REVIEWED
By Mike Buchanan at 11:05 am, May 29, 2024

ENSOLUM

March 25, 2024

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

Re: 2023 Annual Groundwater Monitoring Report
Federal Gas Com H#1
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NDGF0000010

Review of the Annual Groundwater Monitoring Report for Federal Gas Com H#1: Content Satisfactory
1. Continue to sample quarterly until eight (8) consecutive quarters are achieved under the allowable concentrations. At that time, a closure report and vadose sampling work plan will need to be submitted for closure approval.
2. Submit the 2024 Annual Report by April 1, 2025.

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *2023 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, 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 January, May, July, and October 2023 from well MW-1. Groundwater-level measure measurements were collected from MW-2, and MW-3R in May and October 2023. 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 2023 sampling events are presented in Table 1 and were used to develop groundwater potentiometric surface maps (shown on Figures 3 and 5). 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 following 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 at MW-1 during all four quarterly sampling events at concentrations above the NMWQCC standard. Ethylbenzene, toluene, and total xylenes were not detected above the NMWQCC standards during the 2023 sampling events. A summary of analytical results is presented in Table 2 and depicted on Figures 2 through 5, 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 Geologist
(970) 903-1607
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Attachments:

Figure 1	Site Location Map
Figure 2	Analytical Results (January 2023)
Figure 3	Groundwater Elevation and Analytical Results (May 2023)
Figure 4	Analytical Results (July 2023)
Figure 5	Groundwater Elevation and Analytical Results (October 2023)
Table 1	Groundwater Elevations
Table 2	Groundwater Analytical Results
Appendix A	Analytical Laboratory Reports

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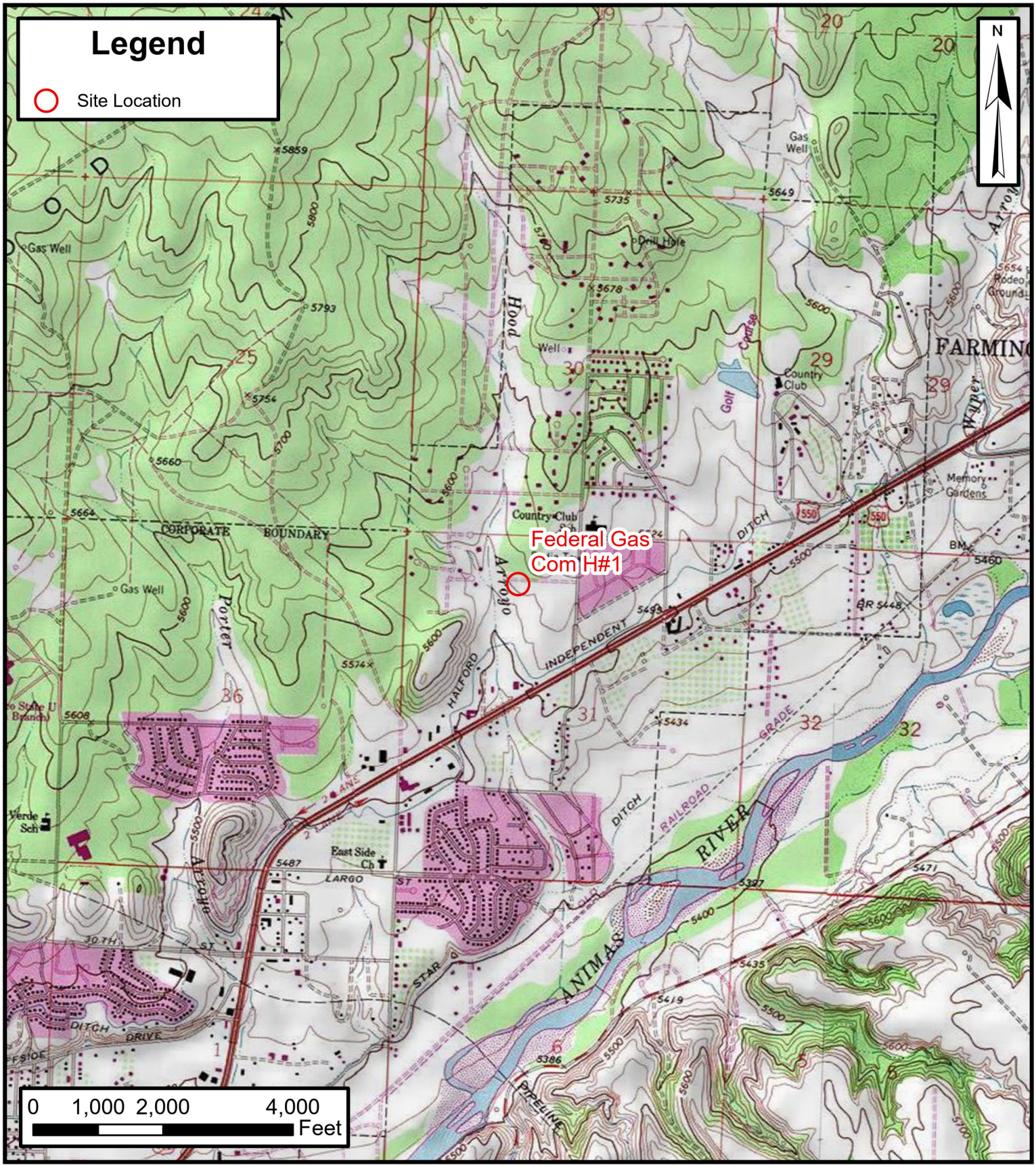
FIGURES



