REVIEWED
By Mike Buchanan at 4:21 pm, May 29, 2024

ENSOLUM

March 26, 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
Nell Hall #1
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NAUTOFAB000417
NMOCD Administrative Order: 3RP-090

Review of the 2023 Annual Groundwater Monitoring Report for Nell Hall #1: Content Satisfactory
1. Plug & Abandon air sparge wells: SP-1 through SP-8 and coordinate all requirements with NM OSE if applicable. 2. Continue to collect groundwater samples from wells: MW-6, MW-7 and MW-8 on a semi-annual basis until all COCs are at the allowable concentrations per the NM WQCC human health standards and the domestic well standard for dissolved iron. 4. Submit the 2024 Annual Report by April, 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) to document groundwater monitoring activities conducted at the Nell Hall #1 natural gas production site (Site) during 2023. The Site is located on private land, approximately 2 miles west of Aztec, New Mexico in Section 7, Township 30 North, Range 11 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

Petroleum-impacted soil was first discovered at the Site during the closure of an unlined dehydrator pit in 1994 by Conoco, Inc. (operator of the Site at the time and later ConocoPhillips Company). At the time of discovery, three monitoring wells (MW-1, MW-2, and MW-3, were installed at the Site to assess groundwater conditions and groundwater had been impacted by the release. Conoco, Inc. also installed eight air sparge wells (SP-1 through SP-8, shown on Figure 2) in order to introduce air into the water-bearing zone to enhance volatilization and biodegradation of petroleum hydrocarbons in the groundwater, however, no information or data in the historical Site reports indicated whether the air sparge wells were ever operated as intended.

Drought conditions in the 1990s and early 2000s resulted in a water table decline to an elevation below the screened intervals of the monitoring wells. As such, these wells have not been sampled since the early 2000s. In response, monitoring wells MW-4, MW-5, and MW-6 were subsequently installed in 2004 and constructed using 30 to 35 feet of slotted screen in order to intersect the water-table over large fluctuations (caused by seasonal changes and/or nearby irrigation). Two additional wells (MW-7 and MW-8) were subsequently installed in 2015 to further assess subsurface soil and groundwater quality conditions downgradient of well MW-6.

Hilcorp acquired the Site from ConocoPhillips Company in August 2017 and has continued quarterly gauging and sampling of wells at the Site.

SITE GROUNDWATER CLEANUP STANDARDS

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

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

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

Groundwater level measurements and samples were collected in January, May, July, and October 2023 from wells MW-4 through MW-8. Static groundwater level monitoring included recording depth-to-groundwater 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. Based on quarterly measurements, groundwater elevations fluctuate significantly throughout the year and generally increase during the summer and fall months due to nearby field irrigation. Measured depths-to-groundwater and calculated groundwater elevations are presented in Table 1. The inferred groundwater flow direction also changes throughout the year, as indicated on the quarterly groundwater potentiometric surface maps presented in Figures 3, 4, 5, and 6.

GROUNDWATER SAMPLING

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

Following well purging, groundwater samples were placed directly into laboratory-provided containers and labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. Containers were immediately sealed and packed on ice to preserve samples. Samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) following United State Environmental Protection Agency (EPA) method 8260B, and dissolved iron following EPA method 200.7. Proper chain-of-custody procedures were followed documenting the date and time sampled, sample number, type of sample, sample collector's name, preservative used, analyses required, and sample collector's signature.

GROUNDWATER ANALYTICAL RESULTS

During the January 2024 sampling event, well MW-4 did not have a sufficient water volume to collect a sample for laboratory analysis. In addition, all wells were dry during the May 2023 sampling event. Benzene was detected in groundwater from well MW-6 during the January and October 2023 sampling events at concentrations exceeding the NMWQCC standard. Benzene was not detected in groundwater above the NMWQCC standard in any of the other sampled wells. Toluene was not detected above the NMWQCC standard in any of the wells sampled during 2023. Dissolved iron was detected in groundwater at a concentration exceeding NMWQCC standard in

MW-4 during the July and October 2023 sampling event, as well as MW-6 during the October 2023 sampling events. Of note, there was insufficient water volume in well MW-6 during April 2023 and no sample was for dissolved iron analysis. Analytical results are summarized in Table 3 and depicted on Figure 7, with complete laboratory analytical reports attached as Appendix A.

CONCLUSIONS

Overall, BTEX concentrations in groundwater have decreased over time at the Site. BTEX concentrations have not been detected above laboratory reporting limits in wells MW-4, MW-5, MW-7, and MW-8 in more than six years. Well MW-6 has concentrations of benzene exceeding NMWQCC standards; however, concentrations have steadily declined in this well since 2013. Additionally, concentrations of dissolved iron exceeding the NMWQCC standard were only detected in wells MW-4 and MW-6 during 2023 quarterly sampling events. While concentrations of dissolved iron in MW-4 have occasionally exceeded the NMWQCC standard, the concentrations have generally not been detected above laboratory reporting limits and are only sporadically detected above the NMWQCC standard.

Dissolved iron concentrations have consistently exceeded the NMWQCC standard in groundwater from well MW-6 since it was first analyzed in 2009. Similar to benzene concentrations in this well, dissolved iron concentrations have also steadily declined since 2013. Elevated dissolved iron concentrations in well MW-6 appear to be a result of generally low-oxygen and reducing groundwater conditions in this area, which is a common biproduct of petroleum degradation in groundwater systems. This is further evidenced by the low concentrations of iron in wells outside of the release area and the impacted groundwater plume. As groundwater conditions at the Site equilibrate to natural background conditions and dissolved oxygen increases, groundwater in the vicinity of well MW-6 will become increasingly aerobic. As this happens, dissolved iron will likely precipitate out of solution leading to decreased concentrations in groundwater.

Lastly, groundwater downgradient of MW-6 continues to exhibit BTEX and dissolved iron concentrations below NMWQCC standards, which indicates the groundwater plume is stable, localized to the vicinity of MW-6, and has not migrated downgradient with groundwater flow. Furthermore, overall Site conditions indicate the petroleum-hydrocarbon plume is decreasing in magnitude, indicating natural attenuation is an effective remedial method to continue with for this Site.

RECOMMENDATIONS

Based on historical data, dissolved phase petroleum hydrocarbon constituents have been reduced at the Site and are currently only present in well MW-6 at concentrations exceeding NMWQCC standards. Based on Site data, it is believed monitored natural attenuation remains an appropriate remedial action to manage the residual benzene and iron concentrations present in well MW-6.

Based on current and historical data gathered at the Site, Ensolum proposes the following actions:

- Plug and abandon air sparge wells SP-1 through SP-8. These wells have never been used for active air-sparging and should be removed to eliminate a potential conduit to groundwater at the Site.
- Plug and abandon wells MW-1 through MW-5. With the exception of occasional exceedances of dissolved iron concentrations in MW-4, BTEX and dissolved iron concentrations have been compliant with NMWQCC standards for more than three years in these wells.

- Collect groundwater sample from wells MW-6, MW-7, and MW-8 on a semi-annual basis for BTEX and dissolved iron constituents. Wells MW-7 and MW-8 will serve as points of compliance at the Site to ensure benzene and dissolved iron concentrations are not migrating off-Site. Once concentrations are compliant with NMWQCC standards, sampling frequency will be increased to quarterly until eight consecutive quarters are below applicable 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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Stuart Hyde, PG
Senior Geologist
(970) 903-1607
shyde@ensolum.com

Attachments:

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Q1 Groundwater Elevation Map
Figure 4	Q2 Groundwater Elevation Map
Figure 5	Q3 Groundwater Elevation Map
Figure 6	Q4 Groundwater Elevation Map
Figure 7	2023 Groundwater Analytical Results
Table 1	Groundwater Elevation Summary
Table 2	Groundwater Quality Measurement
Table 3	Groundwater Analytical Results
Appendix A	Laboratory Analytical Reports

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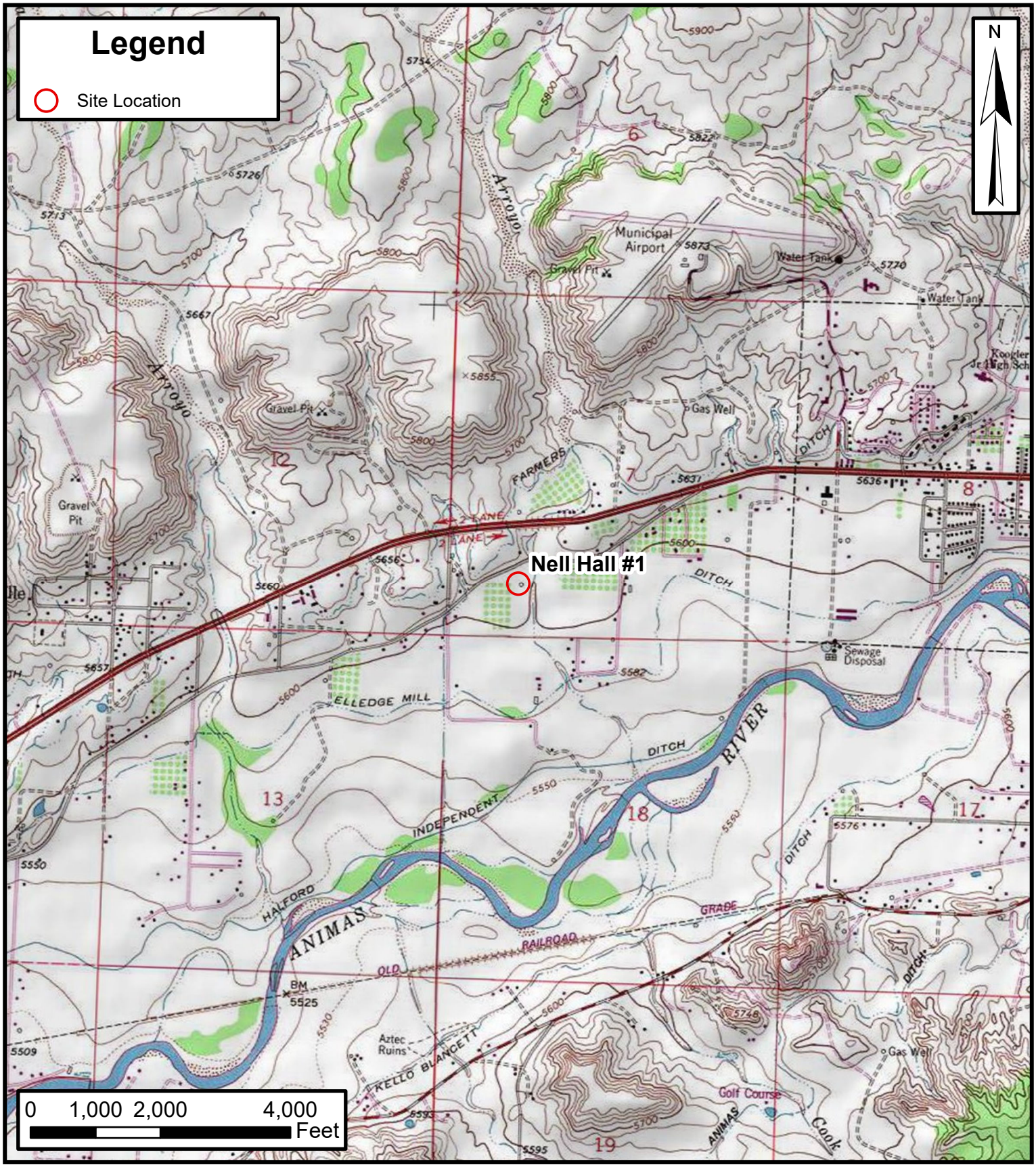
FIGURES



