REVIEWED
By Mike Buchanan at 3:42 pm, Jul 27, 2023

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Review of the 2022 Annual Groundwater Monitoring Report:
Content Satisfactory
1. Attempt to locate MW-4 to continue annual sampling. If well cannot be found, please implement plan to reconstruct, if damaged or lost, and submit work plan to NMOCD.
2. Continue annual sampling to assess BTEX concentrations in MW-1, MW-4 (if possible).
3. Continue assessing manganese in MW-1, MW-3, and MW-4
4. Continue to quarterly asses PSH in MW-1 and MW-2.
5 Submit the 2023 Annual Monitoring Report by April 1, 2024.

March 23, 2023

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: 2022 Annual Groundwater Monitoring Report
Johnston Federal #4
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NAUTOFAB000306
NMOCD Administrative Order: 3RP-71

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *2022 Annual Groundwater Monitoring Report* to the New Mexico Oil Conservation Division (NMOCD) to document groundwater monitoring activities conducted at the Johnston Federal #4 metering station (Site) during 2022. The Site is partially located on surface owned by the federal government and managed by the Bureau of Land Management (BLM) and partially located on private land within Unit M, Section 27, Township 31 North and Range 9 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

Initial investigations were performed by Burlington Resources (Burlington, a previous operator of the Site) in August 1998 to assess two historical production pits (shown on Figure 2). Soil samples were collected from each pit and analyzed for total petroleum hydrocarbons (TPH). TPH concentrations from samples collected at Production Pit #1 was compliant with NMOCD standards and this pit was subsequently granted closure by NMOCD. Soil analyzed from Production Pit #2 was analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and TPH, with results indicating exceedances of NMOCD standards. Based on sampling results, Burlington excavated approximately 3,055 cubic yards of petroleum hydrocarbon-impacted soil in December 1998. The NMOCD subsequently requested that Burlington install monitoring wells to assess potential impacts to groundwater at the Site.

In May 1999, monitoring well MW-1 was installed at the Site to a depth of 50 feet below ground surface (bgs). ConocoPhillips Company acquired Burlington in March 2006 and installed three additional monitoring wells (MW-2, MW-3, and MW-4) in 2008 to further assess groundwater impacts related to the former Production Pit #2. To remediate dissolved phase hydrocarbons from groundwater, four mobile dual phase extraction (MDPE) events were conducted in well MW-1 in August 2013, November 2014, April 2015, and November 2017. Recovered liquids were discharged to the on-Site evaporation tank. Vapors recovered during the events were used as fuel and burned in the MDPE internal combustion engine. A total of approximately 298 gallons equivalent of hydrocarbons (liquid and vapor) were removed from MW-1 during these events.

Hilcorp acquired ConocoPhillips Company in April 2017 and assumed groundwater monitoring responsibilities. Additionally, El Paso CGP Company (El Paso) is a co-producer on the Site well pad and owns additional Site monitoring wells, from which non-aqueous phase liquid (LNAPL), otherwise known as free product or phase separated hydrocarbons (PSH), is being recovered. El Paso groundwater impacts are down gradient from the ConocoPhillips-installed monitoring wells.

Based on the review of the *2021 Annual Groundwater Monitoring Report*, prepared by WSP USA, Inc. and dated March 4, 2022, the NMOCD concurred with the following recommendations in their February 6, 2023 approval: discontinue sampling all Site wells for sulfate analysis; discontinue BTEX analysis for wells MW-2 and MW-3; and continue sampling for dissolved manganese from wells MW-1, MW-3, and MW-4.

SITE GROUNDWATER CLEANUP STANDARDS

The NMOCD requires groundwater-quality standards be met as presented by the New Mexico Water Quality Control Commission (NMWQCC) and listed in Title 20, Chapter 6, Part 2, Section 3103 (20.6.2.3103) of the New Mexico Administrative Code (NMAC). The following standards are presented for constituents of concern (COCs) at the Site in milligrams per liter (mg/L).

- Benzene: 0.005 mg/L
- Toluene: 1.0 mg/L
- Ethylbenzene: 0.70 mg/L
- Total Xylenes: 0.62 mg/L
- Dissolved Manganese: 0.20 mg/L

In addition, NMWQCC standards state LNAPLs (or PSH) shall not be present floating on the groundwater table.

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

Groundwater monitoring at the Site was performed by Hilcorp and included annual gauging and sampling from wells MW-1 through MW-4. Of note, well MW-4 was not able to be located during the sampling event and is thought to have been damaged/buried by Site activities. Groundwater-level measurements and samples were collected on September 26, 2022. Samples were also not collected for laboratory analysis from MW-2 due to the presence of PSH during the sampling event. Static groundwater-level measurements included recording depth-to-groundwater and PSH, where detected, using a Keck oil/water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with distilled water prior to each measurement to prevent cross-contamination. Measured depths-to-groundwater and PSH and associated calculated groundwater elevations are presented in Table 1 and were used to develop a groundwater potentiometric surface map (Figure 3). Based on historical Site-wide depth-to-groundwater measurements, the inferred groundwater flow direction is to the east.

GROUNDWATER SAMPLING

Groundwater was purged and sampled from wells MW-1 and MW-3 using a disposable bailer. Purging was accomplished by removing stagnant groundwater from the monitoring well prior to collecting a sample. Field measurements of groundwater quality parameters, including temperature, pH, and electrical conductivity, were collected during the purging process, and are presented in Table 2.

Following well purging, groundwater samples were placed directly into laboratory-provided containers and labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. The samples were immediately sealed, packed on ice, and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8260B, and dissolved manganese by EPA Method 200.7. Proper chain-of-custody procedures were followed documenting the date and time sampled, sample number, type of sample, sample collector's name, preservative used, analyses required, and sample collector's signature.

GROUNDWATER ANALYTICAL RESULTS

During the annual groundwater-sampling event, PSH was present in well MW-2 at a thickness of 0.01 feet. Benzene and total xylenes were detected in groundwater from well MW-1 at concentrations of 1.8 mg/L and 5.1 mg/L, respectively, exceeding the applicable NMWQCC standards. Dissolved manganese was also detected at concentrations above the NMWQCC standard in wells MW-1 and MW-3. No other constituents of concern were detected in groundwater above NMWQCC standards in any of the wells sampled during the September 2022 sampling event. A summary of analytical results are presented in Table 3 and depicted on Figure 4, with complete laboratory analytical reports attached as Appendix A.