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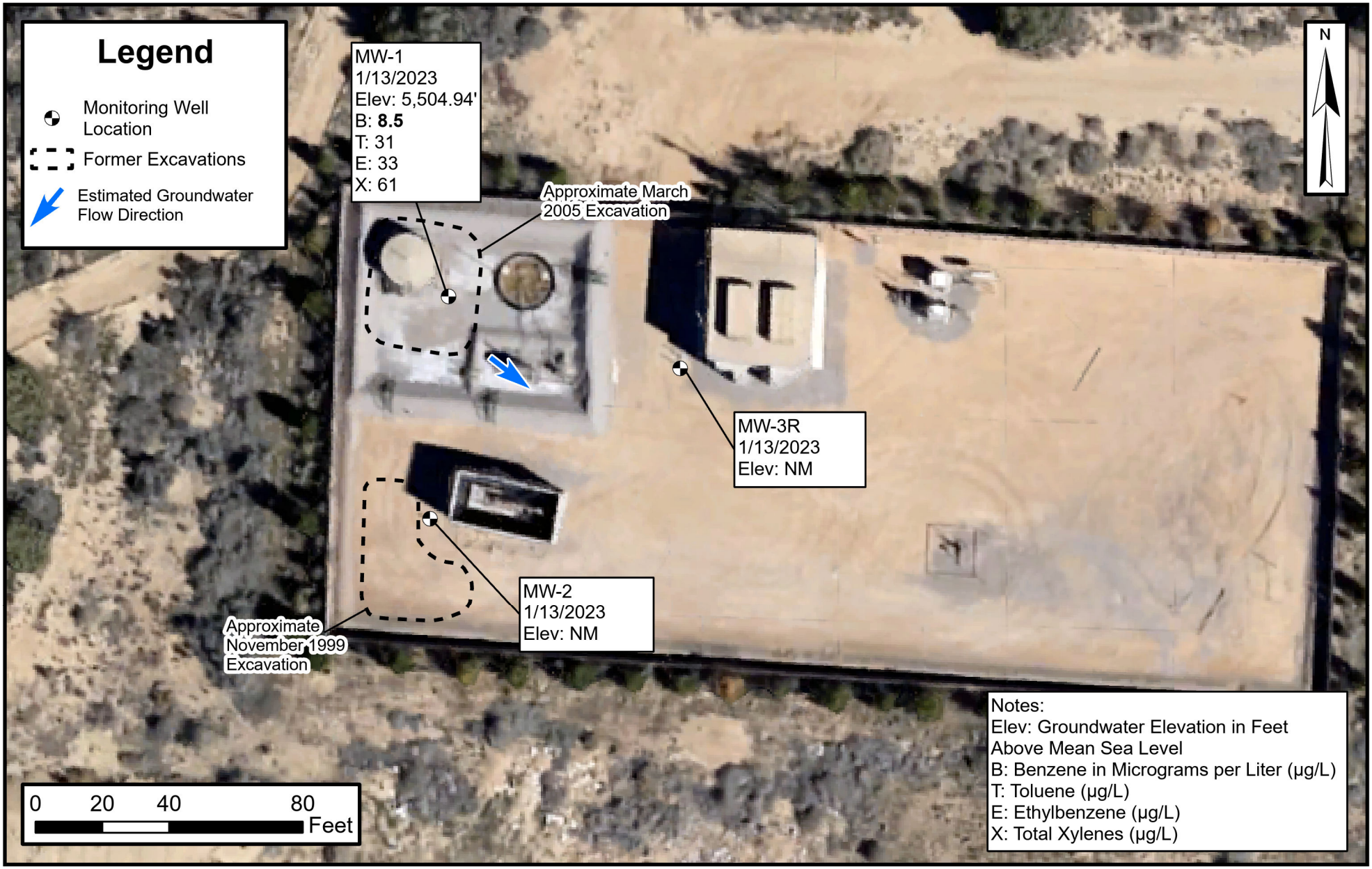
Site Location Map

