2017 Annual Groundwater Monitoring Report

MF-16 Pipeline Release
Lea County, New Mexico
1RP-2073

ETC Field Services LLC

GHD | 6121 Indian School Road Suite 200 Albuquerque New Mexico USA

11103579 | Report No 3 | March 162018

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1. Introduction

1.1 Introduction

This report presents the results of groundwater monitoring performed on May 8 and November 14, 2017. The Site is located about 2.5 miles north of Eunice, New Mexico on NM Hwy 18 and approximately 0.3 mile east of NM Hwy 18 off of Jones City Road. The Site is regulated by the New Mexico Oil Conservation Division (NMOCD). Fieldwork was conducted by Apex Companies, LLC. (Apex) from July 2014 through April of 2015 and by GHD Services Inc. (GHD) beginning in December of 2015.

1.2 Background

The MF-16 pipeline is a 16-inch natural gas pipeline located in Unit letter N, Section 15, Township 21 South, Range 37 East in Lea County, New Mexico. The property at the pipeline release location is owned by the Millard Deck Estate. Site coordinates are 32.472050N, -103.153517W. A Site location map is included as Figure 1.

On January 28, 2009 Southern Union Gas Services, Ltd. discovered that a release had occurred on the MF-16 Pipeline. As indicated on the submitted NMOCD Release Notification and Corrective Action Form (C-141), approximately 25 barrels (bbls) of crude oil and 60 million cubic feet (mcf) of natural gas were released. During initial response to the release an estimated 5 bbls of free-standing fluids were recovered via vacuum truck.

Initial remedial efforts were performed between February 16 and March 20, 2009 with the excavation and disposal of approximately 1,164 cubic yards (cy) of impacted soil. The dimensions of the excavation were approximately 200 feet (ft) long by 115 ft wide by 19 ft in depth in some areas. During the time of the excavation, only benzene, toluene, ethylbenzene, total xylenes (BTEX), and total petroleum hydrocarbons (TPH) were included in soil analyses. Chloride had not been considered during the initial cleanup efforts. As of March 10, 2009, laboratory analytical results for soil samples collected from the excavation indicated that BTEX and TPH concentrations were below NMOCD Recommended Remedial Action Limits (RRAL) and the excavation was backfilled with clean fill.

On June 22, 2012, consulting duties were transferred to Basin Environmental Service Technologies (Basin). Between February 2013 and February 2014, four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4, see Figure 2) were installed to depths ranging from 40-45 ft below ground surface (bgs).

The analyses of samples collected during installation of the groundwater monitoring wells showed chloride concentrations in the soil exceeded NMOCD RRALs in soil samples collected from MW-1 and MW-3. Basin performed three groundwater monitoring events on May 9, 2013, September 3, 2013, and February 28, 2014. The results of the groundwater monitoring events indicated that chloride concentrations in groundwater exceeded the New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standard of 250 mg/L in wells MW-1, MW-3, and MW-4 during one or more sampling events.

Site consulting duties were turned over to Apex in July 2014. Groundwater monitoring events were conducted on July 15, 2014, October 30, 2014, January 20, 2015, and April 16, 2015. An additional monitoring well, (MW-5), was installed on November 11, 2014, and was incorporated into groundwater monitoring events in 2015. Groundwater samples collected from Site monitoring wells during the noted monitoring events were analyzed for BTEX and chloride concentrations. Results from the groundwater monitoring events indicated that chloride concentrations exceeded the NMWQCC standard in samples collected from MW-1, MW-3, MW-4, and MW-5 during one or more of the sampling events.

Consulting duties were transferred from Apex to GHD in August 2015. GHD performed groundwater monitoring events on May 31-June 1, 2016 and December 8, 2016. The sampling frequency was reduced from quarterly to semi-annually since BTEX and chloride concentrations in the groundwater have remained stable during the last two years of monitoring.

GHD also performed a pumping test on August 30, 2016. The pumping test was performed utilizing MW-1 as the pumping well. The pumping rate ranged from approximately 1.0 to 1.5 gallons per minute for approximately 8 hours, for a total of approximately 500 gallons removed during the duration of the test. The test was performed to evaluate if the aquifer would produce sufficient water to be considered for the present and potential future use for domestic and agricultural water supply as indicated in the New Mexico Administrative Code 20.6.2.3101.A. Based on the pumping test data, it appears that there is sufficient water to be classified as protective.

GHD utilized several methods to calculate transmissivity, storativity, and hydraulic conductivity for MW-1 and MW-4. The average transmissivity was 71.32 feet squared per day, the average storativity was 0.01, and the average hydraulic conductivity was 6.79 feet per day.

Details of 2017 monitoring events are discussed below.

2. Groundwater Monitoring Summary, Methodology, and Analytical Results

2.1 Groundwater Monitoring Summary

During each semi-annual groundwater monitoring event, groundwater elevation measurements were recorded from Site monitoring wells. A summary of historical groundwater elevations for the Site is presented in Table 1.

Groundwater flow direction is towards the southeast and is consistent with historical Site data. Groundwater gradient calculated for each monitoring period was approximately 0.0105 (May) and 0.0119 feet per foot (ft/ft) (November). A groundwater gradient map has been prepared for each groundwater monitoring event and are included as Figure 3 and Figure 4.

2.2 Groundwater Monitoring Methodology

During the 2017 semi-annual groundwater monitoring events conducted by GHD, monitoring wells were purged of at least three casing volumes of water or until dry using a dedicated, polyethylene

disposable bailer prior to sampling. Groundwater quality parameters including pH, temperature, oxidation reduction potential, total dissolved solids, and conductivity were collected using a calibrated multi-parameter groundwater quality meter and were recorded on GHD groundwater sampling field forms. A summary of field parameters is presented as Table 2.

