP1)

Source: 1905196-01

Prepared & Analyzed: 05/17/19

Total Dissolved Solids 1740 10.0 mg/L 1740 0.173 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Margaret Spaulding

Project Number: [none]

Project Manager: Paul Henehan

**Reported:**

05/28/19 07:03

### Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
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