ENSOLUM

March 23, 2026

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

Re: 2025 Annual Groundwater Monitoring Report
Mangum #1
San Juan County, New Mexico
NMOCD Incident Number: NCS1602631162
NMOCD Administrative Order: 3RP-1038

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *2025 Annual Groundwater Monitoring Report* to the New Mexico Oil Conservation Division (NMOCD). This report documents quarterly groundwater monitoring activities conducted at the Mangum #1 natural gas production well (Site) in 2025. The Site is located approximately 1-mile south of the City of Bloomfield, New Mexico and is situated on surface managed by the Bureau of Land Management (BLM) within Unit L, Section 27, Township 29 North and Range 11 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

In April of 2015, ConocoPhillips Company (COP, well owner/operator at that time) conducted a Site assessment as part of internal due diligence activities. Seven potholes were advanced to depths of approximately 7.5 feet to 8 feet below ground surface (bgs) using a backhoe. Following the Site assessment, COP excavated impacted soil in February 2016. The final excavation measured approximately 100 feet by 38 feet laterally by 9 feet to 17 feet vertically. Approximately 1,400 cubic yards of impacted soil were transported for off-site disposal at Industrial Ecosystems, Inc in Aztec, New Mexico. Groundwater was encountered in the bottom of the excavation at a depth of 16 feet bgs. A total of 1-foot of groundwater-saturated soil was removed from the excavation in the deepest extents. Approximately 275 barrels (bbls) of impacted groundwater was then removed from the bottom of the excavation and transported for off-site disposal to Industrial Ecosystems, Inc. Five-point composite soil samples were collected from the sidewalls and shallow floor area (area excavated to 9 feet bgs). In total, five sidewall samples and one floor sample were collected to confirm the removal of impacted soil. All soil analytical results were below the Site Closure Criteria for total petroleum hydrocarbons (TPH), chloride, and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The NMOCD approved backfill of the excavation via email communications on February 22, 2016.

Four groundwater monitoring wells (MW-1 through MW-4) were subsequently installed in May 2016 to assess and monitor groundwater conditions at the Site (Figure 2). Based on initial

analysis, the following contaminants of concern (COCs) were identified for groundwater at the Site: benzene, xylenes, dissolved iron, dissolved manganese, sulfate, and total dissolved solids (TDS). Quarterly sampling has been performed since June 2016 from wells MW-1 through MW- 4.

GHD Services, Inc. (GHD) prepared the *2018 Annual Groundwater Monitoring Report* (dated January 2019) summarizing groundwater sampling activities performed in 2018. Based on their review of the report, the NMOCD required Hilcorp to "fully delineate the groundwater plume" at the Site. In response, Hilcorp/GHD installed three new groundwater monitoring wells (MW-5, MW-6, and MW-7) in locations downgradient of the release in June 2019 (Figure 2). The installation of one additional well (MW-8) was attempted in an upgradient location (Figure 2) but encountered shallow refusal in two separate locations and was finally abandoned. The newly installed wells were incorporated into the quarterly sampling program starting in the third quarter of 2019. Historical quarterly sampling results indicated BTEX constituents, dissolved manganese, sulfate, and/or TDS were present in the Site groundwater at concentrations above New Mexico Water Quality Control Commission (NMWQCC) standards. In addition, dissolved iron concentrations were sporadically detected at concentrations exceeding the NMWQCC standard during past events and has historically been included in quarterly sampling events.

Lastly, Hilcorp has managed the groundwater monitoring project at Mangum #1 (API 30-045-07835, NMOCD Incident ID NCS1602631162) since 2017, when Hilcorp acquired certain other San Juan assets from Burlington Resources Oil & Gas Company LP ("Burlington") and COP. A recent review revealed the Mangum #1 wellsite is not owned or operated by Hilcorp and Hilcorp is not liable for the remediation obligations at this Site. Effective October 1, 2016 (and prior to Hilcorp's San Juan acquisition), Burlington assigned the Mangum #1 well to LCS Company, Inc. (LCS) and resigned as the operator of such well. Holcomb Oil & Gas, Inc (Holcomb), an affiliate of LCS, became the operator of the Mangum #1 following Burlington's resignation. Additionally, Holcomb is the operator of record noted on the NMOCD website. During that same period, Burlington and COP agreed to remain responsible for the remediation obligations related to the Mangum #1.

Although Hilcorp did not take assignment of, and assumed no liabilities related to, the Mangum #1 well, Hilcorp has elected to continue quarterly sampling until a resolution is achieved with Holcomb and the NMOCD.

SITE GROUNDWATER CLEANUP STANDARDS

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

- Benzene: 0.005 mg/L
- Toluene: 1.0 mg/L
- Ethylbenzene: 0.70 mg/L
- Total Xylenes: 0.62 mg/L
- Dissolved Manganese: 0.20 mg/L
- Sulfate: 600 mg/L
- Total Dissolved Solids: 1,000 mg/L

As approved by the NMOCD in their May 31, 2024, review of the *2023 Annual Groundwater Monitoring Report*, iron is no longer considered a COC.

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

Groundwater level measurements and samples were collected in March, June, September, and December 2025 from monitoring wells MW-1 through MW-7. All wells were accessible and successfully sampled during each monitoring event, and no field issues were encountered.

GROUNDWATER FLOW DIRECTION

Static groundwater level monitoring included recording depth-to-groundwater measurements of each monitoring well using a Keck oil/water interface probe. The interface probe was decontaminated with Alconox® soap and rinsed with distilled water prior to each measurement to prevent cross-contamination. Groundwater elevations measured in monitoring wells during the 2025 sampling events are presented in Table 1 and were used to develop groundwater potentiometric surface maps (Figures 3 through 6). The inferred groundwater flow direction is to the north.

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, TDS, electrical conductivity, dissolved oxygen, and oxidation-reduction potential, 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. Samples were immediately sealed with zero headspace and packed on ice to preserve samples. Samples were submitted to Eurofins Environment Testing (Eurofins) in Albuquerque, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8260B, dissolved manganese following EPA Method 200.7, sulfate following EPA Method 300.0, and TDS following Method SM2540C MOD. 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

Analytical results collected during the 2025 monitoring events were generally consistent with historical Site conditions. Benzene was detected above the NMWQCC groundwater standard within wells MW-2, MW-3, and MW-6 during one or more sampling events in 2025. Benzene concentrations exceeded the standard in MW-2 during the March 2025 monitoring event (0.029 mg/L) and the December 2025 monitoring event (0.009 mg/L), and in MW-3 during the March and December 2025 monitoring events (0.096 mg/L and 0.018 mg/L, respectively). Benzene concentrations in MW-6 exceeded the standard during all four 2025 monitoring events (March, June, September, and December), with concentrations ranging from 0.0079 mg/L to 0.049 mg/L.

Total xylenes exceeded the NMWQCC groundwater standard in MW-6 during the June 2025 monitoring event at a concentration of 0.760 mg/L. Xylene concentrations in all other wells were below the applicable standard during 2025 sampling events. Ethylbenzene was greater than the NMWQCC groundwater standard in March 2025 at MW-3 with a concentration of 0.21 mg/L. Toluene was not detected above the respective NMWQCC groundwater standards in any monitoring wells during 2025.

Dissolved manganese and TDS were detected at concentrations exceeding NMWQCC groundwater standards in multiple monitoring wells during the 2025 monitoring events. Dissolved manganese concentrations exceeded the standard in all monitoring wells during at least one sampling event. TDS concentrations exceeded the standard in multiple monitoring wells during one or more monitoring events in 2025. Manganese was included on the chain-of-custody forms for all sampling events; however, the laboratory did not analyze manganese in groundwater from MW-2 during the June 2025 monitoring event even though it was indicated on the chain-of-custody.

Sulfate concentrations exceeded the NMWQCC groundwater standard in wells MW-1, MW-4, MW-5, and MW-7 during all 2025 monitoring events. Sulfate also exceeded the standard in MW-3 during the June and September 2025 monitoring events but declined below the standard during the December 2025 event. Sulfate was below the NMWQCC groundwater standard in MW-2 during all of the 2025 sampling events.

A summary of groundwater analytical results is presented in Table 3 and depicted on Figure 7. Complete laboratory analytical reports are provided in Appendix A.

CONCLUSIONS AND RECOMMENDATIONS

Based on groundwater analytical data collected since 2016, overall groundwater conditions at the Site have improved over time, with BTEX concentrations decreasing in all wells between 2016 and 2025. These trends suggest natural attenuation through biodegradation processes is occurring within the dissolved hydrocarbon plume. Based on the observed decreasing BTEX concentrations and stable plume extent, active remediation is not currently recommended at the Site.

Dissolved manganese, sulfate, and total dissolved solids (TDS) concentrations have remained relatively consistent since they were first analyzed in 2016. Dissolved manganese and TDS concentrations have also consistently exceeded NMWQCC groundwater standards since initial sampling began in 2016. Elevated concentrations of these constituents may be partially associated with petroleum biodegradation processes. During microbial degradation of hydrocarbons, naturally occurring bacteria consume oxygen and subsequently utilize alternative electron acceptors, including manganese oxides, iron oxides, nitrate, and sulfate. This process can mobilize dissolved manganese and increase dissolved solids in groundwater as minerals are reduced and released into solution.

Although petroleum biodegradation may contribute to elevated manganese, sulfate, and TDS concentrations, these constituents are also commonly present at naturally elevated concentrations in areas with shallow or perched groundwater systems due to natural geochemical interactions between groundwater and aquifer materials.

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

Sincerely,

ENSOLUM

Ensolum, LLC

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Senior Geologist
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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	Groundwater Analytical Results
Table 1	Groundwater Elevations
Table 2	Groundwater Quality Measurements
Table 3	Groundwater Analytical Results
Appendix A	Laboratory Analytical Reports

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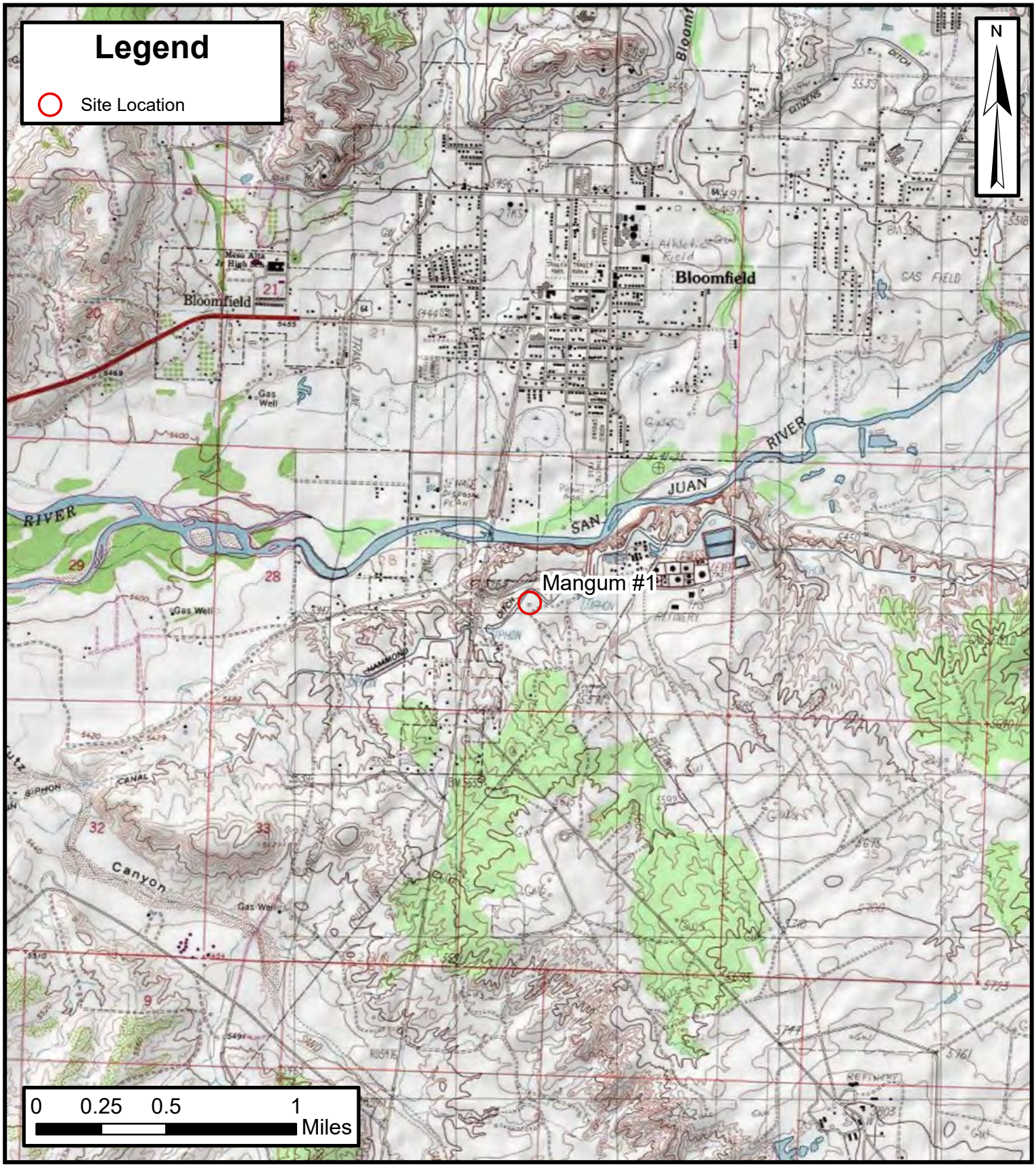
FIGURES



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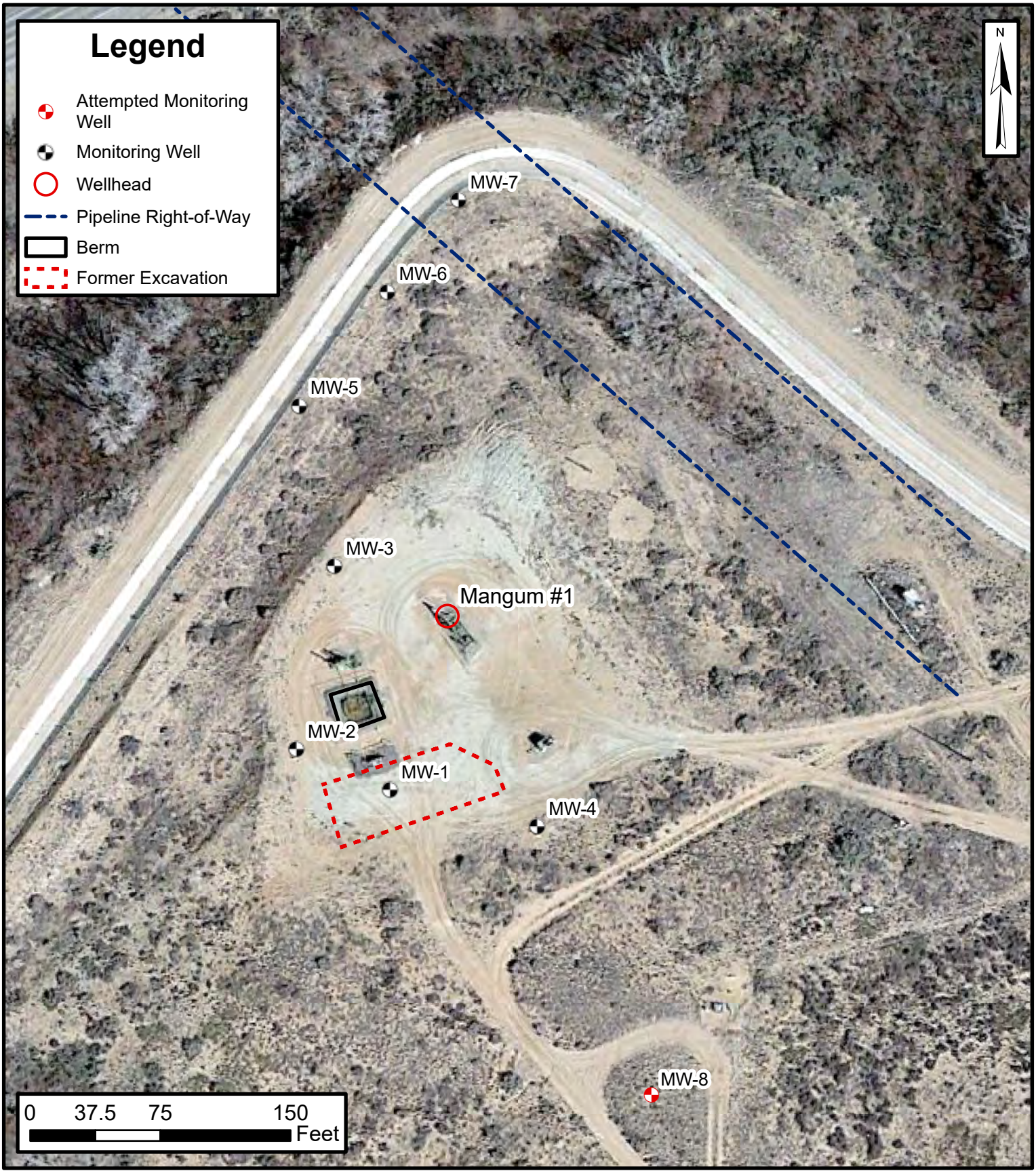
Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