Groundwater samples were placed in laboratory prepared bottles, packed on ice and shipped under chain of custody documentation to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. Groundwater samples were analyzed for chloride by EPA Method 300.0.

2.3 Groundwater Monitoring Analytical Results

Groundwater samples collected from MW-1, MW-4, MW-5, MW-6, and MW-7 have consistently exceeded the NMWQCC standard of 250 mg/l for chloride. During the most recent sampling event in November 2017, chloride concentrations in Site wells ranged between 170 (MW-2) and 2,000 mg/L (MW-5) A groundwater concentration map depicting chloride concentrations for each sampling event is included as Figure 5. A summary of the historical groundwater laboratory analytical results is presented in Table 3. Corresponding laboratory analytical reports are included as Appendix A.

During the November 2017 monitoring event, concentrations of chloride in samples collected from all Site wells were over the NMWQCC standard, except for the sample collected from MW-2 and MW-3. Chloride impacted groundwater at the Site is not laterally delineated to the south, east, or southeast (general direction of groundwater gradient).

3. Conclusions and Recommendations

3.1 Conclusions

Based on the above referenced information, GHD makes the following conclusions:

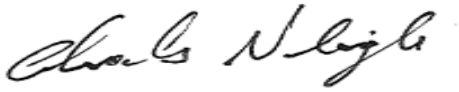
- Groundwater collected from MW-1, MW-3, MW-4, MW-5, MW-6, and MW-7 has exceeded the NMWQCC standard for chlorides.
- Chloride impacted groundwater at the Site is not laterally delineated to the south, east, or southeast.

3.2 Recommendations

Due to the above conclusions, GHD recommends to continue sampling wells on a semi-annual basis.

All of Which is Respectfully Submitted,

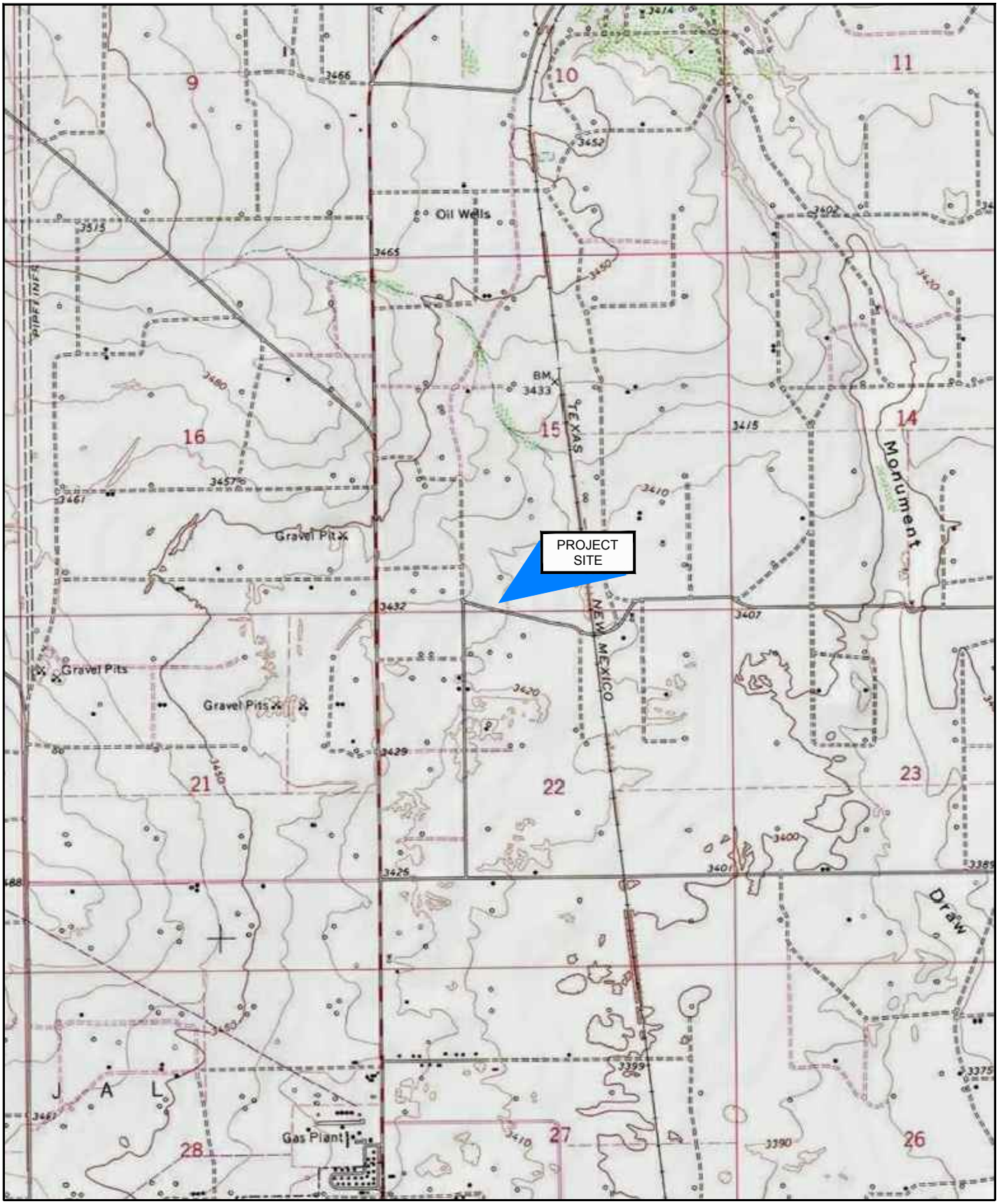
GHD



Charles Neligh
Project Scientist

Bernard Bockisch, PMP
Senior Project Manager

Figures



Source: USGS 7.5 MINUTE QUAD "EUNICE AND EUNICE NE, NEW MEXICO"

