REVIEWED
By Mike Buchanan at 11:08 am, May 21, 2024

Review of the 2022 Annual Groundwater Monitoring Report for Federal Gas Com H#1: content satisfactory
1. Update data for MW-2 as there has not been lab analyses included in the annual report since 2012 and there has not been any data since 2008 for MW-3.
2. Please upload Groundwater Abatement Plan or letter of approval for it from NMOCD conveying that four (4) consecutive sampling events are sufficient for closure (if available).
3. Continue to sample MW-1 as prescribed in this report, and submit the 2024 annual report by April 2025.

ENSOLUM

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
Federal Gas Com H#1
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NDGF0000010

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). This report documents groundwater monitoring activities conducted at the Federal Gas Com H#1 natural gas production well (Site), located within Unit Letter C of Section 31 within Township 30 North and Range 12 West, San Juan County, New Mexico (Figure 1). The Site was previously owned and operated by Amoco and then XTO Energy, Inc. (XTO) prior to the acquisition by Hilcorp. Currently, there are three monitoring wells (MW-1, MW-2, and MW-3R) located at the Site which, are monitored quarterly for groundwater elevations. Additionally, groundwater from monitoring well MW-1 is sampled quarterly for laboratory analysis.

SITE BACKGROUND

In November 1999, XTO responded to a release of approximately 69 barrels (bbls) of produced water and condensate. The response involved excavation and disposal of 304 cubic yards of impacted soil and the collection of confirmation soil samples from the perimeter of the excavation. On January 28, 2000, Blagg Engineering, Inc. (Blagg) submitted the *Spill Cleanup Report* detailing response activities. Field and analytical data presented in the report suggested the vertical extent of the release had been established and the lateral extent of soil impacts met closure standards except for the source area. Vertical vent piping was installed in the source area to passively remediate the remaining impacted soil through bioventing.

In March 2005, while upgrading equipment on site, XTO discovered what was believed to be a historical earthen blowdown pit. Approximately 300 cubic yards of impacted soil were excavated and disposed off-Site. Groundwater was encountered in the excavation; therefore, monitoring wells MW-1 and MW-2 were installed near the 2005 and 1999 excavations, respectively. In April 2006, monitoring well MW-3 was installed cross-gradient of the source areas. The *2006 Annual Groundwater Report* was submitted to the NMOCD proposing the removal of the passive remediation system and implementation of quarterly sampling of the three monitoring wells in accordance with the NMOCD approved *Groundwater Management Plan*, a field-wide response plan under which the original Amoco assets were operated. Between 2007 and 2009, XTO conducted regular groundwater sampling of source monitoring wells MW-1 and MW-2 and measured groundwater elevations in all existing monitoring wells. XTO submitted annual

groundwater reports comparing laboratory analytical results to the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards. In June 2010, the vertical vent piping was removed.

In June 2010, monitoring well MW-3 was plugged and abandoned and replaced in January 2011 with monitoring well MW-3R. The *2010 Annual Groundwater Report* and the *2011 Annual Groundwater Report* submitted to the NMOCD by XTO recommended continued quarterly sampling of monitoring wells MW-1 and MW-2 until analytical results indicated hydrocarbon constituents were compliant with NMWQCC groundwater standards for four consecutive quarters. Additionally, XTO recommended injection of hydrogen peroxide into the groundwater aquifer using monitoring wells MW-1 and MW-2 as injection points to oxygenate the aquifer and enhance naturally occurring bioremediation.

In October 2011, XTO met with the NMOCD to present a brief history of the Site and the hydrogen peroxide injection work plan. The NMOCD did not provide comments for the hydrogen peroxide injection work plan; therefore, XTO did not proceed with the remediation, but continued to sample monitoring wells MW-1 and MW-2 and monitor groundwater elevations in the three monitoring wells quarterly through 2012. In the *2012 Annual Groundwater Report*, XTO presented laboratory analytical results of benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in groundwater samples collected from monitoring well MW-2 for four consecutive quarters that were compliant with NMWQCC standards. As a result, XTO proposed removing monitoring well MW-2 from the sampling management plan and continued sampling monitoring well MW-1 and monitoring groundwater elevations in MW-1, MW-2, and MW-3R quarterly during 2013 and 2014.

In the *2015 Annual Groundwater Report*, XTO proposed semi-annual groundwater sampling of monitoring well MW-1 and collecting semi-annual depth to groundwater measurements of monitoring wells MW-1, MW-2, and MW-3R. In December of 2017, Hilcorp acquired the Site from XTO and continued semi-annual monitoring of groundwater elevations and sampling of MW-1 during 2017 and 2018. In 2019, the Site moved from semi-annual monitoring to quarterly sampling of MW-1 due to 2018 groundwater analytical results being compliant with NMWQCC standards during both sampling events. A summary of the relative groundwater elevations and the laboratory analytical results from historical and current groundwater monitoring events are presented in Table 1 and Table 2, respectively. All previously submitted groundwater monitoring reports are available on the NMOCD database.

SITE GROUNDWATER CLEANUP STANDARDS

The NMOCD requires groundwater-quality standards be met as presented by the 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 the chemicals of concern (COCs) at the Site in micrograms per liter (µg/L).