Site Location Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

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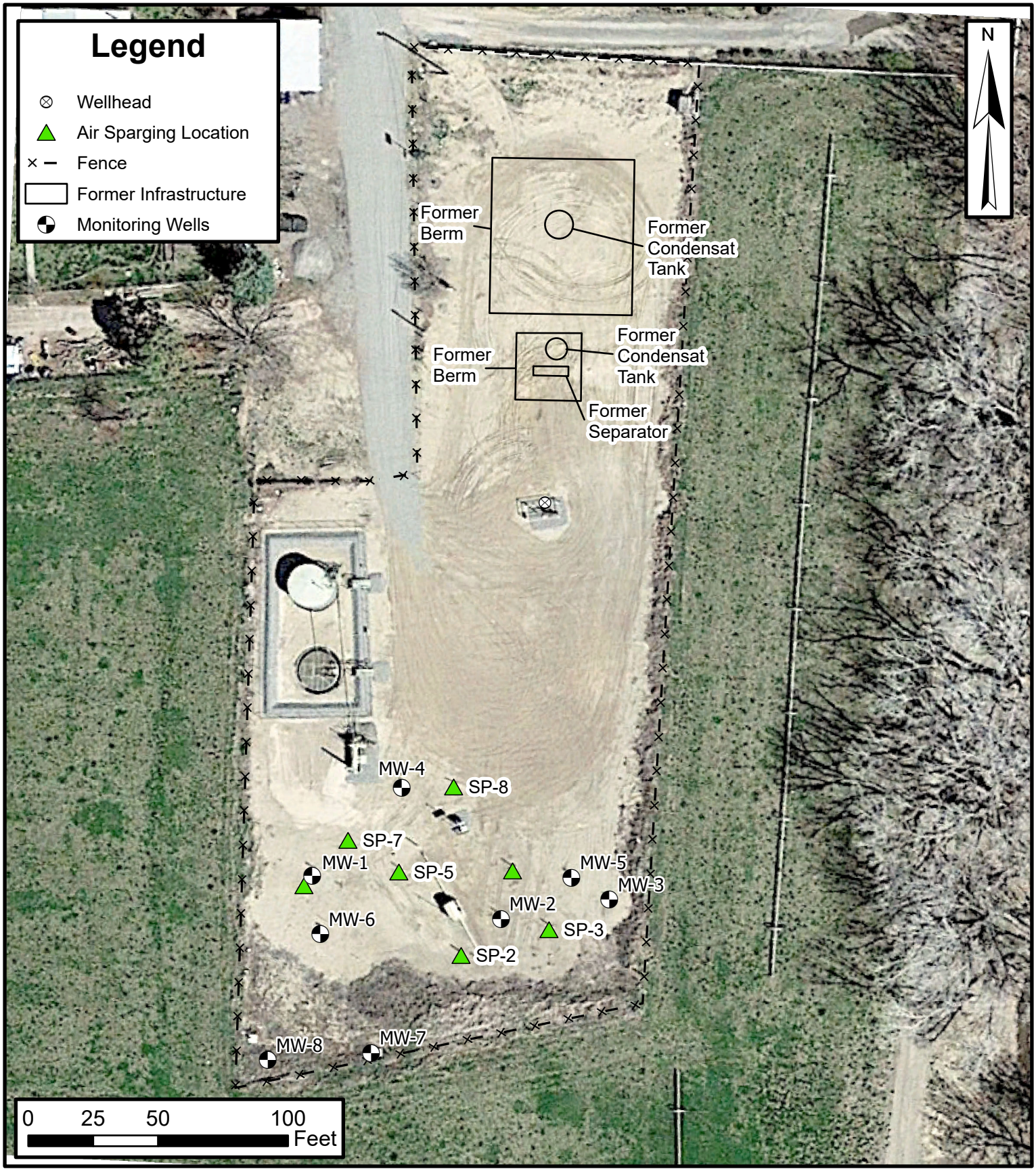
Environmental, Engineering and Hydrogeologic Consultants

FIGURE
1

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



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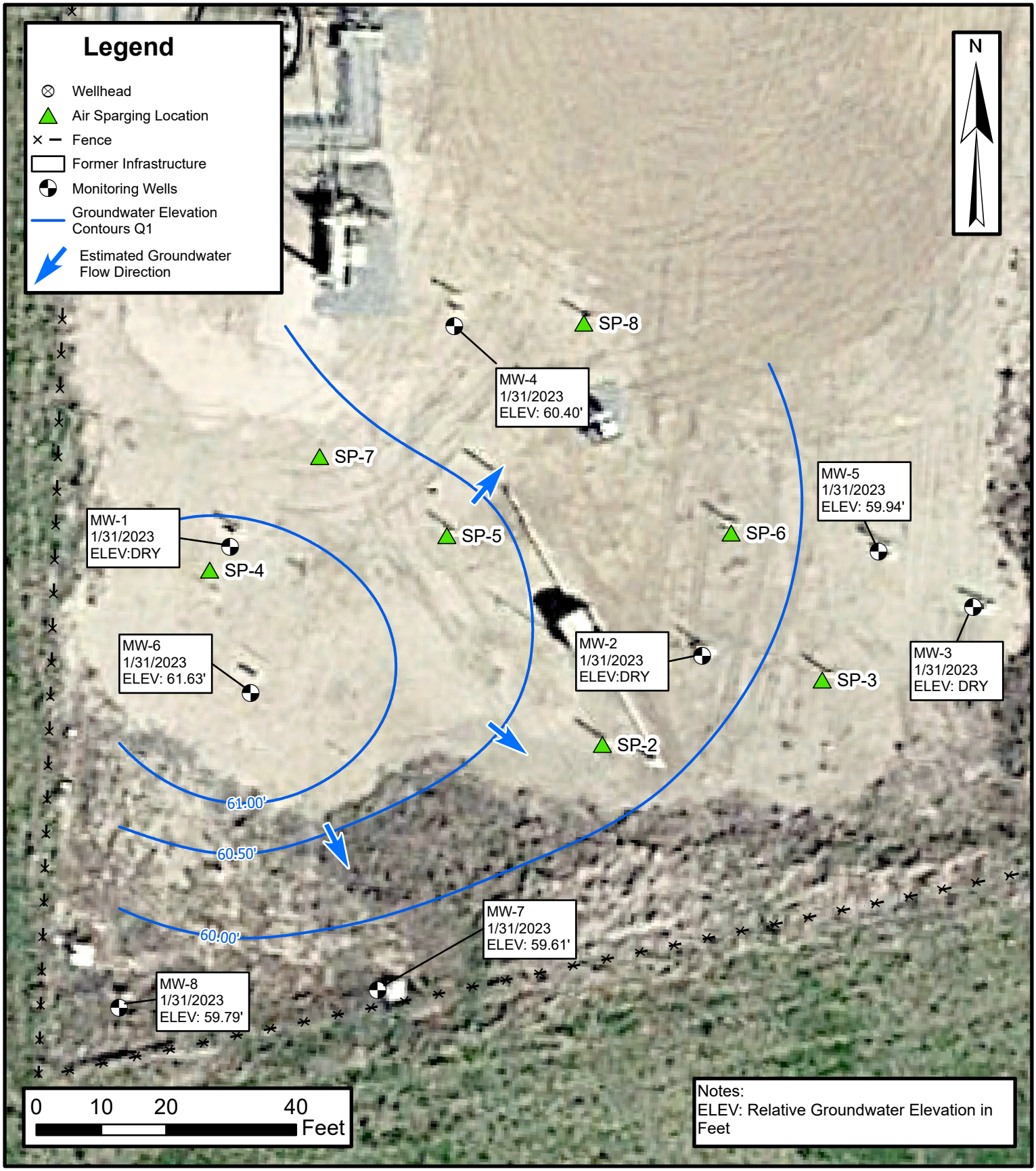
Site Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
2

Sources: Google Earth



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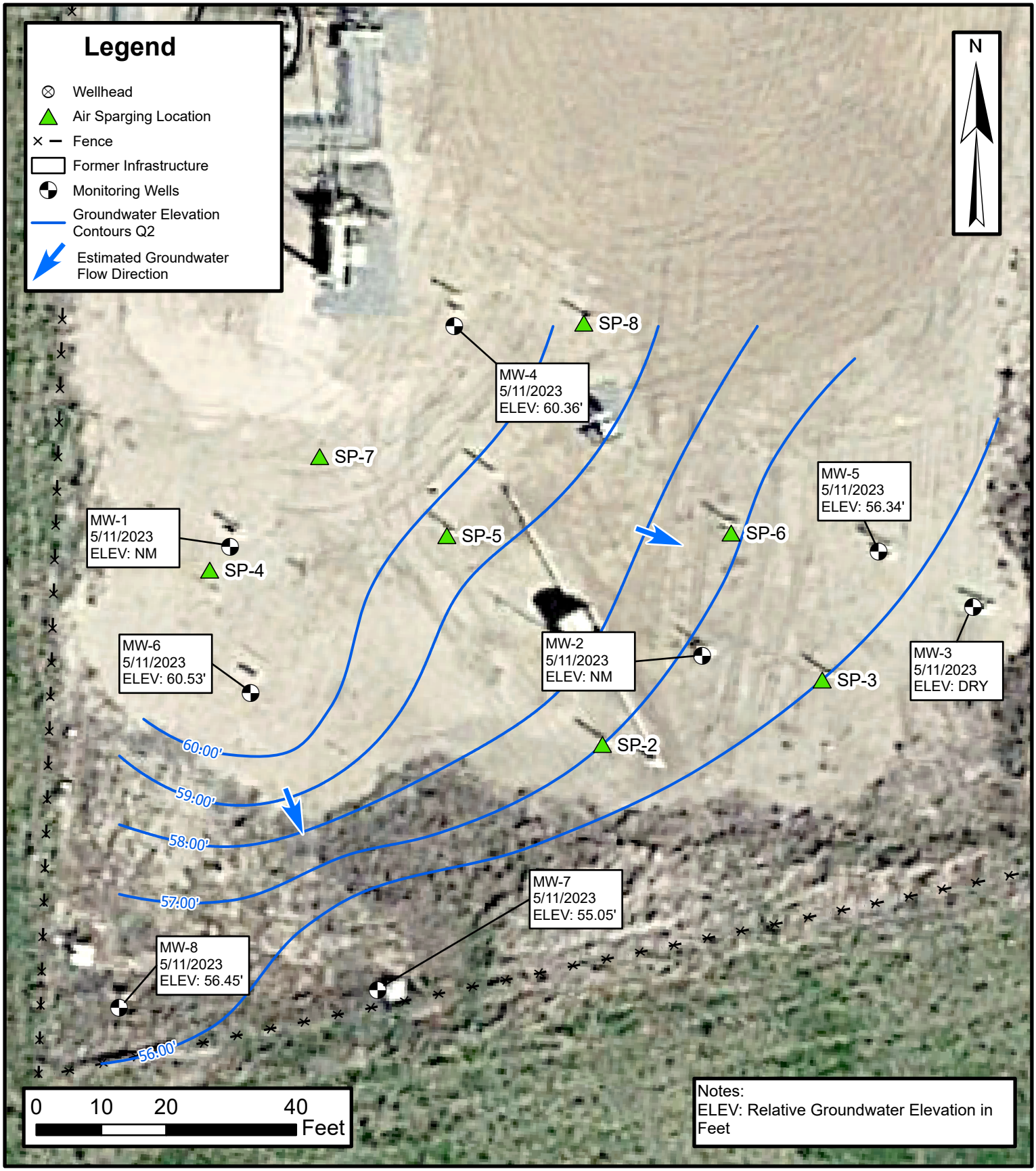
Q1 Groundwater Elevation Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
3

Sources: Google Earth



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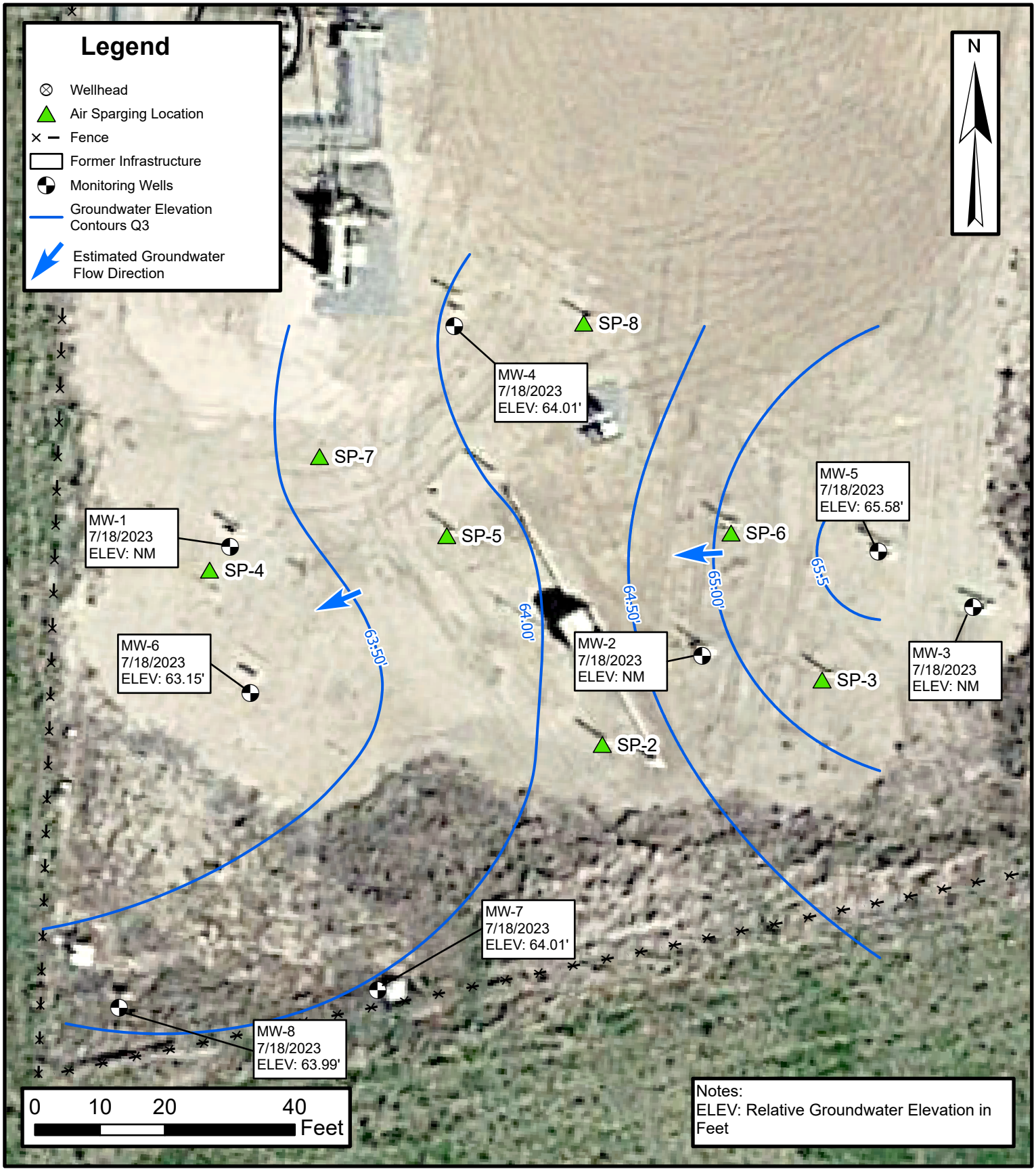
Q2 Groundwater Elevation Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
4