LAT/LONG: 32.47205° NORTH, 103.153517° WEST

0 1000 2000ft

Coordinate System:
NAD 83 State Plane -
New Mexico East (US Feet)

ETC FIELD SERVICES LLC
LEA COUNTY, NEW MEXICO
MF-16 INCH PIPELINE RELEASE

11103579-00

Feb 22, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1110----\11103579-Energy Transfer - MF-16 Release\11103579-00\11103579-00(003)\11103579-00(003)GN-DL001.dwg

Source: USDA FSA Imagery, May 10, 2014

Lat/Long: 32.47205° North, 103.153517° West

0 20 60ft

Coordinate System:
NAD 83 State Plane -
New Mexico East (US Feet)

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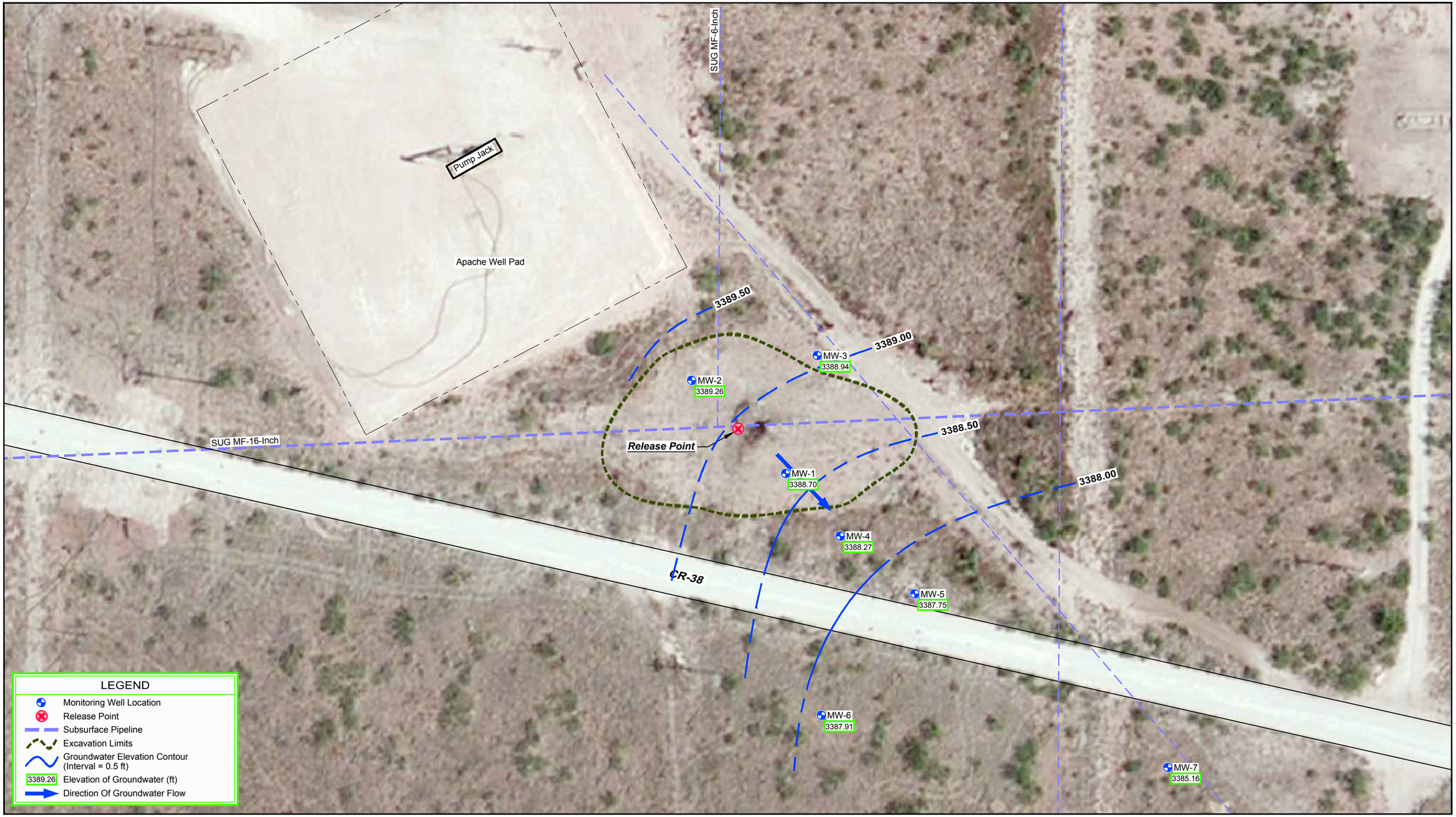
SITE PLAN

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1110----\11103579-Energy Transfer - MF-16 Release\11103579-00\11103579-00(003)\11103579-00(003)GN-DL001.dwg



Source: USDA FSA Imagery, May 10, 2014

Lat/Long: 32.47205° North, 103.153517° West

0 20 60ft

Coordinate System:
NAD 83 State Plane -
New Mexico East (US Feet)