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

FIGURE
1



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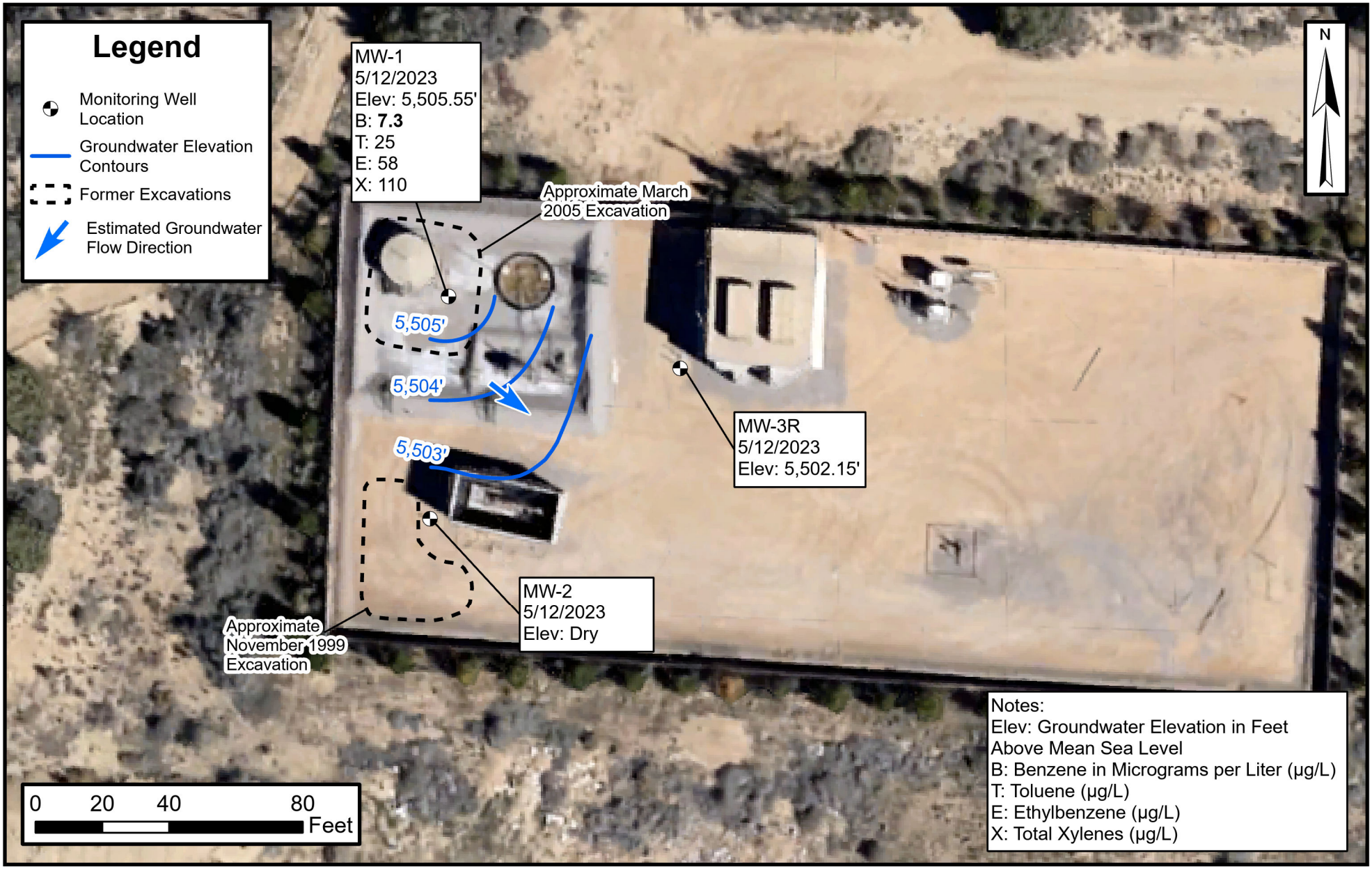
Groundwater Analytical Results (January 2023)