Sources: Google Earth



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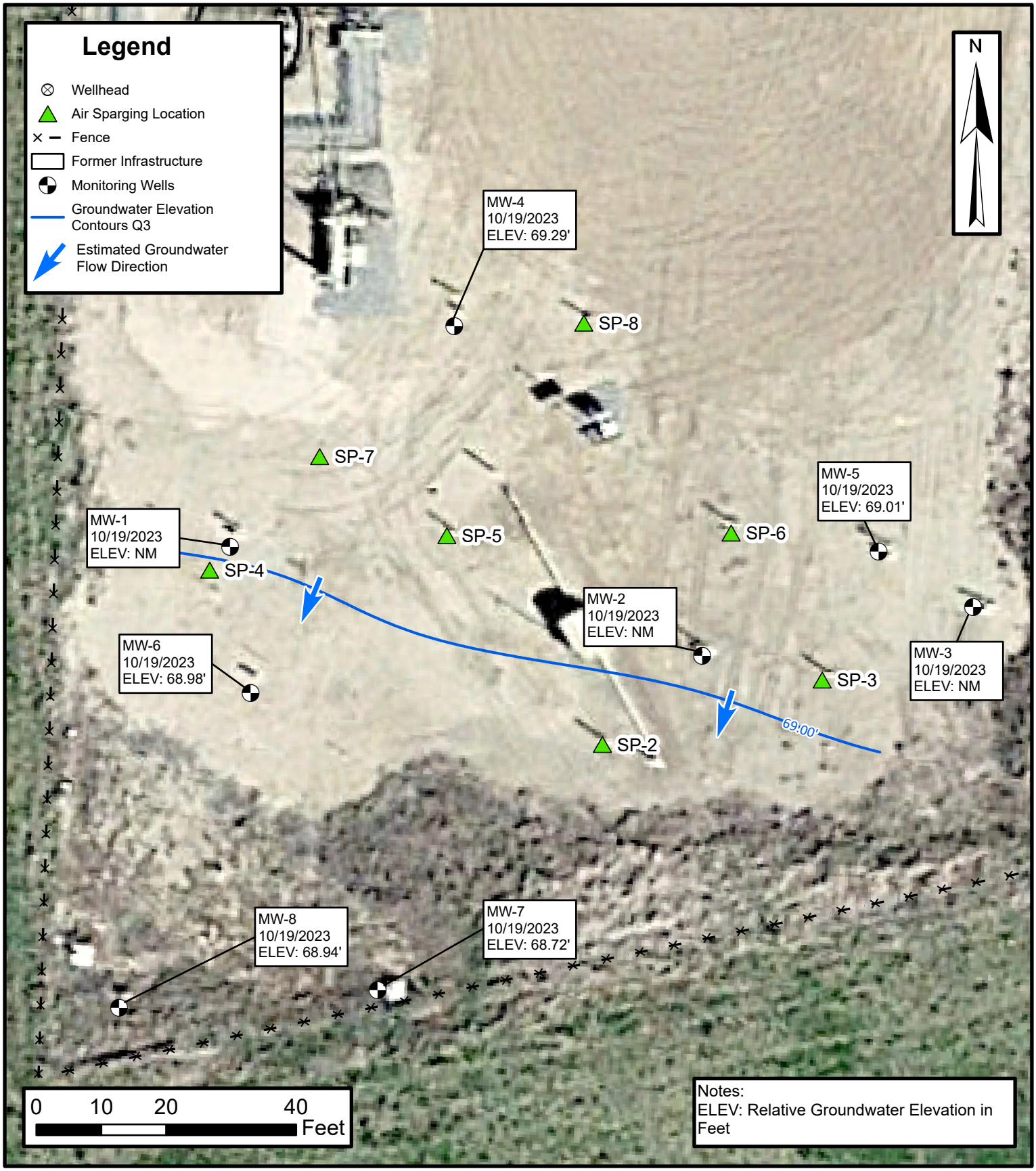
Q3 Groundwater Elevation Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
5

Sources: Google Earth



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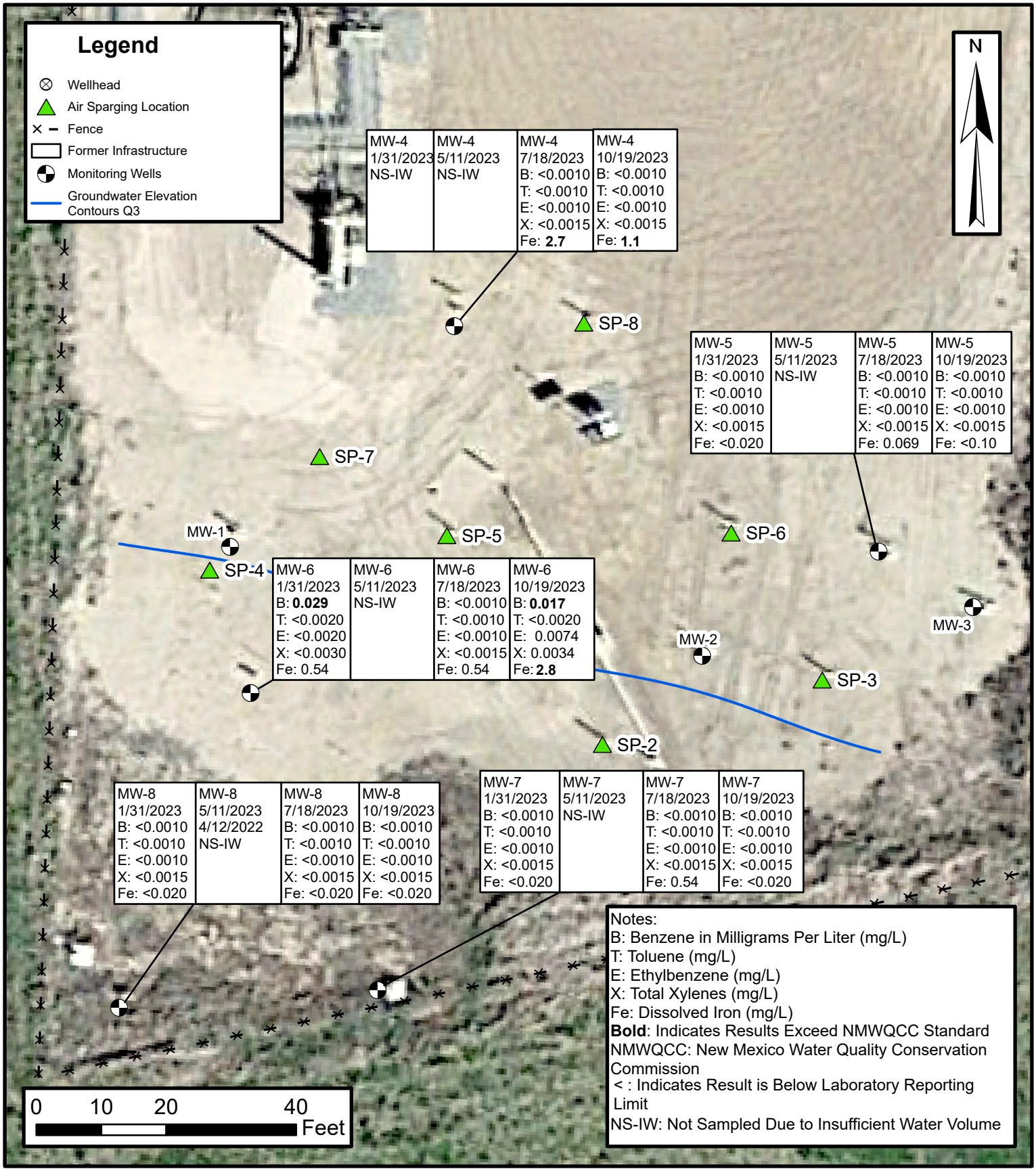
Q4 Groundwater Elevation Map

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
6

Sources: Google Earth



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2023 Groundwater Analytical Results

Nell Hall #1
Hilcorp Energy Company
36.821616, -108.037375
Sec 7, T30N, R11W
San Juan County, New Mexico

FIGURE
7

Sources: Google Earth

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TABLES

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TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-1	97.95	5/10/2005	DRY	--
		10/20/2005	19.25	78.70
		11/22/2005	24.15	73.80
		5/17/2006	--	--
		11/15/2006	21.40	76.55
		2/19/2007	DRY	--
		5/14/2007	24.85	73.10
		8/22/2007	24.61	73.34
		11/6/2007	20.87	77.08
		3/17/2008	DRY	--
		10/22/2008	19.38	78.57
		3/30/2009	28.25	69.70
		9/30/2009	16.56	81.39
		3/31/2010	DRY	--
		6/9/2010	24.16	73.79
		9/27/2010	20.00	77.95
		3/16/2011	DRY	--
		6/21/2011	26.80	71.15
		9/27/2011	17.85	80.10
		12/13/2011	25.39	72.56
		3/7/2012	DRY	--
		6/4/2012	26.40	71.55
		9/20/2012	17.57	80.38
		12/28/2012	DRY	--
		3/28/2013	DRY	--
		6/12/2013	24.33	73.62
		9/11/2013	17.59	80.36
		12/13/2013	27.45	70.50
		3/20/2014	DRY	--
		6/18/2014	25.18	72.77
		9/15/2014	18.68	79.27

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TABLE 1
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Nell Hall #1
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San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-1	97.95	12/15/2014	DRY	--
		3/16/2015	DRY	--
		6/15/2015	27.85	70.10
		9/16/2015	21.71	76.24
		11/30/2015	26.14	71.81
		3/30/2016	DRY	--
		9/8/2016	18.46	79.49
		11/29/2016	25.21	72.74
		6/14/2017	25.05	72.90
		9/25/2017	19.44	78.51
		12/5/2017	27.29	70.66
		3/15/2018	28.36	69.59
		6/27/2018	24.84	73.11
		3/14/2019	28.24	69.71
		5/24/2019	28.24	69.71
		8/27/2019	DRY	--
		12/17/2019	27.80	70.15
		2/19/2020	28.25	69.70
		4/28/2020	28.26	69.69
		8/25/2020	25.17	72.78
		10/28/2020	22.34	75.61
		3/24/2021	28.24	69.71
		6/28/2021	DRY	--
		9/22/2021	DRY	--
		11/15/2021	26.79	71.16
		2/9/2022	NM	--
		4/12/2022	NM	--
		7/27/2022	NM	--
		10/13/2022	NM	--

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TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-2	97.16	5/10/2005	DRY	--
		10/20/2005	18.81	78.35
		11/22/2005	23.74	73.42
		5/17/2006	22.06	75.10
		11/15/2006	21.01	76.15
		2/19/2007	DRY	--
		5/14/2007	DRY	--
		8/22/2007	18.03	79.13
		11/6/2007	20.43	76.73
		3/17/2008	DRY	--
		10/22/2008	18.83	78.33
		3/30/2009	27.15	70.01
		9/30/2009	16.01	81.15
		3/31/2010	DRY	--
		6/9/2010	23.36	73.80
		9/27/2010	19.42	77.74
		3/16/2011	DRY	--
		6/21/2011	26.43	70.73
		9/27/2011	17.28	79.88
		12/13/2011	25.10	72.06
		3/7/2012	DRY	--
		6/4/2012	25.17	71.99
		9/20/2012	17.30	79.86
		12/28/2012	DRY	--
		3/28/2013	DRY	--
		6/12/2013	23.78	73.38
		9/11/2013	17.22	79.94
		12/13/2013	27.00	70.16
		3/20/2014	DRY	--
		6/18/2014	24.78	72.38