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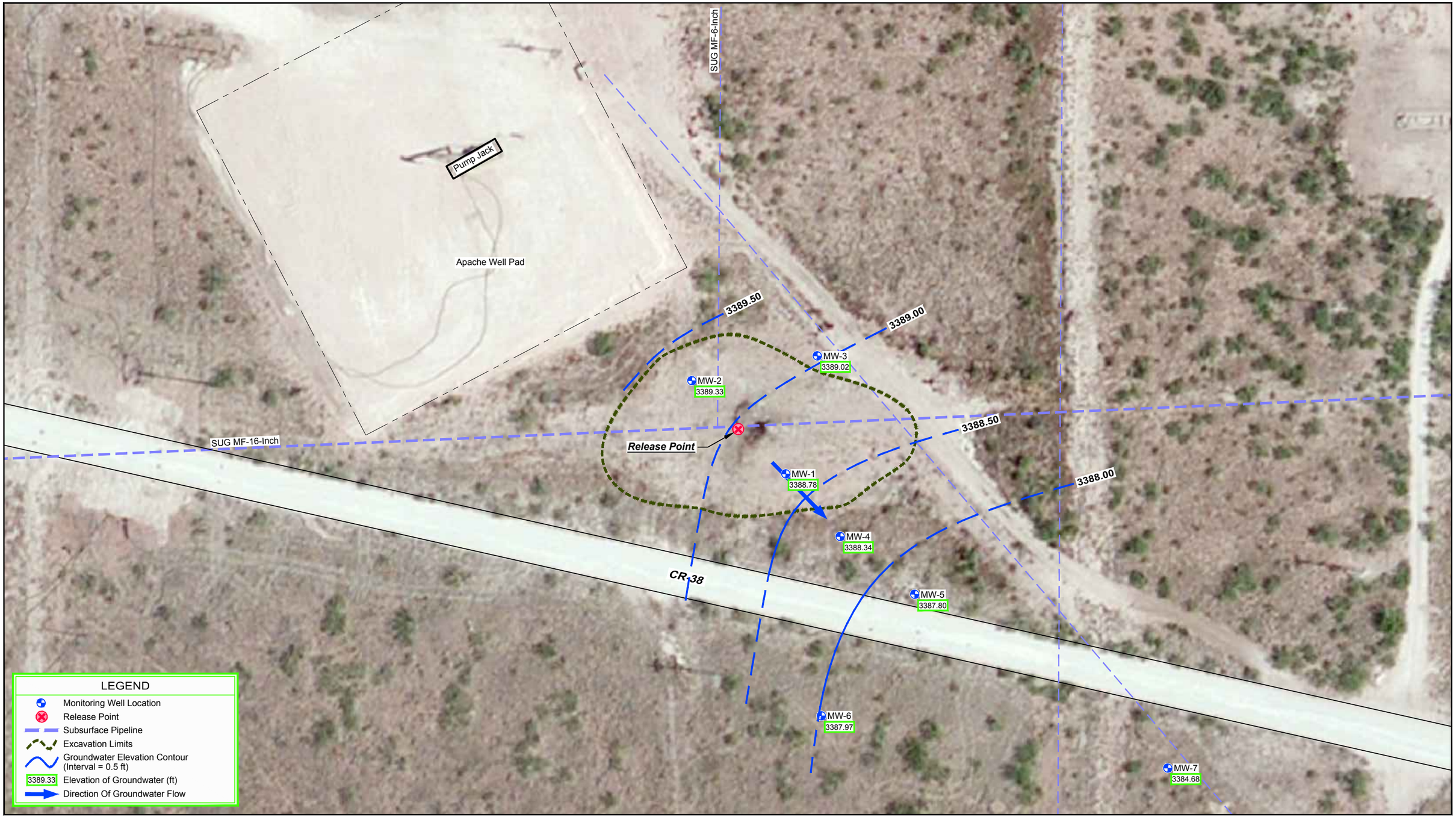
GROUNDWATER GRADIENT MAP - MAY 2017

FIGURE 3

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1110----\11103579-Energy Transfer - MF-16 Release\11103579-00\11103579-00(003)\11103579-00(003)GN-DL001.dwg



Source: USDA FSA Imagery, May 10, 2014

Lat/Long: 32.47205° North, 103.153517° West

0 20 60ft

Coordinate System:
NAD 83 State Plane -
New Mexico East (US Feet)

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MF-16 INCH PIPELINE RELEASE

11103579-00

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GROUNDWATER GRADIENT MAP - NOVEMBER 2017

FIGURE 4

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1110----\11103579-Energy Transfer - MF-16 Release\11103579-00\11103579-00(003)\11103579-00(003)GN-DL001.dwg

Pump Jack

Apache Well Pad

SUG MF-6-Inch

SUG MF-16-Inch

CR-38

MW-1

Date	Chloride (mg/L)
05/08/17	**710**
11/14/17	**1400**

MW-2

Date	Chloride (mg/L)
05/08/17	170
11/14/17	170

MW-3

Date	Chloride (mg/L)
05/08/17	**310**
11/14/17	210

MW-4

Date	Chloride (mg/L)
05/08/17	**2500**
11/14/17	**1400**

MW-5

Date	Chloride (mg/L)
05/08/17	**1900**
11/14/17	**2000**

MW-6

Date	Chloride (mg/L)
05/08/17	**1500**
11/14/17	**1100**

MW-7

Date	Chloride (mg/L)
05/08/17	**810**
11/14/17	**670**

LEGEND

- Monitoring Well Location
- Release Point
- Subsurface Pipeline
- Excavation Limits