CONCLUSIONS

Elevated concentrations of BTEX have been continually present in wells MW-1 and MW-4 since groundwater was first monitored at the Site in 1999. Although occasionally detected, PSH was not detected in well MW-1 during the 2022 sampling event; however, PSH was detected in well MW-2 during the 2022 sampling event with a thickness of 0.01 feet. Well MW-2 is hydrogeologically upgradient from the source area and other wells located at the Site and has never contained PSH and/or detections of COCs above NMWQCC standards. Significant work is being performed at the adjacent El Paso remediation site, including air sparging within the groundwater, that may be contributing to unexpected conditions at the Site. Additionally, well MW-4 may have been damaged during installation of infrastructure for the El Paso remediation site.

Overall concentrations of BTEX have decreased over time at the Site and wells MW-3 and MW-4 indicate PSH has not migrated downgradient from well MW-1 since it was first measured in 2016. Additionally, BTEX concentrations have not been detected above NMWQCC standards in wells MW-2 or MW-3 in over 10 years, although PSH was detected in MW-2, which is considered an anomaly. Dissolved manganese has been present at concentrations exceeding NMWQCC standards in wells MW-1, MW-3, and MW-4. Elevated dissolved manganese concentrations in these wells appear to be a result of generally low-oxygen and reducing groundwater conditions in these wells, which is a common biproduct of petroleum hydrocarbon degradation in groundwater systems. This is further evidenced by the low concentrations of dissolved manganese in the hydrogeologically upgradient well MW-2, which is outside and upgradient of the original petroleum-hydrocarbon plume. As groundwater conditions at the Site continue to equilibrate and dissolved oxygen increases, groundwater conditions will become increasingly aerobic. As this happens, dissolved manganese has the ability to precipitate out of solution, leading to decreased concentrations in groundwater.

RECOMMENDATIONS

Based on current and historical data gathered at the Site, Ensolum/Hilcorp recommend the following actions:

- Attempt to locate well MW-4 at the Site and continue to sample annually, if possible.
- Continue annual sampling to assess BTEX concentrations in wells MW-1 and MW-4 and dissolved manganese concentrations in wells MW-1, MW-3, and MW-4.
- Increase site visits to quarterly to assess for the presence of PSH in wells MW-1 and MW-2. If PSH is no longer present in well MW-2, Hilcorp will cease sampling for Site COCs from this well.

Ensolum appreciates the opportunity to provide these environmental services to Hilcorp. Please contact either of the undersigned with any questions.

Sincerely,

Ensolum, LLC

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Attachments:

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Groundwater Elevation Map
Figure 4	Groundwater Analytical Results
Table 1	Groundwater Elevations
Table 2	Groundwater Quality Measurements
Table 3	Groundwater Analytical Results
Appendix A	Analytical Laboratory Reports

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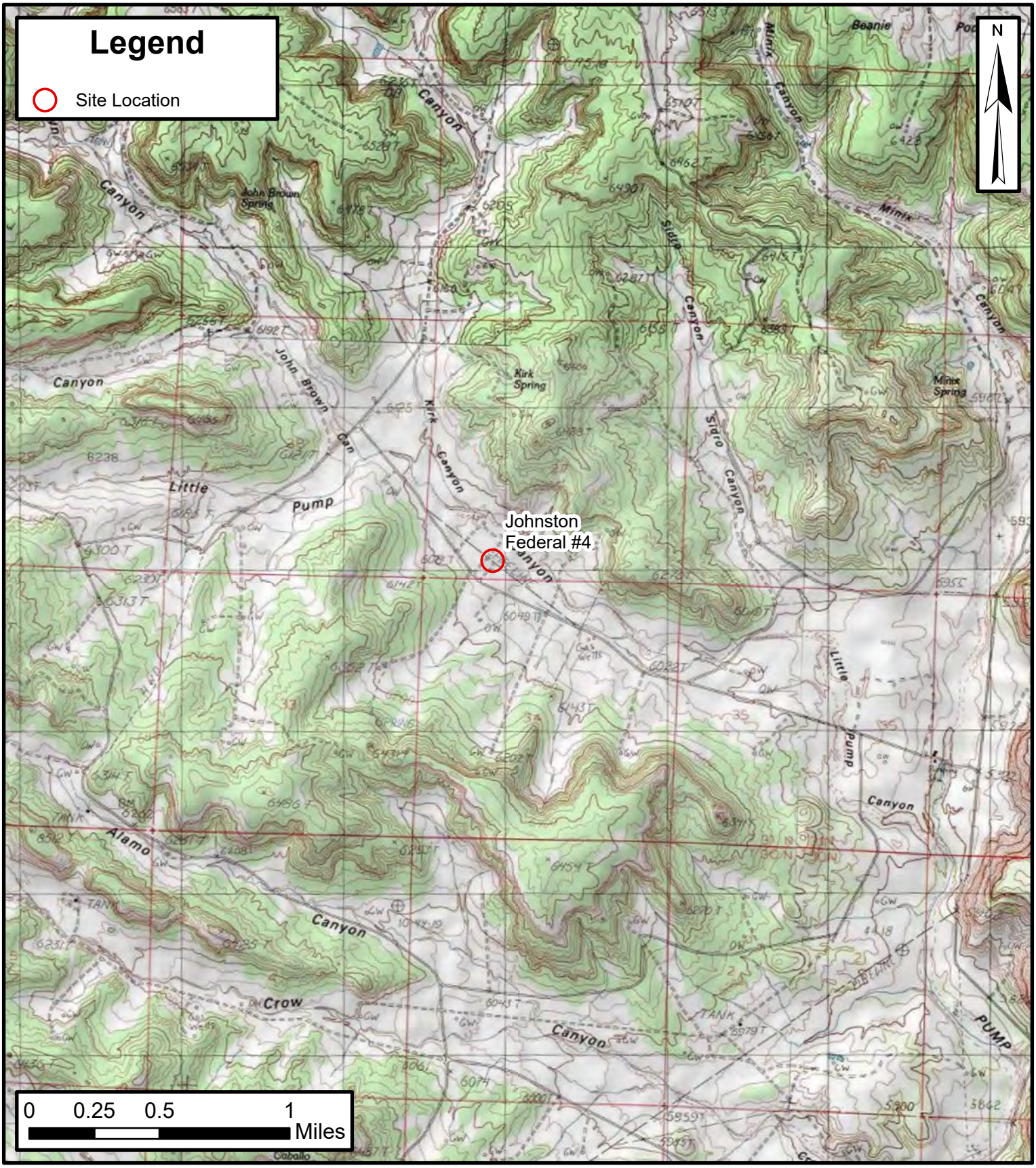
FIGURES