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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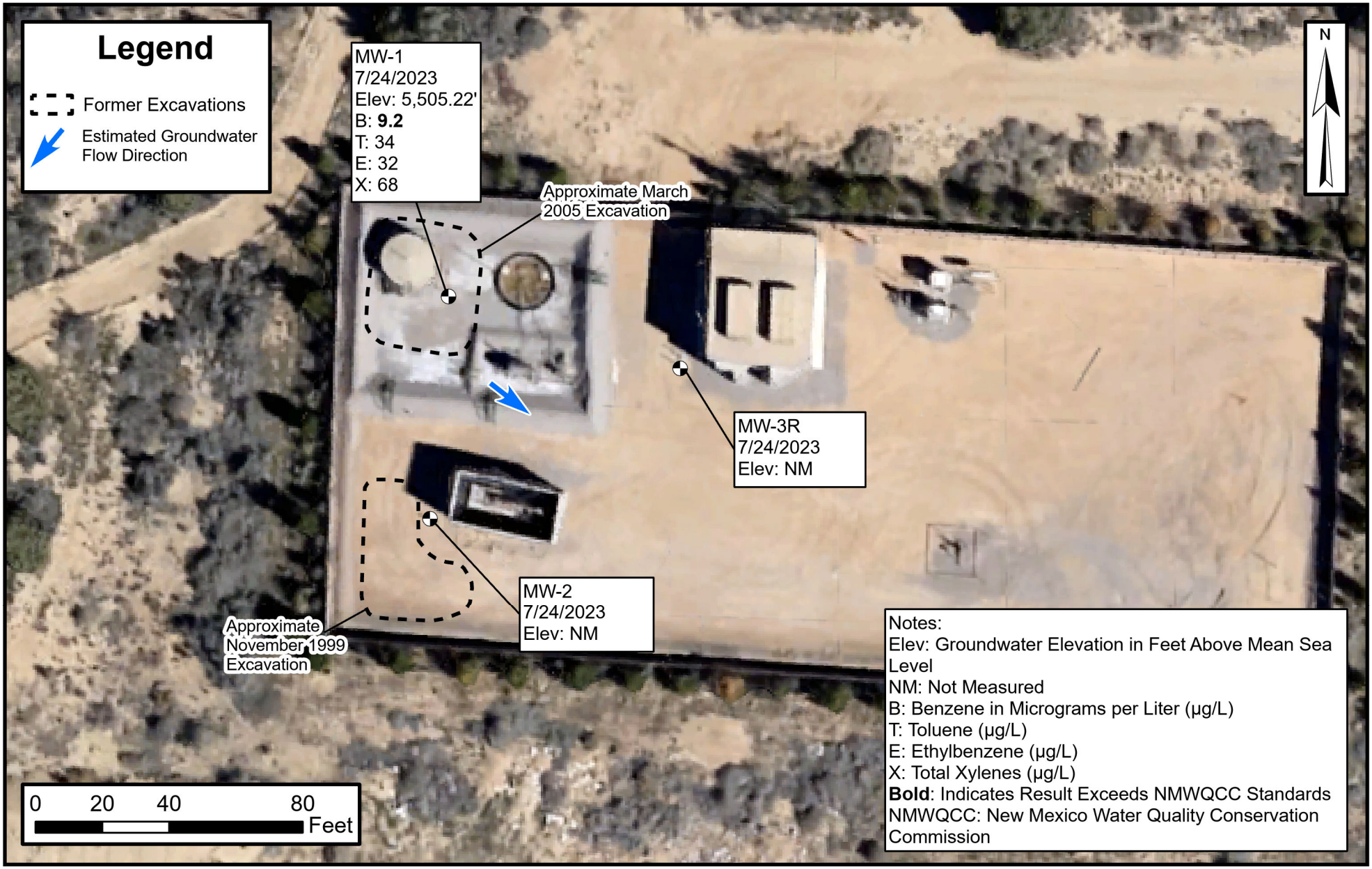
Groundwater Elevation and Analytical Results (May 2023)