NOTE:

1. Bold and highlighted values indicate a concentration over the NMWQCC standard.

Source: USDA FSA Imagery, May 10, 2014

Lat/Long: 32.47205° North, 103.153517° West

0 20 40ft

Coordinate System:
NAD 83 State Plane -
New Mexico East (US Feet)

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LEA COUNTY, NEW MEXICO
MF-16 INCH PIPELINE RELEASE

11103579-00

Mar 1, 2018

2017 CHLORIDE CONCENTRATIONS IN GROUNDWATER

FIGURE 5

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Tables

Table 1

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Monitoring Well Specifications and Groundwater Elevations

Monitor Well ID	Casing Well Elevation (ft)	Total Depth (Approximate ft bgs)	Date Measured	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Groundwater Elevation (ft)
MW-1	3,425.53	48	2/28/2013	-	37.32	-	3,388.21
			5/9/2013	-	37.21	-	3,388.32
			9/3/2013	-	37.30	-	3,388.23
			7/15/2014	-	37.30	-	3,388.23
			10/30/2014	-	37.31	-	3,388.22
	3,425.40		1/20/2015	-	37.21	-	3,388.19
			4/16/2015	-	37.12	-	3,388.28
			12/18/2015	-	37.05	-	3,388.35
			5/31/2016	-	36.97	-	3,388.43
			12/8/2016	-	36.86	-	3,388.54
			5/8/2017	-	36.70	-	3,388.70
			11/14/2017	-	36.62	-	3,388.78
MW-2	3,426.07	43	5/9/2013	-	37.27	-	3,388.80
			9/3/2013	-	37.38	-	3,388.69
			7/15/2014	-	37.36	-	3,388.71
			10/30/2014	-	37.35	-	3,388.72
	3,425.98		1/20/2015	-	37.24	-	3,388.74
			4/16/2015	-	37.15	-	3,388.83
			12/18/2015	-	37.14	-	3,388.84
			5/31/2016	-	36.98	-	3,389.00
			12/8/2016	-	36.89	-	3,389.09
			5/8/2017	-	36.72	-	3,389.26
			11/14/2017	-	36.65	-	3,389.33
MW-3	3,425.16	44	5/9/2013	-	36.70	-	3,388.46
			9/3/2013	-	36.77	-	3,388.39
			7/15/2014	-	36.78	-	3,388.38
			10/30/2014	-	36.18	-	3,388.98
	3,425.06		1/20/2015	-	36.65	-	3,388.41
			4/16/2015	-	36.56	-	3,388.50
			12/18/2015	-	36.49	-	3,388.57
			5/31/2016	-	36.38	-	3,388.68
			12/8/2016	-	36.30	-	3,388.76
			5/8/2017	-	36.12	-	3,388.94
			11/14/2017	-	36.04	-	3,389.02

Table 1

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Monitoring Well Specifications and Groundwater Elevations

Monitor Well ID	Casing Well Elevation (ft)	Total Depth (Approximate ft bgs)	Date Measured	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Groundwater Elevation (ft)
MW-4	3,424.91	49	5/9/2013	-	37.02	-	3,387.89
			9/3/2013	-	37.10	-	3,387.81
			7/15/2014	-	37.08	-	3,387.83
			10/30/2014	-	37.16	-	3,387.75
	3,424.81		1/20/2015	-	36.99	-	3,387.82
			4/16/2015	-	36.91	-	3,387.90
			12/18/2015	-	36.88	-	3,387.93
			5/31/2016	-	36.78	-	3,388.03
			12/8/2018	-	36.70	-	3,388.11
			5/8/2017	-	36.54	-	3,388.27
			11/14/2017	-	36.47	-	3,388.34
MW-5	3,423.44	49	1/20/2015	-	36.12	-	3,387.32
			4/16/2015	-	36.06	-	3,387.38
			12/18/2015	-	36.03	-	3,387.41
			5/31/2016	-	35.92	-	3,387.52
			12/8/2016	-	35.83	-	3,387.61
			5/8/2017	-	35.69	-	3,387.75
			11/14/2017	-	35.64	-	3,387.80
MW-6	3,423.78	43	12/18/2015	-	36.14	-	3,387.64
			5/31/2016	-	36.06	-	3,387.72
			12/8/2016	-	35.99	-	3,387.79
			5/8/2017	-	35.87	-	3,387.91
			11/14/2017	-	35.81	-	3,387.97
MW-7	3,421.42	38	12/18/2015	-	37.10	-	3,384.32
			5/31/2016	-	37.01	-	3,384.41
			12/8/2016	-	36.95	-	3,384.47
			5/8/2017	-	36.26	--	3,385.16
			11/14/2017	-	36.74	-	3,384.68

Note:

1.) LNAPL = Light non-aqueous phase liquid
2.) Elevations are measured in feet above mean sea level
3.) BGS = below ground surface