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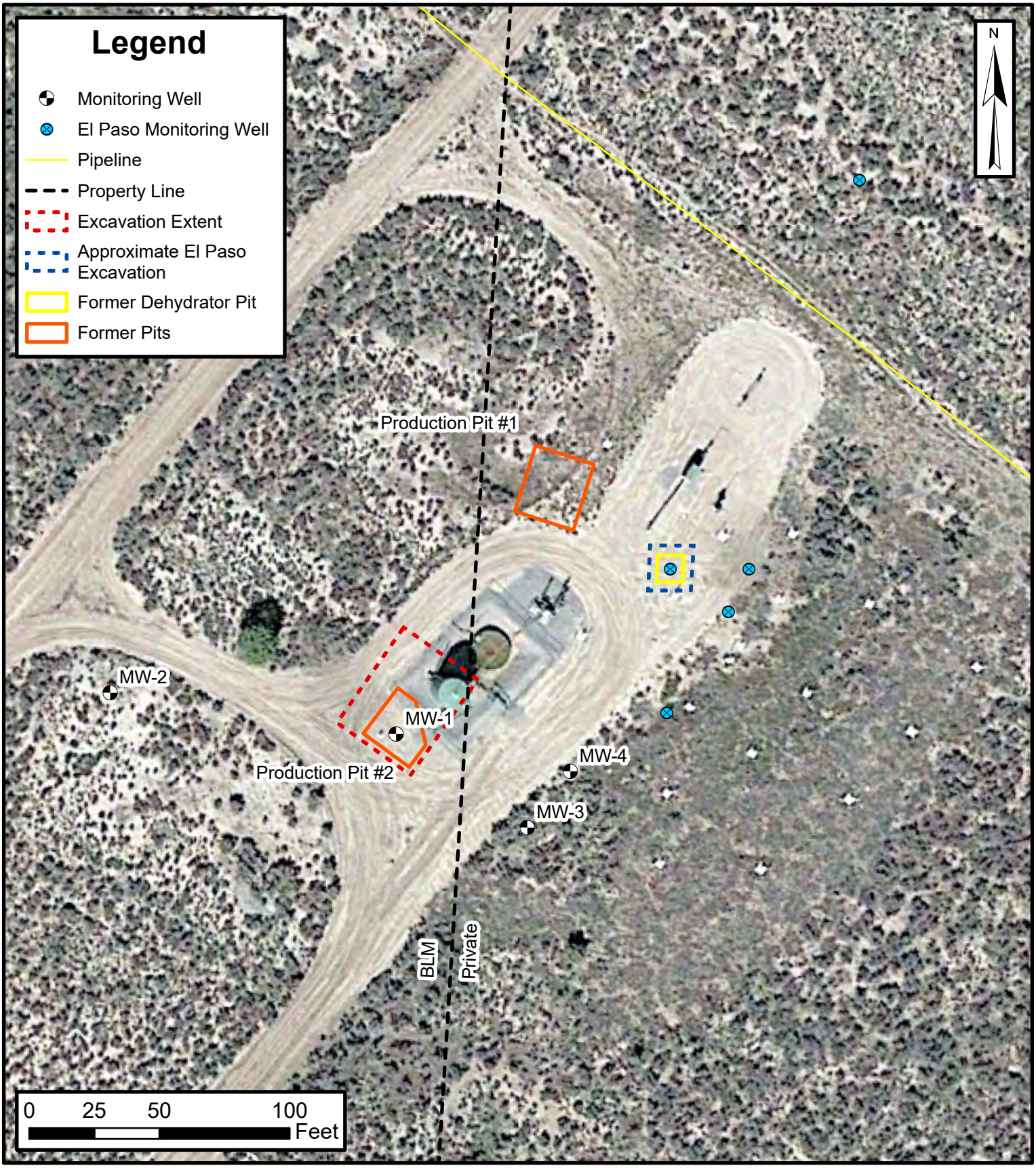
Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

Johnston Federal #4
Hilcorp Energy Company
36.86279, -107.77242
SW/SW & SW/SE Sec 27, T31N, R09W
San Juan County, New Mexico

FIGURE
1

Sources: Environmental Systems Research Institute (ESRI), National Geographic Society, i-cubed