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GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-2	97.16	9/15/2014	18.18	78.98
		12/15/2014	DRY	--
		3/16/2015	DRY	--
		6/15/2015	26.65	70.51
		9/16/2015	21.37	75.79
		11/30/2015	26.04	71.12
		3/30/2016	27.31	69.85
		6/22/2016	25.45	71.71
		9/8/2016	18.09	79.07
		11/29/2016	24.94	72.22
		6/14/2017	24.85	72.31
		9/25/2017	18.96	78.20
		12/5/2017	27.04	70.12
		3/15/2018	DRY	--
		6/27/2018	24.61	72.55
		3/14/2019	27.16	70.00
		5/24/2019	27.21	69.95
		8/27/2019	24.74	72.42
		12/17/2019	27.05	70.11
		2/19/2020	27.14	70.02
		4/28/2020	27.20	69.96
		8/24/2020	24.61	72.55
		10/28/2020	21.89	75.27
		3/24/2021	27.18	69.98
		6/28/2021	DRY	--
		9/22/2021	DRY	--
		11/15/2021	26.86	70.30
		2/9/2022	NM	--
		4/12/2022	NM	--
		7/27/2022	NM	--
		10/13/2022	NM	--

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Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-3	97.77	5/10/2005	DRY	--
		10/20/2005	19.36	78.41
		11/22/2005	24.24	73.53
		5/17/2006	22.82	74.95
		11/15/2006	21.53	76.24
		2/19/2007	DRY	--
		5/14/2007	DRY	--
		8/22/2007	18.36	79.41
		11/6/2007	20.95	76.82
		3/17/2008	DRY	--
		10/22/2008	19.34	78.43
		3/30/2009	DRY	--
		9/30/2009	DRY	--
		3/31/2010	DRY	--
		6/9/2010	23.87	73.90
		9/27/2010	19.93	77.84
		3/16/2011	DRY	--
		6/21/2011	27.06	70.71
		9/27/2011	17.82	79.95
		12/13/2011	25.66	72.11
		3/7/2012	DRY	--
		6/4/2012	25.53	72.24
		9/20/2012	17.97	79.80
		12/28/2012	DRY	--
		3/28/2013	DRY	--
		6/12/2013	24.36	73.41
		9/11/2013	17.84	79.93
		12/13/2013	DRY	--
		3/20/2014	DRY	--
		6/18/2014	25.36	72.41

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GROUNDWATER ELEVATIONS
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San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-3	97.77	9/15/2014	18.79	78.98
		12/15/2014	DRY	--
		3/16/2015	DRY	--
		6/15/2015	27.20	70.57
		9/16/2015	22.05	75.72
		11/30/2015	26.68	71.09
		3/30/2016	DRY	--
		9/8/2016	18.75	79.02
		11/29/2016	25.53	72.24
		6/14/2017	25.52	72.25
		9/25/2017	19.62	78.15
		12/5/2017	27.31	70.46
		3/15/2018	DRY	--
		6/27/2018	25.27	72.50
		3/14/2019	27.40	70.37
		5/24/2019	DRY	--
		8/27/2019	25.42	72.35
		12/17/2019	27.30	70.47
		2/19/2020	27.37	70.40
		4/28/2020	DRY	--
		8/24/2020	25.20	72.57
		10/28/2020	22.49	75.28
		3/24/2021	DRY	--
		6/28/2021	DRY	--
		9/22/2021	DRY	--
		11/15/2021	27.24	70.53
		2/9/2022	NM	--
		4/12/2022	NM	--
		7/27/2022	NM	--
		10/13/2022	NM	--

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GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-4	97.75	3/8/2004	36.04	61.71
		7/19/2004	8.44	89.31
		10/27/2004	19.69	78.06
		12/27/2004	27.58	70.17
		5/10/2005	DRY	--
		10/20/2005	18.87	78.88
		11/22/2005	23.93	73.82
		5/17/2006	--	--
		11/15/2006	21.02	76.73
		2/19/2007	34.40	63.35
		5/14/2007	27.56	70.19
		8/22/2007	18.18	79.57
		11/6/2007	20.48	77.27
		3/17/2008	36.08	61.67
		10/22/2008	18.96	78.79
		3/30/2009	37.36	60.39
		9/30/2009	16.15	81.60
		3/31/2010	DRY	--
		6/9/2010	23.61	74.14
		9/27/2010	19.61	78.14
		3/16/2011	DRY	--
		6/21/2011	26.79	70.96
		9/27/2011	17.47	80.28
		12/13/2011	25.35	72.40
		3/7/2012	35.73	62.02
		6/4/2012	25.39	72.36
		9/20/2012	17.43	80.32
		12/28/2012	28.02	69.73
		3/28/2013	DRY	--
		6/12/2013	24.06	73.69
		9/11/2013	17.40	80.35

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Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-4	97.75	12/13/2013	27.90	69.85
		3/20/2014	DRY	--
		6/18/2014	25.10	72.65
		9/15/2014	18.43	79.32
		12/15/2014	28.01	69.74
		3/16/2015	DRY	--
		6/15/2015	26.91	70.84
		9/16/2015	21.62	76.13
		11/30/2015	26.28	71.47
		3/30/2016	37.54	60.21
		6/22/2016	25.59	72.16
		9/8/2016	18.29	79.46
		11/29/2016	25.31	72.44
		6/14/2017	25.17	72.58
		9/25/2017	19.24	78.51
		12/5/2017	27.64	70.11
		3/15/2018	37.54	60.21
		6/27/2018	24.84	72.91
		10/10/2018	22.70	75.05
		12/12/2018	29.98	67.77
		3/14/2019	37.43	60.32
		5/23/2019	33.96	63.79
		8/27/2019	25.17	72.58
		12/16/2019	29.15	68.60
		2/20/2020	36.64	61.11
		4/29/2020	DRY	--
		8/25/2020	24.74	73.01
		10/29/2020	22.13	75.62
		3/24/2021	37.40	60.35
		6/28/2021	26.33	71.42
		9/22/2021	23.45	74.30
		11/15/2021	26.77	70.98
		2/9/2022	37.37	60.38

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-4	97.75	4/12/2022	DRY	--
		7/27/2022	24.58	73.17
		10/13/2022	25.15	72.60
		1/31/2023	37.35	60.40
		5/11/2023	37.39	60.36
		7/18/2023	33.74	64.01
		10/19/2023	28.46	69.29
MW-5	98.81	3/8/2004	37.19	61.62
		7/19/2004	9.38	89.43
		10/27/2004	21.07	77.74
		12/27/2004	28.99	69.82
		5/10/2005	39.79	59.02
		10/20/2005	20.34	78.47
		11/22/2005	25.23	73.58
		5/17/2006	23.80	75.01
		11/15/2006	22.51	76.30
		2/19/2007	35.31	63.50
		5/14/2007	27.59	71.22
		8/22/2007	19.45	79.36
		11/6/2007	21.94	76.87
		3/17/2008	37.33	61.48
		10/22/2008	19.30	79.51
		3/30/2009	38.68	60.13
		9/30/2009	17.54	81.27
		3/31/2010	39.05	59.76
		6/9/2010	24.91	73.90
		9/27/2010	20.92	77.89
		3/16/2011	39.25	59.56
		6/21/2011	28.02	70.79
		9/27/2011	18.79	80.02
		12/13/2011	26.62	72.19
		3/7/2012	37.00	61.81
		6/4/2012	26.57	72.24
		9/20/2012	18.92	79.89
		12/28/2012	29.37	69.44

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
		3/28/2013	DRY	--

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-5	98.81	6/12/2013	25.39	73.42
		9/11/2013	18.84	79.97
		12/13/2013	29.20	69.61
		3/20/2014	39.83	58.98
		6/18/2014	26.35	72.46
		9/15/2014	19.76	79.05
		12/15/2014	29.37	69.44
		3/16/2015	39.55	59.26
		6/15/2015	28.22	70.59
		9/16/2015	23.02	75.79
		11/30/2015	27.61	71.20
		3/30/2016	41.26	57.55
		6/22/2016	26.91	71.90
		9/8/2016	19.72	79.09
		11/29/2016	26.48	72.33
		6/14/2017	26.48	72.33
		9/25/2017	20.58	78.23
		12/5/2017	29.09	69.72
		3/15/2018	40.67	58.14
		6/27/2018	26.24	72.57
		10/10/2018	23.44	75.37
		12/12/2018	31.25	67.56
		3/14/2019	41.70	57.11
		5/24/2019	34.36	64.45
		8/28/2019	26.41	72.40
		12/17/2019	30.58	68.23
		2/21/2020	38.03	60.78
		4/29/2020	39.43	59.38
		8/25/2020	26.17	72.64
		10/29/2020	23.49	75.32
		3/24/2021	41.78	57.03
		6/28/2021	27.68	71.13

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-5	98.81	9/22/2021	24.80	74.01
		11/15/2021	28.50	70.31
		2/9/2022	38.95	59.86
		4/12/2022	42.47	56.34
		7/27/2022	25.56	73.25
		10/13/2022	26.63	72.18
		1/31/2023	38.87	59.94
		5/11/2023	42.47	56.34
		7/18/2023	33.23	65.58
		10/19/2023	29.80	69.01
MW-6	98.41	3/8/2004	36.27	62.14
		7/19/2004	9.43	88.98
		10/27/2004	19.33	79.08
		12/27/2004	28.62	69.79
		5/10/2005	DRY	--
		10/20/2005	19.94	78.47
		11/22/2005	25.02	73.39
		5/17/2006	--	--
		11/15/2006	21.12	77.29
		2/19/2007	34.82	63.59
		5/14/2007	26.12	72.29
		8/22/2007	19.41	79.00
		11/6/2007	21.51	76.90
		3/17/2008	36.34	62.07
		10/22/2008	19.99	78.42
		3/30/2009	37.04	61.37
		9/30/2009	17.26	81.15
		3/31/2010	37.24	61.17
		6/9/2010	24.43	73.98
		9/27/2010	20.79	77.62
		3/16/2011	DRY	--
		6/21/2011	27.56	70.85
		9/27/2011	18.58	79.83
		12/13/2011	26.32	72.09
		3/7/2012	36.01	62.40

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
		6/4/2012	26.55	71.86
		9/20/2012	18.25	80.16

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-6	98.41	12/28/2012	29.11	69.30
		3/28/2013	DRY	--
		6/12/2013	24.78	73.63
		9/11/2013	18.26	80.15
		12/13/2013	28.84	69.57
		3/20/2014	37.47	60.94
		6/18/2014	25.93	72.48
		9/15/2014	19.35	79.06
		12/15/2014	29.02	69.39
		3/16/2015	37.37	61.04
		6/15/2015	27.92	70.49
		9/16/2015	22.40	76.01
		11/30/2015	27.22	71.19
		3/30/2016	37.81	60.60
		6/22/2016	26.75	71.66
		9/8/2016	19.27	79.14
		11/29/2016	26.20	72.21
		6/14/2017	25.97	72.44
		9/25/2017	20.04	78.37
		12/5/2017	28.63	69.78
		3/15/2018	37.76	60.65
		6/27/2018	25.67	72.74
		10/10/2018	22.97	75.44
		12/12/2018	31.12	67.29
		3/14/2019	37.84	60.57
		5/23/2019	35.26	63.15
		8/27/2019	25.83	72.58
		12/16/2019	29.41	69.00
		2/20/2020	36.41	62.00
		4/29/2020	DRY	--
		8/25/2020	25.70	72.71

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-6	98.41	10/28/2020	22.85	75.56
		3/24/2021	34.74	63.67
		6/28/2021	27.08	71.33
		9/22/2021	24.30	74.11
		11/15/2021	27.63	70.78
		2/9/2022	36.93	61.48
		4/12/2022	37.86	60.55
		7/27/2022	25.38	73.03
		10/13/2022	26.03	72.38
		1/31/2023	36.78	61.63
		5/11/2023	37.88	60.53
		7/18/2023	35.26	63.15
		10/19/2023	29.43	68.98
MW-7	97.60	9/16/2015	21.70	75.90
		11/30/2015	26.78	70.82
		3/30/2016	40.46	57.14
		6/22/2016	25.98	71.62
		9/8/2016	18.55	79.05
		11/29/2016	25.73	71.87
		6/14/2017	25.35	72.25
		9/25/2017	19.44	78.16
		12/5/2017	28.21	69.39
		3/15/2018	39.85	57.75
		6/27/2018	25.06	72.54
		10/10/2018	22.26	75.34
		12/12/2018	30.25	67.35
		3/14/2019	40.81	56.79
		5/23/2019	33.75	63.85
		8/28/2019	25.00	72.60
		12/16/2019	29.41	68.19
		2/19/2020	37.10	60.50
		4/29/2020	37.87	59.73
		8/24/2020	25.17	72.43
		10/28/2020	22.25	75.35
		3/24/2021	40.91	56.69