Table 2

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Field Parameters Summary

Sample ID	Date	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Conductivity (mS/cm)
MW-1	7/15/2014	27.10	6.90	0.85	32.70	1,700
	10/30/2014	22.20	7.10	6.40	69.30	1,615
	1/20/2015	15.30	7.56	25.80	143.90	1,636
	4/16/2015	22.50	6.99	2.70	91.00	1,821
	12/18/2015	19.95	6.85	4.20	-13.10	3,385
	5/31/2016	20.90	6.99	2.14	-69.80	3,760
	12/8/2016	19.51	6.84	6.82	-222.90	3,146
	5/8/2017	20.27	7.45	1.60	-151.00	3,833
	11/14/2017	18.90	7.45	1.35	-51.80	3,567
MW-2	7/15/2014	22.60	7.04	6.61	27.80	1,356
	10/30/2014	21.80	7.84	75.60	75.50	1,510
	1/20/2015	14.90	7.73	24.30	162.30	1,437
	4/16/2015	22.00	7.30	16.30	112.20	1,435
	12/18/2015	19.49	7.47	2.11	-150.00	1,543
	5/31/2016	20.50	7.14	1.70	60.50	1,290
	12/8/2016	19.04	7.19	2.67	-114.70	1,301
	5/8/2017	19.82	6.85	1.07	-68.40	1,345
	11/14/2017	18.57	7.45	1.07	-2.50	1,682
MW-3	7/15/2014	22.60	7.02	3.58	25.80	1,832
	10/30/2014	22.50	7.25	20.30	65.30	1,600
	1/20/2015	16.80	7.54	18.60	150.50	1,823
	4/16/2015	23.50	7.15	10.00	119.30	1,714
	12/18/2015	19.59	7.43	2.90	-101.60	2,266
	5/31/2016	20.70	6.84	1.80	60.50	1,840
	12/8/2016	19.03	7.21	1.78	-115.20	1,734
	5/8/2017	19.49	6.19	1.58	-26.70	1,695
	11/14/2017	18.12	7.57	1.63	18.40	2,102

Table 2

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Field Parameters Summary

Sample ID	Date	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Conductivity (mS/cm)
MW-4	7/15/2014	22.80	6.93	3.70	65.20	7,308
	10/30/2014	22.40	6.94	2.80	76.10	3,010
	1/20/2015	19.10	7.34	14.70	160.30	8,275
	4/16/2015	21.70	6.92	3.30	98.10	3,080
	12/18/2015	19.79	7.06	2.31	-123.20	6,557
	5/31/2016	20.60	6.93	1.58	-50.30	5,590
	12/8/2016	19.07	7.10	2.80	-209.30	5,923
	5/8/2017	19.68	6.75	0.86	-139.30	7,987
	11/14/2017	18.59	7.36	1.71	0.10	6,485
MW-5	1/20/2015	20.10	7.31	10.00	148.90	6,888
	4/16/2015	21.40	6.98	5.70	90.50	6,405
	12/18/2015	19.06	7.10	3.37	-134.10	6,631
	5/31/2016	19.90	6.94	1.88	76.70	5,760
	12/8/2016	18.78	7.13	1.96	-79.40	5,690
	5/8/2017	19.05	6.70	1.41	-86.70	6,303
	11/14/2017	17.82	7.20	2.04	37.90	7,041
MW-6	12/18/2015	18.79	7.18	6.64	-112.20	4,958
	6/1/2016	20.50	6.84	1.51	93.80	4,750
	12/8/2016	19.05	7.20	6.02	-64.30	4,620
	5/8/2017	19.44	7.10	1.90	-142.30	4,658
	11/14/2017	18.19	6.98	1.37	28.70	5,574
MW-7	12/18/2015	Insufficient volume to collect parameters				
	6/1/2016	Insufficient volume to collect parameters				
	12/8/2016	14.51	7.61	6.13	-5.80	2,659
	5/8/2017	19.93	7.27	--	-56.90	2,758
	11/14/2017	Insufficient volume to collect parameters				

Notes:

C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
mS/cm = microsiemens per centimeter

Table 3

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Groundwater Analytical Results Summary

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)
NMWQCC Groundwater Quality Standards		**0.01**	**0.75**	**0.75**	**0.62**	**250**
MW-1	2/28/2013	<0.00100	<0.00200	<0.00100	<0.00200	**1,600**
	5/9/2013	<0.00100	<0.00200	<0.00100	<0.00200	**746**
	9/3/2013	<0.00100	<0.00200	<0.00100	<0.00200	220
	2/28/2014	<0.00100	<0.00200	<0.00100	<0.00100	**1,350**
	7/15/2014	<0.00100	<0.00200	<0.00100	<0.00100	**272**
	10/30/2014	<0.00100	<0.00100	<0.00100	<0.00100	**261**
	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	**475**
	4/16/2015	<0.00100	<0.00100	<0.00100	<0.00100	**2,720**
	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	**3,100**
	5/31/2016	--	--	--	--	**840**
	12/8/2016	--	--	--	--	**1,200**
	5/8/2017	--	--	--	--	**710**
	11/14/2017	--	--	--	--	**1,400**
MW-2	5/9/2013	<0.00100	<0.00200	<0.00100	<0.00200	199
	9/3/2013	<0.00100	<0.00200	<0.00100	<0.00200	211
	2/28/2014	<0.00100	<0.00200	<0.00100	<0.00100	190
	7/15/2014	<0.00100	<0.00200	<0.00100	<0.00100	165
	10/30/2014	<0.00100	<0.00100	<0.00100	<0.00100	215
	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	152
	4/16/2015	<0.00100	<0.00100	<0.00100	<0.00100	155
	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	180
	5/31/2016	--	--	--	--	150
	12/8/2016	--	--	--	--	190
	5/8/2017	--	--	--	--	170
	11/14/2017	--	--	--	--	170

Table 3

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Groundwater Analytical Results Summary