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Site Map

Johnston Federal #4
Hilcorp Energy Company
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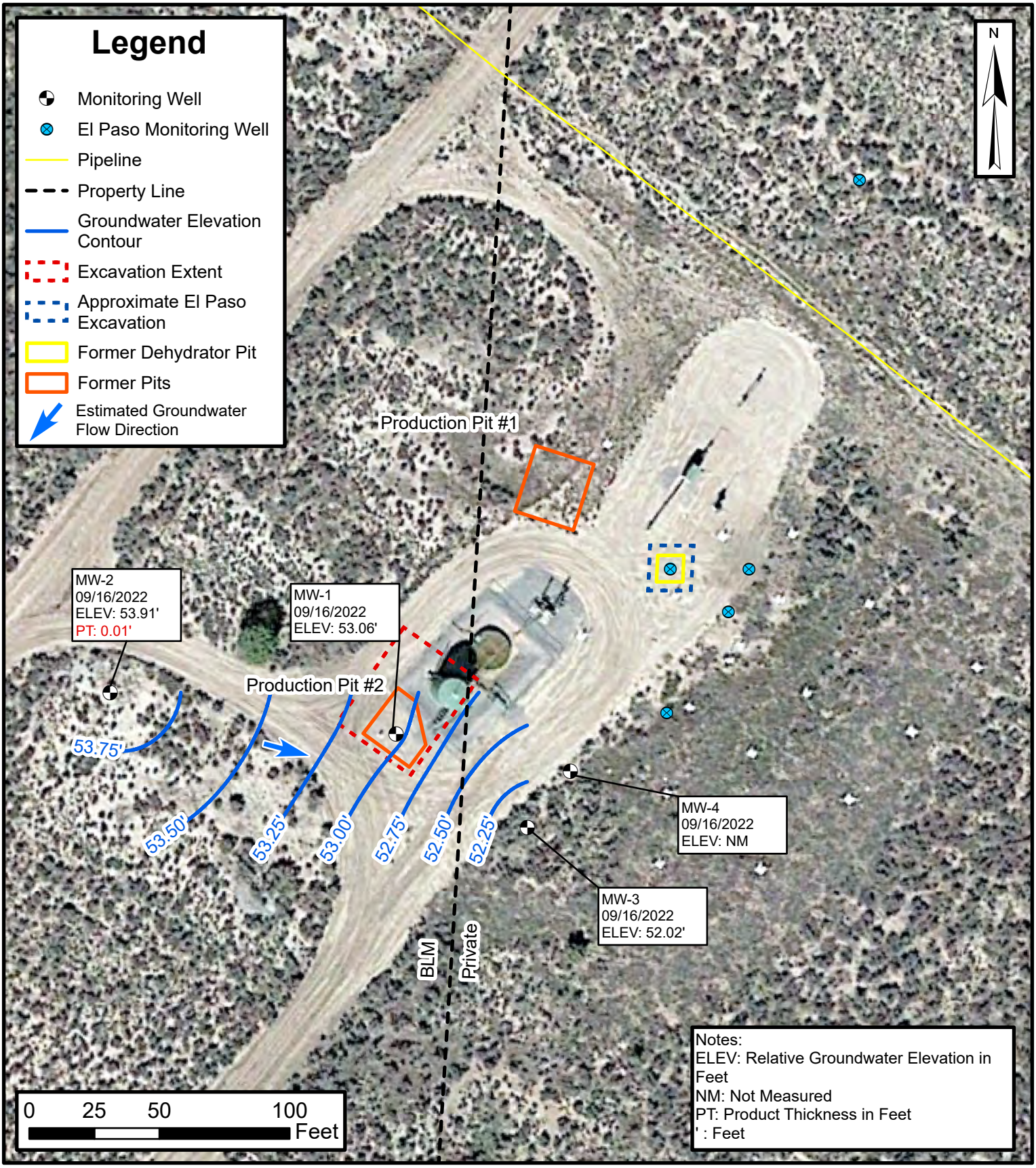
SW/SW & SW/SE Sec 27, T31N, R09W
San Juan County, New Mexico

FIGURE
2

Sources: Google Earth



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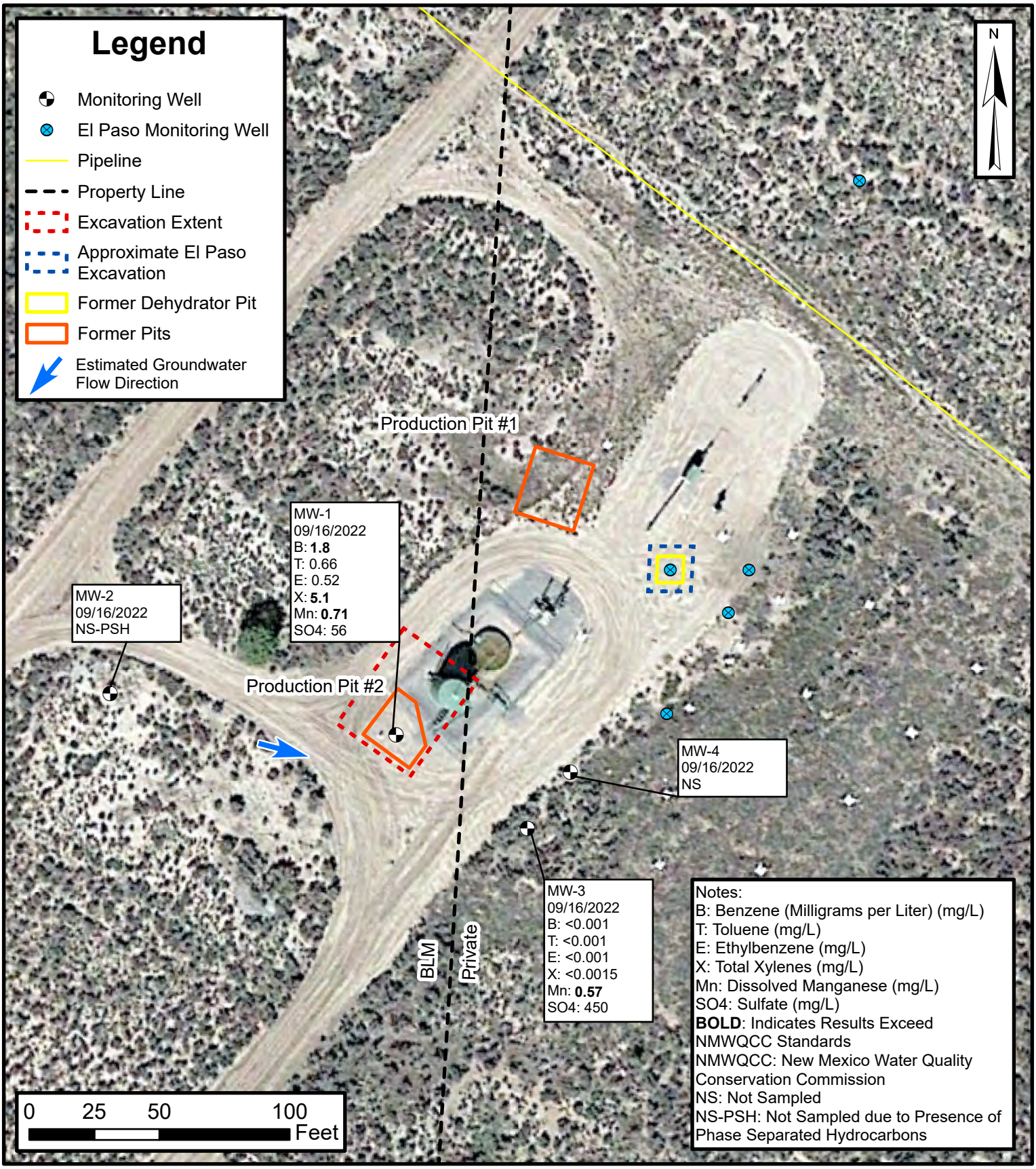
Groundwater Elevation Map

Johnston Federal #4
Hilcorp Energy Company
36.86279, -107.77242
SW/SW & SW/SE Sec 27, T31N, R09W
San Juan County, New Mexico

FIGURE
3

Sources: Google Earth



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Groundwater Analytical Results