- Benzene: 5.0 µg/L
- Toluene: 1,000 µg/L
- Ethylbenzene: 700 µg/L
- Total Xylenes: 620 µg/L

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

Groundwater-level measurements and samples were collected in April, July, and October 2022 from wells MW-1, MW-2, and MW-3R. Due to a Hilcorp staffing transition, groundwater sampling/gauging was not conducted at the Site during the first quarter of 2022. Static

groundwater-level monitoring included recording depth-to-groundwater measurements of each monitoring well 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. Groundwater elevations measured in monitoring wells during the 2022 sampling events are presented in Table 1 and were used to develop groundwater potentiometric surface maps (shown on Figures 2 and 4). Depth-to-groundwater measurements were not collected from wells MW-2 and MW-3R during the third quarter, therefore elevation contours were not prepared for the July 2022 sampling event. The inferred groundwater flow direction is to the southeast.

GROUNDWATER SAMPLING

Groundwater from monitoring well MW-1 was purged and sampled using a disposable bailer. Purging was accomplished by removing stagnant groundwater from the monitoring well prior to collecting a sample. 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. Samples were immediately sealed with zero headspace and packed on ice to preserve samples. Samples were submitted to Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico, for analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8260B. 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

Benzene was detected in groundwater during the third and fourth quarter sampling events at concentrations above the NMWQCC standard in well MW-1. Ethylbenzene, toluene, and total xylenes were not detected above the NMWQCC standards during 2022 sampling events. A summary of analytical results is presented in Table 2 and depicted on Figures 2 through 4, with complete laboratory analytical reports attached as Appendix A.

CONCLUSIONS AND RECOMMENDATIONS

Based on the current and historical groundwater analytical data collected from well MW-1, benzene concentrations have fluctuated above and below the NMWQCC standard of 5.0 µg/L. Based on current groundwater conditions at the Site, Ensolum/Hilcorp recommend continued quarterly sampling from well MW-1 for BTEX analysis until eight consecutive quarters are compliant with NMWQCC standards.

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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Senior Managing Geologist
(303) 887-2946
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Attachments:

Figure 1	Site Location Map
Figure 2	Groundwater Elevation and Analytical Results (April 2022)
Figure 3	Groundwater Elevation and Analytical Results (July 2022)
Figure 4	Groundwater Elevation and Analytical Results (October 2022)
Table 1	Groundwater Elevations
Table 2	Groundwater Analytical Results
Appendix A	Analytical Laboratory Reports

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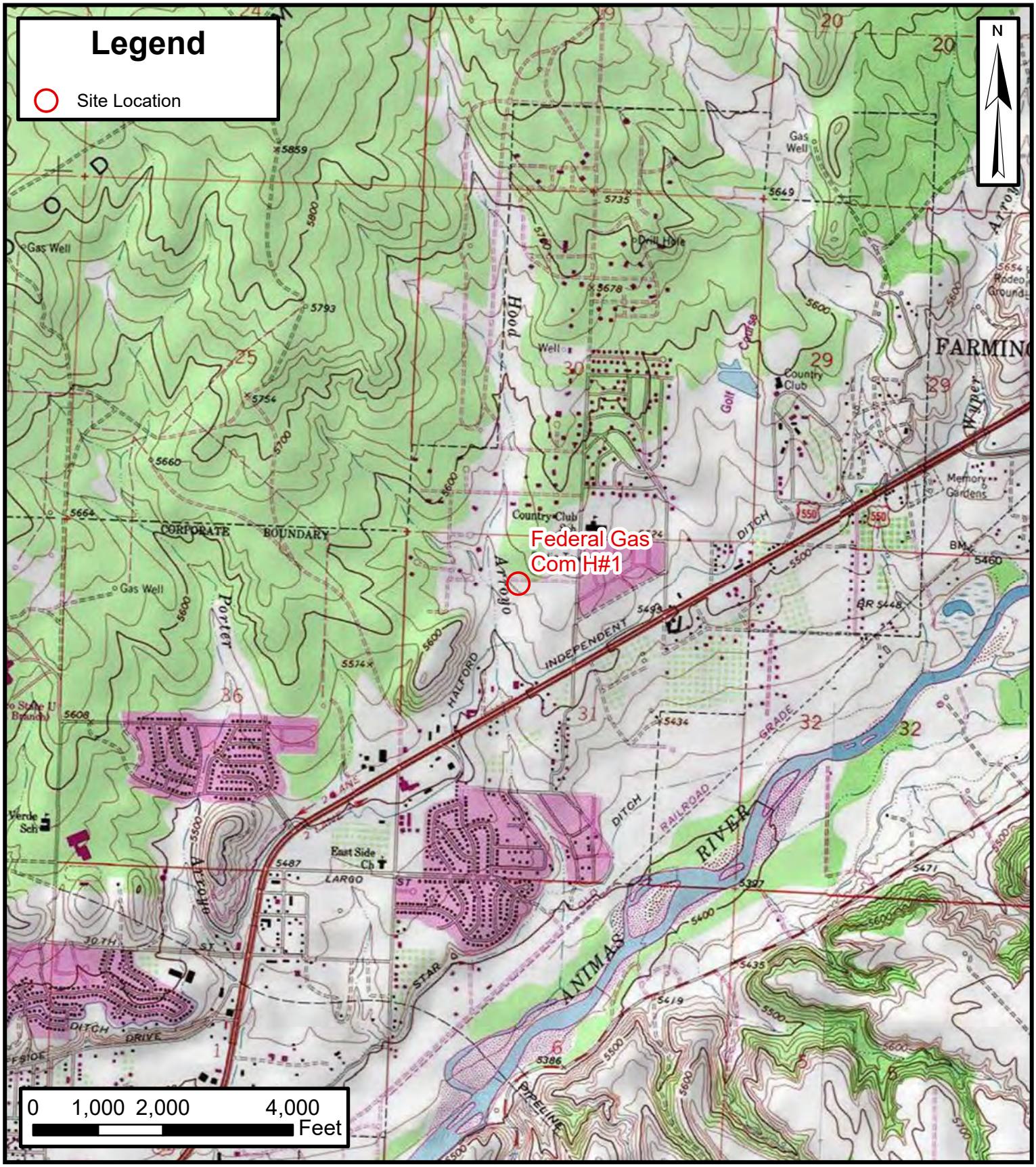
FIGURES