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)
NMWQCC Groundwater Quality Standards		**0.01**	**0.75**	**0.75**	**0.62**	**250**
MW-3	5/9/2013	<0.00100	<0.00200	<0.00100	<0.00200	**392**
	9/3/2013	<0.00100	<0.00200	<0.00100	<0.00200	191
	2/28/2014	<0.00100	<0.00200	<0.00100	<0.00100	**424**
	7/15/2014	<0.00100	<0.00200	<0.00100	<0.00100	**434**
	10/30/2014	<0.00100	<0.00100	<0.00100	<0.00100	212
	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	**488**
	4/16/2015	<0.00100	<0.00100	<0.00100	<0.00100	248
	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	**400**
	5/31/2016	--	--	--	--	**390**
	12/8/2016	--	--	--	--	**340**
	5/8/2017	--	--	--	--	**310**
	11/14/2017	--	--	--	--	210
MW-4	5/9/2013	<0.00100	<0.00200	<0.00100	<0.00200	**2,710**
	9/3/2013	<0.00100	<0.00200	<0.00100	<0.00200	**610**
	2/28/2014	<0.00100	<0.00200	<0.00100	<0.00100	**2,220**
	7/15/2014	<0.00100	<0.00200	<0.00100	<0.00100	**2,100**
	10/30/2014	<0.00100	<0.00100	<0.00100	<0.00100	**1,430**
	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	**2,390**
	4/16/2015	<0.00100	<0.00100	<0.00100	<0.00100	**1,450**
	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	**3,500**
	12/15/2015 (DUP)	<0.0010	<0.0010	<0.0010	<0.0015	**3,500**
	5/31/2016	--	--	--	--	**1,700**
	12/8/2016	--	--	--	--	**1,100**
	5/8/2017	--	--	--	--	**2,500**
	11/14/2017	--	--	--	--	**1,400**

Table 3

MF 16-Inch Pipeline Release
ETC Field Services LLC
Lea County, New Mexico
Groundwater Analytical Results Summary

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)
NMWQCC Groundwater Quality Standards		**0.01**	**0.75**	**0.75**	**0.62**	**250**
MW-5	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	**1,700**
	4/16/2015	<0.00100	<0.00100	<0.00100	<0.00100	**1,750**
	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	**1,800**
	5/31/2016	--	--	--	--	**2,000**
	5/31/2016 (DUP)	--	--	--	--	**2,200**
	12/8/2016	--	--	--	--	**2,000**
	12/8/16 (DUP)	--	--	--	--	**1,800**
	5/8/2017	--	--	--	--	**1,900**
	11/14/2017	--	--	--	--	**2,000**
MW-6	1/20/2015	<0.00100	<0.00100	<0.00100	<0.00100	**1,300**
	6/1/2016	--	--	--	--	**1,400**
	12/8/2016	--	--	--	--	**1,700**
	5/8/2017	--	--	--	--	**1,500**
	11/17/2017	--	--	--	--	**1,100**
MW-7	12/18/2015	<0.0010	<0.0010	<0.0010	<0.0015	**580**
	6/1/2016	--	--	--	--	**740**
	12/8/2016	--	--	--	--	**830**
	5/8/2017	--	--	--	--	**810**
	11/14/2017	--	--	--	--	**670**

Notes:

1.) Concentrations that are bold exceed the NMWQCC Groundwater Quality Standards
2.) mg/L- milligrams per Liter

Appendices

Appendix A
Groundwater Laboratory Analytical Results

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 19, 2017

Bernie Bockish

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: MF-16 OrderNo.: 1705645

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 8 sample(s) on 5/11/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: MF-16

Lab Order: 1705645

Lab ID: 1705645-001 **Collection Date:** 5/8/2017 4:18:00 PM
Client Sample ID: 11103579-050817-MG-MW1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	710	50	*	mg/L	100	5/11/2017 5:35:36 PM	R4274(

Lab ID: 1705645-002 **Collection Date:** 5/8/2017 3:39:00 PM
Client Sample ID: 11103579-050817-MG-MW2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170	5.0		mg/L	10	5/11/2017 5:48:00 PM	R4274(

Lab ID: 1705645-003 **Collection Date:** 5/8/2017 3:25:00 PM
Client Sample ID: 11103579-050817-CN-MW3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	310	50	*	mg/L	100	5/11/2017 6:25:14 PM	R4274(

Lab ID: 1705645-004 **Collection Date:** 5/8/2017 4:00:00 PM
Client Sample ID: 11103579-050817-CN-MW4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	2500	100	*	mg/L	200	5/16/2017 4:05:53 AM	R4277(

Lab ID: 1705645-005 **Collection Date:** 5/8/2017 3:45:00 PM
Client Sample ID: 11103579-050817-CM-MW5 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	1900	100	*	mg/L	200	5/16/2017 4:18:17 AM	R4277(

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: MF-16

Lab Order: 1705645

Lab ID: 1705645-006 **Collection Date:** 5/8/2017 4:30:00 PM
Client Sample ID: 11103579-050817-CN-MW6 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1500	50	*	mg/L	100	5/11/2017 8:04:30 PM	R4274(

Lab ID: 1705645-007 **Collection Date:** 5/8/2017 4:35:00 PM
Client Sample ID: 11103579-050817-CM-MW7 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	810	50	*	mg/L	100	5/11/2017 8:29:19 PM	R4274(

Lab ID: 1705645-008 **Collection Date:** 5/8/2017
Client Sample ID: 11103579-050817-MG-DUP **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	770	50	*	mg/L	100	5/11/2017 8:54:09 PM	R4274(

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705645**

19-May-17

Client: GHD

Project: MF-16

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R42740**	RunNo:	**42740**					
Prep Date:		Analysis Date:	**5/11/2017**	SeqNo:	**1344465**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R42740**	RunNo:	**42740**					
Prep Date:		Analysis Date:	**5/11/2017**	SeqNo:	**1344466**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.0	90	110			