Johnston Federal #4
Hilcorp Energy Company
36.86279, -107.77242
SW/SW & SW/SE Sec 27, T31N, R09W
San Juan County, New Mexico

FIGURE
4

Sources: Google Earth

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TABLES

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TABLE 1
GROUNDWATER ELEVATIONS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (1)	Date	Depth to Product (feet BTOC)	Depth to Groundwater (feet BTOC)	Product Thickness (feet)	Adjusted Groundwater Elevation (2)
MW-1	100	5/25/1999	--	NM	--	NM
		9/1/1999	--	47.02	--	52.98
		12/1/1999	--	46.96	--	53.04
		1/18/2000	--	44.05	--	55.95
		5/17/2000	--	46.90	--	53.10
		9/8/2000	--	46.91	--	53.09
		12/20/2000	--	46.88	--	53.12
		3/27/2001	--	NM	--	NM
		6/27/2001	--	47.05	--	52.95
		9/17/2001	--	46.93	--	53.07
		12/19/2001	--	46.97	--	53.03
		3/25/2002	--	46.99	--	53.01
		6/25/2002	--	47.01	--	52.99
		9/24/2002	--	46.98	--	53.02
		12/30/2002	--	47.40	--	52.60
		3/27/2003	--	NM	--	NM
		6/27/2003	--	NM	--	NM
		10/10/2003	--	NM	--	NM
		12/10/2003	--	NM	--	NM
		3/16/2004	--	47.28	--	52.72
		6/22/2004	--	47.06	--	52.94
		9/30/2004	--	47.24	--	52.76
		12/13/2004	--	47.14	--	52.86
		3/23/2005	--	46.91	--	53.09
		6/22/2005	--	46.93	--	53.07
		10/28/2005	--	46.87	--	53.13
		12/14/2005	--	46.72	--	53.28
		3/20/2006	--	46.75	--	53.25
		6/21/2006	--	46.84	--	53.16
		10/20/2006	--	46.89	--	53.11
		12/13/2006	--	46.92	--	53.08
		11/9/2007	--	NM	--	NM
		1/15/2008	--	NM	--	NM
		4/30/2008	--	46.45	--	53.55
		7/23/2008	--	46.63	--	53.37
		10/24/2008	--	46.60	--	53.40
		1/29/2009	--	46.57	--	53.43
		4/23/2009	--	46.40	--	53.60
		9/25/2009	--	46.52	--	53.48
		9/22/2010	--	46.60	--	53.40
		9/28/2011	--	46.65	--	53.35
		9/26/2012	--	46.80	--	53.20
		9/17/2013	--	46.88	--	53.12
		9/23/2014	--	46.94	--	53.06
		12/17/2014	--	46.94	--	53.06
		1/8/2015	--	46.92	--	53.08
		6/18/2015	--	46.94	--	53.06
		9/22/2015	--	46.91	--	53.09
		9/14/2016	46.70	46.71	0.01	53.30
		9/27/2017	--	46.78	--	53.22
		9/6/2018	--	46.79	--	53.21
		8/12/2019	46.77	46.87	0.10	53.21
		8/12/2020	46.81	47.00	0.19	53.15
		9/21/2021	47.00	47.10	0.10	52.98
		9/16/2022	--	46.94	--	53.06

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San Juan County, New Mexico

Well Identification	Top of Casing Elevation (1)	Date	Depth to Product (feet BTOC)	Depth to Groundwater (feet BTOC)	Product Thickness (feet)	Adjusted Groundwater Elevation (2)
MW-2	97.71	10/24/2008	--	42.85	--	54.86
		1/29/2009	--	42.83	--	54.88
		4/23/2009	--	42.75	--	54.96
		9/25/2009	--	42.82	--	54.89
		9/22/2010	--	43.01	--	54.70
		9/28/2011	--	43.14	--	54.57
		9/26/2012	--	43.33	--	54.38
		9/17/2013	--	43.51	--	54.20
		9/23/2014	--	43.56	--	54.15
		12/17/2014	--	43.59	--	54.12
		6/18/2015	--	43.57	--	54.14
		9/22/2015	--	43.58	--	54.13
		9/14/2016	--	43.51	--	54.20
		9/27/2017	--	43.56	--	54.15
		9/6/2018	--	43.50	--	54.21
		8/15/2019	--	43.56	--	54.15
		8/12/2020	--	43.62	--	54.09
		9/23/2021	--	43.80	--	53.91
		9/16/2022	43.80	43.81	0.01	53.91
MW-3	94.65	10/24/2008	--	43.91	--	50.74
		1/29/2009	--	41.97	--	52.68
		4/23/2009	--	41.87	--	52.78
		9/25/2009	--	42.04	--	52.61
		9/22/2010	--	42.17	--	52.48
		9/28/2011	--	42.22	--	52.43
		9/26/2012	--	42.36	--	52.29
		9/17/2013	--	42.47	--	52.18
		9/23/2014	--	42.70	--	51.95
		12/17/2014	--	42.62	--	52.03
		6/18/2015	--	43.67	--	50.98
		9/22/2015	--	42.65	--	52.00
		9/14/2016	--	42.47	--	52.18
		9/27/2017	--	42.54	--	52.11
		9/6/2018	--	42.45	--	52.20
		8/12/2019	--	42.48	--	52.17
		8/12/2020	--	42.53	--	52.12
		9/23/2021	--	42.70	--	51.95
		9/16/2022	--	42.63	--	52.02
MW-4	94.79	10/24/2008	--	43.11	--	51.68
		1/29/2009	--	43.11	--	51.68
		4/23/2009	--	43.06	--	51.73
		9/25/2009	--	43.20	--	51.59
		9/22/2010	--	43.39	--	51.40
		9/28/2011	--	43.45	--	51.34
		9/26/2012	--	43.57	--	51.22
		9/17/2013	--	43.65	--	51.14
		9/23/2014	--	44.81	--	49.98
		12/17/2014	--	44.80	--	49.99
		6/18/2015	--	45.85	--	48.94
		9/22/2015	--	44.73	--	50.06
		9/14/2016	--	44.16	--	50.63
		9/27/2017	--	44.15	--	50.64

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TABLE 1
GROUNDWATER ELEVATIONS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (1)	Date	Depth to Product (feet BTOC)	Depth to Groundwater (feet BTOC)	Product Thickness (feet)	Adjusted Groundwater Elevation (2)
MW-4	94.79	9/6/2018	--	44.00	--	50.79
		8/16/2019	--	44.27	--	50.52
		8/13/2020	--	44.36	--	50.43
		9/23/2021	--	44.30	--	50.49
		9/16/2022	Well Damaged			