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
		6/28/2021	26.38	71.22

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TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-7	97.60	9/22/2021	23.60	74.00
		11/15/2021	27.09	70.51
		2/8/2022	38.32	59.28
		4/12/2022	42.56	55.04
		7/27/2022	24.51	73.09
		10/13/2022	25.34	72.26
		1/31/2023	37.99	59.61
		5/11/2023	42.55	55.05
		7/18/2023	33.59	64.01
		10/19/2023	28.88	68.72
MW-8	98.87	9/16/2015	22.74	76.13
		11/30/2015	27.97	70.90
		3/30/2016	41.65	57.22
		6/22/2016	27.11	71.76
		9/8/2016	19.52	79.35
		11/29/2016	26.82	72.05
		6/14/2017	26.30	72.57
		9/25/2017	20.52	78.35
		12/5/2017	29.30	69.57
		3/15/2018	41.03	57.84
		6/27/2018	26.00	72.87
		10/10/2018	23.27	75.60
		12/12/2018	31.34	67.53
		3/14/2019	42.00	56.87
		5/23/2019	35.12	63.75
		8/28/2019	26.03	72.84
		12/17/2019	30.42	68.45
		2/19/2020	38.11	60.76
		4/29/2020	38.32	60.55
		8/25/2020	26.32	72.55
		10/28/2020	23.41	75.46
		3/24/2021	42.00	56.87
		6/28/2021	27.30	71.57
		9/22/2021	24.60	74.27

ENSOLUM

TABLE 1
GROUNDWATER ELEVATIONS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Top of Casing Elevation (feet) (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-8	98.87	11/15/2021	28.58	70.29
		2/8/2022	39.11	59.76
		4/12/2022	42.05	56.82
		7/27/2022	25.67	73.20
		10/13/2022	26.28	72.59
		1/31/2023	39.08	59.79
		5/11/2023	42.42	56.45
		7/18/2023	34.88	63.99
		10/19/2023	29.93	68.94

Notes:

(1): surface elevation based on an arbitrary datum of 100 feet

bgs: below ground surface

BTOC: below top of casing

NM: not measured

--: indicates no GWEL or PSH measured

ENSOLUM

TABLE 2
GROUNDWATER QUALITY MEASUREMENTS
Hilcorp Energy Company - Nell Hall #1
San Juan County, New Mexico

Ensolum Project No. 07A1988012

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-4	3/17/2015	Not sampled					
	6/15/2015	16.01	6.78	0.635	977	2.74	-113.9
	9/16/2015	16.48	7.00	0.619	953	4.24	-83.1
	11/30/2015	15.59	7.01	0.680	1,046	2.60	-54.0
	3/30/2016	Not sampled					
	6/22/2016	16.00	6.65	--	1,090	1.10	-109.0
	9/8/2016	16.55	7.35	0.627	965	5.03	66.3
	11/29/2016	14.79	7.34	--	935	3.87	46.0
	6/14/2017	14.81	7.02	0.688	1,043	2.14	-135.6
	9/25/2017	16.08	6.90	--	800	--	--
	12/5/2017	14.31	6.84	0.658	1,013	1.32	-153.5
	3/15/2018	No parameter or samples collected due to low well volume					
	6/27/2018	16.51	6.77	--	1,060	--	-102.5
	3/14/2019	No parameter or samples collected due to low well volume					
	5/23/2019	14.40	7.10	0.510	980	--	-4.6
	8/27/2019	19.60	7.16	0.620	1,230	--	-3.2
	12/16/2019	8.40	6.40	0.590	1,200	2.68	13.5
	2/20/2020	15.80	6.36	0.650	1,300	8.19	-2.6
	4/29/2020	No parameter or samples collected due to low well volume					
	8/25/2020	22.40	6.18	0.640	1,290	1.04	16.2
	10/29/2020	17.20	6.59	0.570	1,140	4.63	-13.1
	3/24/2021	No parameter or samples collected due to low well volume					
	6/28/2021	No parameters collected due to equipment failure					
	9/22/2021	17.90	6.96	--	2,950	--	--
	11/15/2021	16.90	6.35	--	1,090	--	--
	2/9/2022	No parameter or samples collected due to low well volume					
	4/28/2022	No parameter or samples collected due to low well volume					
	7/27/2022	19.30	6.18	0.550	1,090	--	--
	10/13/2022	18.10	6.63	0.470	1,020	--	--
	1/31/2023	No parameter or samples collected due to low well volume					
	5/11/2023	No parameter or samples collected due to low well volume					
	7/18/2023	36.12	7.10	0.900	1,385	1.61	-94.80
	10/19/2023	25.66	7.25	1.030	1,580.8	1.73	-67.60
MW-5	3/17/2015	No parameters or sample collected due to low well volume.					
	6/15/2015	15.28	7.08	0.576	886	6.83	10.2
	9/16/2015	15.99	6.72	0.598	920	7.33	34.9
	11/30/2015	16.24	6.84	1.118	1,721	5.52	-50.5
	3/30/2016	No parameter or samples collected due to low well volume					
	6/22/2016	15.70	7.02	--	1,120	5.87	2.0
	9/8/2016	15.78	7.82	0.550	846	7.91	54.3
	11/29/2016	15.47	7.17	--	1,198	8.96	74.8
	6/14/2017	14.22	7.05	0.914	1,406	6.88	-80.1
	9/25/2017	15.60	6.83	--	947	--	--
	12/5/2017	15.16	7.05	0.888	1,367	4.66	-82.9

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TABLE 2
GROUNDWATER QUALITY MEASUREMENTS
Hilcorp Energy Company - Nell Hall #1
San Juan County, New Mexico

Ensolum Project No. 07A1988012

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
	3/15/2018	15.53	7.13	--	1,301	1.23	78.4
MW-5	6/27/2018	15.84	7.11	--	1,098	6.80	65.6
	3/14/2019	14.40	7.20	0.670	1,340	--	-15.6
	5/24/2019	14.40	7.17	0.560	1,130	--	-22.6
	8/28/2019	19.10	7.02	0.680	1,360	--	-20.2
	12/17/2019	10.20	6.57	0.640	1,250	7.16	-31.7
	2/21/2020	12.40	6.50	0.570	1,210	--	-30.5
	4/29/2020	20.70	6.71	0.530	1,060	4.04	-19.9
	8/25/2020	23.40	6.86	0.600	1,180	2.71	-15.6
	10/28/2020	17.50	6.54	0.670	1,330	4.46	-8.6
	3/24/2021	13.00	6.68	0.580	1,190	--	-21.7
	6/28/2021	No parameters collected due to equipment failure					
	9/22/2021	19.70	7.07	--	3,820	--	--
	11/15/2021	17.70	6.27	--	1,230	--	--
	2/9/2022	13.90	6.78	--	1,000	--	--
	4/28/2022	No parameter or samples collected due to low well volume					
	7/27/2022	18.40	6.64	0.510	1,020	--	--
	10/13/2022	17.90	6.79	0.470	1,090	--	--
	1/31/2023	12.60	7.32	0.490	960	--	--
	5/11/2023	No parameter or samples collected due to low well volume					
	7/18/2023	38.56	7.56	0.790	1,219	6.38	-49.9
	10/19/2023	24.92	7.68	0.860	1,318.6	6.87	-79.5
MW-6	3/17/2015	Not sampled.					
	6/15/2015	15.34	6.50	0.730	1,124	4.15	-95.9
	9/16/2015	15.69	6.13	0.846	1,302	2.92	-121.5
	11/30/2015	15.36	6.57	0.793	1,221	4.82	-72.4
	3/30/2016	Not sampled					
	6/22/2016	15.30	6.50	--	1,220	1.42	-91.4
	9/8/2016	15.51	7.43	0.849	1,307	1.86	-138.7
	11/29/2016	15.29	6.86	--	1,132	2.57	-86.1
	6/14/2014	14.10	6.73	0.775	1,192	2.02	-115.1
	9/25/2017	14.86	6.30	--	1,342	--	--
	12/5/2017	13.91	6.68	0.794	1,222	0.80	-155.0
	3/15/2018	15.21	6.78	--	1,553	--	-139.2
	6/27/2018	16.31	6.91	--	1,195	0.52	-125
	3/14/2019	No parameter or samples collected due to low well volume					
	5/23/2019	No parameter or samples collected due to low well volume					
	8/27/2019	20.60	6.73	0.580	1,160	--	13.7
	12/16/2019	9.50	6.13	0.590	1,150	5.15	12.2
	2/20/2020	15.40	6.04	0.670	1,340	--	11.1
	4/29/2020	No parameter or samples collected due to low well volume					
	8/25/2020	25.70	6.25	0.660	1,330	1.32	25.8
	10/28/2020	15.50	6.22	0.790	1,590	5.49	15.3
	3/24/2021	No parameter or samples collected due to low well volume					

ENSOLUM

TABLE 2
GROUNDWATER QUALITY MEASUREMENTS
Hilcorp Energy Company - Nell Hall #1
San Juan County, New Mexico

Ensolum Project No. 07A1988012

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
	6/28/2021	No parameters collected due to equipment failure					
	9/22/2021	18.10	6.98	--	3,980	--	--
MW-6	11/15/2021	16.80	5.83	--	1,200	--	--
	2/9/2022	9.50	6.27	--	1,150	--	--
	4/28/2022	No parameter or samples collected due to low well volume					
	7/27/2022	18.20	5.97	0.550	1,110	--	--
	10/13/2022	17.30	6.18	0.620	1,250	--	--
	1/31/2023	8.60	6.85	0.650	1,290	--	--
	5/11/2023	No parameter or samples collected due to low well volume					
	7/18/2023	No parameter or samples collected due to low well volume					
	10/19/2023	24.10	7.24	0.930	1,435.8	2.37	-71.4
MW-7	9/16/2015	15.07	6.52	0.581	893	7.15	72.8
	11/30/2015	15.01	6.69	1.067	1,641	4.99	21.0
	3/30/2016	16.77	6.91	0.800	1,250	6.03	40.0
	6/22/2016	15.30	6.93	--	1,090	1.22	53.5
	9/8/2016	16.29	7.62	0.441	679	7.49	5.6
	11/29/2016	14.11	7.07	--	1,006	6.35	85.7
	6/14/2017	13.95	6.82	0.809	1,245	4.88	-78.6
	9/25/2017	13.87	6.91	--	808	--	--
	12/5/2017	14.11	6.93	0.615	946	3.11	-82.8
	3/15/2018	15.26	6.91	--	1,037	1.09	77.1
	6/27/2018	15.07	6.95	--	887	5.60	42.5
	3/14/2019	12.20	7.40	0.510	--	--	-5.3
	5/23/2019	15.50	7.15	0.490	1,550	--	-8.8
	8/28/2019	18.00	7.08	0.440	880	--	-17.8
	12/16/2019	8.20	6.41	0.520	1,050	2.85	-39.1
	2/19/2020	14.70	6.46	0.570	1,120	9.25	-10.6
	4/29/2020	13.00	6.42	0.530	1,070	2.96	-6.5
	8/24/2020	19.80	6.51	0.510	1,020	2.17	-6.1
	10/28/2020	10.90	6.55	0.650	1,290	5.21	-12.4
	3/24/2021	10.90	6.55	0.650	1,290	5.21	-12.4
	6/28/2021	No parameters collected due to equipment failure					
	9/22/2021	20.30	7.13	--	2,590	--	--
	11/15/2021	16.60	6.11	--	1,410	--	--
	2/8/2022	14.50	6.24	--	1,040	--	--
	4/28/2022	No parameter or samples collected due to low well volume					
	7/27/2022	16.70	6.47	0.390	790	--	--
	10/13/2022	15.30	6.62	0.420	840	--	--
	1/31/2023	10.40	6.77	0.450	900	--	--
	5/11/2023	No parameter or samples collected due to low well volume					
	7/18/2023	35.77	7.14	0.790	1,218	2.37	54.6
	10/19/2023	24.05	7.46	0.890	1,376.4	6.14	289.7
	9/16/2015	14.18	6.65	0.534	821	6.37	73.2

ENSOLUM

TABLE 2
GROUNDWATER QUALITY MEASUREMENTS
Hilcorp Energy Company - Nell Hall #1
San Juan County, New Mexico