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R42779**	RunNo:	**42779**					
Prep Date:		Analysis Date:	**5/15/2017**	SeqNo:	**1346412**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R42779**	RunNo:	**42779**					
Prep Date:		Analysis Date:	**5/15/2017**	SeqNo:	**1346413**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: GHD | Work Order Number: 1705645 | RcptNo: 1

Received By: Erin Melendrez 5/11/2017 9:20:00 AM

Completed By: Ashley Gallegos 5/11/2017 2:46:32 PM

Reviewed By: ENM 05/11/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	# of preserved bottles checked for pH:
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	(<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted?
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Chain-of-Custody Record

Client: GHD Services

Mailing Address: 6121 Indian School #200
Albuquerque, NM 87110

Phone #: 505-884-0672

email or Fax#: bernard.bockisch@ghd.com

QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other ______

☐ EDD (Type) ______

Turn-Around Time: ☒ Standard ☐ Rush ______

Project Name: MF-16

Project #: 11103579

Project Manager: Bernard Bockisch

Sampler: C. Mattews, C. Neligh, M. Gant

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1705645	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride 300.0				Air Bubbles (Y or N)
5/8/17	1618	H_2O	GW-11103579-050817-MG-MW-1	plastic	none	-001												X				
5/8/17	1539	H_2O	GW-11103579-050817-MG-MW-2	plastic	none	-002												X				
5/8/17	1525	H_2O	GW-11103579-050817-CN-MW-3	plastic	none	-003												X				
5/8/17	1600	H_2O	GW-11103579-050817-CN-MW-4	plastic	none	-004												X				
5/8/17	1545	H_2O	GW-11103579-050817-CM-MW-5	plastic	none	-005												X				
5/8/17	1630	H_2O	GW-11103579-050817-CN-MW-6	plastic	none	-006												X				
5/8/17	1635	H_2O	GW-11103579-050817-CM-MW-7	plastic	none	-007												X				
5/8/17	—	H_2O	GW-11103579-050817-MG-DUP	plastic	none	-008												X				

Date	Time	Relinquished by	Received by	Date	Time
5/10/17	0710	Claudia Matthews/GHD	[signature]	5/10/17	0710
5/10/17	1900	[signature]	[signature]	05/11/17	0920

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 22, 2017

Bernie Bockisch

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: MF16 OrderNo.: 1711988

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 7 sample(s) on 11/18/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: MF16

Lab Order: 1711988

Lab ID: 1711988-001 **Collection Date:** 11/14/2017 12:45:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-6 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1100	50	*	mg/L	100	11/20/2017 10:20:46 PM	R47234

Lab ID: 1711988-002 **Collection Date:** 11/14/2017 1:20:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-5 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2000	50	*	mg/L	100	11/20/2017 11:10:23 PM	R47234

Lab ID: 1711988-003 **Collection Date:** 11/14/2017 1:45:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1400	50	*	mg/L	100	11/20/2017 11:35:13 PM	R47234

Lab ID: 1711988-004 **Collection Date:** 11/14/2017 2:05:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1400	50	*	mg/L	100	11/21/2017 12:00:01 AM	R47234

Lab ID: 1711988-005 **Collection Date:** 11/14/2017 2:20:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170	5.0		mg/L	10	11/21/2017 12:12:26 AM	R47234

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: MF16

Lab Order: 1711988

Lab ID: 1711988-006 **Collection Date:** 11/14/2017 2:35:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	210	50		mg/L	100	11/21/2017 12:49:40 AM	R47234

Lab ID: 1711988-007 **Collection Date:** 11/14/2017 2:40:00 PM
Client Sample ID: GW-1103579-111417-MG-MW-7 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	670	50	*	mg/L	100	11/21/2017 1:39:19 AM	R47234

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711988**

22-Nov-17

Client: GHD

Project: MF16

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R47234**	RunNo:	**47234**					
Prep Date:		Analysis Date:	**11/20/2017**	SeqNo:	**1507200**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R47234**	RunNo:	**47234**					
Prep Date:		Analysis Date:	**11/20/2017**	SeqNo:	**1507203**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: GHD | Work Order Number: 1711988 | RcptNo: 1

Received By: Erin Melendrez 11/18/2017 9:20:00 AM

Completed By: Sophia Campuzano 11/20/2017 9:20:40 AM

Reviewed By: DDS 11/20/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

Chain-of-Custody Record

Client: GHD Services Inc

Mailing Address: 4121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☐ Rush _____

Project Name: 1103579

Project #: MF16

Project Manager: Bernard Bockisch

Sampler: Michael Gantt

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.4 + 0.7 (CF) = 1.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1711988	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride 300				Air Bubbles (Y or N)
11/14/17	1245	GW	GW-1103579-111417-MG-MW-6	Plastic Jar	ICE	-001												X				
	1320		GW-1103579-111417-MG-MW-5			-002												X				
	1345		GW-1103579-111417-MG-MW-4			-003												X				
	1405		GW-1103579-111417-MG-MW-1			-004												X				
	1420		GW-1103579-111417-MG-MW-2			-005												X				
	1435		GW-1103579-111417-MG-MW-3			-006												X				
	1440		GW-1103579-111417-MG-MW-7			-007												X				

Date	Time	Relinquished by:	Received by:	Date	Time
11/16/17	0900			11/17/17	0900
11/17/17	1900			11/18/17	0920

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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