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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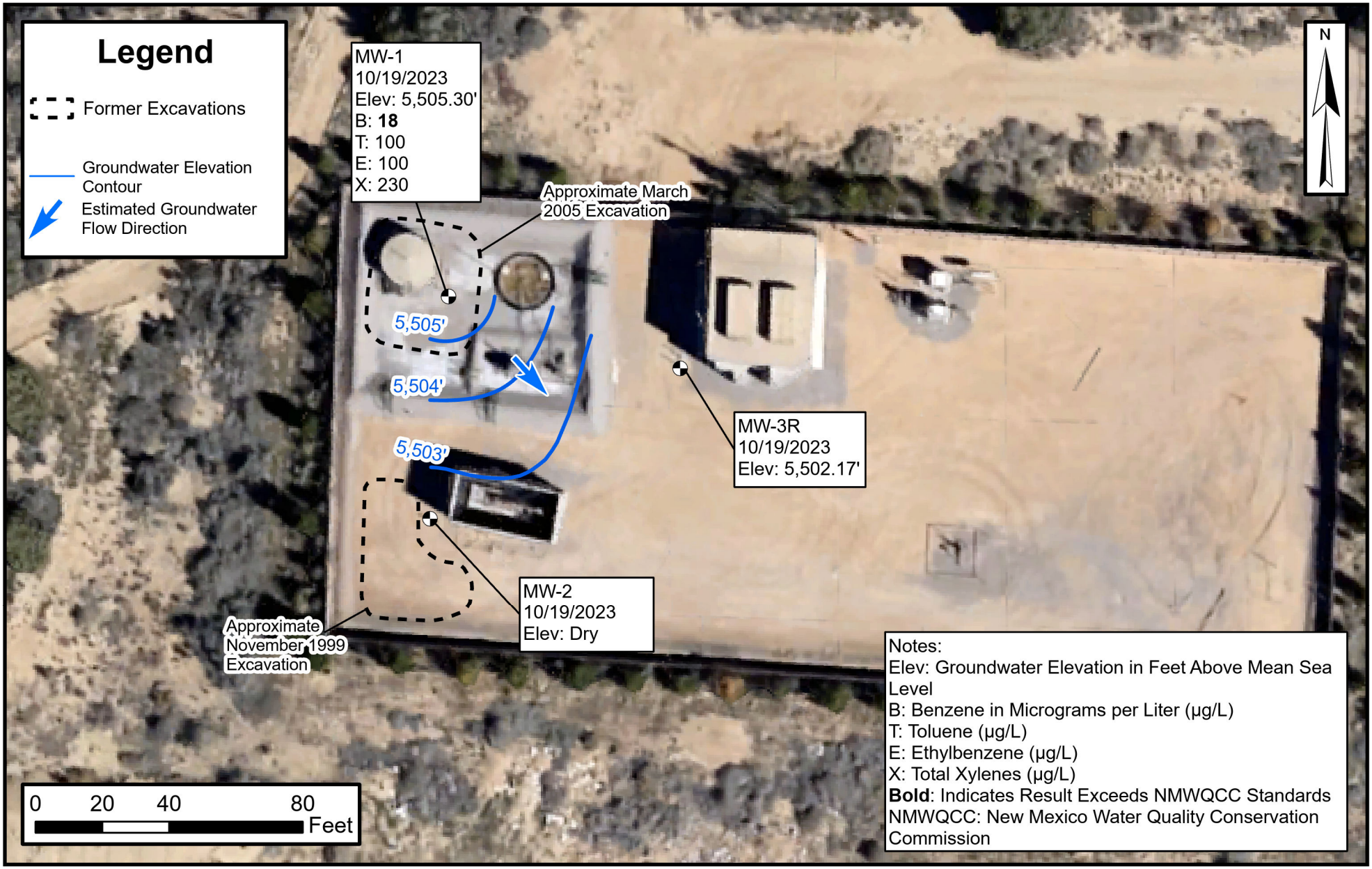
Groundwater Analytical Results (July 2023)