Ensolum Project No. 07A1988012

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-8	11/30/2015	13.85	7.20	0.565	869	4.59	-13.8
	3/30/2016	No parameter or samples collected due to low well volume					
	6/22/2016	14.70	7.04	--	970	0.66	-22.6
	9/8/2016	13.99	7.82	0.550	847	7.95	15.0
	11/29/2016	13.71	7.24	--	883	8.81	89.1
	6/14/2017	13.36	7.43	0.549	844	7.71	-71.9
	9/25/2017	12.78	6.73	--	823	--	--
	12/5/2017	12.36	7.09	0.509	783	2.53	-83.5
MW-8	3/15/2018	14.52	7.12	--	915	0.00	-135.0
	6/27/2018	14.48	7.14	--	748	5.57	62.2
	3/14/2019	No parameter or samples collected due to low well levels					
	5/23/2019	18.40	7.47	0.470	910	--	-30.3
	8/28/2019	18.40	7.07	0.480	960	--	-15.4
	12/17/2019	6.60	6.80	0.400	800	--	-36.6
	2/19/2020	15.30	6.21	0.440	880	9.57	-18.0
	4/29/2020	15.30	6.46	0.420	850	2.61	-10.1
	8/25/2020	23.00	6.62	0.480	970	2.04	-14
	10/28/2020	13.40	6.59	0.460	910	4.72	-19.8
	3/24/2021	No parameter or samples collected due to low well levels					
	6/28/2021	No parameters collected due to equipment failure					
	9/22/2021	17.10	7.14	--	2,650	--	--
	11/15/2021	13.10	6.24	--	890	--	--
	2/8/2022	14.70	6.53	--	940	--	--
	4/28/2022	No parameter or samples collected due to low well volume					
	7/27/2022	16.70	6.47	0.390	790	--	--
	10/13/2022	15.40	6.71	0.420	840	--	--
	1/31/2023	6.80	7.12	0.430	830	--	--
	5/11/2023	No parameter or samples collected due to low well volume					
	7/18/2023	36.27	7.14	0.740	1,140	2.34	-63.8
	10/19/2023	21.57	7.67	0.560	862.18	5.42	283.9

Notes:

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

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		**0.005**	**1.0**	**0.70**	**0.62**	**1.0**
MW-4	3/8/2004	**0.013**	0.012	0.064	**1.4**	--
	7/19/2004	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--
	10/27/2004	**0.011**	0.008	0.021	0.13	--
	12/27/2004	< 0.0025	< 0.0025	< 0.0025	< 0.0005	--
	11/22/2005	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/15/2006	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	2/21/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	8/22/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/6/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	3/17/2008	< 0.005	< 0.005	< 0.005	< 0.005	--
	10/22/2008	< 0.005	< 0.005	< 0.005	< 0.005	--
	9/30/2009	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	9/27/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	6/21/2011	< 0.001	< 0.001	< 0.001	< 0.003	**1.21**
	9/27/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/13/2011	< 0.001	< 0.001	< 0.001	< 0.003	0.201
	3/7/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.25
	6/4/2012	< 0.001	< 0.001	< 0.001	< 0.003	**1.17**
	9/20/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.25
	12/28/2012	< 0.001	< 0.001	< 0.001	< 0.003	0.748
	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.003	**1.46**
	9/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	<0.050
	12/13/2013	< 0.001	< 0.001	< 0.001	< 0.003	0.758
	6/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	**1.83**
	9/15/2014	< 0.001	< 0.001	< 0.001	< 0.003	0.0544
	12/15/2014	< 0.001	< 0.001	< 0.001	< 0.003	0.456
	6/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	**1.78**
	9/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	0.225
	11/30/2015	< 0.001	< 0.001	< 0.001	< 0.003	0.58
	3/30/2016	**No samples collected due to low well levels**				
	06/22/2016	< 0.001	< 0.001	< 0.001	< 0.003	**2.07**
	09/08/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	06/14/2017	< 0.001	< 0.001	< 0.001	< 0.003	**1.03**
	9/25/2017	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/05/2017	< 0.001	< 0.001	< 0.001	< 0.003	0.564
	3/15/2018	**No samples collected due to low well levels**				
	6/27/2018	< 0.001	< 0.001	< 0.001	< 0.003	**1.39**
	10/10/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	12/12/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/14/2019	**No samples collected due to low well levels**				
	5/23/2019	--	--	--	--	<0.10
	8/27/2019	--	--	--	--	<0.10
	12/16/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		**0.005**	**1.0**	**0.70**	**0.62**	**1.0**
MW-4	2/19/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	4/29/2020	**No samples collected due to low well levels**				
	8/25/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	10/29/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/24/2021	**No samples collected due to low well levels**				
	6/28/2021	< 0.0025	< 0.0025	< 0.0025	< 0.005	**1.9**
	9/22/2021	< 0.001	< 0.001	< 0.001	< 0.002	< 0.02
	11/12/2021	< 0.001	< 0.001	< 0.001	< 0.0015	< 0.02
	2/9/2022	**No samples collected due to low well levels**				
	4/12/2022	**No samples collected due to low well levels**				
	7/27/2022	<0.001	<0.001	<0.001	<0.0015	**2.7**
	10/13/2022	<0.001	<0.001	<0.001	<0.0015	0.34
	1/31/2023	**No samples collected due to low well levels**				
	5/11/2023.	**No samples collected due to low well levels**				
	7/18/2023	<0.0010	<0.0010	<0.0010	<0.0015	**2.7**
	10/19/2023	<0.0010	<0.0010	<0.0010	<0.0015	**1.1**
MW-5	3/8/2004	0.0011	< 0.0005	0.001	0.017	--
	7/19/2004	< 0.0005	0.00055	< 0.0005	0.00072	--
	10/27/2004	< 0.0005	< 0.0005	< 0.0005	< 0.001	--
	12/27/2004	< 0.0005	< 0.0005	< 0.0005	< 0.001	--
	5/11/2005	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/22/2005	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/15/2006	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	2/21/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	8/22/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/6/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	3/17/2008	< 0.005	< 0.005	< 0.005	< 0.005	--
	10/22/2008	< 0.005	< 0.005	< 0.005	< 0.005	--
	3/30/2009	< 0.005	< 0.005	< 0.005	< 0.005	--
	9/30/2009	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	3/31/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	9/27/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02
	6/21/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.1
	9/27/2011	< 0.001	< 0.001	< 0.001	< 0.003	0.0835
	12/13/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	3/7/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	6/4/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	9/20/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/28/2012	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	6/12/2013	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	9/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	0.0723
	12/13/2013	< 0.001	< 0.001	< 0.001	< 0.003	0.076
	3/21/2014	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	6/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	9/15/2014	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/15/2014	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	--

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		**0.005**	**1.0**	**0.70**	**0.62**	**1.0**
MW-5	6/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	9/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/30/2015	< 0.001	< 0.001	< 0.001	< 0.003	0.0684
	3/30/2016	< 0.001	< 0.001	< 0.001	< 0.003	--
	6/22/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	09/08/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	06/14/2017	< 0.001	< 0.001	< 0.001	< 0.003	0.133
	9/25/2017	**0.147**	< 0.001	0.0264	0.0135	0.0568
	12/05/2017	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	3/15/2018	< 0.001	< 0.001	< 0.001	< 0.003	0.0795
	6/27/2018	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	10/10/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	12/12/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/14/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	5/24/2019	--	--	--	--	<0.10
	8/28/2019	--	--	--	--	<0.10
	12/17/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	2/21/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	4/29/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	8/25/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	10/29/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/24/2021	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	6/28/2021	< 0.0025	< 0.0025	< 0.0025	< 0.005	< 0.02
	9/22/2021	< 0.001	< 0.001	< 0.001	< 0.002	< 0.02
	11/15/2021	< 0.001	< 0.001	< 0.001	< 0.0015	< 0.02
	2/9/2022	<0.001	<0.001	<0.001	<0.0015	0.032
	4/12/2022	**No samples collected due to low well levels**				
	7/27/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	10/13/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	1/31/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020
	5/11/2023	**No samples collected due to low well levels**				
	7/18/2023	<0.0010	<0.0010	<0.0010	<0.0015	0.069
	10/19/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.10
MW-6	3/8/2004	**2.5**	0.014	**1.6**	**21.031**	--
	7/19/2004	< 0.0005	< 0.0005	0.00098	0.0026	--
	10/27/2004	0.0004	0.0003	0.0005	0.0021	--
	12/27/2004	**0.045**	0.0068	0.014	0.0717	--
	11/22/2005	**0.01**	0.0007	0.016	0.15	--
	11/15/2006	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	2/21/2007	**0.54**	< 0.001	0.076	**0.81**	--
	8/22/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--
	11/6/2007	**0.015**	< 0.0007	0.047	0.39	--
	3/18/2008	**0.16**	< 0.005	< 0.005	0.033	--
	10/22/2008	< 0.005	< 0.005	< 0.005	< 0.005	--
	3/30/2009	**0.042**	< 0.005	< 0.005	0.01	--
	9/30/2009	**0.096**	0.0047	0.062	0.12	**1.06**
	4/1/2010	**0.48**	< 0.001	0.078	0.2	--
	6/9/2010	**0.71**	< 0.001	0.42	0.52	**11.4**

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		0.005	1.0	0.70	0.62	1.0
MW-6	9/27/2010	**0.30**	< 0.001	0.25	0.41	0.676
	3/16/2011	**0.18**	< 0.001	0.044	0.072	**8.66**
	6/21/2011	**0.461**	0.00048	0.454	**0.677**	**9.45**
	9/27/2011	**0.237**	< 0.005	0.197	0.225	**19.6**
	12/13/2011	**0.298**	0.0083	0.154	0.141	**11.6**
	3/7/2012	**0.0477**	< 0.001	0.0073	0.0192	**22.5**
	6/4/2012	**0.649**	< 0.01	0.309	0.314	**19.2**
	9/20/2012	**0.266**	< 0.005	0.065	0.0355	**9.53**
	12/28/2012	**0.319**	< 0.005	0.0764	0.0452	**8.06**
	6/12/2013	**0.442**	< 0.005	0.159	0.209	**16.6**
	9/11/2013	**0.109**	< 0.001	0.0208	0.0123	**2.26**
	12/13/2013	**0.467**	< 0.001	0.101	0.0537	**5.9**
	6/18/2014	**0.384**	< 0.005	0.152	0.177	**15.5**
	9/15/2014	**0.502**	< 0.001	0.101	0.064	**7.75**
	12/15/2014	**0.333**	< 0.001	0.0758	0.0249	**5.45**
	6/15/2015	**0.354**	< 0.005	0.167	0.222	**13.1**
	9/16/2015	**0.294**	< 0.005	0.134	0.0615	**11**
	11/30/2015	**0.413**	< 0.01	0.0642	< 0.03	**7.35**
	3/30/2016	**No samples collected due to low well levels**				
	6/22/2016	**0.419**	< 0.010	0.0718	0.0435	**16.2**
	09/08/2016	**0.209**	< 0.005	0.0339	< 0.015	**6.07**
	11/29/2016	**0.257**	< 0.005	0.0649	0.0203	**6.32**
	06/14/2017	**0.309**	< 0.005	0.103	0.0916	**10.6**
	9/25/2017	**0.157**	< 0.001	0.0286	0.0145	**5.73**
	12/05/2017	**0.236**	< 0.001	0.0243	0.007	**7.58**
	3/15/2018	**0.389**	< 0.001	0.0544	0.0376	--
	6/27/2018	**0.389**	< 0.001	0.0683	0.0427	**10.00**
	10/10/2018	**0.0125**	< 0.001	0.0038	< 0.003	**1.68**
	12/12/2018	**0.146**	< 0.001	0.00285	< 0.003	**1.66**
	3/14/2019	**No samples collected due to low well levels**				
	5/23/2019	**0.164**	< 0.001	0.0926	0.0377	**3.05**
	8/27/2019	**0.187**	< 0.001	0.0479	0.00321	**3.54**
	12/16/2019	**0.222**	< 0.001	0.0149	< 0.003	0.344
	2/20/2020	**0.121**	< 0.001	0.0046	< 0.003	**1.65**
	4/29/2020	**No samples collected due to low well levels**				
	8/25/2020	**0.295**	< 0.001	0.0123	< 0.003	**2.8**
	10/28/2020	**0.112**	< 0.001	< 0.001	< 0.003	**1.55**
	3/24/2021	**No samples collected due to low well levels**				
	6/28/2021	**0.073**	< 0.0025	0.065	< 0.005	**12**
	9/22/2021	0.0033	< 0.001	0.0054	< 0.002	**2.5**
	11/12/2021	**0.140**	< 0.001	0.0047	< 0.0015	0.99
	2/9/2022	**0.180**	<0.001	0.0081	<0.0015	--
	4/12/2022	**No samples collected due to low well levels**				
	7/27/2022	**0.0052**	<0.001	0.011	0.0016	**13**
	10/13/2022	**0.020**	<0.001	0.0044	<0.0015	**4.0**
	1/31/2023	**0.029**	<0.0020	<0.0020	<0.0030	0.36
	5/11/2023	**No samples collected due to low well levels**				
	7/18/2023	<0.0010	<0.0010	<0.0010	<0.0015	0.54
	10/19/2023	**0.017**	<0.0020	0.0074	0.0034	**2.8**