Mangum #1
Hilcorp Energy Company
36.69579, -107.98402
San Juan County, New Mexico

FIGURE
1

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



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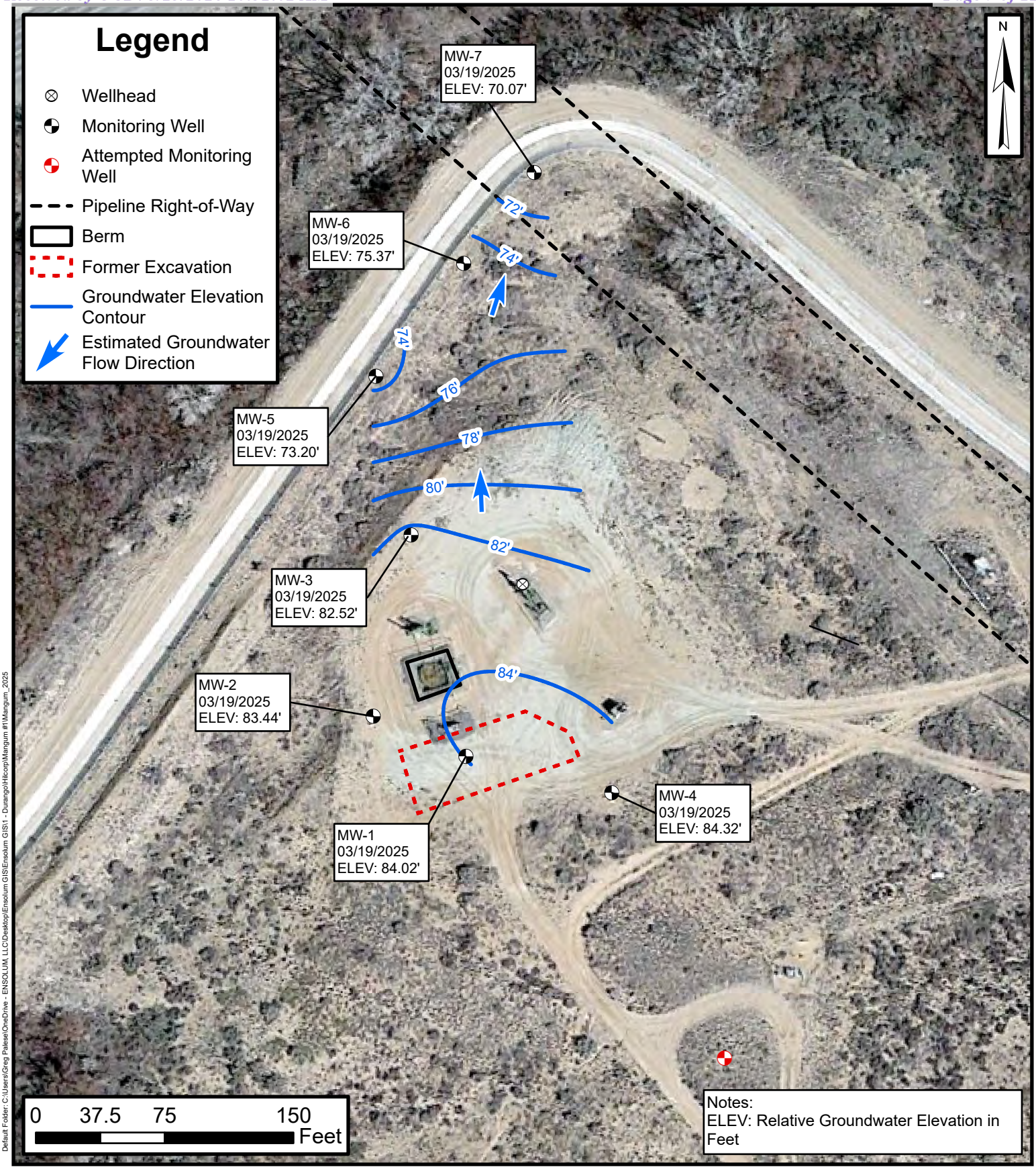
Site Map

Mangum #1
Hilcorp Energy Company
36.69579, -107.98402
San Juan County, New Mexico

FIGURE
2

Sources: Google Earth



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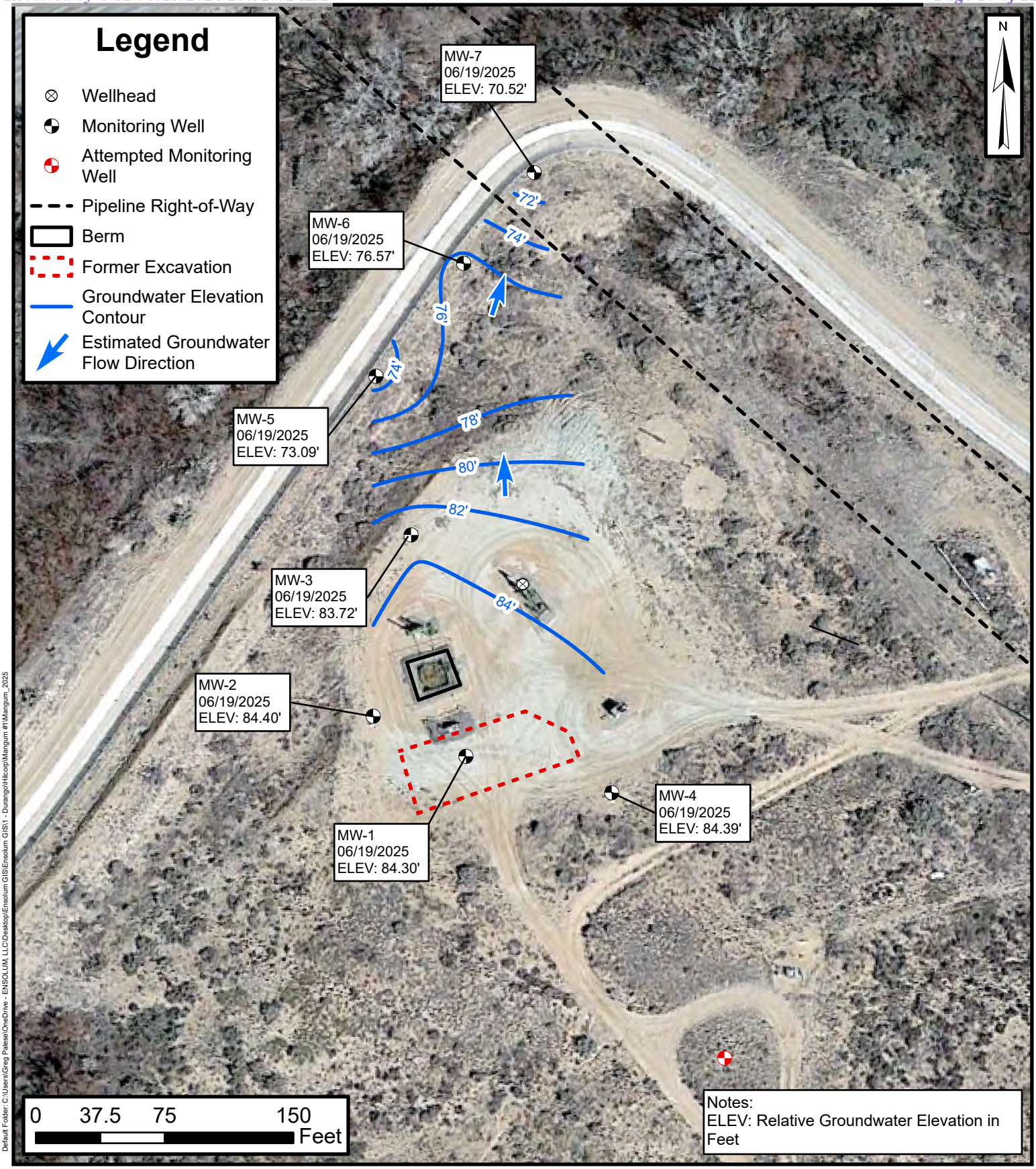
Q1 Groundwater Elevation Map

Mangum #1
Hilcorp Energy Company

36.69579, -107.98402
San Juan County, New Mexico

FIGURE
3

Sources: Google Earth



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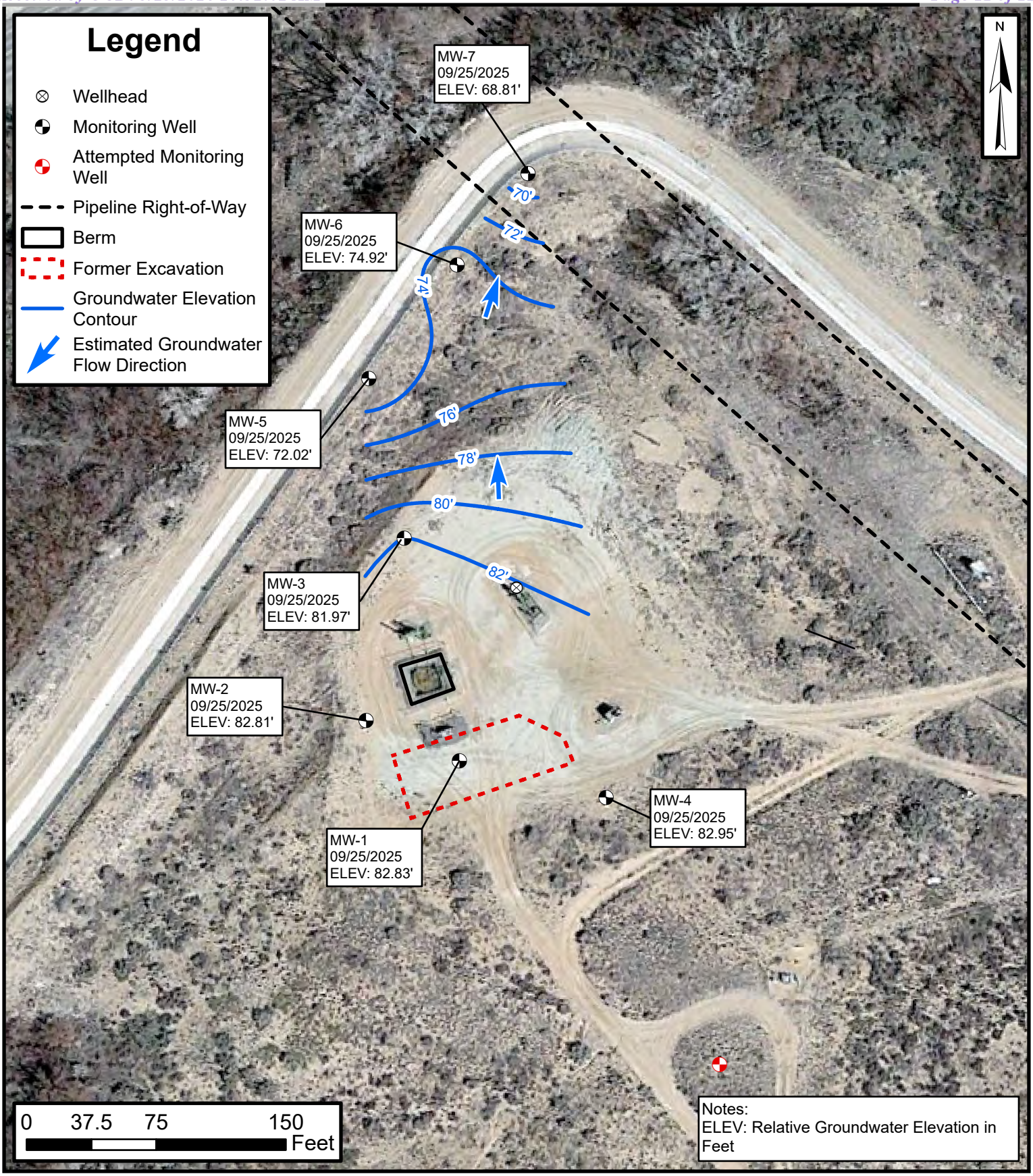
Q2 Groundwater Elevation Map

Mangum #1
Hilcorp Energy Company

36.69579, -107.98402
San Juan County, New Mexico

FIGURE
4

Sources: Google Earth



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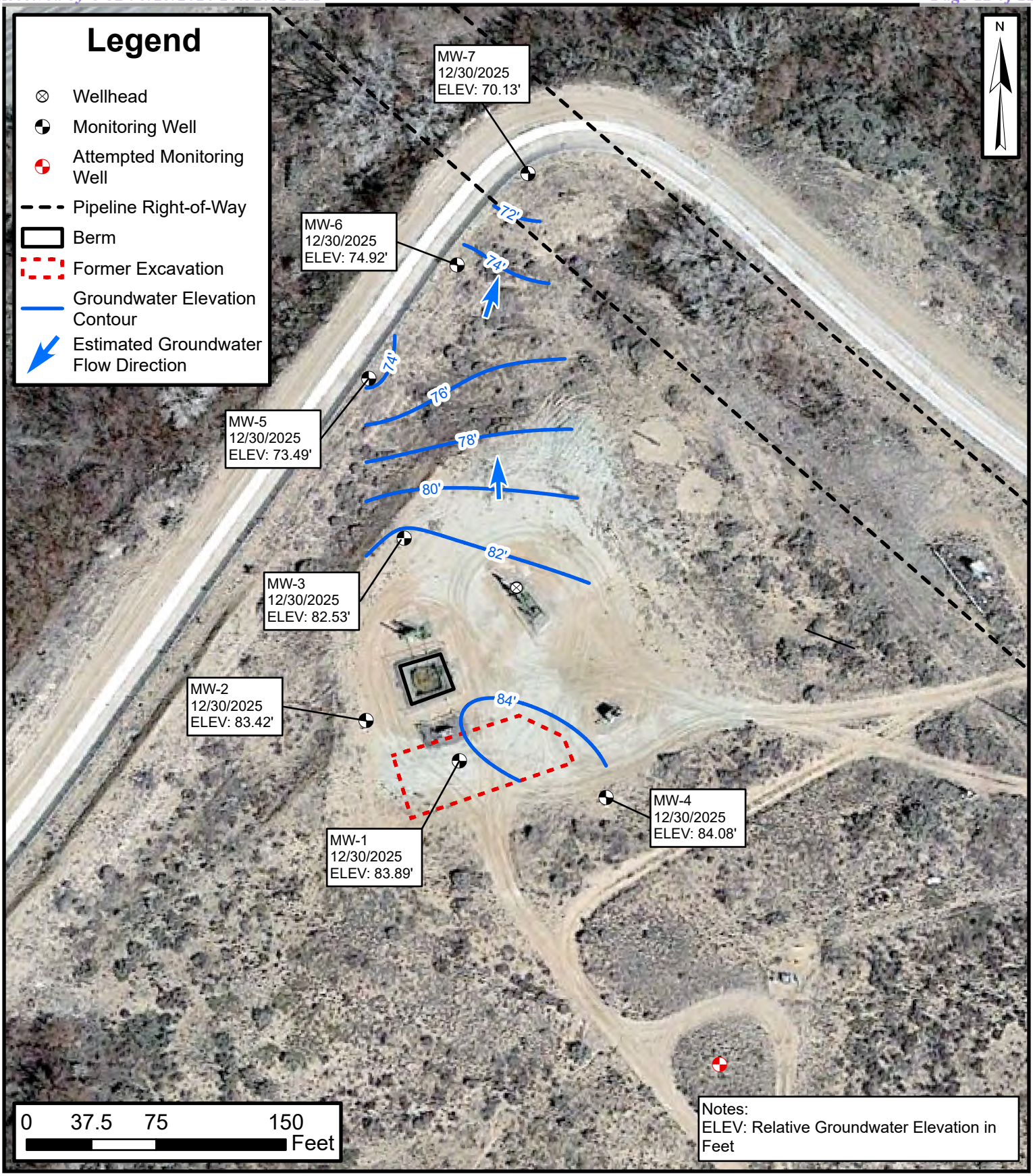
Q3 Groundwater Elevation Map