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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Groundwater Elevation and Analytical Results (October 2023)

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

FIGURE
5

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

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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)
		6/26/2017	29.98	5,505.84
		12/12/2017	30.19	5,505.63
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
		1/21/2022	30.88	5,504.94
		4/28/2022	31.07	5,504.75
		7/28/2022	30.04	5,505.78
		10/26/2022	30.58	5,505.24
		1/13/2023	30.83	5,504.99
		5/12/2023	30.27	5,505.55
		7/24/2023	30.60	5,505.22
		10/19/2023	30.52	5,505.30
		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

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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	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
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

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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)
		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
		1/21/2021	32.57	5,502.39
		4/28/2022	Dry	Dry
		7/28/2022	--	--
		10/26/2022	32.13	5,502.83
		5/12/2023	Dry	Dry
		10/19/2023	Dry	Dry
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
		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

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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-3R	5,536.60	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
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
		1/21/2022	34.88	5,501.72
		4/28/2022	34.97	5,501.63
		7/28/2022	--	--
		10/26/2022	34.44	5,502.16

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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)
		5/12/2023	34.45	5,502.15
		10/19/2023	34.43	5,502.17

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
	1/13/2023	**8.5**	31	33	61
	5/12/2023	**7.3**	25	58	110
	7/24/2023	**9.2**	34	32	68
	10/19/2023	**18**	100	100	230
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, practical quantitation 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

January 18, 2023

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

RE: Federal GC H1 OrderNo.: 2301552

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/14/2023 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 **2301552**
Date Reported: **1/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-1
Project: Federal GC H1
Collection Date: 1/13/2023 11:30:00 AM
Lab ID: 2301552-001 **Matrix:** AQUEOUS **Received Date:** 1/14/2023 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	8.5	5.0		µg/L	5	1/16/2023 7:33:00 PM
Toluene	31	5.0		µg/L	5	1/16/2023 7:33:00 PM
Ethylbenzene	33	5.0		µg/L	5	1/16/2023 7:33:00 PM
Xylenes, Total	61	7.5		µg/L	5	1/16/2023 7:33:00 PM
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	5	1/16/2023 7:33:00 PM
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	5	1/16/2023 7:33:00 PM
Surr: Dibromofluoromethane	110	70-130		%Rec	5	1/16/2023 7:33:00 PM
Surr: Toluene-d8	98.9	70-130		%Rec	5	1/16/2023 7:33:00 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 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#: **2301552**

18-Jan-23

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: **SL93966**	RunNo: **93966**
Prep Date:	Analysis Date: **1/16/2023**	SeqNo: **3393533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL93966**	RunNo: **93966**
Prep Date:	Analysis Date: **1/16/2023**	SeqNo: **3393534** 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		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	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 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

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: 2301552 RcptNo: 1

Received By: Sean Livingston 1/14/2023 9:20:00 AM

Completed By: Sean Livingston 1/14/2023 9:41:29 AM

Reviewed By: JH 1-16-23

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: JH 1/16/23

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	1.6	Good	Yes	YOGI		

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 IR: YOGT

Cooler Temp(including CF): 1.5+0.1 = 1.6°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 Name	Container Type and #	Preservative Type	HEAL No. 2301552	BTEX Method 8260
1-13	1130	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
1-13	1800				1/13/23	1800
1/13/23	1830		See comment		1/14/23	9:20