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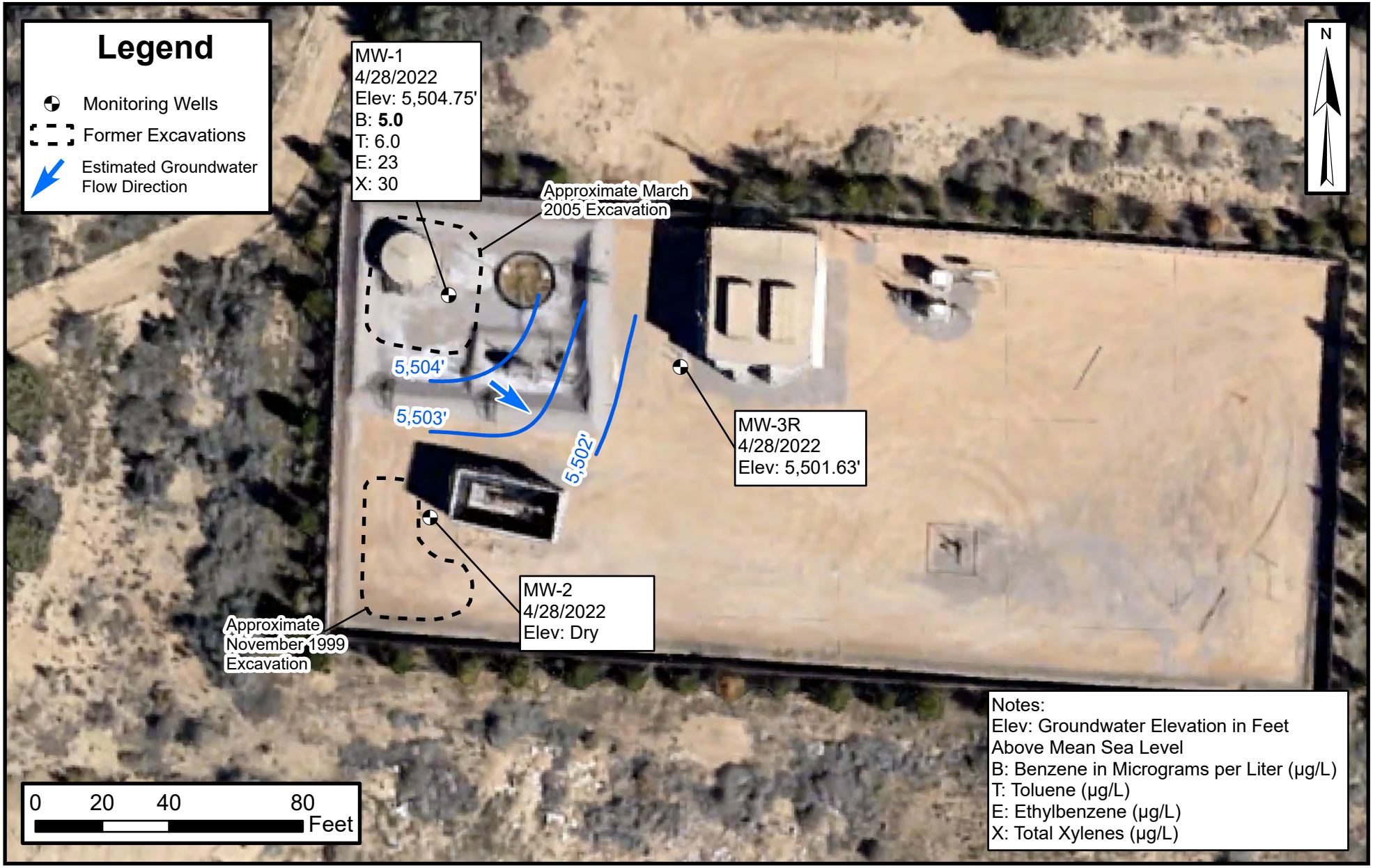
Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

Federal Gas Com H#1
Hilcorp Energy Company
36.77480, -108.14236
San Juan County, New Mexico