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		**0.005**	**1.0**	**0.70**	**0.62**	**1.0**
MW-7	9/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/30/2015	< 0.001	< 0.001	< 0.001	< 0.003	0.0637
	3/30/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.50
	6/22/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.50
	09/08/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	<0.05
	06/14/2017	< 0.001	< 0.001	< 0.001	< 0.003	<0.05
	9/25/2017	< 0.001	< 0.001	< 0.001	< 0.003	<0.05
	12/05/2017	< 0.001	< 0.001	< 0.001	< 0.003	<0.05
	3/15/2018	< 0.001	< 0.001	< 0.001	< 0.003	0.0936
	6/27/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.05
	10/10/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	12/11/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/14/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	5/23/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	8/28/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	12/16/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	2/19/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	4/29/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	8/24/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	10/28/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/24/2021	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	6/28/2021	< 0.0025	< 0.0025	< 0.0025	< 0.005	< 0.020
	9/22/2021	< 0.001	< 0.001	< 0.001	< 0.002	<0.020
	11/12/2021	< 0.001	< 0.001	< 0.001	< 0.0015	<0.020
	2/9/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	4/12/2022	**No samples collected due to low well levels**				
	7/27/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	10/13/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	1/31/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020
	5/11/2023	**No samples collected due to low well levels**				
	7/18/2023	<0.0010	<0.0010	<0.0010	<0.0015	0.54
	10/19/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020
MW-8	9/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/30/2015	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	3/30/2016	< 0.001	< 0.001	< 0.001	< 0.003	0.412
	6/22/2016	< 0.001	< 0.001	< 0.001	< 0.003	0.0753
	09/08/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	11/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	06/14/2017	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	9/25/2017	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/5/2017	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	3/15/2018	< 0.001	< 0.001	< 0.001	< 0.003	0.237
	6/27/2018	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	10/10/2018	< 0.001	< 0.001	< 0.001	< 0.003	< 0.05
	12/11/2018	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/14/2019	**No samples collected due to low well levels**				
	5/23/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	8/28/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10

ENSOLUM

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
Nell Hall #1
Hilcorp Energy Company
San Juan County, New Mexico

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Dissolved Iron (mg/L)
NMWQCC Standards		**0.005**	**1.0**	**0.70**	**0.62**	**1.0**
MW-8	12/17/2019	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	2/19/2020	< 0.001	< 0.001	< 0.001	< 0.003	0.126
	4/29/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	8/24/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	10/28/2020	< 0.001	< 0.001	< 0.001	< 0.003	<0.10
	3/24/2021	**No samples collected due to low well levels**				
	6/28/2021	< 0.0025	< 0.0025	< 0.0025	< 0.005	<0.020
	9/22/2021	< 0.001	< 0.001	< 0.001	< 0.002	<0.020
	11/15/2021	< 0.001	< 0.001	< 0.001	< 0.0015	<0.020
	2/9/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	4/12/2022	**No samples collected due to low well levels**				
	7/27/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	10/13/2022	<0.001	<0.001	<0.001	<0.0015	<0.020
	1/31/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020
	5/11/2023	**No samples collected due to low well levels**				
	7/18/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020
	10/19/2023	<0.0010	<0.0010	<0.0010	<0.0015	<0.020

Notes:

mg/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 (PQL)

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

ENSOLUM

APPENDIX A

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 09, 2023

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

RE: Nell Hall 1 OrderNo.: 2302009

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 4 sample(s) on 2/1/2023 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 **2302009**
Date Reported: **2/9/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-5
Project: Nell Hall 1
Collection Date: 1/31/2023 12:00:00 PM
Lab ID: 2302009-001 **Matrix:** AQUEOUS **Received Date:** 2/1/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Iron	ND	0.020		mg/L	1	2/3/2023 4:23:03 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JR**
Benzene	ND	1.0		µg/L	1	2/2/2023 11:17:40 AM
Toluene	ND	1.0		µg/L	1	2/2/2023 11:17:40 AM
Ethylbenzene	ND	1.0		µg/L	1	2/2/2023 11:17:40 AM
Xylenes, Total	ND	1.5		µg/L	1	2/2/2023 11:17:40 AM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	2/2/2023 11:17:40 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/2/2023 11:17:40 AM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/2/2023 11:17:40 AM
Surr: Toluene-d8	102	70-130		%Rec	1	2/2/2023 11:17:40 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.

Analytical Report
Lab Order **2302009**
Date Reported: **2/9/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-6
Project: Nell Hall 1
Collection Date: 1/31/2023 11:25:00 AM
Lab ID: 2302009-002 **Matrix:** AQUEOUS **Received Date:** 2/1/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Iron	0.36	0.020	*	mg/L	1	2/3/2023 4:38:45 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JR**
Benzene	29	2.0		µg/L	2	2/2/2023 1:06:17 PM
Toluene	ND	2.0		µg/L	2	2/2/2023 1:06:17 PM
Ethylbenzene	ND	2.0		µg/L	2	2/2/2023 1:06:17 PM
Xylenes, Total	ND	3.0		µg/L	2	2/2/2023 1:06:17 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	2	2/2/2023 1:06:17 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	2	2/2/2023 1:06:17 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	2	2/2/2023 1:06:17 PM
Surr: Toluene-d8	97.3	70-130		%Rec	2	2/2/2023 1:06:17 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.		

Analytical Report
Lab Order **2302009**
Date Reported: **2/9/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-7
Project: Nell Hall 1
Collection Date: 1/31/2023 10:55:00 AM
Lab ID: 2302009-003 **Matrix:** AQUEOUS **Received Date:** 2/1/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Iron	ND	0.020		mg/L	1	2/3/2023 4:41:46 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JR**
Benzene	ND	1.0		µg/L	1	2/2/2023 1:33:29 PM
Toluene	ND	1.0		µg/L	1	2/2/2023 1:33:29 PM
Ethylbenzene	ND	1.0		µg/L	1	2/2/2023 1:33:29 PM
Xylenes, Total	ND	1.5		µg/L	1	2/2/2023 1:33:29 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	2/2/2023 1:33:29 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/2/2023 1:33:29 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	2/2/2023 1:33:29 PM
Surr: Toluene-d8	98.4	70-130		%Rec	1	2/2/2023 1:33:29 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.		

Analytical Report
Lab Order **2302009**
Date Reported: **2/9/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-8
Project: Nell Hall 1
Collection Date: 1/31/2023 10:25:00 AM
Lab ID: 2302009-004 **Matrix:** AQUEOUS **Received Date:** 2/1/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JRR**
Iron	ND	0.020		mg/L	1	2/3/2023 4:45:08 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JR**
Benzene	ND	1.0		µg/L	1	2/2/2023 2:00:45 PM
Toluene	ND	1.0		µg/L	1	2/2/2023 2:00:45 PM
Ethylbenzene	ND	1.0		µg/L	1	2/2/2023 2:00:45 PM
Xylenes, Total	ND	1.5		µg/L	1	2/2/2023 2:00:45 PM
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	2/2/2023 2:00:45 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/2/2023 2:00:45 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	2/2/2023 2:00:45 PM
Surr: Toluene-d8	98.6	70-130		%Rec	1	2/2/2023 2:00:45 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#: **2302009**

09-Feb-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **MB-C**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C94411**	RunNo: **94411**
Prep Date:	Analysis Date: **2/3/2023**	SeqNo: **3410696** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: **LCSLL-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C94411**	RunNo: **94411**
Prep Date:	Analysis Date: **2/3/2023**	SeqNo: **3410697** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020	0.02000	0	87.2	50	150			

Sample ID: **LCS-C**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C94411**	RunNo: **94411**
Prep Date:	Analysis Date: **2/3/2023**	SeqNo: **3410698** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.51	0.020	0.5000	0	101	85	115			

Sample ID: **2302009-004BMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-8**	Batch ID: **C94411**	RunNo: **94411**
Prep Date:	Analysis Date: **2/3/2023**	SeqNo: **3410770** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.50	0.020	0.5000	0	99.5	70	130			

Sample ID: **2302009-004BMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-8**	Batch ID: **C94411**	RunNo: **94411**
Prep Date:	Analysis Date: **2/3/2023**	SeqNo: **3410771** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.47	0.020	0.5000	0	94.4	70	130	5.31	20	

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#: **2302009**

09-Feb-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL94371**	RunNo: **94371**
Prep Date:	Analysis Date: **2/2/2023**	SeqNo: **3409041** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID: **2302009-001ams**	SampType: **MS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-5**	Batch ID: **SL94371**	RunNo: **94371**
Prep Date:	Analysis Date: **2/2/2023**	SeqNo: **3409043** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID: **2302009-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW-5**	Batch ID: **SL94371**	RunNo: **94371**
Prep Date:	Analysis Date: **2/2/2023**	SeqNo: **3409044** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.2	70	130	0.936	20	
Toluene	20	1.0	20.00	0	102	70	130	4.60	20	
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0	
Surr: Dibromofluoromethane	11		10.00		108	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		98.2	70	130	0	0	

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL94371**	RunNo: **94371**
Prep Date:	Analysis Date: **2/2/2023**	SeqNo: **3409049** 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.
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#: **2302009**

09-Feb-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL94371**	RunNo: **94371**
Prep Date:	Analysis Date: **2/2/2023**	SeqNo: **3409049** 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	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		102	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: 2302009 RcptNo: 1

Received By: Cheyenne Cason 2/1/2023 8:00:00 AM

Completed By: Sean Livingston 2/1/2023 9:05:27 AM

Reviewed By: KPG 2-1-23

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 ☑ NV 2/1/23 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 ☐ HNO3 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: 4 (<2 or >12 unless noted)
Adjusted? Yes
Checked by: TMU 2/1/23

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:

Filtered off ~100mL from sample bottles for 001-004B and added ~0.4mL HNO3 (chem #7051) checked for proper pH <2 - TMU 2/1/23

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.9	Good	Not Present	YOGI		

Filters Lot # FJ0298 x2
Lot # FJ9623
Lot # FJ4546 x2
Lot # FG5854

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:

Nell Hall #1

Project #:

Project Manager:

Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☒ Yes ☐ No Yog.

# of Coolers: (

Cooler Temp(Including CF): 0.9 -0 = -0.9c

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2302009	Analysis Request: Dissolved Fe 500ml HDPE *	Analysis Request: BTEX 8260 40ml VOA HCl
		~~Water~~	MW-4	Various	~~Various~~		X	X
1-31	1200	Water	MW-5	Various	Various	001	X	X
	1125	Water	MW-6	Various	Various	002	X	X
	1055	Water	MW-7	Various	Various	003	X	X
	1025	Water	MW-8	Various	Various	004	X	X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
1-31	1710				1/31/23	1710
1/31/23	1830		Cooler		2/1/23	0800

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

Sample not Grocer Cooler 2/1/23

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
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Website: www.hallenvironmental.com

July 26, 2023

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

RE: Nell Hall 1 OrderNo.: 2307843

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/19/2023 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 **2307843**
Date Reported: **7/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-4
Project: Nell Hall 1
Collection Date: 7/18/2023 12:45:00 PM
Lab ID: 2307843-001 **Matrix:** AQUEOUS **Received Date:** 7/19/2023 6:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	2.7	0.10	*	mg/L	5	7/21/2023 2:08:33 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	ND	1.0		µg/L	1	7/24/2023 7:11:00 PM
Toluene	ND	1.0		µg/L	1	7/24/2023 7:11:00 PM
Ethylbenzene	ND	1.0		µg/L	1	7/24/2023 7:11:00 PM
Xylenes, Total	ND	1.5		µg/L	1	7/24/2023 7:11:00 PM
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/24/2023 7:11:00 PM
Surr: 4-Bromofluorobenzene	121	70-130		%Rec	1	7/24/2023 7:11:00 PM
Surr: Dibromofluoromethane	116	70-130		%Rec	1	7/24/2023 7:11:00 PM
Surr: Toluene-d8	109	70-130		%Rec	1	7/24/2023 7:11:00 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.

Analytical Report
Lab Order **2307843**
Date Reported: **7/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-5
Project: Nell Hall 1 **Collection Date:** 7/18/2023 1:10:00 PM
Lab ID: 2307843-002 **Matrix:** AQUEOUS **Received Date:** 7/19/2023 6:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	0.069	0.020		mg/L	1	7/21/2023 2:10:55 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	ND	1.0		µg/L	1	7/24/2023 7:35:00 PM
Toluene	ND	1.0		µg/L	1	7/24/2023 7:35:00 PM
Ethylbenzene	ND	1.0		µg/L	1	7/24/2023 7:35:00 PM
Xylenes, Total	ND	1.5		µg/L	1	7/24/2023 7:35:00 PM
Surr: 1,2-Dichloroethane-d4	119	70-130		%Rec	1	7/24/2023 7:35:00 PM
Surr: 4-Bromofluorobenzene	115	70-130		%Rec	1	7/24/2023 7:35:00 PM
Surr: Dibromofluoromethane	120	70-130		%Rec	1	7/24/2023 7:35:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	7/24/2023 7:35:00 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.		