Mangum #1
Hilcorp Energy Company

36.69579, -107.98402
San Juan County, New Mexico

FIGURE
5

Sources: Google Earth



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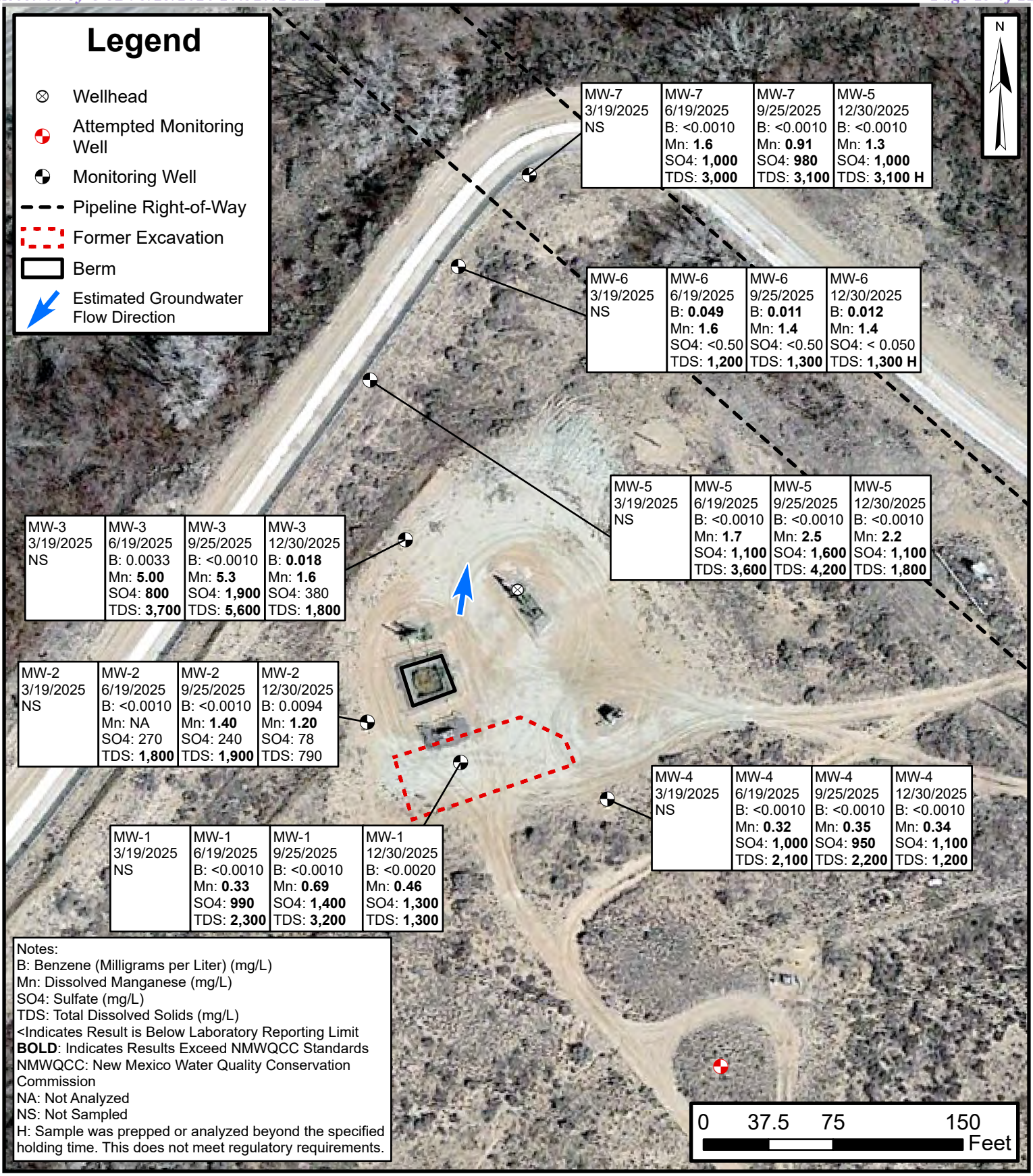
Q4 Groundwater Elevation Map

Mangum #1
Hilcorp Energy Company

36.69579, -107.98402
San Juan County, New Mexico

FIGURE
6

Sources: Google Earth



Notes:
B: Benzene (Milligrams per Liter) (mg/L)
Mn: Dissolved Manganese (mg/L)
SO4: Sulfate (mg/L)
TDS: Total Dissolved Solids (mg/L)
<Indicates Result is Below Laboratory Reporting Limit
BOLD: Indicates Results Exceed NMWQCC Standards
NMWQCC: New Mexico Water Quality Conservation Commission
NA: Not Analyzed
NS: Not Sampled
H: Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

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Groundwater Analytical Results

Mangum #1
Hilcorp Energy Company

36.69579, -107.98402
San Juan County, New Mexico

FIGURE
7

Sources: Google Earth

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TABLES

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-1	98.97	6/8/2016	15.12	83.85
		9/12/2016	14.75	84.22
		11/29/2016	15.06	83.91
		3/6/2017	14.91	84.06
		6/12/2017	14.96	84.01
		10/26/2017	15.00	83.97
		12/4/2017	15.08	83.89
		3/13/2018	15.22	83.75
		6/25/2018	15.23	83.74
		9/4/2018	15.39	83.58
		12/10/2018	15.12	83.85
		3/12/2019	15.04	83.93
		5/22/2019	14.93	84.04
		8/22/2019	15.19	83.78
		12/2/2019	15.21	83.76
		2/3/2020	15.19	83.78
		4/24/2020	15.22	83.75
		7/24/2020	15.00	83.97
		10/8/2020	15.21	83.76
		1/11/2021	15.29	83.68
		4/12/2021	15.26	83.71
		8/2/2021	14.88	84.09
		10/7/2021	15.09	83.88
		1/10/2022	15.19	83.78
		6/23/2022	14.96	84.01
		9/28/2022	15.23	83.74
		12/29/2022	15.18	83.79
		3/28/2023	15.10	83.87
		6/26/2023	15.03	83.94
		9/13/2023	15.28	83.69
		12/28/2023	14.88	84.09
		3/14/2024	14.96	84.01
		6/27/2024	14.69	84.28

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-1	98.97	9/13/2024	14.95	84.02
		12/27/2024	14.98	83.99
		3/19/2025	14.95	84.02
		6/19/2025	14.67	84.30
		9/25/2025	16.14	82.83
		12/30/2025	15.08	83.89
MW-2	101.05	6/8/2016	17.49	83.56
		9/12/2016	17.28	83.77
		11/29/2016	17.62	83.43
		3/6/2017	17.49	83.56
		6/12/2017	17.40	83.65
		10/26/2017	17.49	83.56
		12/4/2017	17.57	83.48
		3/13/2018	17.74	83.31
		6/25/2018	17.32	83.73
		9/5/2018	17.64	83.41
		12/10/2018	17.58	83.47
		3/12/2019	17.56	83.49
		5/22/2019	17.18	83.87
		8/22/2019	17.30	83.75
		12/2/2019	17.65	83.40
		2/3/2020	18.74	82.31
		4/24/2020	17.71	83.34
		7/24/2020	17.08	83.97
		10/8/2020	17.22	83.83
		1/11/2021	17.80	83.25
		4/12/2021	17.80	83.25
		8/2/2021	16.64	84.41
		10/7/2021	17.23	83.82
		1/10/2022	17.73	83.32
		6/23/2022	16.91	84.14
		9/28/2022	17.53	83.52
		12/29/2022	17.78	83.27

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-2	101.05	3/28/2023	17.60	83.45
		6/26/2023	17.38	83.67
		9/13/2023	17.55	83.50
		12/28/2023	17.59	83.46
		3/14/2024	17.53	83.52
		6/27/2024	16.86	84.19
		9/13/2024	17.32	83.73
		12/27/2024	17.58	83.47
		3/19/2025	17.61	83.44
		6/19/2025	16.65	84.40
		9/25/2025	18.24	82.81
		12/30/2025	17.63	83.42
MW-3	101.35	6/8/2016	18.47	82.88
		9/12/2016	18.41	82.94
		11/29/2016	18.84	82.51
		3/6/2017	19.01	82.34
		6/12/2017	18.32	83.03
		10/26/2017	18.50	82.85
		12/4/2017	18.87	82.48
		3/13/2018	19.13	82.22
		6/25/2018	18.14	83.21
		9/5/2018	18.54	82.81
		12/10/2018	18.71	82.64
		3/11/2019	18.69	82.66
		5/22/2019	18.19	83.16
		8/22/2019	18.28	83.07
		12/22/2019	18.62	82.73
		2/3/2020	18.84	82.51
		4/24/2020	18.84	82.51
		7/23/2020	18.05	83.30
		10/5/2020	18.12	83.23
		1/8/2021	18.87	82.48
		4/12/2021	18.94	82.41

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-3	101.35	8/2/2021	17.62	83.73
		10/6/2021	18.08	83.27
		1/10/2022	18.84	82.51
		6/23/2022	17.83	83.52
		9/28/2022	18.44	82.91
		12/29/2022	18.87	82.48
		3/28/2023	18.92	82.43
		6/26/2023	18.32	83.03
		9/13/2023	18.38	82.97
		12/28/2023	18.78	82.57
		3/14/2024	18.75	82.60
		6/27/2024	17.67	83.68
		9/13/2024	18.28	83.07
		12/27/2024	18.73	82.62
		3/19/2025	18.83	82.52
		6/19/2025	17.63	83.72
		9/25/2025	19.38	81.97
		12/30/2025	18.82	82.53
MW-4	103.76	6/8/2016	19.72	84.04
		9/12/2016	19.43	84.33
		11/29/2016	19.62	84.14
		3/6/2017	19.50	84.26
		6/21/2017	19.76	84.00
		10/26/2017	19.59	84.17
		12/4/2017	19.62	84.14
		3/13/2018	19.76	84.00
		6/25/2018	19.89	83.87
		9/4/2018	19.03	84.73
		12/10/2018	19.69	84.07
		3/12/2019	19.63	84.13
		5/22/2019	19.57	84.19
		8/22/2019	19.92	83.84
		12/2/2019	19.81	83.95

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-4	103.76	2/3/2020	19.79	83.97
		4/24/2020	19.78	83.98
		7/23/2020	19.66	84.10
		10/8/2020	19.94	83.82
		1/11/2021	19.88	83.88
		4/12/2021	19.84	83.92
		8/2/2021	19.88	83.88
		10/6/2021	19.78	83.98
		1/11/2022	19.78	83.98
		6/23/2022	19.69	84.07
		9/28/2022	19.92	83.84
		12/29/2022	19.73	84.03
		3/28/2023	19.51	84.25
		6/26/2023	19.70	84.06
		9/13/2023	19.96	83.80
		12/28/2023	19.26	84.50
		3/14/2024	19.44	84.32
		6/27/2024	19.37	84.39
		9/13/2024	19.60	84.16
		12/27/2024	19.47	84.29
		3/19/2025	19.44	84.32
		6/19/2025	19.37	84.39
		9/25/2025	20.81	82.95
		12/30/2025	19.68	84.08
MW-5	95.77	8/23/2019	23.32	72.45
		9/19/2019	23.13	72.64
		12/4/2019	22.51	73.26
		2/4/2020	22.42	73.35
		4/27/2020	22.63	73.14
		7/24/2020	23.05	72.72
		10/5/2020	22.85	72.92
		1/8/2021	22.58	73.19
		4/13/2021	22.61	73.16

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-5	95.77	8/2/2021	22.86	72.91
		10/8/2021	22.44	73.33
		1/11/2022	22.65	73.12
		6/23/2022	22.92	72.85
		9/28/2022	23.29	72.48
		12/29/2022	22.72	73.05
		3/28/2023	22.94	72.83
		6/26/2023	23.22	72.55
		9/13/2023	23.60	72.17
		12/28/2023	22.69	73.08
		3/14/2024	22.52	73.25
		6/27/2024	22.32	73.45
		9/13/2024	22.88	72.89
		12/27/2024	22.28	73.49
		3/19/2025	22.57	73.20
		6/19/2025	22.68	73.09
		9/25/2025	23.75	72.02
		12/30/2025	22.28	73.49
MW-6	94.70	8/23/2019	19.98	74.72
		9/19/2019	18.63	76.07
		12/4/2019	19.09	75.61
		2/4/2020	20.22	74.48
		4/27/2020	20.53	74.17
		7/24/2020	17.53	77.17
		10/5/2020	18.82	75.88
		1/8/2021	20.59	74.11
		4/13/2021	21.19	73.51
		8/2/2021	19.24	75.46
		10/8/2021	19.02	75.68
		1/11/2022	20.95	73.75
		6/23/2022	19.81	74.89
		9/28/2022	20.22	74.48
		12/29/2022	21.53	73.17

ENSOLUM

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-6	94.70	3/28/2023	21.67	73.03
		6/26/2023	19.96	74.74
		9/13/2023	20.23	74.47
		12/28/2023	20.65	74.05
		3/14/2024	20.38	74.32
		6/27/2024	20.11	74.59
		9/13/2024	18.86	75.84
		12/27/2024	19.84	74.86
		3/19/2025	19.33	75.37
		6/19/2025	18.13	76.57
		9/25/2025	19.78	74.92
		12/30/2025	19.78	74.92
MW-7	94.49	8/23/2019	24.04	70.45
		9/19/2019	23.66	70.83
		12/4/2019	23.69	70.80
		2/4/2020	23.62	70.87
		4/27/2020	23.24	71.25
		7/24/2020	24.01	70.48
		10/5/2020	24.35	70.14
		1/11/2021	24.34	70.15
		4/13/2021	24.54	69.95
		8/2/2021	24.94	69.55
		10/7/2021	24.62	69.87
		1/11/2022	24.82	69.67
		6/23/2022	24.79	69.70
		9/28/2022	25.29	69.20
		12/29/2022	24.93	69.56
		3/28/2023	24.99	69.50
		6/26/2023	25.02	69.47
		9/13/2023	27.79	66.70
		12/28/2023	24.64	69.85
		3/14/2024	24.42	70.07
		6/27/2024	24.27	70.22

ENSOLUM

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

Well Identification	Top of Casing Elevation (1)	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (1)
MW-7	94.49	9/13/2024	24.53	69.96
		12/27/2024	24.42	70.07
		3/19/2025	24.42	70.07
		6/19/2025	23.97	70.52
		9/25/2025	25.68	68.81
		12/30/2025	24.36	70.13

Notes:

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

BTOC: below top of casing

ENSOLUM

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

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-1	11/29/2016	16.54	7.42	--	2,607.0	1.52	-155.3
	3/6/2017	13.37	7.37	1.99	3,057.0	1.48	-262.6
	6/12/2017	14.35	7.14	1.82	2,800.0	0.89	-197.6
	10/26/2017	18.00	7.19	--	2,600.0	1.85	-156
	12/4/2017	15.47	7.07	1.79	2,748.0	1.30	-209.9
	3/13/2018	19.94	7.31	--	2,502.0	--	-203.6
	6/25/2018	15.81	7.22	--	2,109.5	0.51	-198.3
	3/12/2019	13.10	7.57	1.37	2,720.0	--	-24.9
	5/22/2019	16.80	7.29	1.45	2,920.0	0.00	-27.5
	8/22/2019	21.10	7.20	2.01	4,030.0	--	-16.1
	12/2/2019	13.60	6.80	1.53	3,050.0	--	-26.5
	2/3/2020	15.30	6.81	1.51	3,020.0	7.30*	-28.5
	4/24/2020	16.00	6.98	1.36	2,710.0	3.47	-34.5
	7/24/2020	19.10	7.04	1.41	2,810.0	2.15	-32.7
	10/8/2020	18.30	6.99	1.63	3,260.0	3.57	-20.4
	1/11/2021	12.50	7.16	1.29	2,570.0	1.80	-24.7
	4/12/2021	17.00	7.26	1.25	2,490.0	8.89*	-22.7
	8/2/2021	17.30	8.36	--	2,330.0	--	--
	10/7/2021	16.50	7.06	--	2,740.0	--	--
	1/10/2022	12.40	7.1	--	2,350.0	--	--
	6/23/2022	18.20	7.22	1.14	2,260.0	--	--
	9/28/2022	19.30	7.12	1.26	2,520.0	--	--
	12/29/2022	11.20	7.44	1.20	2,460.0	--	--
	3/28/2023	12.90	7.59	1.16	2,330.0	--	--
	6/26/2023	28.31*	7.68	2.39	3,941.0	3.57	-132.9
	9/13/2023	30.99*	7.74	3.08	4,732.2	2.24	-202.1
	12/28/2023	22.82	8.18	1.78	2,749.2	2.04	-173.4
	3/14/2024	17.18	8.30	0.88	1,347.7	1.88	-295.9
	6/27/2024	58.32*	8.34	2.43	3,744.4	8.35*	-258.5
	9/13/2024	28.23*	8.34	1.42	2,182.6	1.74	-201.7
	12/27/2024	14.18	8.59	0.22	334.89*	2.77	-298.8
	3/19/2025	26.97*	8.78	3.34	5,237.1	1.12	-349.7
	6/19/2025	31.25*	7.682	1.155	1,776	2.198	-188.4
	9/25/2025	18.10	7.37	2.490	4,150	--	-33.0
	12/30/2025	17.40	7.83	2.089	3,480	--	-53.7
MW-2	11/29/2016	16.04	7.20	--	2,299.0	2.21	-109.3
	3/6/2017	12.74	7.15	1.74	2,683.0	2.05	-171.7
	6/12/2017	13.50	6.95	1.56	2,396.0	1.61	-155.8
	10/26/2017	18.70	7.01	--	2,264.0	1.74	-92.8
	12/4/2017	15.41	7.00	1.52	2,333.0	1.11	-178.0
	3/13/2018	14.67	7.21	--	2,334.0	--	-180.7
	6/25/2018	17.63	6.62	--	1,905.0	0.94	-187.2
	3/12/2019	13.70	7.57	9.50	1,886.0	NA	7.3
	5/22/2019	13.70	6.67	9.54	1,907.0	--	5.0
	8/22/2019	23.00	6.49	8.63	1,727.0	--	10.0
	12/2/2019	16.20	5.84	10.00	2,000.0	--	9.2

ENSOLUM

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

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-2	2/3/2020	12.80	5.93	9.71	18,320.0	6.22*	-0.1
	4/24/2020	16.50	6.25	5.81	11,630.0	2.28	0.9
	7/24/2020	21.40	6.55	2.79	5,580.0	1.73	-8.6
	10/8/2020	21.00	6.61	2.81	5,600.0	2.69	6.0
	1/11/2021	14.10	6.77	3.30	6,620.0	1.56	0.9
	4/12/2021	18.40	6.95	2.09	4,250.0	6.48*	-11.2
	8/2/2021	17.35	7.25	--	4,808.0	--	--
	10/7/2021	20.10	6.38	--	3,100.0	--	--
	1/10/2022	14.00	6.94	--	3,080.0	--	--
	6/23/2022	19.30	6.74	1.16	2,330.0	--	--
	9/28/2022	19.80	6.83	1.15	2,300.0	--	--
	12/29/2022	13.30	7.2	1.04	2,090.0	--	--
	3/28/2023	13.90	7.18	0.99	1,990.0	--	--
	6/26/2023	29.66*	7.48	1.73	2,750.0	2.41	-205.3
	9/13/2023	29.45*	7.61	1.81	2,780.8	1.91	-141.4
	12/28/2023	22.36	7.93	0.05	74*	11.25*	-9.0*
	3/14/2024	17.64	8.53	1.45	2,233.6	1.45	-287.6
	6/27/2024	59.77*	8.71	1.78	2,736.1	2.15	-247.3
	9/13/2024	27.13*	8.14	1.87	2,876.5	1.55	-200.6
	12/27/2024	15.88	8.81	0.00*	0.07*	2.25	-265.8
	3/19/2025	17.59	8.15	1.66	2,559.6	1.76	-268.7
	6/19/2025	32.66*	7.438	1.057	1,622	1.401	-133.7
	9/25/2025	19.20	7.21	1.650	2,750	--	-21.6
	12/30/2025	17.00	7.37	1.451	2,410	--	-28.0
MW-3	11/29/2016	15.01	7.09	--	3,091.0	2.52	-91
	3/6/2017	12.74	7.05	2.19	3,376.0	4.17	-151.6
	6/12/2017	15.40	7.18	2.19	3,360.0	6.70*	-136.0
	10/26/2017	17.71	7.06	--	2,653.0	1.80	-177.4
	12/4/2017	14.19	7.04	1.84	2,835.0	3.05	-153.5
	3/13/2018	14.84	7.18	--	2,641.0	0.17	-167.0
	6/25/2018	Sample volume insufficient to analyze field parameters					
	3/11/2019	14.30	7.24	1.41	2,830.0	--	-31.5
	5/22/2019	13.30	7.11	1.36	2,730.0	5.80*	-35.6
	8/22/2019	20.80	7.19	1.43	2,860.0	--	-25.2
	12/2/2019	15.20	6.55	1.49	2,960.0	--	-25.4
	2/3/2020	13.30	6.44	1.42	2,930.0	--	-16.5
	4/24/2020	19.60	6.71	1.44	2,890.0	2.80	-27.0
	7/23/2020	24.00	6.36	2.57	5,090.0	1.26	-12.5
	10/5/2020	16.50	6.49	3.03	6,070.0	3.76	-2.9
	1/8/2021	12.60	6.80	2.75	5,510.0	1.59	-3.1
	4/12/2021	14.50	6.55	4.00	8,030.0	9.65*	-17.7
	8/2/2021	17.10	7.96	--	7,920.0	--	--
	10/6/2021	18.80	6.43	--	6,400.0	--	--
	1/10/2022	16.60	5.60	--	9,470.0	--	--
	6/23/2022	19.10	6.20	4.28	8,540.0	--	--
	9/28/2022	18.60	6.49	3.05	6,110.0	--	--

ENSOLUM

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

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-3	12/29/2022	11.70	6.58	3.96	7,910.0	--	--
	3/28/2023	14.10	6.51	4.39	8,810.0	--	--
	6/26/2023	26.35*	6.74	8.00	11,397.0	2.85	-86.3
	9/13/2023	26.64*	7.02	7.99	12,284.0	1.97	-72.5
	12/28/2023	19.67	7.29	2.72	4,182.9	2.38	-65.1
	3/14/2024	15.99	7.94	3.64	5,654.1	1.51	-246.7
	6/27/2024	54.14*	7.91	4.09	6,292.6	1.74	-137.9
	9/13/2024	29.67*	7.80	2.62	4,039.4	1.55	-256.3
	12/27/2024	15.50	7.95	0.90*	1,383.4*	2.33	-215.6
	3/19/2025	11.84	7.93	3.52	5,413.8	2.07	-249.6
	6/19/2025	33.61*	7.198	1.967	3,028	2.057	-76.5
	9/25/2025	17.70	7.03	4.385	7,300	--	-9.3
	12/30/2025	16.90	7.36	3.230	5,370	--	-37.1
MW-4	6/23/2016	15.10	7.29	--	2,950.0	1.04	-148.5
	11/29/2016	16.01	7.40	--	2,396.0	1.59	-127.5
	3/6/2017	13.01	7.39	2.34	3,608.0	2.01	-237.2
	6/21/2017	14.49	7.08	1.92	2,955.0	1.36	-188.7
	10/26/2017	17.37	7.29	--	2,830.0	1.74	-193.2
	12/4/2017	15.26	3.33	2.06	3,161.0	0.66	-244.2
	3/13/2018	15.08	7.41	--	3,437.0	--	-214.9
	6/25/2018	15.85	7.33	--	2,580.0	0.97	-224.9
	3/12/2019	14.10	7.49	1.48	2,960.0	--	-31.5
	5/22/2019	15.40	7.35	1.67	3,300.0	1.44	-33.6
	8/22/2019	19.50	7.35	1.55	3,090.0	6.90*	-22.4
	12/2/2019	15.30	6.65	1.69	3,310.0	--	-32.7
	2/3/2020	15.00	6.81	1.57	3,140.0	6.51	-37.4
	4/24/2020	13.90	6.84	1.64	3,270.0	1.59	-47.4
	7/23/2020	24.50	6.67	1.47	2,910.0	0.87	-33.4
	10/8/2020	15.90	7.00	1.32	2,630.0	3.78	-43.2
	1/11/2021	8.40	7.50	1.23	2,420.0	2.73	-60.1
	4/12/2021	16.40	7.06	1.35	2,710.0	7.11*	-43.3
	8/2/2021	16.91	7.41	--	3,845.0	1.84	-312.6
	10/6/2021	20.20	6.67	--	2,510.0	--	--
	1/10/2022	11.30	7.19	--	2,540.0	--	--
	6/23/2022	19.40	7.12	1.32	2,630.0	--	--
	9/28/2022	18.80	7.19	1.25	2,500.0	--	--
	12/29/2022	9.40	7.45	1.25	2,490.0	--	--
	3/28/2023	12.50	7.56	1.24	2,480.0	--	--
	6/26/2023	21.42	7.79	2.19	3,138.0	2.61	-288.7
	9/13/2023	26.91*	7.87	2.36	3,637.1	1.55	-198.4
	12/28/2023	23.45*	8.19	1.38	2,153.4	0.94	-179.1
	3/14/2024	15.41	8.27	0.01	17.14*	1.62	-296.4
	6/27/2024	50.05*	8.28	2.16	3,349.5	2.67	-290.2
	9/13/2024	29.26 *	8.48	1.61	2,486.5	0.48	-330.2
	12/27/2024	10.38	8.72	0.27	303.64*	2.24	-347.5
	3/19/2025	17.37	8.4	2.27	3,497.6	8.4	-339.2

ENSOLUM

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

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-4	6/19/2025	29.57	7.64	2.057	3,164.0	1.344	-236.6
	9/25/2025	17.30	7.66	1.715	2,850.0	--	-49.6
	12/30/2025	16.20	7.85	1.729	2.87	--	-58.7
MW-5	8/23/2019	18.20	6.79	3.54	7,100.0	--	6.6
	12/4/2019	12.60	6.11	3.28	6,540.0	--	-1.1
	2/4/2020	8.50	6.25	3.24	6,520.0	--	-5.1
	4/27/2020	21.20	6.01	3.25	6,550.0	3.81	8.0
	7/24/2020	20.20	6.15	3.02	5,980.0	1.78	6.2
	10/5/2020	20.30	6.35	2.91	5,810.0	2.36	12.4
	1/8/2021	12.90	6.67	2.78	5,570.0	2.39	1.7
	4/13/2021	14.60	6.62	2.64	5,280.0	0.47	8.7
	8/2/2021	14.50	7.38	--	8,082.0	--	--
	10/8/2021	16.70	6.27	--	5,300.0	--	--
	1/11/2022	11.50	6.80	--	5,020.0	--	--
	6/23/2022	20.50	6.34	2.43	4,870.0	--	--
	9/28/2022	18.20	6.36	1.98	3,940.0	--	--
	12/29/2022	9.40	6.90	2.22	4,440.0	--	--
	3/28/2023	14.10	6.90	2.07	4,130.0	--	--
	6/26/2023	29.72*	7.13	4.76	7,046.0	2.14	0.9
	9/13/2023	26.66*	7.35	4.92	7,568.6	1.72	-48.5
	12/28/2023	21.41	7.50	4.09	6,294.5	1.98	-71.3
	3/14/2024	18.12	8.33	2.42	3,730.6	2.30	-229.6
	6/27/2024	45.52*	7.76	3.16	4,865.3	8.04*	-95.7
	9/13/2024	32.55*	7.75	0.90	1,388.9*	1.41	-147.2
	12/27/2024	15.99	7.91	1.03	1,563.1*	1.54	-196.5
	3/19/2025	10.66	7.77	0.00	0.08*	1.70	-209.3
	6/19/2025	34.96*	7.219	1.997	3,069	3.136	-45.3
	9/25/2025	15.30	6.82	2.565	4,280	--	1.3
	12/30/2025	15.20	7.19	2.434	4,050	--	-18.6
MW-6	8/23/2019	21.10	6.96	1.29	2,590.0	--	0.7
	12/4/2019	12.70	6.29	1.21	2,430.0	--	-5.0
	2/4/2020	8.50	6.52	1.27	2,540.0	--	-3.1
	4/27/2020	18.30	6.04	1.36	2,700.0	3.85	7.3
	7/24/2020	20.00	6.47	1.15	2,290.0	1.54	4.2
	10/5/2020	20.20	6.30	1.07	2,140.0	2.80	10.1
	1/8/2021	13.60	6.36	1.04	2,070.0	1.30	11.6
	4/13/2021	13.90	6.57	1.12	2,230.0	0.68	10.0
	8/2/2021	15.50	7.90	--	1,780.0	--	--
	10/8/2021	16.20	5.81	--	1,960.0	--	--
	1/11/2022	13.50	6.22	--	2,030.0	--	--
	6/23/2022	18.60	6.10	0.94	1,880.0	--	--
	9/28/2022	17.00	6.39	0.89	1,790.0	--	--
	12/29/2022	8.40	6.92	0.95	1,900.0	--	--
	3/28/2023	16.20	6.76	0.95	1,940.0	--	--
	6/26/2023	20.92	7.20	1.66	2,377.0	2.23	-82.6