FIGURE
1

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



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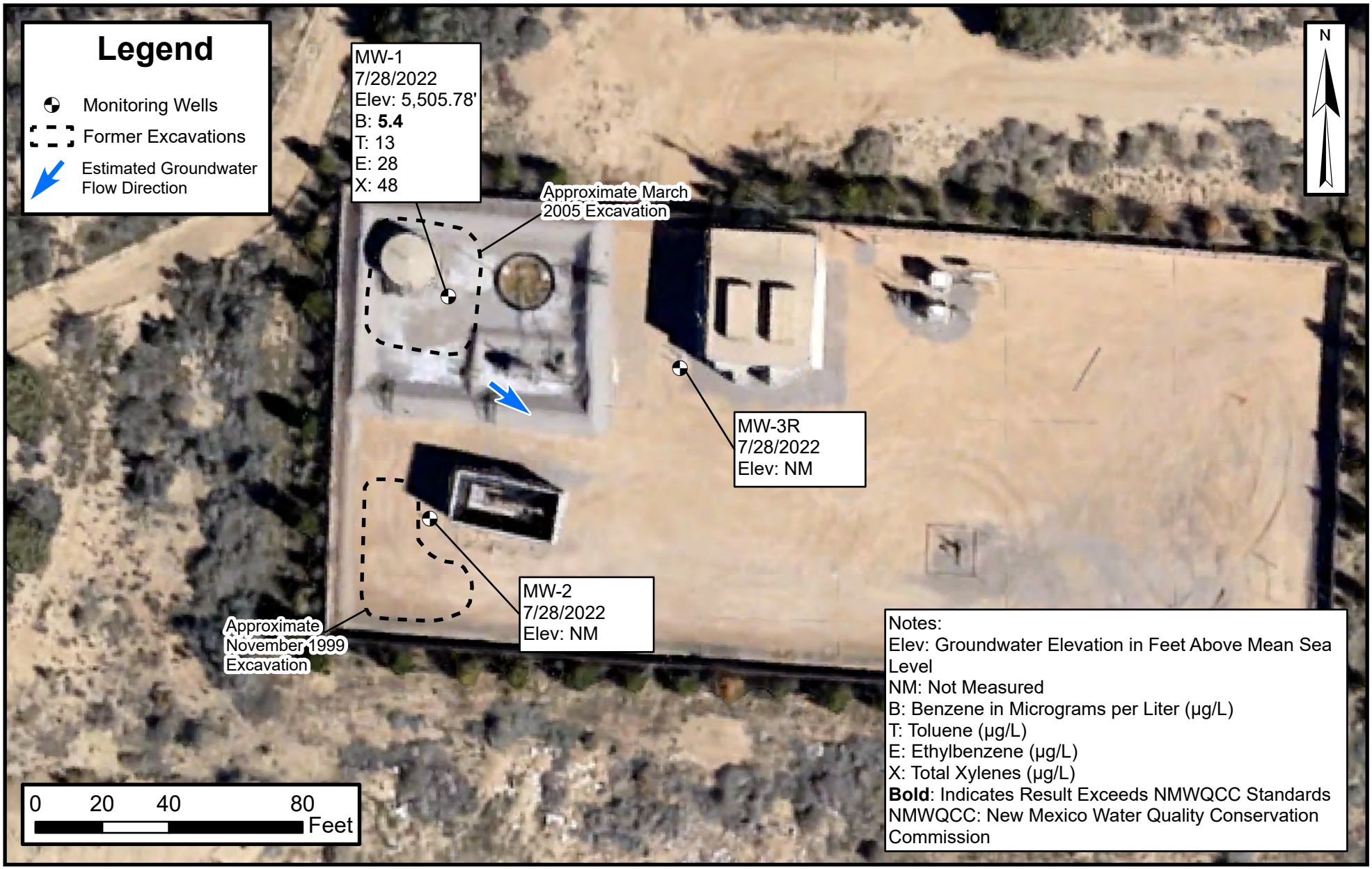
Groundwater Elevation and Analytical Results (April 2022)

Federal Gas Com H#1
Hilcorp Energy Company
36.77480, -108.14236
San Juan County, New Mexico

FIGURE 2

Sources: Google Earth



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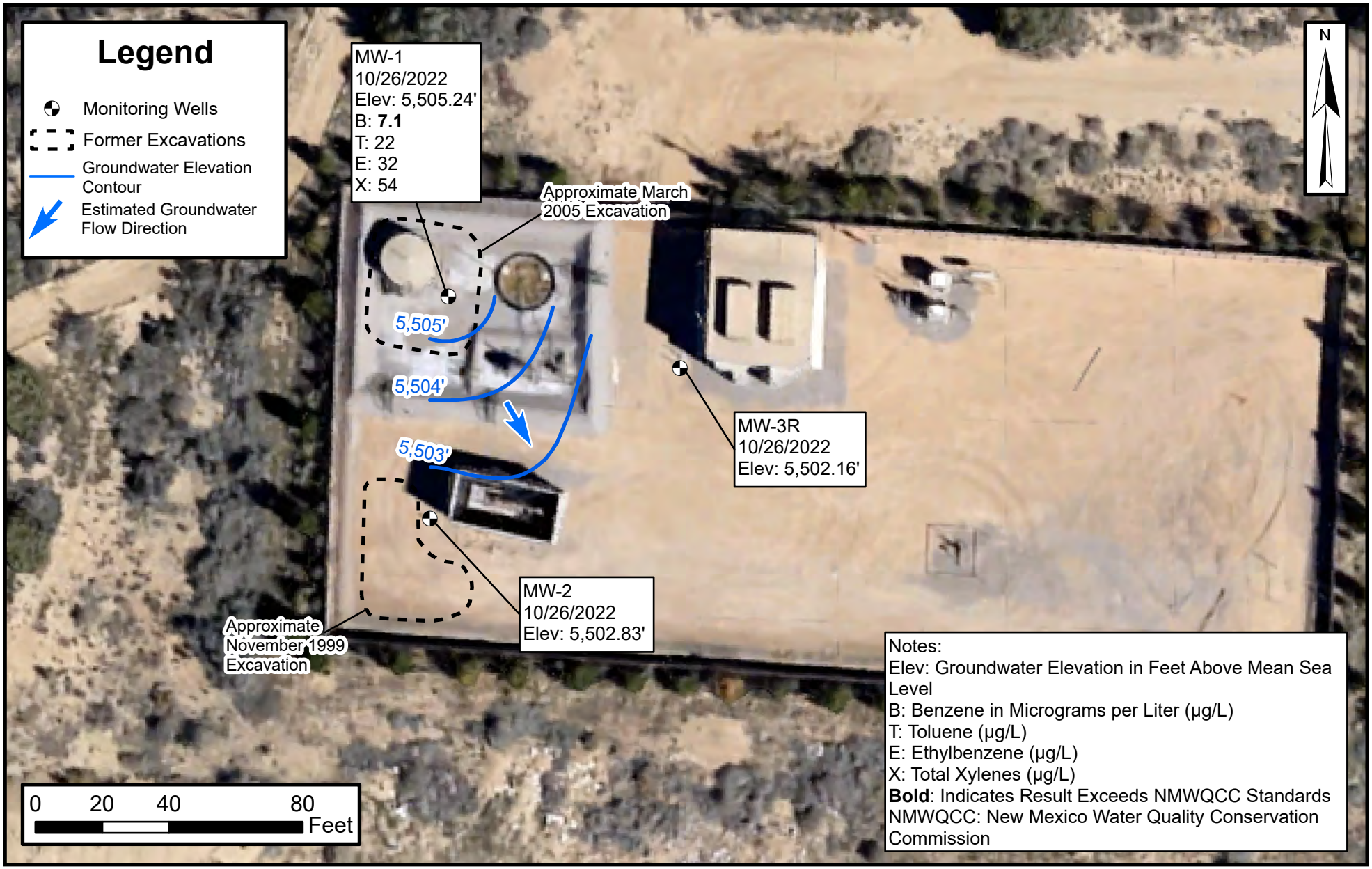
Groundwater Elevation and Analytical Results (July 2022)