Notes:

(1): surface elevation based on an arbitrary datum of 100 feet based on top of casing of MW-1
bgs - below ground surface
BTOC: below top of casing
NM = Not measured
--: indicates no GWEL or PSH measured
Groundwater elevation is adjusted using a density correction factor of 0.8 when product is present

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TABLE 2
GROUNDWATER QUALITY MEASUREMENTS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-1	9/23/2014	No parameters collected due to PSH sheen					
	9//22/2015	No parameters collected due to PSH sheen					
	9/14/2016	No parameters collected due to PSH sheen					
	9/27/2017	14.06	6.55	--	1,662	--	--
	9/6/2018	16.45	7.32	--	1,797	0.80	-349.5
	8/12/2019	20.00	7.40	0.99	--	4.80	-11.3
	8/12/2020	24.90	7.01	1.02	2,160	0.13	-18.9
	9/21/2021	No parameters collected due to PSH sheen					
	9/16/2022	18.00	6.56	0.83	1,660	--	--
MW-2	9/23/2014	15.00	7.22	1.50	2,310	11.30	57.0
	9/22/2015	13.55	6.64	1.48	2,273	5.05	93.0
	9/14/2016	13.53	7.26	1.53	2,368	5.10	6.9
	9/27/2016	12.52	7.13	--	1,884	--	--
	9/6/2018	--	--	--	--	--	--
	8/15/2019	19.80	7.35	1.05	--	--	-45.8
	8/12/2020	18.90	6.45	1.02	2,060	2.72	-24.2
	9/23/2021	17.40	7.24	--	5,320	--	--
	9/21/2022	No parameters collected due to PSH sheen					
MW-3	9/23/2014	15.70	7.01	1.20	1,820	10.13	-104.0
	12/17/2014	14.78	7.49	1.44	2,218	2.39	-164.0
	9/22/2015	15.07	7.32	1.31	2,021	2.34	-79.2
	9/14/2016	14.91	7.21	1.21	1,856	2.01	-158.8
	9/27/2017	13.91	6.79	--	1,534	--	--
	9/6/2018	17.17	7.36	--	1,637	1.15	-68.7
	8/12/2019	20.10	7.24	0.38	--	--	7.2
	8/12/2020	22.20	6.47	0.50	1,020	1.66	2.6
	9/23/2021	19.20	7.06	--	2,870	--	--
	9/16/2022	18.70	6.62	0.44	890	--	--
MW-4	9/23/2014	16.40	6.65	1.40	2,130	10.81	-124.0
	12/17/2014	14.98	7.37	1.51	2,323	2.94	-166.6
	6/18/2015	15.37	6.73	1.42	2,184	2.05	-140.1
	9/22/2015	15.13	6.82	1.33	2,041	2.04	-126.5
	9/14/2016	14.92	7.23	1.36	2,096	7.69	-205.4
	9/27/2017	14.01	6.95	--	1,671	--	--
	9/6/2018	--	--	--	--	--	--
	8/16/2019	18.10	7.21	0.90	--	--	-22.5
	8/13/2020	20.80	6.72	0.89	1,770	1.66	2.6
	9/23/2021	18.80	7.15	--	4,270	--	--
	9/16/2022	No parameters collected - well damaged					

Notes:

°C: degrees Celcius
DO: dissolved oxygen
g/L: grams per liter
uS/cm: microsiemens per centimeter
mg/L: milligrams per liter
mV: millivolts
ORP: oxidation-reduction potential
TDS: total dissolved solids
--: data not collected
PSH: phase separated hydrocarbons

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Manganese (dissolved) (mg/L)
NMWQCC Standards			**0.005**	**1.00**	**0.70**	**0.62**	**0.20**
MW-1	5/25/1999	(orig)	**8.7**	**2.9**	**2.8**	**2.9**	--
	12/1/1999	(orig)	**4.7**	**1.3**	**0.9**	**10**	--
	1/18/2000	(orig)	**3.6**	0.82	**0.84**	**7.5**	--
	5/17/2000	(orig)	**6.9**	**1.1**	**1.5**	**17**	--
	9/8/2000	(orig)	**4.6**	0.62	**0.93**	**10**	--
	12/20/2000	(orig)	< 0.0002	0.0005	0.034	0.061	--
	3/27/2001	(orig)	**5.43**	0.641	**0.991**	**9.83**	--
	6/27/2001	(orig)	**5.87**	0.9	**0.99**	**10.4**	--
	9/17/2001	(orig)	**5.91**	0.75	**0.98**	**10.7**	--
	12/19/2001	(orig)	**7.2**	0.65	**1.02**	**11.3**	--
	3/25/2002	(orig)	**5.52**	0.83	**1.19**	**10.5**	--
	6/26/2002	(orig)	**0.516**	0.0662	0.0787	**0.863**	--
	9/24/2002	(orig)	**5.31**	**8**	**0.88**	**13.96**	--
	12/30/2002	(orig)	**7.66**	**10.2**	**0.76**	**14.14**	--
	6/22/2004	(orig)	**6.16**	**8.1**	0.47	**15.84**	--
	3/20/2006	(orig)	**3.17**	**3.74**	**1.06**	**30.13**	--
	6/21/2006	(orig)	**4.9**	**3.28**	0.448	**2.39**	--
	12/13/2006	(orig)	**5.3**	**7.2**	**0.87**	**15.45**	--
	3/27/2007	(orig)	**6.87**	**5.72**	0.21	**12.16**	--
	6/25/2007	(orig)	**5.68**	**1.83**	0.4	**9.48**	--
	4/30/2008	(orig)	**6.3**	**1.8**	0.28	**8.6**	--
	7/23/2008	(orig)	**7.1**	**2.2**	0.45	**10.6**	--
	10/24/2008	(orig)	**6**	**2.1**	0.4	**9.0**	--
	1/29/2009	(orig)	**6.7**	**2.2**	0.63	**14.5**	--
	9/25/2009	(orig)	**3.9**	**1.5**	0.68	**9.8**	**1.11**
	9/22/2010	(orig)	**3.5**	0.98	0.63	**7.5**	**0.752**
	9/28/2011	(orig)	**3.36**	**1.05**	0.667	**6.81**	**0.774**
	9/28/2011	(Duplicate)	**3.43**	**1.12**	**0.779**	**8.29**	--
	9/26/2012	(orig)	**3.07**	0.599	0.577	**5.16**	**0.67**
	---	**August 2013 Mobile Dual Phase Extraction Event**					
	9/17/2013	(orig)	**4.69**	**7.55**	**1.17**	**9.0**	**0.89**
	9/17/2013	(Duplicate)	**4.7**	**7.21**	**1.04**	**9.97**	--
	9/23/2014	(orig)	**2.97**	**4.25**	**0.778**	**6.89**	**0.85**
	9/23/2014	(Duplicate)	**2.82**	**3.88**	**0.754**	**6.69**	--
	---	**November 2014 Mobile Dual Phase Extraction Event**					
	1/8/2015	(orig)	**4.35**	**6.15**	**1.07**	**10.0**	--
	6/18/2015	(orig)	**4.05**	**6.26**	**1.04**	**10.8**	--
	6/18/2015	(Duplicate)	**4.34**	**6.46**	**0.933**	**11.1**	--
	---	**April 2015 Mobile Dual Phase Extraction Event**					
	9/22/2015	(orig)	**3.36**	**4.57**	**0.741**	**8.62**	**0.72**
	9/22/2015	(Duplicate)	**3.37**	**4.28**	**0.724**	**7.98**	--
	9/14/2016	**Not sampled due to presense of PSH**					
	9/27/2017	(orig)	**2.34**	**2.86**	**0.949**	**9.5**	**0.739**
	---	**November 2017 Mobile Dual Phase Extraction Event**					
	9/6/2018	(orig)	**2.86**	**2.65**	**0.747**	**7.59**	**0.802**
	8/12/2019	(orig)	**2.19**	**1.61**	**0.944**	**7.0**	**0.395**
	8/12/2020	(orig)	**2.13**	**1.25**	**0.815**	**5.9**	**0.297**
	9/21/2021	**Not sampled due to presense of PSH**					
	9/16/2022	**(orig)**	**1.8**	0.66	0.52	**5.1**	**0.71**