ENSOLUM

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

Well Identification	Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)
MW-6	9/13/2023	27.47*	7.24	1.75	2,690.5	1.78	-99.7
	12/28/2023	21.68*	7.45	0.39	593.11*	2.46	-117.6
	3/14/2024	15.30	7.50	1.05	1,617.3	2.02	-219.2
	6/27/2024	33.58*	7.72	1.50	2,312.4	5.00*	-109.3
	9/13/2024	34.99*	7.75	1.56	2,405.8	1.36	-153.7
	12/27/2024	15.56	8.62	1.03	12.45*	1.94	-189.7
	3/19/2025	10.80	7.42	0.00	0.08*	1.96	-181.9
	6/19/2025	35.77*	7.221	0.377	537.5	2.187	-86.8
	9/25/2025	15.30	6.77	1.171	1,933	--	2.7
	12/30/2025	15.30	7.03	1.177	1,958	--	-11.2
MW-7	8/23/2019	21.80	6.95	2.63	5,240.0	--	-12.2
	12/4/2019	12.80	6.11	2.40	4,800.0	--	-8.0
	2/4/2020	11.00	6.39	2.26	4,390.0	--	-17.5
	4/27/2020	17.20	6.34	1.96	3,950.0	4.56	-11.7
	7/24/2020	20.70	6.43	1.37	2,760.0	2.94	-8.9
	10/5/2020	18.50	6.55	1.26	2,530.0	4.23	-6.1
	1/11/2021	13.50	6.85	1.28	2,550.0	1.44	-0.7
	4/13/2021	16.50	6.62	1.53	3,060.0	9.22*	-1.7
	8/2/2021	14.96	7.33	--	4,259.0	--	--
	10/7/2021	18.60	6.23	--	2,910.0	--	--
	1/11/2022	12.98	6.56	--	2,910.0	--	--
	6/23/2022	17.00	6.25	1.13	1,720.0	--	--
	9/28/2022	17.20	6.42	1.34	2,670.0	--	--
	12/29/2022	10.20	6.63	1.44	2,890.0	--	--
	3/28/2023	15.80	6.55	1.51	3,040.0	--	--
	6/26/2023	20.93	7.14	2.98	4,222.0	3.31	-51.7
	9/13/2023	--	--	--	--	--	--
	12/28/2023	15.79	7.48	2.02	3,102.3	4.35	-33.1
	3/14/2024	15.44	7.62	0.01	18.9	3.49	-214.3
	6/27/2024	31.26*	8.34	2.37	3,646.7	2.49	-29.3
	9/13/2024	39.25*	7.74	2.90	4,468.6	7.74*	-89.7
	12/27/2024	15.83	8.32	0.00	0.2	2.80	-88.6
	3/19/2025	11.84	7.34	0.00	0.08*	3.87	-106.9
	6/19/2025	36.72*	7.755	2.765	4,254	3.503	-18.6
	9/25/2025	14.7	6.68	2.453	4,080	--	8.0
	12/30/2025	15.3	7.10	2.231	3,710	--	-13.4

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
**: anomalous data*

ENSOLUM

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

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
NMWQCC Standards		0.005	1.00	0.70	0.62	1.0	0.20	600	1,000
MW-1	6/8/2016	0.0388	<0.020	0.358	4.01	--	1.69	1,170	2,590
	9/12/2016	0.0111	< 0.001	0.0946	0.382	--	0.925	577	--
	11/29/2016	0.0132	< 0.001	0.119	0.445	--	0.99	240	--
	3/6/2017	0.0041	< 0.001	0.0481	0.167	--	0.876	387	1,920
	6/12/2017	0.002	< 0.001	0.0265	0.12	--	0.80	312	1,830
	10/26/2017	< 0.001	< 0.001	0.0081	0.0307	0.256	0.71	424	1,940
	12/4/2017	<0.005	< 0.005	0.021	0.0814	--	0.674	321	1,710
	3/13/2018	< 0.001	< 0.001	0.008	0.0353	--	0.68	319	1,410
	6/25/2018	< 0.001	< 0.001	0.0067	0.0229	--	0.705	349	1,820
	9/4/2018	<0.005	<0.005	0.0154	0.0499	--	0.694	481	2,000
	12/10/2018	<0.001	<0.001	<0.001	<0.003	<0.10	0.712	343	1,980
	3/12/2019	<0.001	<0.001	<0.001	<.300	0.143	0.89	578	2,040
	5/22/2019	<0.001	<0.001	0.00619	0.0119	<0.100	0.732	598	2,210
	8/22/2019	<0.001	<0.001	0.0053	0.0095	<0.100	1.59	1,260	3,010
	12/2/2019	<0.001	<0.001	0.0029	0.0045	<0.100	0.940	697	1,930
	2/3/2020	<0.001	<0.001	0.00714	0.0107	0.119	0.824	735	1,820
	4/24/2020	<0.001	<0.001	0.00337	0.00599	<0.100	0.623	568	1,910
	7/24/2020	<0.001	<0.001	<0.001	<0.003	<0.100	0.613	570	2,230
	10/8/2020	<0.001	<0.001	<0.001	<0.003	<0.100	1.06	1,060	2,960
	1/11/2021	<0.001	<0.001	0.00325	0.00452	<0.100	0.712	642	2,190
	4/12/2021	<0.001	<0.001	0.0021	0.0025	<0.020	0.59	450	1,990
	8/2/2021	0.0046	<0.001	<0.001	<0.0015	0.20	0.52	160	2,040
	10/7/2021	0.0078	<0.001	<0.001	<0.0015	<0.020	0.70	490	2,400
	1/10/2022	<0.001	<0.001	0.0018	<0.0015	--	0.54	480	2,040
	6/23/2022	<0.001	<0.001	<0.001	<0.0015	<0.020	0.42	540	2,070
	9/28/2022	<0.001	<0.001	<0.001	<0.0015	--	0.74	800	2,660
	12/29/2022	<0.001	<0.001	<0.001	<0.0015	--	0.44	810	2,420
	3/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	0.40	920	2,390
	6/26/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	0.54	990	5,080
	9/13/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	1.40	1,300	3,130
	12/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	0.56	1,300	2,710
	3/14/2024	<0.002	<0.002	<0.002	<0.003	--	0.45	1,200	2,500
	6/27/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	0.35	880	2,500
	9/13/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	0.44	870	2,500 E
	12/27/2024	<0.0020	<0.0020	<0.0020	<0.0030	<0.020	0.47	1,300	2,700
	3/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	0.40	1,200	2,500
	6/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	<0.020	0.33	990	2,300
	9/25/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	0.69	1,400	3,200
	12/30/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	0.46	1,300	1,300
MW-2	6/8/2016	0.103	< 0.001	0.0072	0.0448	--	1.06	3.00	1,580
	9/12/2016	0.0647	< 0.001	0.0021	0.00320	--	1.73	2.80	--
	11/29/2016	0.0257	< 0.001	0.0021	< 0.003	--	1.41	2.60	--
	3/6/2017	0.0347	< 0.001	0.0022	< 0.003	--	1.45	7.90	1,510
	6/12/2017	0.009	< 0.001	0.0011	< 0.003	--	1.39	3.10	1,550
	10/26/2017	0.0013	< 0.001	< 0.001	< 0.003	5.1	1.26	4.50	1,560
	12/4/2017	0.0039	< 0.001	0.0011	< 0.003	--	1.23	14.3	1,470
	3/13/2018	0.0036	< 0.001	0.0011	< 0.003	--	1.25	154	1,450
	6/25/2018	0.0079	< 0.001	< 0.001	< 0.003	--	1.37	31.3	1,600
	9/4/2018	< 0.001	< 0.001	< 0.001	< 0.003	--	1.13	87.0	1,730
	12/10/2018	0.0543	< 0.001	0.0015	< 0.003	<0.10	1.15	27.7	1,470
	3/12/2019	0.779	< 0.001	0.0317	0.0519	1.59	11.4	64.7	15,300
	5/22/2019	0.435	< 0.005	0.0245	0.0533	4.30	7.77	29.6	15,300
	8/22/2019	0.170	< 0.001	0.0265	0.0153	0.426	7.27	8.01	12,700
	12/2/2019	0.130	< 0.001	0.0304	0.00870	<0.100	10.2	<5.00	15,700
	2/3/2020	0.147	<0.001	0.0312	0.00841	0.174	8.19	<5.00	14,400
	4/24/2020	0.054	<0.001	0.0106	<0.003	<0.100	3.63	6.08	7,800
	7/24/2020	<0.001	<0.001	0.00902	<0.003	<0.100	2.21	10.7	3,680

ENSOLUM

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

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
NMWQCC Standards		0.005	1.00	0.70	0.62	1.0	0.20	600	1,000
MW-2	10/8/2020	<0.001	<0.001	0.00646	<0.003	0.195	2.31	<5.00	4,290
	1/11/2021	0.014	<0.001	0.00183	<0.003	<0.100	2.55	<5.00	5,150
	4/12/2021	0.019	<0.001	0.0015	<0.0015	0.073	0.92	120	3,060
	8/2/2021	<0.001	<0.001	<0.001	<0.0015	0.91	4.1	570	2,790
	10/7/2021	<0.001	<0.001	<0.001	<0.0015	0.085	2.0	200	2,280
	1/10/2022	0.0074	<0.001	<0.001	<0.0015	0.32	0.98	43	2,510
	6/23/2022	0.0021	<0.002	<0.002	<0.003	0.19	1.5	170	2,000
	9/28/2022	<0.002	<0.002	<0.002	<0.003	--	0.99	29	1,970
	12/29/2022	0.0054	<0.001	<0.001	<0.0015	--	0.64	76	1,800
	3/28/2023	0.040	<0.0010	0.0025	<0.0015	--	0.97	35	1,770
	6/26/2023	0.0067	<0.0010	<0.0010	<0.0015	--	0.89	22	1,480
	9/13/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	0.99	9.8	1,600
	12/28/2023	0.015	<0.0010	0.0034	<0.0015	--	0.96	33	1,680
	3/14/2024	0.025	0.0023	<0.0010	<0.0015	--	1.20	21	1,800
	6/27/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	2.10	290	2,000
	9/13/2024	<0.0010	<0.0010	<0.0010	<0.0015	<0.020	1.20	40	1,700
	12/27/2024	0.012	<0.0050	<0.0050	<0.0075	<0.020	1.30	11	1,700
	3/19/2025	0.029	<0.0020	0.0044	<0.0030	0.055	1.5	<5.0	1,700
	6/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	0.18	--	270	1,800
	9/25/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	1.4	240	1,900
	12/30/2025	0.0094	<0.0010	0.0038	<0.0015	--	1.2	78	790
MW-3	6/8/2016	2.95	< 0.020	0.813	7.78	--	2.65	110	2,190
	9/12/2016	2.27	< 0.001	0.44	2.49	--	3.62	112	--
	11/29/2016	2.97	< 0.001	0.845	5.44	--	3.12	22.5	--
	3/6/2017	1.89	< 0.02	0.259	3.06	--	2.52	14.7	1,880
	6/12/2017	1.68	< 0.02	0.329	1.93	--	3.09	372	2,280
	10/26/2017	1.88	< 0.001	0.417	2.91	3.58	2.15	65.6	2,000
	12/4/2017	2.00	< 0.025	0.346	2.43	--	2.36	35.5	1,750
	3/13/2018	1.43	< 0.025	0.107	1.93	--	2.34	24.6	1,530
	6/26/2018	2.02	< 0.025	0.287	2.69	--	3.52	606	2,560
	9/5/2018	1.82	<0.005	0.160	1.40	--	2.08	241	2,300
	12/10/2018	1.49	<0.10	0.133	0.639	0.142	1.94	170	2,050
	3/11/2019	1.45	<0.001	0.015	0.655	<0.100	2.01	95.6	1,940
	5/22/2019	1.84	<0.001	0.120	1.17	0.278	1.03	23.7	2,540
	8/22/2019	0.623	<0.001	0.0193	0.387	<0.100	1.62	119	1,860
	12/2/2019	0.114	<0.001	0.006	0.184	<0.100	1.55	129	1,800
	2/3/2020	1.24	<0.010	0.0224	1.05	<0.100	1.94	36.1	1,590
	4/24/2020	1.08	<0.010	<0.010	<0.010	0.610	1.93	21.3	1,610
	7/23/2020	0.00663	<0.001	0.00191	0.0147	0.118	5.19	1,400	4,280
	10/5/2020	0.0112	<0.001	0.00204	0.00608	<0.100	6.49	1,140	4,520
	1/8/2021	0.455	<0.001	0.0618	0.300	0.656	3.5	162	4,120
	4/12/2021	0.72	<0.01	0.035	0.260	0.16	11	37	7,190
	8/2/2021	0.0034	<0.001	<0.001	<0.0015	10*	23	2,100	7,940
	10/6/2021	0.0030	<0.001	0.0012	0.0035	0.054	15	2,200	6,620
	1/10/2022	0.0250	<0.001	0.0036	0.0024	--	17	570	10,100
	6/23/2022	0.0052	<0.001	0.092	0.056	5.2*	17	1,300	8,920
	9/28/2022	0.0056	<0.001	0.0029	0.12	--	9.6	1,300	6,940
	12/29/2022	0.042	<0.001	0.022	0.0018	--	16	190	10,300
	3/28/2023	0.380	<0.0010	0.250	0.190	--	19	30	9,840
	6/26/2023	0.160	<0.0020	0.250	0.190	--	2.7	550	7,520
	9/13/2023	0.053	<0.0020	0.085	0.0072	--	8.0	430	8,370
	12/28/2023	<0.0020	<0.0020	<0.0020	<0.0030	--	7.5	280	7,860
	3/14/2024	0.21	<0.0010	0.250	0.61	--	6.3	45	6,000
	6/27/2024	0.0019	<0.0010	0.022	0.0017	--	9.6	890	5,500
	9/13/2024	0.024	<0.0010	0.028	0.0075	--	3.8	550	4,800
	12/27/2024	0.016	<0.010	0.012	<0.015	<0.020	3.3	110	4,300
	3/19/2025	0.096	<0.0020	0.21	<0.0020	--	2.3	63	3,300

ENSOLUM

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

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
NMWQCC Standards		0.005	1.00	0.70	0.62	1.0	0.20	600	1,000
MW-3	6/19/2025	0.0033	<0.0010	0.012	0.0055	0.020	5.00	800	3,700
	9/25/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	5.3	1,900	5,600
	12/30/2025	0.018	<0.0010	0.0035	0.0065	--	1.6	380	1,800
MW-4	6/23/2016	0.118	< 0.001	0.186	1.06	--	0.983	838	--
	9/12/2016	0.0742	< 0.001	0.114	0.803	--	1.32	735	--
	11/29/2016	0.0853	< 0.001	0.0929	0.967	--	1.26	382	--
	3/6/2017	0.0886	< 0.02	0.0804	1.23	--	1.22	814	2,260
	6/12/2017	0.100	< 0.005	0.0747	1.44	--	1.01	738	2,140
	10/26/2017	0.0462	< 0.001	0.0226	0.849	0.507	0.73	1,120	2,370
	12/4/2017	0.0632	<0 .020	0.0386	1.45	--	0.893	993	2,150
	12/4/2017	0.064	<0.020	0.0421	1.7	--	--	--	--
	3/13/2018	0.0467	<0.10	0.0292	1.33	--	0.827	1,370	2,350
	6/25/2018	0.0561	<0.020	<0.020	1.74	--	0.888	1,230	2,540
	9/4/2018	0.0257	< 0.005	< 0.005	0.848	--	0.889	1,450	2,410
	12/10/2018	0.108	<0.020	0.0484	2.93	0.209	0.801	439	1,900
	3/12/2019	0.0488	<0.0100	0.0265	1.85	<0.100	0.843	1,240	2,390
	5/22/2019	0.0496	<0.0100	0.0309	1.84	<0.100	0.867	1,090	2,700
	8/22/2019	0.0336	0.0013	0.0113	1.05	<0.100	0.737	1,270	2,290
	12/2/2019	0.0172	<0.0100	<0.0100	0.937	<0.100	0.752	1,390	2,480
	2/3/2020	0.0249	<0.0100	0.0224	1.66	<0.100	0.756	1,300	2,180
	4/24/2020	0.0170	<0.0100	0.0120	0.694	<0.100	0.744	1,330	2,640
	7/23/2020	0.0150	<0.0100	0.0132	0.975	<0.100	0.549	1,180	2,620
	10/8/2020	0.0137	<0.0100	<0.0100	0.657	<0.100	0.569	843	2,340
	1/11/2021	0.0148	<0.001	0.0156	0.717	<0.100	0.523	1,190	2,560
	4/12/2021	0.012	<0.005	0.015	0.600	0.022	0.53	1,000	2,530
	8/2/2021	0.0022	<0.001	<0.001	0.071	0.19	0.79	1,600	3,010
	10/6/2021	0.0058	<0.001	0.0026	0.370	<0.020	0.62	1,100	2,470
	1/10/2022	0.0089	<0.002	0.0072	0.570	--	0.55	1,100	2,600
	6/23/2022	0.0026	<0.002	0.0024	0.110	0.067	0.40	850	2,530
	9/28/2022	0.0018	<0.002	<0.002	0.086	--	0.46	900	2,390
	12/29/2022	0.0022	<0.001	0.0017	0.094	--	0.41	1,000	2,560
	3/28/2023	0.0046	<0.0010	0.014	0.340	--	0.46	970	2,380
	6/26/2023	0.0054	<0.0010	0.013	0.370	--	0.53	1,100	2,620
	9/13/2023	0.0015	<0.0010	0.0012	0.061	--	0.45	1,100	2,560
	12/28/2023	0.0019	<0.0010	0.0044	0.087	--	0.56	1,300	2,740
	3/14/2024	0.0016	<0.0010	0.0015	0.018	--	0.85	1,300	3,100
	6/27/2024	<0.0010	<0.0010	<0.0010	0.0075	--	0.28	950	2,300
	9/13/2024	0.0021	<0.0010	<0.0010	0.100	--	0.49	1,100	2,400
	12/27/2024	<0.0010	<0.0010	<0.0010	0.020	<0.020	0.35	1,100	2,300
	3/19/2025	0.0014	<0.0010	<0.0010	0.015	--	0.35	1,100	2,300
	6/19/2025	<0.0010	<0.0010	<0.0010	0.009	<0.020	0.32	1,000	2,100
	9/25/2025	<0.0010	<0.0010	<0.0010	0.041	--	0.35	950	2,200
	12/30/2025	<0.0010	<0.0010	<0.0010	0.028	--	0.34	1,100	1,200
MW-5	8/23/2019	<0.001	<0.001	<0.001	0.0067	<0.100	3.33	3,660	6,620
	12/2/2019	<0.001	<0.001	<0.0010	<0.0030	0.185	3.26	3,730	6,350
	2/4/2020	<0.001	<0.001	<0.0010	<0.0030	<0.100	3.45	3,660	5,940
	4/24/2020	<0.001	<0.001	<0.0010	<0.0030	<0.100	3.39	3,440	6,450
	7/24/2020	<0.001	<0.001	<0.0010	<0.0030	<0.100	3.13	2,410	5,260
	10/5/2020	<0.001	<0.001	<0.0010	<0.0030	<0.100	3.33	3,430	4,010
	1/8/2021	<0.001	<0.001	<0.001	<0.003	<0.100	3.37	3,530	6,150
	4/13/2021	<0.001	<0.001	<0.001	<0.0015	0.063	3.3	3,500	6,500
	8/2/2021	<0.001	<0.001	<0.001	<0.0015	0.33	3.1	3,300	5,920
	10/8/2021	<0.001	<0.001	<0.001	<0.0015	0.023	3.4	3,400	6,120
	1/11/2022	<0.001	<0.001	<0.001	<0.0015	--	2.5	2,800	5,520
	6/23/2022	<0.001	<0.001	<0.001	<0.0015	0.068	2.7	2,600	5,280
	9/28/2022	<0.001	<0.001	<0.001	<0.0015	--	2.3	1,800	4,870
	12/29/2022	<0.001	<0.001	<0.001	<0.0015	--	2.6	2,400	5,460