Federal Gas Com H#1
Hilcorp Energy Company
36.77480, -108.14236
San Juan County, New Mexico

FIGURE
3

Sources: Google Earth



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Groundwater Elevation and Analytical Results (October 2022)

Federal Gas Com H#1
Hilcorp Energy Company
36.77480, -108.14236
San Juan County, New Mexico

FIGURE
4

Sources: Google Earth

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TABLES

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TABLE 1
GROUNDWATER ELEVATIONS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet amsl)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)
MW-1	5,535.82	3/29/2007	31.34	5,504.48
		7/23/2007	31.55	5,504.27
		10/11/2007	31.09	5,504.73
		1/8/2008	31.26	5,504.56
		7/1/2008	31.40	5,504.42
		1/20/2009	31.29	5,504.53
		7/8/2009	31.58	5,504.24
		10/20/2009	31.31	5,504.51
		1/12/2010	31.29	5,504.53
		4/7/2010	31.03	5,504.79
		7/20/2010	31.11	5,504.71
		10/7/2010	30.51	5,505.31
		1/18/2011	30.56	5,505.26
		4/12/2011	30.83	5,504.99
		8/9/2011	30.92	5,504.90
		11/9/2011	30.46	5,505.36
		3/8/2012	30.64	5,505.18
		6/14/2012	31.00	5,504.82
		9/12/2012	31.11	5,504.71
		12/12/2012	31.05	5,504.77
		3/14/2013	29.94	5,505.88
		6/17/2013	30.98	5,504.84
		9/11/2013	31.05	5,504.77
		12/16/2013	30.14	5,505.68
		3/12/2014	30.33	5,505.49
		6/11/2014	30.36	5,505.46
		9/22/2014	30.46	5,505.36
		12/9/2014	30.17	5,505.65
		3/12/2015	30.25	5,505.57
		6/11/2015	29.95	5,505.87
		9/21/2015	29.57	5,506.25
		12/21/2015	29.75	5,506.07
		6/20/2016	30.30	5,505.52
		12/14/2016	30.29	5,505.53
		6/26/2017	29.98	5,505.84
		12/12/2017	30.19	5,505.63

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TABLE 1
GROUNDWATER ELEVATIONS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet amsl)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)
MW-1	5,535.82	6/28/2018	30.55	5,505.27
		12/10/2018	30.87	5,504.95
		3/18/2019	30.49	5,505.33
		6/19/2019	30.35	5,505.47
		7/10/2019	30.30	5,505.52
		9/26/2019	30.31	5,505.51
		12/9/2019	30.26	5,505.56
		3/13/2020	30.32	5,505.50
		6/22/2020	30.54	5,505.28
		8/31/2020	30.88	5,504.94
		11/13/2020	30.94	5,504.88
		1/22/2021	30.88	5,504.94
		6/22/2021	31.16	5,504.66
		8/26/2021	31.17	5,504.65
		10/4/2021	31.15	5,504.67
		4/28/2022	31.07	5,504.75
		7/28/2022	30.04	5,505.78
		10/26/2022	30.58	5,505.24
MW-2	5,534.96	3/29/2007	33.05	5,501.91
		7/23/2007	33.24	5,501.72
		10/11/2007	32.87	5,502.09
		1/8/2008	32.98	5,501.98
		7/1/2008	33.08	5,501.88
		1/20/2009	35.34	5,499.62
		7/8/2009	33.23	5,501.73
		10/20/2009	32.94	5,502.02
		1/12/2010	32.94	5,502.02
		4/7/2010	32.71	5,502.25
		7/20/2010	32.80	5,502.16
		10/7/2010	32.30	5,502.66
		1/18/2011	32.33	5,502.63
		4/12/2011	32.55	5,502.41
		8/9/2011	32.70	5,502.26
		11/9/2011	32.28	5,502.68
		3/8/2012	32.39	5,502.57
		6/14/2012	32.74	5,502.22
		9/12/2012	32.84	5,502.12
		12/12/2012	32.78	5,502.18