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Manganese (dissolved) (mg/L)
NMWQCC Standards			**0.005**	**1.00**	**0.70**	**0.62**	**0.20**
MW-2	10/24/2008	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--
	1/29/2009	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--
	9/25/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.002	0.04
	9/22/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	0.0074
	9/28/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	0.0956
	9/26/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/17/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/22/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/14/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/27/2017	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	9/6/2018	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.005
	8/15/2019	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	0.0344
	8/12/2020	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.010
	9/23/2021	(orig)	< 0.001	< 0.001	< 0.001	< 0.002	0.0057
	9/16/2022	**Not sampled due to presense of PSH**					
MW-3	10/24/2008	(orig)	**0.02**	< 0.0005	< 0.0005	0.024	--
	1/29/2009	(orig)	**0.012**	< 0.0005	< 0.0005	0.005	--
	9/25/2009	(orig)	0.0021	< 0.001	< 0.001	< 0.002	**1.24**
	9/22/2010	(orig)	0.0042	< 0.001	< 0.001	< 0.001	**1.11**
	9/28/2011	(orig)	0.0038	< 0.001	< 0.001	< 0.003	**0.704**
	9/26/2012	(orig)	0.0016	< 0.001	< 0.001	< 0.003	**0.67**
	9/17/2013	(orig)	0.0012	< 0.001	< 0.001	< 0.003	**0.67**
	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	**0.65**
	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--
	9/22/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	**0.79**
	09/14/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	**0.48**
	9/27/2017	(orig)	0.0031	< 0.001	< 0.001	< 0.003	**0.471**
	9/6/2018	(orig)	0.001	< 0.001	< 0.001	< 0.003	**0.477**
	8/12/2019	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	**0.496**
	8/12/2020	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	**0.55**
	9/23/2021	(orig)	< 0.001	< 0.001	< 0.001	< 0.002	**0.47**
	9/16/2022	(orig)	< 0.001	< 0.001	< 0.001	< 0.0015	**0.57**
MW-4	10/24/2008	(orig)	**0.024**	< 0.0005	0.006	0.01	--
	1/29/2009	(orig)	**0.11**	0.006	0.009	0.147	--
	9/25/2009	(orig)	**0.0088**	< 0.001	0.0057	0.002	**1.24**
	9/22/2010	(orig)	**0.019**	0.005	0.0069	0.0057	**1.27**
	9/28/2011	(orig)	**0.0256**	0.0078	0.0017	0.0106	**1.82**
	9/26/2012	(orig)	**0.0124**	0.0023	< 0.001	< 0.003	**1.5**
	9/26/2012	(Duplicate)	**0.013**	0.0022	< 0.001	0.0031	**--**
	---	**August 2013 Mobile Dual Phase Extraction Event**					
	9/17/2013	(orig)	**0.0065**	< 0.001	< 0.001	< 0.003	**1.6**
	9/23/2014	(orig)	**0.0068**	< 0.001	0.0011	< 0.003	**2.2**
	---	**November 2014 Mobile Dual Phase Extraction Event**					
	12/17/2014	(orig)	0.003	< 0.001	< 0.001	< 0.003	--
	12/17/2014	(Duplicate)	0.0039	< 0.001	< 0.001	< 0.003	--
	---	**April 2015 Mobile Dual Phase Extraction Event**					

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Johnston Federal #4
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Manganese (dissolved) (mg/L)
NMWQCC Standards			**0.005**	**1.00**	**0.70**	**0.62**	**0.20**
MW-4	6/18/2015	(orig)	0.0039	< 0.001	< 0.001	< 0.003	--
	9/22/2015	(orig)	0.0018	< 0.001	< 0.001	< 0.003	**1.9**
	9/14/2016	(orig)	0.0047	< 0.001	< 0.001	< 0.003	**2.0**
	9/27/2017	(orig)	**0.0266**	< 0.001	< 0.001	0.004	**2.46**
	---	**November 2017 Mobile Dual Phase Extraction Event**					
	9-6-2018	(orig)	**0.132**	<0.001	<0.001	0.0165	**1.74**
	8/16/2019	(orig)	**0.0087**	< 0.001	< 0.001	< 0.003	**1.57**
	8/13/2020	(orig)	**0.0184**	< 0.001	< 0.001	< 0.003	**1.65**
	9/23/2021	(orig)	**0.027**	< 0.001	< 0.001	0.0053	**1.9**
	9/16/2022	**Not Sampled - Well Damaged**					