ENSOLUM

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

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
NMWQCC Standards		0.005	1.00	0.70	0.62	1.0	0.20	600	1,000
MW-5	3/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	1.3	1,700	4,200
	6/26/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	2.8	2,400	5,530
	9/13/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	3.2	3,100	5,920
	12/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	3.3	3,300	5,920
	3/14/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	2.4	3,000	5,800
	6/27/2024	<0.0010	<0.0010	0.036	0.38	--	2.6	1,000	3,200
	9/13/2024	<0.0010	<0.0010	0.015	0.0097	--	2.8	1,300	3,900
	12/27/2024	<0.0010	<0.0010	0.0045	0.0025	0.19	1.8	410	2,300
	3/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	1.5	710	2,800
	6/19/2025	<0.0010	<0.0010	0.0049	0.037	0.74	1.7	1,100	3,600
	9/25/2025	<0.0010	<0.0010	0.0010	<0.0019	--	2.5	1,600	4,200
	12/30/2025	<0.0010	<0.0010	<0.0010	0.002	--	2.2	1,100	1,800
MW-6	8/23/2019	0.213	<0.001	0.145	0.806	<0.100	2.51	168	1,750
	12/2/2019	0.0741	<0.001	0.168	0.170	<0.100	3.11	86.1	1,630
	2/4/2020	0.0284	<0.001	0.0184	0.0720	<0.100	5.05	150	1,570
	4/24/2020	0.00348	<0.001	<0.0010	<0.0030	<0.100	4.59	121	1,550
	7/24/2020	0.0977	<0.001	0.0705	0.510	<0.100	2.54	47.0	1,650
	10/5/2020	0.0787	<0.0100	0.114	0.025	<0.100	3.33	24.7	1,550
	1/8/2021	0.00794	<0.001	0.00891	0.0368	<0.100	3.85	30.4	1,580
	4/13/2021	<0.001	<0.001	<0.001	<0.0015	0.22	3.3	71	1,450
	8/2/2021	0.016	<0.001	0.013	0.072	7.0*	2.6	25	1,500
	10/8/2021	0.0035	<0.001	0.0018	0.0097	0.052	2.9	18	1,310
	1/11/2022	0.0021	<0.001	0.0013	0.0058	--	2.9	32	1,550
	6/23/2022	0.013	<0.001	0.020	0.170	4.4*	2.0	<5.0	1,510
	9/28/2022	0.013	<0.001	0.017	0.170	--	1.7	<5.0	1,390
	12/29/2022	<0.001	<0.001	<0.001	<0.0015	--	1.7	12	1,500
	3/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	1.7	13	1,310
	6/26/2023	0.0051	<0.0010	0.0082	0.077	--	1.6	8.8	1,480
	9/13/2023	0.0092	<0.0010	0.014	0.110	--	1.8	1.3	1,510
	12/28/2023	0.0067	<0.0010	0.0048	0.032	--	1.6	<5.0	1,420
	3/14/2024	<0.0010	<0.0010	<0.0010	0.0037	--	1.6	4.00	1,500
	6/27/2024	0.025	<0.0010	0.035	0.530	--	0.67	0.78	1,200
	9/13/2024	0.016	<0.0010	0.0061	0.320	--	1.5	<0.50	1,300
	12/27/2024	0.012	<0.0010	0.0022	0.410	0.15	1.6	<0.05	1,300
	3/19/2025	0.0079	<0.0010	0.0015	0.002	--	1.7	<5.0	1,500
	6/19/2025	0.049	0.007	0.073	0.760	0.18	1.6	<0.50	1,200
	9/25/2025	0.011	<0.0010	0.0060	0.340	--	1.4	<0.50	1,300
	12/30/2025	0.012	<0.0010	0.0027	0.420	--	1.4	<0.50	1300 H
MW-7	8/23/2019	<0.001	<0.001	<0.001	0.004	<0.100	1.75	2,950	4,930
	12/2/2019	<0.001	<0.001	<0.001	<0.003	<0.100	1.98	2,830	3,990
	2/4/2020	<0.001	<0.001	<0.001	<0.003	<0.100	2.01	2,580	3,860
	4/24/2020	<0.001	<0.001	<0.001	<0.003	<0.100	2.00	1,550	4,400
	7/24/2020	<0.001	<0.001	<0.001	<0.003	<0.100	1.04	808	2,300
	10/5/2020	<0.001	<0.001	<0.001	<0.003	<0.100	1.06	887	2,100
	1/11/2021	<0.001	<0.001	<0.001	<0.003	<0.100	1.03	873	2,280
	4/13/2021	<0.001	<0.001	<0.001	<0.0015	0.14	1.3	910	2,710
	8/2/2021	<0.001	<0.001	<0.001	<0.0015	0.28	1.4	870	517
	10/7/2021	<0.001	<0.001	<0.001	<0.0015	<0.020	1.1	880	2,110
	1/11/2022	<0.001	<0.001	<0.001	<0.0015	--	1.1	810	2,560
	6/23/2022	<0.001	<0.001	<0.001	<0.0015	<0.020	1.1	880	2,890
	9/28/2022	<0.001	<0.001	<0.001	<0.0015	--	1.1	820	2,880
	12/29/2022	<0.001	<0.001	<0.001	<0.0015	--	1.2	1,000	3,020
	3/28/2023	<0.0020	<0.0020	<0.0020	<0.0030	--	1.2	1,200	3,650
	6/26/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	1.2	1,100	3,330
	9/13/2023	Not Sampled - PSH Present*							
	12/28/2023	<0.0010	<0.0010	<0.0010	<0.0015	--	0.99	1,100	3,310
	3/14/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	0.40	1,200	2,900

ENSOLUM

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

Well Identification	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
NMWQCC Standards		0.005	1.00	0.70	0.62	1.0	0.20	600	1,000
MW-7	6/27/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	**0.51**	**720 F1**	**2,700**
	9/13/2024	<0.0010	<0.0010	<0.0010	<0.0015	--	**1.4**	**810**	**3,000**
	12/27/2024	<0.0010 P2	<0.0010 P2	<0.0010 P2	<0.0015 P2	<0.020	**1.1**	**920**	**3,200**
	3/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	**1.1**	**1,300**	**3,400**
	6/19/2025	<0.0010	<0.0010	<0.0010	<0.0015	<0.020	**1.6**	**1,000**	**3,000**
	9/25/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	**0.91**	**980**	**3,100**
	12/30/2025	<0.0010	<0.0010	<0.0010	<0.0015	--	**1.3**	**1,000**	**3,100 H**

Notes:

mg/L: milligrams per liter

ND: not detected, practical quantitation limit unknown

NMWQCC: New Mexico Water Quality Control Commission

PSH: phase separated hydrocarbons

E: Result exceeded calibration range.

F1: MS and/or MSD recovery exceeds control limits.

P2: Sample was received with a PH>2

-- : not analyzed

**: anomalous data*

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

*Concentrations in **bold** and shaded exceed the New Mexico Water Quality Control Commission Standards, 20.6.2.3103 of the New Mexico Administrative Code.*

ENSOLUM

APPENDIX A

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 1/21/2025 2:29:04 PM Revision 1

JOB DESCRIPTION

Magnum 1

JOB NUMBER

885-17747-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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Revision 1

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Magnum 1

Laboratory Job ID: 885-17747-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
P2	The sample was received with pH>2

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Magnum 1

Job ID: 885-17747-1

Job ID: 885-17747-1 Eurofins Albuquerque

Job Narrative
885-17747-1

REVISION

The report being provided is a revision of the original report sent on 1/14/2025. The report (revision 1) is being revised due to Sample 2 is the only sample that needed Dissolved Fe and Mn.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/31/2024 7:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.0°C.

GC/MS VOA
Method 8260B: The following samples was diluted due to the nature of the sample matrix: MW-1 (885-17747-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-1

Date Collected: 12/27/24 12:30
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-1

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			01/04/25 02:56	2
Ethylbenzene	ND		2.0		ug/L			01/04/25 02:56	2
Methyl-tert-butyl Ether (MTBE)	ND		2.0		ug/L			01/04/25 02:56	2
Tetrachloroethene (PCE)	ND		2.0		ug/L			01/04/25 02:56	2
Toluene	ND		2.0		ug/L			01/04/25 02:56	2
Trichloroethene (TCE)	ND		2.0		ug/L			01/04/25 02:56	2
Xylenes, Total	ND		3.0		ug/L			01/04/25 02:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*01/04/25 02:56*	*2*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/04/25 02:56*	*2*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*01/04/25 02:56*	*2*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/04/25 02:56*	*2*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1300**		25		mg/L			01/03/25 17:46	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.47**		0.0020		mg/L			01/02/25 12:04	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2700**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-2
Date Collected: 12/27/24 13:00
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-2
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**12**		5.0		ug/L			01/04/25 03:21	5
Ethylbenzene	ND		5.0		ug/L			01/04/25 03:21	5
Methyl-tert-butyl Ether (MTBE)	ND		5.0		ug/L			01/04/25 03:21	5
Tetrachloroethene (PCE)	ND		5.0		ug/L			01/04/25 03:21	5
Toluene	ND		5.0		ug/L			01/04/25 03:21	5
Trichloroethene (TCE)	ND		5.0		ug/L			01/04/25 03:21	5
Xylenes, Total	ND		7.5		ug/L			01/04/25 03:21	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*01/04/25 03:21*	*5*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*01/04/25 03:21*	*5*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*01/04/25 03:21*	*5*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/04/25 03:21*	*5*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**11**		0.50		mg/L			01/01/25 02:31	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.3**		0.020		mg/L			01/02/25 12:07	10
Iron	ND		0.020		mg/L			01/02/25 12:14	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1700**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-3
Date Collected: 12/27/24 13:45
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-3
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**16**		10		ug/L			01/04/25 03:46	10
Ethylbenzene	**12**		10		ug/L			01/04/25 03:46	10
Methyl-tert-butyl Ether (MTBE)	ND		10		ug/L			01/04/25 03:46	10
Tetrachloroethene (PCE)	ND		10		ug/L			01/04/25 03:46	10
Toluene	ND		10		ug/L			01/04/25 03:46	10
Trichloroethene (TCE)	ND		10		ug/L			01/04/25 03:46	10
Xylenes, Total	ND		15		ug/L			01/04/25 03:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*01/04/25 03:46*	*10*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*01/04/25 03:46*	*10*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*01/04/25 03:46*	*10*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/04/25 03:46*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**110**		5.0		mg/L			01/02/25 13:17	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**3.3**		0.020		mg/L			01/02/25 12:18	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4300**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-4
Date Collected: 12/27/24 12:00
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-4
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/04/25 04:10	1
Ethylbenzene	ND		1.0		ug/L			01/04/25 04:10	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			01/04/25 04:10	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			01/04/25 04:10	1
Toluene	ND		1.0		ug/L			01/04/25 04:10	1
Trichloroethene (TCE)	ND		1.0		ug/L			01/04/25 04:10	1
Xylenes, Total	**20**		1.5		ug/L			01/04/25 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*01/04/25 04:10*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*01/04/25 04:10*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*01/04/25 04:10*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*01/04/25 04:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1100**		50		mg/L			01/02/25 14:25	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.35**		0.0020		mg/L			01/02/25 12:20	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2300**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-5
Date Collected: 12/27/24 14:30
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-5
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/04/25 04:35	1
Ethylbenzene	**4.5**		1.0		ug/L			01/04/25 04:35	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			01/04/25 04:35	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			01/04/25 04:35	1
Toluene	ND		1.0		ug/L			01/04/25 04:35	1
Trichloroethene (TCE)	ND		1.0		ug/L			01/04/25 04:35	1
Xylenes, Total	**2.5**		1.5		ug/L			01/04/25 04:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*01/04/25 04:35*	*1*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*01/04/25 04:35*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*01/04/25 04:35*	*1*
Toluene-d8 (Surr)	*121*		*70 - 130*		*01/04/25 04:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**410**		5.0		mg/L			01/02/25 14:39	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.8**		0.020		mg/L			01/02/25 12:26	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2300**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-6
Date Collected: 12/27/24 15:20
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-6
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**12**		1.0		ug/L			01/04/25 04:59	1
Ethylbenzene	**2.2**		1.0		ug/L			01/04/25 04:59	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			01/04/25 04:59	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			01/04/25 04:59	1
Toluene	ND		1.0		ug/L			01/04/25 04:59	1
Trichloroethene (TCE)	ND		1.0		ug/L			01/04/25 04:59	1
Xylenes, Total	**410**		15		ug/L			01/06/25 12:03	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*01/04/25 04:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*01/06/25 12:03*	*10*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*01/04/25 04:59*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/06/25 12:03*	*10*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*01/04/25 04:59*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*01/06/25 12:03*	*10*
Toluene-d8 (Surr)	*118*		*70 - 130*		*01/04/25 04:59*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/06/25 12:03*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			01/03/25 17:05	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.6**		0.010		mg/L			01/02/25 12:28	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1300**		250		mg/L			01/02/25 10:41	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-7
Date Collected: 12/27/24 16:10
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-7
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	P2	1.0		ug/L			01/04/25 05:24	1
Ethylbenzene	ND	P2	1.0		ug/L			01/04/25 05:24	1
Methyl-tert-butyl Ether (MTBE)	ND	P2	1.0		ug/L			01/04/25 05:24	1
Tetrachloroethene (PCE)	ND	P2	1.0		ug/L			01/04/25 05:24	1
Toluene	ND	P2	1.0		ug/L			01/04/25 05:24	1
Trichloroethene (TCE)	ND	P2	1.0		ug/L			01/04/25 05:24	1
Xylenes, Total	ND	P2	1.5		ug/L			01/04/25 05:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*	*P2*	*70 - 130*		*01/04/25 05:24*	*1*
4-Bromofluorobenzene (Surr)	*99*	*P2*	*70 - 130*		*01/04/25 05:24*	*1*
Dibromofluoromethane (Surr)	*99*	*P2*	*70 - 130*		*01/04/25 05:24*	*1*
Toluene-d8 (Surr)	*96*	*P2*	*70 - 130*		*01/04/25 05:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**920**		50		mg/L			01/02/25 15:47	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.1**		0.010		mg/L			01/02/25 12:51	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3200**		250		mg/L			01/02/25 10:41	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-18817/34
Matrix: Water
Analysis Batch: 18817