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

May 23, 2023

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

RE: Federal GC H1 OrderNo.: 2305757

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/13/2023 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 **2305757**
Date Reported: **5/23/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-1
Project: Federal GC H1
Collection Date: 5/12/2023 11:20:00 AM
Lab ID: 2305757-001 **Matrix:** AQUEOUS **Received Date:** 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	7.3	5.0	D	µg/L	5	5/19/2023 2:16:57 PM
Toluene	25	5.0	D	µg/L	5	5/19/2023 2:16:57 PM
Ethylbenzene	58	5.0	D	µg/L	5	5/19/2023 2:16:57 PM
Xylenes, Total	110	7.5	D	µg/L	5	5/19/2023 2:16:57 PM
Surr: 1,2-Dichloroethane-d4	98.9	70-130	D	%Rec	5	5/19/2023 2:16:57 PM
Surr: 4-Bromofluorobenzene	101	70-130	D	%Rec	5	5/19/2023 2:16:57 PM
Surr: Dibromofluoromethane	93.6	70-130	D	%Rec	5	5/19/2023 2:16:57 PM
Surr: Toluene-d8	98.2	70-130	D	%Rec	5	5/19/2023 2:16:57 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#: **2305757**

23-May-23

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R96928**	RunNo: **96928**
Prep Date:	Analysis Date: **5/19/2023**	SeqNo: **3516393** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	19	1.0	20.00	0	96.7	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		96.5	70	130			

Sample ID: **2305757-001a ms**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MW-1**	Batch ID: **R96928**	RunNo: **96928**
Prep Date:	Analysis Date: **5/19/2023**	SeqNo: **3516396** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	96	5.0	100.0	7.290	89.2	70	130			
Toluene	130	5.0	100.0	24.51	103	70	130			
Surr: 1,2-Dichloroethane-d4	49		50.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	50		50.00		100	70	130			
Surr: Dibromofluoromethane	46		50.00		91.7	70	130			
Surr: Toluene-d8	50		50.00		100	70	130			

Sample ID: **2305757-001a msd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MW-1**	Batch ID: **R96928**	RunNo: **96928**
Prep Date:	Analysis Date: **5/19/2023**	SeqNo: **3516397** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	100	5.0	100.0	7.290	93.8	70	130	4.63	20	
Toluene	130	5.0	100.0	24.51	102	70	130	1.28	20	
Surr: 1,2-Dichloroethane-d4	47		50.00		94.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	52		50.00		104	70	130	0	0	
Surr: Dibromofluoromethane	47		50.00		93.2	70	130	0	0	
Surr: Toluene-d8	51		50.00		101	70	130	0	0	

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R96928**	RunNo: **96928**
Prep Date:	Analysis Date: **5/19/2023**	SeqNo: **3516419** 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								

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#: **2305757**

23-May-23

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R96928**	RunNo: **96928**
Prep Date:	Analysis Date: **5/19/2023**	SeqNo: **3516419** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.5	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	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 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

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: 2305757 | RcptNo: 1

Received By: Juan Rojas 5/13/2023 7:20:00 AM

Completed By: Tracy Casarrubias 5/13/2023 9:23:48 AM

Reviewed By: TMe 5/13/23

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 5/13/23

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	1.1	Good	Yes	Morty		

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 Marty

Cooler Temp(including CF): 1.1-0=1.1

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. 2305757	BTEX Method 8260
5-12	1120	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5-12	1436				5/12/23	1436
5/12/23	1804			Courier	5/13/23	7:20