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TABLE 1
GROUNDWATER ELEVATIONS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet amsl)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)
MW-2	5,534.96	3/14/2013	32.67	5,502.29
		6/17/2013	32.68	5,502.28
		9/11/2013	32.76	5,502.20
		12/16/2013	31.90	5,503.06
		3/12/2014	32.05	5,502.91
		6/11/2014	32.15	5,502.81
		9/22/2014	32.28	5,502.68
		12/9/2014	32.03	5,502.93
		3/12/2015	31.96	5,503.00
		6/11/2015	31.82	5,503.14
		9/21/2015	31.47	5,503.49
		12/21/2015	31.61	5,503.35
		6/20/2016	32.11	5,502.85
		12/14/2016	32.14	5,502.82
		6/26/2017	31.90	5,503.06
		12/12/2017	32.03	5,502.93
		6/28/2018	32.35	5,502.61
		12/10/2018	32.62	5,502.34
		3/18/2019	32.31	5,502.65
		6/19/2019	32.22	5,502.74
		7/10/2019	32.12	5,502.84
		9/26/2019	32.12	5,502.84
		12/9/2019	32.04	5,502.92
		3/13/2020	32.09	5,502.87
		6/22/2020	32.32	5,502.64
		8/31/2020	32.60	5,502.36
		11/13/2020	Dry	Dry
		1/22/2021	35.33	5,499.63
		6/22/2021	32.80	5,502.16
		8/26/2021	32.81	5,502.15
		10/4/2021	32.79	5,502.17
		4/28/2022	Dry	Dry
		7/28/2022	--	--
		10/26/2022	32.13	5,502.83

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TABLE 1
GROUNDWATER ELEVATIONS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet amsl)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)
MW-3	5,539.55	12/6/2006	34.76	5,504.79
		3/29/2007	34.85	5,504.70
		7/23/2007	35.00	5,504.55
		10/11/2007	34.55	5,505.00
		1/8/2008	31.74	5,507.81
		7/1/2008	34.86	5,504.69
		1/20/2009	34.75	5,504.80
		7/8/2009	35.01	5,504.54
		10/20/2009	34.68	5,504.87
		1/12/2010	34.71	5,504.84
		4/7/2010	34.53	5,505.02
MW-3R	5,536.60	1/18/2011	34.69	5,501.91
		4/12/2011	34.91	5,501.69
		8/9/2011	35.01	5,501.59
		11/9/2011	34.59	5,502.01
		3/8/2012	34.72	5,501.88
		6/14/2012	35.04	5,501.56
		9/12/2012	35.13	5,501.47
		12/12/2012	35.07	5,501.53
		3/14/2013	34.97	5,501.63
		6/17/2013	34.98	5,501.62
		9/11/2013	35.05	5,501.55
		12/16/2013	34.28	5,502.32
		3/12/2014	34.43	5,502.17
		6/11/2014	34.57	5,502.03
		9/22/2014	34.60	5,502.00
		12/9/2014	34.35	5,502.25
		3/12/2015	34.31	5,502.29
		6/11/2015	34.19	5,502.41
		9/21/2015	33.83	5,502.77
		12/21/2015	33.95	5,502.65
		6/20/2016	34.55	5,502.05
		12/14/2016	34.45	5,502.15
		6/26/2017	34.17	5,502.43
		12/12/2017	34.31	5,502.29
		6/28/2018	34.65	5,501.95
		12/10/2018	34.92	5,501.68
		3/18/2019	34.71	5,501.89
		6/19/2019	34.52	5,502.08
		7/10/2019	34.49	5,502.11
		9/26/2019	34.36	5,502.24
		12/9/2019	34.31	5,502.29

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TABLE 1
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Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet amsl)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet amsl)
MW-3R	5,536.60	3/13/2020	34.35	5,502.25
		6/22/2020	34.58	5,502.02
		8/31/2020	34.89	5,501.71
		11/13/2020	34.96	5,501.64
		1/21/2021	34.88	5,501.72
		6/22/2021	35.06	5,501.54
		8/26/2021	35.08	5,501.52
		10/4/2021	35.07	5,501.53
		4/28/2022	34.97	5,501.63
		7/28/2022	--	--
		10/26/2022	34.44	5,502.16

Notes:

--: not measured

amsl: above mean sea level

BTOC: below top of casing

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TABLE 2
GROUNDWATER ANALYTICAL RESULTS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards		5.0	1,000	700	620
MW-1	3/29/2007	**39**	ND	560	**2,300**
	7/23/2007	**32**	ND	610	**2,300**
	10/11/2007	**50**	18	440	**1,500**
	1/8/2008	**47**	7.1	**730**	**3,000**
	7/1/2008	**18**	9.6	350	**980**
	1/20/2009	**30**	22	370	**910**
	7/8/2009	**16**	ND	280	530
	10/20/2009	**33**	9.7	310	**630**
	1/12/2010	**31**	<1.0	270	500
	4/7/2010	**33**	16	290	**630**
	7/20/2010	**27**	10	360	**710**
	10/7/2010	**26**	<50	320	600
	1/18/2011	**33**	50	300	600
	4/12/2011	**27**	<100	320	**700**
	8/9/2011	**20.8**	21	257	444
	11/9/2011	**17**	<250	240	390
	3/8/2012	**22**	<50	200	260
	6/14/2012	**14**	<50	170	170
	9/12/2012	**11**	<5	110	73
	12/12/2012	**23**	<25	170	270
	3/14/2013	**16**	14	130	220
	6/17/2013	**20**	16	99	160
	9/11/2013	**23**	<50	120	230
	12/16/2013	**28**	61	160	310
	3/12/2014	**26**	85	140	320
	6/11/2014	**35**	150	160	390
	9/22/2014	**34**	<100	230	530
	12/9/2014	**22**	82	96	230
	3/12/2015	**8.0**	26	72	140
	6/11/2015	**44**	220	320	**980**
	9/21/2015	**65.9**	391	212	599
	12/21/2015	**105**	105	205	**634**
	6/20/2016	**37.6**	182	239	**626**
	12/14/2016	**19.0**	118	118	323

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TABLE 2
GROUNDWATER ANALYTICAL RESULTS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards		5.0	1,000	700	620
MW-1	6/26/2017	**13.7**	85.2	87.3	250
	12/12/2017	**10.5**	20.6	31.2	65.5
	6/28/2018	**14**	160	94	290
	12/10/2018	3.8	17	23	53
	3/18/2019	**7.1**	72	68	150
	7/10/2019	**8.6**	92	58	150
	9/26/2019	**13**	73	67	170
	12/9/2019	**10**	60	69	140
	3/13/2020	**14**	190	71	270
	6/22/2020	**8.4**	61	50	130
	8/31/2020	**15.3**	141	94	333
	11/13/2020	**7.5**	60	86	216
	1/22/2021	**10.6**	87	68.7	179
	6/22/2021	4.1	<2.0	12	16
	8/26/2021	**9.0**	13	95	170
	10/4/2021	3.7	11	42	65
	4/28/2022	5.0	6	23	30
	7/28/2022	**5.4**	13	28	48
	10/26/2022	**7.1**	22	32	54
MW-2	3/29/2007	**55**	ND	39	60
	7/23/2007	**39**	ND	25	9.2
	10/11/2007	**86**	ND	97	140
	1/8/2008	**65**	ND	82	56
	7/1/2008	**15**	ND	22	7.3
	1/20/2009	**38**	ND	85	49
	7/8/2009	**7.5**	ND	13	3
	10/20/2009	**20**	<1.0	31	29
	1/12/2010	**22**	<1.0	54	41
	4/7/2010	**37**	1.3	110	130
	7/20/2010	**17**	<1.0	94	92
	10/7/2010	**34**	<5	120	140
	1/18/2011	**30**	<50	160	170
	4/12/2011	**25**	<25	62	100
	8/9/2011	4	<1	9.8	33.2
	11/9/2011	**26**	<5	160	160
	3/8/2012	**9.3**	<10	79	90

ENSOLUM

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
Federal Gas Com H#1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards		**5.0**	**1,000**	**700**	**620**
MW-2	6/14/2012	2.6	<5	29	44
	9/12/2012	0.91	<5	8.8	5.2
	12/12/2012	0.71	<5	3.5	3.9
MW-3	12/6/2006	ND	ND	ND	ND
	3/29/2007	ND	ND	ND	ND
	7/23/2007	ND	ND	ND	ND
	10/11/2007	ND	ND	ND	ND
	1/8/2008	ND	ND	ND	ND

Notes:

µg/L: milligrams per liter

ND: not detected, laboratory reporting limit unknown

NMWQCC: New Mexico Water Quality Control Commission

--: not analyzed

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

*Concentrations in **bold** 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

May 05, 2022

Mitch Killough

Hilcorp Energy
PO Box 61529
Houston, TX 77208-1529
TEL: (337) 276-7676
FAX

RE: Federal GC H1 OrderNo.: 2204D01

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/29/2022 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 **2204D01**
Date Reported: **5/5/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Client Sample ID: MW-1
Project: Federal GC H1
Collection Date: 4/28/2022 12:19:00 PM
Lab ID: 2204D01-001 **Matrix:** AQUEOUS **Received Date:** 4/29/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
Benzene	5.0	1.0		µg/L	1	5/3/2022 5:21:00 PM	R87680
Toluene	6.1	1.0		µg/L	1	5/3/2022 5:21:00 PM	R87680
Ethylbenzene	23	1.0		µg/L	1	5/3/2022 5:21:00 PM	R87680
Xylenes, Total	30	1.5		µg/L	1	5/3/2022 5:21:00 PM	R87680
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	5/3/2022 5:21:00 PM	R87680
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	5/3/2022 5:21:00 PM	R87680
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	5/3/2022 5:21:00 PM	R87680
Surr: Toluene-d8	102	70-130		%Rec	1	5/3/2022 5:21:00 PM	R87680

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2204D01**

05-May-22

Client: Hilcorp Energy

Project: Federal GC H1

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **LCSW** Batch ID: **R87680** RunNo: **87680**

Prep Date: Analysis Date: **5/3/2022** SeqNo: **3105051** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.4	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.3	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	70	130			

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **PBW** Batch ID: **R87680** RunNo: **87680**

Prep Date: Analysis Date: **5/3/2022** SeqNo: **3105054** 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	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.6		10.00		95.8	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: 2204D01 | RcptNo: 1