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/03/25 23:40	1
Ethylbenzene	ND		1.0		ug/L			01/03/25 23:40	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			01/03/25 23:40	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			01/03/25 23:40	1
Toluene	ND		1.0		ug/L			01/03/25 23:40	1
Trichloroethene (TCE)	ND		1.0		ug/L			01/03/25 23:40	1
Xylenes, Total	ND		1.5		ug/L			01/03/25 23:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*01/03/25 23:40*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*01/03/25 23:40*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*01/03/25 23:40*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/03/25 23:40*	*1*

Lab Sample ID: LCS 885-18817/33
Matrix: Water
Analysis Batch: 18817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.1	20.8		ug/L		104	70 - 130		
Toluene			20.2	21.3		ug/L		105	70 - 130		
Trichloroethene (TCE)			20.2	19.9		ug/L		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
Dibromofluoromethane (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Lab Sample ID: MB 885-18828/5
Matrix: Water
Analysis Batch: 18828

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/06/25 11:13	1
Ethylbenzene	ND		1.0		ug/L			01/06/25 11:13	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			01/06/25 11:13	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			01/06/25 11:13	1
Toluene	ND		1.0		ug/L			01/06/25 11:13	1
Trichloroethene (TCE)	ND		1.0		ug/L			01/06/25 11:13	1
Xylenes, Total	ND		1.5		ug/L			01/06/25 11:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*01/06/25 11:13*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*01/06/25 11:13*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*01/06/25 11:13*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*01/06/25 11:13*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 885-18828/4
Matrix: Water
Analysis Batch: 18828

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.1	19.8		ug/L		98	70 - 130
Toluene	20.2	20.9		ug/L		104	70 - 130
Trichloroethene (TCE)	20.2	19.2		ug/L		95	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-18615/39
Matrix: Water
Analysis Batch: 18615

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			12/31/24 18:06	1

Lab Sample ID: LCS 885-18615/40
Matrix: Water
Analysis Batch: 18615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.77		mg/L		98	90 - 110

Lab Sample ID: MRL 885-18615/3
Matrix: Water
Analysis Batch: 18615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.533		mg/L		107	50 - 150

Lab Sample ID: MB 885-18684/4
Matrix: Water
Analysis Batch: 18684

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			01/02/25 09:22	1

Lab Sample ID: MB 885-18684/43
Matrix: Water
Analysis Batch: 18684

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			01/02/25 18:17	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-18684/44
Matrix: Water
Analysis Batch: 18684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.73		mg/L		97	90 - 110

Lab Sample ID: LCS 885-18684/5
Matrix: Water
Analysis Batch: 18684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.66		mg/L		97	90 - 110

Lab Sample ID: MRL 885-18684/3
Matrix: Water
Analysis Batch: 18684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.534		mg/L		107	50 - 150

Lab Sample ID: MB 885-18766/4
Matrix: Water
Analysis Batch: 18766

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			01/03/25 09:17	1

Lab Sample ID: LCS 885-18766/5
Matrix: Water
Analysis Batch: 18766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.61		mg/L		96	90 - 110

Lab Sample ID: MRL 885-18766/3
Matrix: Water
Analysis Batch: 18766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.524		mg/L		105	50 - 150

Lab Sample ID: MB 885-18786/4
Matrix: Water
Analysis Batch: 18786

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			01/03/25 12:12	1

Lab Sample ID: LCS 885-18786/5
Matrix: Water
Analysis Batch: 18786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.71		mg/L		97	90 - 110

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MRL 885-18786/3
Matrix: Water
Analysis Batch: 18786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			0.500	0.536		mg/L		107	50 - 150		

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MRL 885-18735/65
Matrix: Water
Analysis Batch: 18735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			0.00200	0.00216		mg/L		108	50 - 150		
Iron			0.0200	0.0178	J	mg/L		89	50 - 150		

Lab Sample ID: 885-17747-6 MS
Matrix: Water
Analysis Batch: 18735

Client Sample ID: MW-6
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese	1.6		2.50	3.84		mg/L		92	70 - 130		
Iron	0.15		2.50	2.53		mg/L		95	70 - 130		

Lab Sample ID: 885-17747-6 MSD
Matrix: Water
Analysis Batch: 18735

Client Sample ID: MW-6
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	1.6		2.50	3.85		mg/L		92	70 - 130	0	20

Lab Sample ID: 885-17747-7 MS
Matrix: Water
Analysis Batch: 18735

Client Sample ID: MW-7
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese	1.1		2.50	3.39		mg/L		93	70 - 130		

Lab Sample ID: 885-17747-7 MSD
Matrix: Water
Analysis Batch: 18735

Client Sample ID: MW-7
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	1.1		2.50	3.46		mg/L		96	70 - 130	2	20

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-18712/1
Matrix: Water
Analysis Batch: 18712

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50		mg/L			01/02/25 10:41	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Method: 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 885-18712/2
Matrix: Water
Analysis Batch: 18712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			1000	982		mg/L		98	80 - 120		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

GC/MS VOA

Analysis Batch: 18817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-1	MW-1	Total/NA	Water	8260B	
885-17747-2	MW-2	Total/NA	Water	8260B	
885-17747-3	MW-3	Total/NA	Water	8260B	
885-17747-4	MW-4	Total/NA	Water	8260B	
885-17747-5	MW-5	Total/NA	Water	8260B	
885-17747-6	MW-6	Total/NA	Water	8260B	
885-17747-7	MW-7	Total/NA	Water	8260B	
MB 885-18817/34	Method Blank	Total/NA	Water	8260B	
LCS 885-18817/33	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 18828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-6	MW-6	Total/NA	Water	8260B	
MB 885-18828/5	Method Blank	Total/NA	Water	8260B	
LCS 885-18828/4	Lab Control Sample	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 18615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-2	MW-2	Total/NA	Water	300.0	
MB 885-18615/39	Method Blank	Total/NA	Water	300.0	
LCS 885-18615/40	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-18615/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 18684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-3	MW-3	Total/NA	Water	300.0	
885-17747-4	MW-4	Total/NA	Water	300.0	
885-17747-5	MW-5	Total/NA	Water	300.0	
885-17747-7	MW-7	Total/NA	Water	300.0	
MB 885-18684/4	Method Blank	Total/NA	Water	300.0	
MB 885-18684/43	Method Blank	Total/NA	Water	300.0	
LCS 885-18684/44	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-18684/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-18684/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 18766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-6	MW-6	Total/NA	Water	300.0	
MB 885-18766/4	Method Blank	Total/NA	Water	300.0	
LCS 885-18766/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-18766/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 18786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-1	MW-1	Total/NA	Water	300.0	
MB 885-18786/4	Method Blank	Total/NA	Water	300.0	
LCS 885-18786/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-18786/3	Lab Control Sample	Total/NA	Water	300.0	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Metals

Filtration Batch: 18654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-1	MW-1	Dissolved	Water	Filtration	
885-17747-2	MW-2	Dissolved	Water	Filtration	
885-17747-3	MW-3	Dissolved	Water	Filtration	
885-17747-4	MW-4	Dissolved	Water	Filtration	
885-17747-5	MW-5	Dissolved	Water	Filtration	
885-17747-6	MW-6	Dissolved	Water	Filtration	
885-17747-7	MW-7	Dissolved	Water	Filtration	
885-17747-6 MS	MW-6	Dissolved	Water	Filtration	
885-17747-6 MSD	MW-6	Dissolved	Water	Filtration	
885-17747-7 MS	MW-7	Dissolved	Water	Filtration	
885-17747-7 MSD	MW-7	Dissolved	Water	Filtration	

Analysis Batch: 18735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-1	MW-1	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-2	MW-2	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-2	MW-2	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-3	MW-3	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-4	MW-4	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-5	MW-5	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-6	MW-6	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-7	MW-7	Dissolved	Water	200.7 Rev 4.4	18654
MRL 885-18735/65	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
885-17747-6 MS	MW-6	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-6 MSD	MW-6	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-7 MS	MW-7	Dissolved	Water	200.7 Rev 4.4	18654
885-17747-7 MSD	MW-7	Dissolved	Water	200.7 Rev 4.4	18654

General Chemistry

Analysis Batch: 18712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17747-1	MW-1	Total/NA	Water	2540C	
885-17747-2	MW-2	Total/NA	Water	2540C	
885-17747-3	MW-3	Total/NA	Water	2540C	
885-17747-4	MW-4	Total/NA	Water	2540C	
885-17747-5	MW-5	Total/NA	Water	2540C	
885-17747-6	MW-6	Total/NA	Water	2540C	
885-17747-7	MW-7	Total/NA	Water	2540C	
MB 885-18712/1	Method Blank	Total/NA	Water	2540C	
LCS 885-18712/2	Lab Control Sample	Total/NA	Water	2540C	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-1
Date Collected: 12/27/24 12:30
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		2	18817	CM	EET ALB	01/04/25 02:56
Total/NA	Analysis	300.0		50	18786	EH	EET ALB	01/03/25 17:46
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		1	18735	VP	EET ALB	01/02/25 12:04
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Client Sample ID: MW-2
Date Collected: 12/27/24 13:00
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		5	18817	CM	EET ALB	01/04/25 03:21
Total/NA	Analysis	300.0		1	18615	RC	EET ALB	01/01/25 02:31
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		10	18735	VP	EET ALB	01/02/25 12:07
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		1	18735	VP	EET ALB	01/02/25 12:14
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Client Sample ID: MW-3
Date Collected: 12/27/24 13:45
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		10	18817	CM	EET ALB	01/04/25 03:46
Total/NA	Analysis	300.0		10	18684	ES	EET ALB	01/02/25 13:17
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		10	18735	VP	EET ALB	01/02/25 12:18
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Client Sample ID: MW-4
Date Collected: 12/27/24 12:00
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	18817	CM	EET ALB	01/04/25 04:10
Total/NA	Analysis	300.0		100	18684	ES	EET ALB	01/02/25 14:25
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		1	18735	VP	EET ALB	01/02/25 12:20
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Client Sample ID: MW-5
Date Collected: 12/27/24 14:30
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	18817	CM	EET ALB	01/04/25 04:35
Total/NA	Analysis	300.0		10	18684	ES	EET ALB	01/02/25 14:39
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		10	18735	VP	EET ALB	01/02/25 12:26
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Client Sample ID: MW-6
Date Collected: 12/27/24 15:20
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	18817	CM	EET ALB	01/04/25 04:59
Total/NA	Analysis	8260B		10	18828	CM	EET ALB	01/06/25 12:03
Total/NA	Analysis	300.0		1	18766	ES	EET ALB	01/03/25 17:05
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		5	18735	VP	EET ALB	01/02/25 12:28
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Client Sample ID: MW-7
Date Collected: 12/27/24 16:10
Date Received: 12/31/24 07:35

Lab Sample ID: 885-17747-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	18817	CM	EET ALB	01/04/25 05:24
Total/NA	Analysis	300.0		100	18684	ES	EET ALB	01/02/25 15:47
Dissolved	Filtration	Filtration			18654	SM	EET ALB	12/31/24 14:11
Dissolved	Analysis	200.7 Rev 4.4		5	18735	VP	EET ALB	01/02/25 12:51
Total/NA	Analysis	2540C		1	18712	ES	EET ALB	01/02/25 10:41

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-17747-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4		Water	Iron
200.7 Rev 4.4		Water	Manganese
2540C		Water	Total Dissolved Solids
300.0		Water	Sulfate
8260B		Water	Benzene
8260B		Water	Ethylbenzene
8260B		Water	Methyl-tert-butyl Ether (MTBE)
8260B		Water	Tetrachloroethene (PCE)
8260B		Water	Toluene
8260B		Water	Trichloroethene (TCE)
8260B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

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:

Mangum 1

Project #:

Project Manager:

Mitch Killough

Sampler: Brandon Sinclair

On Ice: ~~☐~~ Yes ☐ No

# of Coolers: 1 yoga

Cooler Temp(including CF): 0.2-0.2=0

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

885-17747 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	Dissolved Mn	BTEX 8260	Sulfate / TDS	Dissolved Fe
12-27	1230	Water	MW-1	(3) 40ml VOA (1) Liter Plastic	HCl Cool	1	X	X	X	
	1300	Water	MW-2	(3) 40ml VOA (1) Liter Plastic	HCl Cool	2	X	X	X	X
	1345	Water	MW-3	(3) 40ml VOA (1) Liter Plastic	HCl Cool	3	X	X	X	
	1200	Water	MW-4	(3) 40ml VOA (1) Liter Plastic	HCl Cool	4	X	X	X	
	1430	Water	MW-5	(3) 40ml VOA (1) Liter Plastic	HCl Cool	5	X	X	X	
	1520	Water	MW-6	(3) 40ml VOA (1) Liter Plastic	HCl Cool	6	X	X	X	
	1610	Water	MW-7	(3) 40ml VOA (1) Liter Plastic	HCl Cool	7	X	X	X	

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12/30/24	1540				12/30/24	1540
12/30/24	1741			courier	12/31/24	7:35

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

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-17747-1

Login Number: 17747 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kate Kaufman
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 7/2/2025 11:38:54 AM

JOB DESCRIPTION

Mangum 1

JOB NUMBER

885-27282-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
7/2/2025 11:38:54 AM

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Mangum 1

Laboratory Job ID: 885-27282-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Mangum 1

Job ID: 885-27282-1

Job ID: 885-27282-1 Eurofins Albuquerque

Job Narrative
885-27282-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/21/2025 6:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.7°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-1

Date Collected: 06/19/25 10:25
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-1

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/28/25 00:06	1
Ethylbenzene	ND		1.0		ug/L			06/28/25 00:06	1
Toluene	ND		1.0		ug/L			06/28/25 00:06	1
Xylenes, Total	ND		1.5		ug/L			06/28/25 00:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*06/28/25 00:06*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*06/28/25 00:06*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*06/28/25 00:06*	*1*
Toluene-d8 (Surr)	*88*		*70 - 130*		*06/28/25 00:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**990**		5.0		mg/L			06/24/25 11:32	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.33**		0.0020		mg/L			06/23/25 10:26	1
Iron	ND		0.020		mg/L			06/23/25 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2300**		100		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-2

Date Collected: 06/19/25 11:00
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-2

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/28/25 01:31	1
Ethylbenzene	ND		1.0		ug/L			06/28/25 01:31	1
Toluene	ND		1.0		ug/L			06/28/25 01:31	1
Xylenes, Total	ND		1.5		ug/L			06/28/25 01:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*06/28/25 01:31*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*06/28/25 01:31*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/28/25 01:31*	*1*
Toluene-d8 (Surr)	*83*		*70 - 130*		*06/28/25 01:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**270**		5.0		mg/L			06/24/25 11:53	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.18**		0.020		mg/L			06/23/25 10:29	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1800**		100		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-3

Date Collected: 06/19/25 11:45
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-3