Notes:

mg/L: milligrams per liter

NMWQCC: New Mexico Water Quality Control Commission

--: not analyzed

PSH: phase separated hydrocarbons

<0.037: indicates result less than the stated laboratory reporting limit (PQL)

*Concentrations in **bold** and shaded exceed the New Mexico Water Quality Control Commission Standards, 20.6.2 of the New Mexico Administrative Code*

ENSOLUM

APPENDIX A

Laboratory Analytical Reports

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

September 29, 2022

Mitch Killough
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Johnston Fed 4 OrderNo.: 2209886

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/17/2022 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 #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2209886**
Date Reported: **9/29/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Johnston Fed 4 **Collection Date:** 9/16/2022 2:40:00 PM
Lab ID: 2209886-001 **Matrix:** AQUEOUS **Received Date:** 9/17/2022 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Sulfate	56	5.0		mg/L	10	9/20/2022 1:11:17 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Manganese	0.71	0.0020	*	mg/L	1	9/27/2022 2:40:34 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	1800	100		µg/L	100	9/20/2022 6:44:58 PM
Toluene	660	100		µg/L	100	9/20/2022 6:44:58 PM
Ethylbenzene	520	100		µg/L	100	9/20/2022 6:44:58 PM
Xylenes, Total	5100	150		µg/L	100	9/20/2022 6:44:58 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	100	9/20/2022 6:44:58 PM
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	100	9/20/2022 6:44:58 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	100	9/20/2022 6:44:58 PM
Surr: Toluene-d8	98.9	70-130		%Rec	100	9/20/2022 6:44:58 PM

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	Estimated value
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 Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209886**
Date Reported: **9/29/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-3
Project: Johnston Fed 4 **Collection Date:** 9/16/2022 3:30:00 PM
Lab ID: 2209886-002 **Matrix:** AQUEOUS **Received Date:** 9/17/2022 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Sulfate	450	5.0	*	mg/L	10	9/20/2022 2:00:55 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Manganese	0.57	0.0020	*	mg/L	1	9/27/2022 2:47:00 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	1.0		µg/L	1	9/20/2022 7:12:00 PM
Toluene	ND	1.0		µg/L	1	9/20/2022 7:12:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2022 7:12:00 PM
Xylenes, Total	ND	1.5		µg/L	1	9/20/2022 7:12:00 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	9/20/2022 7:12:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	9/20/2022 7:12:00 PM
Surr: Dibromofluoromethane	113	70-130		%Rec	1	9/20/2022 7:12:00 PM
Surr: Toluene-d8	99.0	70-130		%Rec	1	9/20/2022 7:12:00 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209886**

29-Sep-22

Client: HILCORP ENERGY

Project: Johnston Fed 4

Sample ID: **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B91347**	RunNo: **91347**
Prep Date:	Analysis Date: **9/27/2022**	SeqNo: **3269822** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	ND	0.0020								

Sample ID: **LLLCS-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B91347**	RunNo: **91347**
Prep Date:	Analysis Date: **9/27/2022**	SeqNo: **3269823** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	ND	0.0020	0.002000	0	86.6	50	150			

Sample ID: **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B91347**	RunNo: **91347**
Prep Date:	Analysis Date: **9/27/2022**	SeqNo: **3269824** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	99.1	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209886**

29-Sep-22

Client: HILCORP ENERGY

Project: Johnston Fed 4

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R91150**	RunNo: **91150**
Prep Date:	Analysis Date: **9/19/2022**	SeqNo: **3261343** Units: **mg/L**

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

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R91150**	RunNo: **91150**
Prep Date:	Analysis Date: **9/19/2022**	SeqNo: **3261344** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209886**

29-Sep-22

Client: HILCORP ENERGY

Project: Johnston Fed 4

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **B91169**	RunNo: **91169**
Prep Date:	Analysis Date: **9/20/2022**	SeqNo: **3262031** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	116	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	9.5		10.00		94.8	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **B91169**	RunNo: **91169**
Prep Date:	Analysis Date: **9/20/2022**	SeqNo: **3262034** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.6	70	130			
Surr: Dibromofluoromethane	12		10.00		115	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

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: **HILCORP ENERGY** Work Order Number: **2209886** RcptNo: **1**

Received By: **Juan Rojas** **9/17/2022 7:45:00 AM**

Completed By: **Cheyenne Cason** **9/19/2022 8:40:33 AM**

Reviewed By: 9.19.22

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

HNO3

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

Adjusted? yes

Checked by: JM 9/19/22

Special Handling (if applicable)

15. 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:

16. Additional remarks:

poured off and filtered ~125mls from 001B and 002B for 001C and 002C and added ~0.4mls HNO3 to 001C and 002C for metals analysis Used 3 filters from Lot FJU820. JM 9/19/22.

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Farmington NM

Mailing Address: 382 Road 3100 Aztec, NM 87410

Billing Address: PO Box 61529 Houston, TX 77208

Phone #: 505-486-9543

email or Fax#: Brandon.Sinclair@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other_____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush_____

Project Name:

Johnston Fed 4

Project #:

Project Manager:

Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 1.7+0.2=1.9

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 Name	Container Type and #	Preservative Type	HEAL No.	Dissolved Mn	BTEX 8260	Sulfate	
						2209886				
9-16	1440	Water	MW-1	(3) 40ml VOA (1) Liter Plastic	HCl Cool	001	X	X	X	
		Water	~~MW-2~~	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	CW
9-16	1530	Water	MW-3	(3) 40ml VOA (1) Liter Plastic	HCl Cool	002	X	X	X	
		Water	~~MW-4~~	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	CW

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9-16	1554		Chris Ward		9/16/22	1554
9/16/22	1840			courier	9/17/22	7:45

Remarks: *Dissolved Mn is to be filterd and preserved in the lab.
Special pricing see Andy.

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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 200211

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 200211
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2022 Annual Groundwater Monitoring Report: Content Satisfactory 1. Attempt to locate MW-4 to continue annual sampling. If well cannot be found, please implement plan to reconstruct, if damaged or lost, and submit work plan to NMOCD. 2. Continue annual sampling to assess BTEX concentrations in MW-1, MW-4 (if possible). 3. Continue assessing manganese in MW-1, MW-3, and MW-4 4. Continue to quarterly asses PSH in MW-1 and MW-2. 5 Submit the 2023 Annual Monitoring Report by April 1, 2024.	7/27/2023