Received By: **Tracy Casarrubias** 4/29/2022 7:10:00 AM

Completed By: **Tracy Casarrubias** 4/29/2022 10:16:35 AM

Reviewed By: JN 4/29/22

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 ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: KPA 4-29-22

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:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	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:
Federal GC H1

Project #:

Project Manager:
Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.4 - 0 = 1.4

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. 2204201	BTEX Method 8260
4-28	1219	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
4-28	1450			Walk-In	4/28/22	1450
4/28/22	1807			Courier	4/29/22	7:10

Remarks: Special Pricing See Andy
cc: mkillough@hilcorp.com

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

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

August 05, 2022

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

RE: Federal GC H1 OrderNo.: 2207F07

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/29/2022 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 **2207F07**
Date Reported: **8/5/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Federal GC H1 **Collection Date:** 7/28/2022 2:48:00 PM
Lab ID: 2207F07-001 **Matrix:** AQUEOUS **Received Date:** 7/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	5.4	1.0		µg/L	1	7/30/2022 11:20:00 PM
Toluene	13	1.0		µg/L	1	7/30/2022 11:20:00 PM
Ethylbenzene	28	1.0		µg/L	1	7/30/2022 11:20:00 PM
Xylenes, Total	48	1.5		µg/L	1	7/30/2022 11:20:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	7/30/2022 11:20:00 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	7/30/2022 11:20:00 PM
Surr: Dibromofluoromethane	99.4	70-130		%Rec	1	7/30/2022 11:20:00 PM
Surr: Toluene-d8	98.1	70-130		%Rec	1	7/30/2022 11:20:00 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2207F07**

05-Aug-22

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL89905**	RunNo: **89905**
Prep Date:	Analysis Date: **7/30/2022**	SeqNo: **3202918** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	12		10.00		116	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL89905**	RunNo: **89905**
Prep Date:	Analysis Date: **7/30/2022**	SeqNo: **3202919** 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		112	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	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

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: 2207F07 RcptNo: 1

Received By: Juan Rojas 7/29/2022 6:30:00 AM

Completed By: Sean Livingston 7/29/2022 8:06:39 AM

Reviewed By: CMC 7/29/22

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 ☐

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

Adjusted? _____

Checked by: JM 7/29/22

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:

17. Cooler Information

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

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:

Federal GC H1

Project #:

Project Manager:

Mitch Killough

Sampler: Brandon Sinclair

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 1

Cooler Temp(including CF): 7.4-0=7.4

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. 2207F07	BTEX Method 8260
7-28	1448	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7-28	1625			Walk	7/28/22	1628
7.28.22	1810			courier	7/29/22	6:30

Remarks: 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.

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

November 02, 2022

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

RE: Federal GC H1 OrderNo.: 2210D64

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/27/2022 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 **2210D64**
Date Reported: **11/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Federal GC H1 **Collection Date:** 10/26/2022 2:00:00 PM
Lab ID: 2210D64-001 **Matrix:** AQUEOUS **Received Date:** 10/27/2022 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
Benzene	7.1	5.0		µg/L	5	10/28/2022 9:07:16 PM
Toluene	22	5.0		µg/L	5	10/28/2022 9:07:16 PM
Ethylbenzene	32	5.0		µg/L	5	10/28/2022 9:07:16 PM
Xylenes, Total	54	7.5		µg/L	5	10/28/2022 9:07:16 PM
Surr: 1,2-Dichloroethane-d4	88.4	70-130		%Rec	5	10/28/2022 9:07:16 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	5	10/28/2022 9:07:16 PM
Surr: Dibromofluoromethane	94.2	70-130		%Rec	5	10/28/2022 9:07:16 PM
Surr: Toluene-d8	103	70-130		%Rec	5	10/28/2022 9:07:16 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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210D64**

02-Nov-22

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R92188**	RunNo: **92188**							
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309937**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID: **100ng lcs3**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R92188**	RunNo: **92188**							
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309938**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	20	1.0	20.00	0	97.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	9.6		10.00		95.5	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R92188**	RunNo: **92188**							
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3310038**	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	9.9		10.00		98.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	11		10.00		108	70	130			

Sample ID: **mb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R92188**	RunNo: **92188**							
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3310039**	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								

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/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#: **2210D64**

02-Nov-22

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **mb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R92188**	RunNo: **92188**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3310039** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		99.7	70	130			
Surr: Toluene-d8	11		10.00		109	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

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: 2210D64 RcptNo: 1

Received By: **Juan Rojas** 10/27/2022 6:45:00 AM

Completed By: **Tracy Casarrubias** 10/27/2022 9:37:15 AM

Reviewed By: WG 10-27-22

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 ☐	

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

Adjusted?

Checked by: JN 10/27/22

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:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	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: Federal GC H1

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.6+0.2=0.8

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. 2210D104	BTEX Method 8260
10-26	1400	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10-26	1541				10/26/22	1541
10/26/22	1806		courier		10/27/22 ~~6:45~~	6:45

Remarks: 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.

JM 10/27/22

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

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 200076
	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 for Federal Gas Com H#1: content satisfactory 1. Update data for MW-2 as there has not been lab analyses included in the annual report since 2012 and there has not been any data since 2008 for MW-3. 2. Please upload Groundwater Abatement Plan or letter of approval for it from NMOCD conveying that four (4) consecutive sampling events are sufficient for closure (if available). 3. Continue to sample MW-1 as prescribed in this report, and submit the 2024 annual report by April 2025.	5/21/2024