Analytical Report
Lab Order **2307843**
Date Reported: **7/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-7
Project: Nell Hall 1
Collection Date: 7/18/2023 11:55:00 AM
Lab ID: 2307843-003 **Matrix:** AQUEOUS **Received Date:** 7/19/2023 6:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	0.54	0.10	*	mg/L	5	7/21/2023 2:21:37 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	ND	1.0		µg/L	1	7/24/2023 8:00:00 PM
Toluene	ND	1.0		µg/L	1	7/24/2023 8:00:00 PM
Ethylbenzene	ND	1.0		µg/L	1	7/24/2023 8:00:00 PM
Xylenes, Total	ND	1.5		µg/L	1	7/24/2023 8:00:00 PM
Surr: 1,2-Dichloroethane-d4	118	70-130		%Rec	1	7/24/2023 8:00:00 PM
Surr: 4-Bromofluorobenzene	113	70-130		%Rec	1	7/24/2023 8:00:00 PM
Surr: Dibromofluoromethane	122	70-130		%Rec	1	7/24/2023 8:00:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	7/24/2023 8:00:00 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.

Analytical Report
Lab Order **2307843**
Date Reported: **7/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-8
Project: Nell Hall 1 **Collection Date:** 7/18/2023 11:00:00 AM
Lab ID: 2307843-004 **Matrix:** AQUEOUS **Received Date:** 7/19/2023 6:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	ND	0.020		mg/L	1	7/21/2023 2:36:39 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	ND	1.0		µg/L	1	7/24/2023 8:24:00 PM
Toluene	ND	1.0		µg/L	1	7/24/2023 8:24:00 PM
Ethylbenzene	ND	1.0		µg/L	1	7/24/2023 8:24:00 PM
Xylenes, Total	ND	1.5		µg/L	1	7/24/2023 8:24:00 PM
Surr: 1,2-Dichloroethane-d4	119	70-130		%Rec	1	7/24/2023 8:24:00 PM
Surr: 4-Bromofluorobenzene	114	70-130		%Rec	1	7/24/2023 8:24:00 PM
Surr: Dibromofluoromethane	122	70-130		%Rec	1	7/24/2023 8:24:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	7/24/2023 8:24:00 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#: **2307843**

26-Jul-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: **LCSLL-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.023	0.020	0.02000	0	115	50	150			

Sample ID: **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.50	0.020	0.5000	0	101	85	115			

Sample ID: **2307843-003BMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-7**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582499** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.8	0.10	2.500	0.5440	90.1	70	130			

Sample ID: **2307843-003BMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-7**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582500** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.9	0.10	2.500	0.5440	95.6	70	130	4.74	20	

Sample ID: **2307843-004BMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-8**	Batch ID: **B98412**	RunNo: **98412**
Prep Date:	Analysis Date: **7/21/2023**	SeqNo: **3582506** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.47	0.020	0.5000	0	93.7	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307843**

26-Jul-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID:	**2307843-004BMSD**	SampType:	**MSD**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**MW-8**	Batch ID:	**B98412**	RunNo:	**98412**
Prep Date:		Analysis Date:	**7/21/2023**	SeqNo:	**3582507** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.47	0.020	0.5000	0	94.3	70	130	0.646	20	

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#: **2307843**

26-Jul-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL98475**	RunNo: **98475**
Prep Date:	Analysis Date: **7/24/2023**	SeqNo: **3584776** 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	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		118	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		109	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL98475**	RunNo: **98475**
Prep Date:	Analysis Date: **7/24/2023**	SeqNo: **3584777** 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		109	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	11		10.00		110	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: 2307843 RcptNo: 1

Received By: Tracy Casarrubias 7/19/2023 6:25:00 AM

Completed By: Tracy Casarrubias 7/19/2023 7:18:49 AM

Reviewed By: SCM 07/19/23

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 ☐ HNO3
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: 4 (<2 or >12 unless noted)
Adjusted? yes
Checked by: JM 7/19/23

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:

Poured off and filtered (Filter Lot FJ0168) ~ 125mL from original unpreserved volume provided for samples 001-004.
Proceeded to add 0.4 mL of HNO3 (Chem#7162) for proper pH- Used 4 filters. JM 7/19/23.

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes	Yogi		

Chain-of-Custody Record

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

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: Nell Hall #1

Project #:

Project Manager: Kate Kaufman

Sampler: Brandon Sinclair

On Ice: ☒ Yes ☐ No Yogi

# of Coolers: 1

Cooler Temp(including CF): 3.4 - 0.1 = 3.3 °C

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2307843	Dissolved Fe 500ml HDPE *	BTEX 8260 40ml VOA HCl
7-18	1245	Water	MW-4	Various	Various	001	X	X
7-18	1310	Water	MW-5	Various	Various	002	X	X
		~~Water~~	~~MW-6~~	Various	Various		X	X
7-18	1155	Water	MW-7	Various	Various	003	X	X
7-18	1100	Water	MW-8	Various	Various	004	X	X

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7-18	1644				7/18/23	1646
7/18/23	1810	Mat Wade		courier	7/19/23	6:25

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

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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 03, 2023

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

RE: Nell Hall 1 OrderNo.: 2310A76

Dear Mitch Killough:

Eurofins Environment Testing South Central, LLC received 5 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 do not hesitate to contact Eurofins Albuquerque 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 **2310A76**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-4
Project: Nell Hall 1
Collection Date: 10/19/2023 1:00:00 PM
Lab ID: 2310A76-001 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	1.1	0.10	*	mg/L	5	10/26/2023 9:34:28 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	ND	1.0		µg/L	1	10/31/2023 1:27:00 PM
Toluene	ND	1.0		µg/L	1	10/31/2023 1:27:00 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2023 1:27:00 PM
Xylenes, Total	ND	1.5		µg/L	1	10/31/2023 1:27:00 PM
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	10/31/2023 1:27:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	10/31/2023 1:27:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%Rec	1	10/31/2023 1:27:00 PM
Surr: Toluene-d8	102	70-130		%Rec	1	10/31/2023 1:27:00 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.		

Analytical Report
Lab Order **2310A76**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-5
Project: Nell Hall 1
Collection Date: 10/19/2023 12:30:00 PM
Lab ID: 2310A76-002 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	ND	0.10		mg/L	5	10/26/2023 9:38:47 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	10/30/2023 5:30:44 PM
Toluene	ND	1.0		µg/L	1	10/30/2023 5:30:44 PM
Ethylbenzene	ND	1.0		µg/L	1	10/30/2023 5:30:44 PM
Xylenes, Total	ND	1.5		µg/L	1	10/30/2023 5:30:44 PM
Surr: 1,2-Dichloroethane-d4	86.8	70-130		%Rec	1	10/30/2023 5:30:44 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	10/30/2023 5:30:44 PM
Surr: Dibromofluoromethane	88.9	70-130		%Rec	1	10/30/2023 5:30:44 PM
Surr: Toluene-d8	93.8	70-130		%Rec	1	10/30/2023 5:30:44 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.		

Analytical Report
Lab Order **2310A76**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-6
Project: Nell Hall 1
Collection Date: 10/19/2023 11:45:00 AM
Lab ID: 2310A76-003 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	2.8	0.10	*	mg/L	5	10/26/2023 9:59:12 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	17	2.0		µg/L	2	10/30/2023 5:57:58 PM
Toluene	ND	2.0		µg/L	2	10/30/2023 5:57:58 PM
Ethylbenzene	7.4	2.0		µg/L	2	10/30/2023 5:57:58 PM
Xylenes, Total	3.4	3.0		µg/L	2	10/30/2023 5:57:58 PM
Surr: 1,2-Dichloroethane-d4	84.0	70-130		%Rec	2	10/30/2023 5:57:58 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	2	10/30/2023 5:57:58 PM
Surr: Dibromofluoromethane	91.2	70-130		%Rec	2	10/30/2023 5:57:58 PM
Surr: Toluene-d8	93.5	70-130		%Rec	2	10/30/2023 5:57:58 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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.		

Analytical Report
Lab Order **2310A76**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW-7
Project: Nell Hall 1
Collection Date: 10/19/2023 11:10:00 AM
Lab ID: 2310A76-004 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	ND	0.020		mg/L	1	10/26/2023 10:01:25 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	10/30/2023 6:25:14 PM
Toluene	ND	1.0		µg/L	1	10/30/2023 6:25:14 PM
Ethylbenzene	ND	1.0		µg/L	1	10/30/2023 6:25:14 PM
Xylenes, Total	ND	1.5		µg/L	1	10/30/2023 6:25:14 PM
Surr: 1,2-Dichloroethane-d4	117	70-130		%Rec	1	10/30/2023 6:25:14 PM
Surr: 4-Bromofluorobenzene	117	70-130		%Rec	1	10/30/2023 6:25:14 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	10/30/2023 6:25:14 PM
Surr: Toluene-d8	109	70-130		%Rec	1	10/30/2023 6:25:14 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.		

Analytical Report
Lab Order **2310A76**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-8
Project: Nell Hall 1 **Collection Date:** 10/19/2023 10:05:00 AM
Lab ID: 2310A76-005 **Matrix:** AQUEOUS **Received Date:** 10/21/2023 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **VP**
Iron	ND	0.020		mg/L	1	10/26/2023 10:14:52 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	10/30/2023 6:52:25 PM
Toluene	ND	1.0		µg/L	1	10/30/2023 6:52:25 PM
Ethylbenzene	ND	1.0		µg/L	1	10/30/2023 6:52:25 PM
Xylenes, Total	ND	1.5		µg/L	1	10/30/2023 6:52:25 PM
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	10/30/2023 6:52:25 PM
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	10/30/2023 6:52:25 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	10/30/2023 6:52:25 PM
Surr: Toluene-d8	103	70-130		%Rec	1	10/30/2023 6:52:25 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#: **2310A76**

03-Nov-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695802** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: **LCSLL-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.021	0.020	0.02000	0	107	50	150			

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.54	0.020	0.5000	0	107	85	115			

Sample ID: **2310A76-004BMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-7**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695857** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	95.2	70	130			

Sample ID: **2310A76-004BMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-7**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695858** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.46	0.020	0.5000	0	92.7	70	130	2.65	20	

Sample ID: **2310A76-005BMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-8**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695863** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.51	0.020	0.5000	0	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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310A76**

03-Nov-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **2310A76-005BMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MW-8**	Batch ID: **A100762**	RunNo: **100762**
Prep Date:	Analysis Date: **10/26/2023**	SeqNo: **3695864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.3	70	130	3.21	20	

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#: **2310A76**

03-Nov-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL100843**	RunNo: **100843**
Prep Date:	Analysis Date: **10/30/2023**	SeqNo: **3699917** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.6	70	130			
Toluene	22	1.0	20.00	0	109	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	11		10.00		105	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: **SL100843**	RunNo: **100843**
Prep Date:	Analysis Date: **10/30/2023**	SeqNo: **3699929** 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	9.2		10.00		92.1	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.2	70	130			
Surr: Toluene-d8	9.5		10.00		95.0	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL100850**	RunNo: **100850**
Prep Date:	Analysis Date: **10/31/2023**	SeqNo: **3701697** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.8	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.1		10.00		91.3	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: **SL100850**	RunNo: **100850**
Prep Date:	Analysis Date: **10/31/2023**	SeqNo: **3701698** 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#: **2310A76**

03-Nov-23

Client: HILCORP ENERGY

Project: Nell Hall 1

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL100850**	RunNo: **100850**
Prep Date:	Analysis Date: **10/31/2023**	SeqNo: **3701698** 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	10		10.00		99.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.2		10.00		91.6	70	130			
Surr: Toluene-d8	10		10.00		104	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: 2310A76 RcptNo: 1

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

Completed By: Tracy Casarrubias 10/21/2023 8:17:41 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 ☐ HNO3
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: 5 (<2 or >12 unless noted)
Adjusted? YES
Checked by: 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:

From original voleme provided, ~125mL was poured off and filtered to create samples 001B-005B. (Lot# FJ0298 x 6).
Proceeded to add ~.40mL of HNO3 (Chem#7281) to 001B-005B for proper pH- SUM 10/23/23

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:

Nell Hall #1

Project #:

Project Manager:

Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No 4pg

# of Coolers: 1

Cooler Temp(including CF): 0.8-Ø2 0.8 c

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2310A76	Analysis Request: Dissolved Fe 500ml HDPE *	Analysis Request: BTEX 8260 40ml VOA HCl
10-19	1300	Water	MW-4	Various	Various	001	X	X
	1230	Water	MW-5	Various	Various	002	X	X
	1145	Water	MW-6	Various	Various	003	X	X
	1110	Water	MW-7	Various	Various	004	X	X
	1005	Water	MW-8	Various	Various	005	X	X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10-20	1634				10/20/23	1636
10/20/23	1800			courier	10/24/23	6:35

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

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

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

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

CONDITIONS

Action 326707

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 326707
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2023 Annual Groundwater Monitoring Report for Nell Hall #1: Content Satisfactory 1. Plug & Abandon air sparge wells: SP-1 through SP-8 and coordinate all requirements with NM OSE if applicable. 2. Continue to collect groundwater samples from wells: MW-6, MW-7 and MW-8 on a semi-annual basis until all COCs are at the allowable concentrations per the NM WQCC human health standards and the domestic well standard for dissolved iron. 4. Submit the 2024 Annual Report by April, 2025.	5/29/2024