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

August 02, 2023

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

RE: Federal GC H1 OrderNo.: 2307B22

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/25/2023 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 **2307B22**
Date Reported: **8/2/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-1
Project: Federal GC H1
Collection Date: 7/24/2023 10:55:00 AM
Lab ID: 2307B22-001 **Matrix:** AQUEOUS **Received Date:** 7/25/2023 6:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	9.2	2.0		µg/L	2	7/27/2023 10:04:00 PM
Toluene	34	2.0		µg/L	2	7/27/2023 10:04:00 PM
Ethylbenzene	32	2.0		µg/L	2	7/27/2023 10:04:00 PM
Xylenes, Total	68	3.0		µg/L	2	7/27/2023 10:04:00 PM
Surr: 1,2-Dichloroethane-d4	99.2	70-130		%Rec	2	7/27/2023 10:04:00 PM
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	2	7/27/2023 10:04:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	2	7/27/2023 10:04:00 PM
Surr: Toluene-d8	112	70-130		%Rec	2	7/27/2023 10:04:00 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	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#: **2307B22**

02-Aug-23

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL98537**	RunNo: **98537**
Prep Date:	Analysis Date: **7/27/2023**	SeqNo: **3588926** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		119	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL98537**	RunNo: **98537**
Prep Date:	Analysis Date: **7/27/2023**	SeqNo: **3588927** 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		114	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	12		10.00		119	70	130			
Surr: Toluene-d8	10		10.00		104	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 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

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: 2307B22 RcptNo: 1

Received By: Tracy Casarrubias 7/25/2023 6:20:00 AM

Completed By: Tracy Casarrubias 7/25/2023 8:46:15 AM

Reviewed By: Sen 07/25/23

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 7/25/23

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

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 4091

# of Coolers: 1

Cooler Temp(including CF): 1.8 -0= 1.8°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 Name	Container Type and #	Preservative Type	HEAL No. 2307B22	BTEX Method 8260
7-24	1055	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7-24	1510				7/24/23	1570
7/24/23	1835			Courier	7/25/23	0-20

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

October 31, 2023

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

RE: Federal GC H1 OrderNo.: 2310A77

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/21/2023 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 **2310A77**
Date Reported: **10/31/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Federal GC H1 **Collection Date:** 10/19/2023 2:00:00 PM
Lab ID: 2310A77-001 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JR**
Benzene	18	2.0		µg/L	2	10/28/2023 1:25:40 AM
Toluene	100	2.0		µg/L	2	10/28/2023 1:25:40 AM
Ethylbenzene	100	2.0		µg/L	2	10/28/2023 1:25:40 AM
Xylenes, Total	230	3.0		µg/L	2	10/28/2023 1:25:40 AM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	2	10/28/2023 1:25:40 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	2	10/28/2023 1:25:40 AM
Surr: Dibromofluoromethane	90.2	70-130		%Rec	2	10/28/2023 1:25:40 AM
Surr: Toluene-d8	99.1	70-130		%Rec	2	10/28/2023 1:25:40 AM

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#: **2310A77**

31-Oct-23

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL100807**	RunNo: **100807**
Prep Date:	Analysis Date: **10/27/2023**	SeqNo: **3697546** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	88.8	70	130			
Toluene	20	1.0	20.00	0	98.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL100807**	RunNo: **100807**
Prep Date:	Analysis Date: **10/27/2023**	SeqNo: **3697559** 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	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		101	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: 2310A77 RcptNo: 1

Received By: Tracy Casarrubias 10/21/2023 6:35:00 AM

Completed By: Tracy Casarrubias 10/21/2023 8:21:53 AM

Reviewed By: JM 10/23/23

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 ☑	# of preserved bottles checked for pH: / (<2 or >12 unless noted)
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 ☐	Adjusted?
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 ☐	Checked by: SCM 10/23/23

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	Yogi		

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 4oogi

# of Coolers: 1

Cooler Temp(including CF): 0.8-0=0.8 °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 Name	Container Type and #	Preservative Type	HEAL No. 2310A77	BTEX Method 8260
10-19	1400	Water	MW-1	(3) 40ml VOA	HCL	001	X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10-20	1445				10/20/23	1636
10/20/23	1800			Courier	10/21/23	6:35

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.

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 326303

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 326303
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the Annual Groundwater Monitoring Report for Federal Gas Com H#1: Content Satisfactory 1. Continue to sample quarterly until eight (8) consecutive quarters are achieved under the allowable concentrations. At that time, a closure report and vadose sampling work plan will need to be submitted for closure approval. 2. Submit the 2024 Annual Report by April 2025.	5/29/2024