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.3**		1.0		ug/L			06/29/25 19:10	1
Ethylbenzene	**12**		1.0		ug/L			06/29/25 19:10	1
Toluene	ND		1.0		ug/L			06/29/25 19:10	1
Xylenes, Total	**5.5**		1.5		ug/L			06/29/25 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*06/29/25 19:10*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*06/29/25 19:10*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*06/29/25 19:10*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*06/29/25 19:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**800**		5.0		mg/L			06/24/25 12:13	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**5.0**		0.020		mg/L			06/23/25 11:15	10
Iron	**0.020**		0.020		mg/L			06/23/25 10:31	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3700**		250		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-4

Date Collected: 06/19/25 09:30
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-4

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/28/25 04:21	1
Ethylbenzene	ND		1.0		ug/L			06/28/25 04:21	1
Toluene	ND		1.0		ug/L			06/28/25 04:21	1
Xylenes, Total	**9.0**		1.5		ug/L			06/28/25 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*		*06/28/25 04:21*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*06/28/25 04:21*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*06/28/25 04:21*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*06/28/25 04:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1000**		5.0		mg/L			06/24/25 12:34	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.32**		0.0020		mg/L			06/23/25 10:32	1
Iron	ND		0.020		mg/L			06/23/25 10:32	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2100**		100		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-5

Date Collected: 06/19/25 13:00
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-5

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/28/25 04:49	1
Ethylbenzene	**4.9**		1.0		ug/L			06/28/25 04:49	1
Toluene	ND		1.0		ug/L			06/28/25 04:49	1
Xylenes, Total	**37**		1.5		ug/L			06/28/25 04:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*06/28/25 04:49*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*06/28/25 04:49*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*06/28/25 04:49*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*06/28/25 04:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1100**		5.0		mg/L			06/24/25 13:15	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.7**		0.020		mg/L			06/23/25 11:17	10
Iron	**0.74**		0.020		mg/L			06/23/25 10:35	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3600**		250		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-6

Date Collected: 06/19/25 14:00
Date Received: 06/21/25 06:20

Lab Sample ID: 885-27282-6

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**49**		1.0		ug/L			06/28/25 05:18	1
Ethylbenzene	**73**		1.0		ug/L			06/28/25 05:18	1
Toluene	**7.0**		1.0		ug/L			06/28/25 05:18	1
Xylenes, Total	**760**		15		ug/L			06/29/25 19:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*06/28/25 05:18*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*06/28/25 05:18*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/28/25 05:18*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*06/28/25 05:18*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*06/29/25 19:39*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			06/26/25 21:11	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.6**		0.020		mg/L			06/23/25 10:39	10
Iron	**0.18**		0.020		mg/L			06/23/25 10:37	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1200**		250		mg/L			06/26/25 15:26	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-7

Lab Sample ID: 885-27282-7

Date Collected: 06/19/25 15:20

Matrix: Water

Date Received: 06/21/25 06:20

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/28/25 05:46	1
Ethylbenzene	ND		1.0		ug/L			06/28/25 05:46	1
Toluene	ND		1.0		ug/L			06/28/25 05:46	1
Xylenes, Total	ND		1.5		ug/L			06/29/25 20:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*06/28/25 05:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*06/28/25 05:46*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*06/28/25 05:46*	*1*
Toluene-d8 (Surr)	*90*		*70 - 130*		*06/28/25 05:46*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*06/29/25 20:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1000**		5.0		mg/L			06/24/25 13:57	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.6**		0.020		mg/L			06/23/25 11:19	10
Iron	ND		0.020		mg/L			06/23/25 10:46	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3000**		100		mg/L			06/26/25 15:26	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-29214/4
Matrix: Water
Analysis Batch: 29214

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/27/25 15:08	1
Ethylbenzene	ND		1.0		ug/L			06/27/25 15:08	1
Toluene	ND		1.0		ug/L			06/27/25 15:08	1
Xylenes, Total	ND		1.5		ug/L			06/27/25 15:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*06/27/25 15:08*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*06/27/25 15:08*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/27/25 15:08*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*06/27/25 15:08*	*1*

Lab Sample ID: LCS 885-29214/3
Matrix: Water
Analysis Batch: 29214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	22.1		ug/L		111	70 - 130		
Toluene			20.0	18.6		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*

Lab Sample ID: 885-27282-1 MS
Matrix: Water
Analysis Batch: 29214

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		20.0	22.3		ug/L		112	70 - 130		
Toluene	ND		20.0	18.4		ug/L		92	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*

Lab Sample ID: 885-27282-1 MSD
Matrix: Water
Analysis Batch: 29214

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	21.4		ug/L		107	70 - 130	4	20
Toluene	ND		20.0	17.3		ug/L		86	70 - 130	6	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 885-27282-1 MSD
Matrix: Water
Analysis Batch: 29214

Client Sample ID: MW-1
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
Toluene-d8 (Surr)	*87*		*70 - 130*

Lab Sample ID: MB 885-29232/4
Matrix: Water
Analysis Batch: 29232

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			06/29/25 18:13	1
Ethylbenzene	ND		1.0		ug/L			06/29/25 18:13	1
Toluene	ND		1.0		ug/L			06/29/25 18:13	1
Xylenes, Total	ND		1.5		ug/L			06/29/25 18:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*06/29/25 18:13*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*06/29/25 18:13*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*06/29/25 18:13*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*06/29/25 18:13*	*1*

Lab Sample ID: LCS 885-29232/3
Matrix: Water
Analysis Batch: 29232

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	18.6		ug/L		93	70 - 130		
Toluene			20.0	17.6		ug/L		88	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-28862/4
Matrix: Water
Analysis Batch: 28862

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			06/24/25 09:28	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-28862/5
Matrix: Water
Analysis Batch: 28862

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.40		mg/L		94	90 - 110

Lab Sample ID: MRL 885-28862/3
Matrix: Water
Analysis Batch: 28862

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.506		mg/L		101	50 - 150

Lab Sample ID: MB 885-28982/4
Matrix: Water
Analysis Batch: 28982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			06/26/25 08:28	1

Lab Sample ID: MB 885-28982/58
Matrix: Water
Analysis Batch: 28982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			06/26/25 20:18	1

Lab Sample ID: LCS 885-28982/5
Matrix: Water
Analysis Batch: 28982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: LCS 885-28982/59
Matrix: Water
Analysis Batch: 28982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: MRL 885-28982/3
Matrix: Water
Analysis Batch: 28982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	0.500	0.518		mg/L		104	50 - 150

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 885-28822/12
Matrix: Water
Analysis Batch: 28822

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.0020		mg/L			06/23/25 10:21	1
Iron	ND		0.020		mg/L			06/23/25 10:21	1

Lab Sample ID: LCS 885-28822/13
Matrix: Water
Analysis Batch: 28822

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			0.500	0.487		mg/L		97	85 - 115		
Iron			0.500	0.478		mg/L		96	85 - 115		

Lab Sample ID: MRL 885-28822/9
Matrix: Water
Analysis Batch: 28822

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			0.00200	0.00205		mg/L		102	50 - 150		
Iron			0.0200	0.0189	J	mg/L		94	50 - 150		

Lab Sample ID: MB 885-28786/8-A
Matrix: Water
Analysis Batch: 28822

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.0020		mg/L			06/23/25 10:25	1
Iron	ND		0.020		mg/L			06/23/25 10:25	1

Lab Sample ID: 885-27282-7 MS
Matrix: Water
Analysis Batch: 28822

Client Sample ID: MW-7
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Iron	ND		0.500	0.456		mg/L		91	70 - 130		

Lab Sample ID: 885-27282-7 MSD
Matrix: Water
Analysis Batch: 28822

Client Sample ID: MW-7
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	ND		0.500	0.473		mg/L		95	70 - 130	4	20

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-29098/1
Matrix: Water
Analysis Batch: 29098

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50		mg/L			06/26/25 15:26	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Method: 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 885-29098/2
Matrix: Water
Analysis Batch: 29098

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			1000	981		mg/L		98	80 - 120		

Lab Sample ID: 885-27282-1 DU
Matrix: Water
Analysis Batch: 29098

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2300			2270		mg/L				2	10

QC Association Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

GC/MS VOA

Analysis Batch: 29214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-1	MW-1	Total/NA	Water	8260B	
885-27282-2	MW-2	Total/NA	Water	8260B	
885-27282-4	MW-4	Total/NA	Water	8260B	
885-27282-5	MW-5	Total/NA	Water	8260B	
885-27282-6	MW-6	Total/NA	Water	8260B	
885-27282-7	MW-7	Total/NA	Water	8260B	
MB 885-29214/4	Method Blank	Total/NA	Water	8260B	
LCS 885-29214/3	Lab Control Sample	Total/NA	Water	8260B	
885-27282-1 MS	MW-1	Total/NA	Water	8260B	
885-27282-1 MSD	MW-1	Total/NA	Water	8260B	

Analysis Batch: 29232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-3	MW-3	Total/NA	Water	8260B	
885-27282-6	MW-6	Total/NA	Water	8260B	
885-27282-7	MW-7	Total/NA	Water	8260B	
MB 885-29232/4	Method Blank	Total/NA	Water	8260B	
LCS 885-29232/3	Lab Control Sample	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 28862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-1	MW-1	Total/NA	Water	300.0	
885-27282-2	MW-2	Total/NA	Water	300.0	
885-27282-3	MW-3	Total/NA	Water	300.0	
885-27282-4	MW-4	Total/NA	Water	300.0	
885-27282-5	MW-5	Total/NA	Water	300.0	
885-27282-7	MW-7	Total/NA	Water	300.0	
MB 885-28862/4	Method Blank	Total/NA	Water	300.0	
LCS 885-28862/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-28862/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 28982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-6	MW-6	Total/NA	Water	300.0	
MB 885-28982/4	Method Blank	Total/NA	Water	300.0	
MB 885-28982/58	Method Blank	Total/NA	Water	300.0	
LCS 885-28982/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-28982/59	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-28982/3	Lab Control Sample	Total/NA	Water	300.0	

Metals

Filtration Batch: 28786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-1	MW-1	Dissolved	Water	Filtration	
885-27282-2	MW-2	Dissolved	Water	Filtration	
885-27282-3	MW-3	Dissolved	Water	Filtration	
885-27282-4	MW-4	Dissolved	Water	Filtration	
885-27282-5	MW-5	Dissolved	Water	Filtration	
885-27282-6	MW-6	Dissolved	Water	Filtration	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Metals (Continued)

Filtration Batch: 28786 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-7	MW-7	Dissolved	Water	Filtration	
MB 885-28786/8-A	Method Blank	Dissolved	Water	Filtration	
885-27282-7 MS	MW-7	Dissolved	Water	Filtration	
885-27282-7 MSD	MW-7	Dissolved	Water	Filtration	

Analysis Batch: 28822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-1	MW-1	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-2	MW-2	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-3	MW-3	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-3	MW-3	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-4	MW-4	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-5	MW-5	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-5	MW-5	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-6	MW-6	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-6	MW-6	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-7	MW-7	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-7	MW-7	Dissolved	Water	200.7 Rev 4.4	28786
MB 885-28786/8-A	Method Blank	Dissolved	Water	200.7 Rev 4.4	28786
MB 885-28822/12	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 885-28822/13	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
MRL 885-28822/9	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
885-27282-7 MS	MW-7	Dissolved	Water	200.7 Rev 4.4	28786
885-27282-7 MSD	MW-7	Dissolved	Water	200.7 Rev 4.4	28786

General Chemistry

Analysis Batch: 29098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-27282-1	MW-1	Total/NA	Water	2540C	
885-27282-2	MW-2	Total/NA	Water	2540C	
885-27282-3	MW-3	Total/NA	Water	2540C	
885-27282-4	MW-4	Total/NA	Water	2540C	
885-27282-5	MW-5	Total/NA	Water	2540C	
885-27282-6	MW-6	Total/NA	Water	2540C	
885-27282-7	MW-7	Total/NA	Water	2540C	
MB 885-29098/1	Method Blank	Total/NA	Water	2540C	
LCS 885-29098/2	Lab Control Sample	Total/NA	Water	2540C	
885-27282-1 DU	MW-1	Total/NA	Water	2540C	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-1

Lab Sample ID: 885-27282-1
Matrix: Water
Date Collected: 06/19/25 10:25
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 00:06
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 11:32
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:26
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Client Sample ID: MW-2

Lab Sample ID: 885-27282-2
Matrix: Water
Date Collected: 06/19/25 11:00
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 01:31
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 11:53
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:29
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Client Sample ID: MW-3

Lab Sample ID: 885-27282-3
Matrix: Water
Date Collected: 06/19/25 11:45
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29232	RA	EET ALB	06/29/25 19:10
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 12:13
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:31
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		10	28822	VP	EET ALB	06/23/25 11:15
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Client Sample ID: MW-4

Lab Sample ID: 885-27282-4
Matrix: Water
Date Collected: 06/19/25 09:30
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 04:21
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 12:34
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:32
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Client Sample ID: MW-5

Lab Sample ID: 885-27282-5

Date Collected: 06/19/25 13:00
Matrix: Water
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 04:49
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 13:15
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:35
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		10	28822	VP	EET ALB	06/23/25 11:17
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Client Sample ID: MW-6

Lab Sample ID: 885-27282-6

Date Collected: 06/19/25 14:00
Matrix: Water
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 05:18
Total/NA	Analysis	8260B		10	29232	RA	EET ALB	06/29/25 19:39
Total/NA	Analysis	300.0		1	28982	ES	EET ALB	06/26/25 21:11
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:37
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		10	28822	VP	EET ALB	06/23/25 10:39
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Client Sample ID: MW-7

Lab Sample ID: 885-27282-7

Date Collected: 06/19/25 15:20
Matrix: Water
Date Received: 06/21/25 06:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	29214	RA	EET ALB	06/28/25 05:46
Total/NA	Analysis	8260B		1	29232	RA	EET ALB	06/29/25 20:07
Total/NA	Analysis	300.0		10	28862	JT	EET ALB	06/24/25 13:57
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		1	28822	VP	EET ALB	06/23/25 10:46
Dissolved	Filtration	Filtration			28786	TC	EET ALB	06/22/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		10	28822	VP	EET ALB	06/23/25 11:19
Total/NA	Analysis	2540C		1	29098	HR	EET ALB	06/26/25 15:26

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-27282-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-27-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.7 Rev 4.4		Water	Iron
200.7 Rev 4.4		Water	Manganese
2540C		Water	Total Dissolved Solids
300.0		Water	Sulfate
8260B		Water	Benzene
8260B		Water	Ethylbenzene
8260B		Water	Toluene
8260B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-26-26

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:

Mangum 1

Project #:

Project Manager:

Kate Kaufman

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No mgo

# of Coolers: 1

Cooler Temp(including CF): 5.5 +0.2 = 5.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

885-27282 COC

7/2/2025

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	Dissolved Mn	BTEX 8260B	Sulfate / TDS	Dissolved Fe
6-19	1025	Water	MW-1	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
	1100	Water	MW-2	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	X
	1145	Water	MW-3	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
	930	Water	MW-4	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
	1300	Water	MW-5	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
	1409	Water	MW-6	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
	1520	Water	MW-7	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/20/25	1534				6/20/25	1534
6/20/25	1720			Courier	6/21/25	0:20

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

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-27282-1

Login Number: 27282 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample compositing requested.
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kate Kaufman
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 10/13/2025 5:17:48 PM

JOB DESCRIPTION

Mangum 1

JOB NUMBER

885-34253-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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10/13/2025 5:17:48 PM

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Mangum 1

Laboratory Job ID: 885-34253-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Job ID: 885-34253-1
Project/Site: Mangum 1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Mangum 1

Job ID: 885-34253-1

Job ID: 885-34253-1 Eurofins Albuquerque

Job Narrative
885-34253-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt
The samples were received on 9/26/2025 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_SingleDry: The analysis volume selected for the following samples produced a base result greater than 200mg before calculation of the final result: MW-3 (885-34253-3) and MW-5 (885-34253-5). Reanalysis could not be performed due to, holding time exceedance. Visual inspection by analyst shows no signs of trapped moisture, report as is. The reference method specifies that no more than 200mg of weight be recovered for a chosen sample analysis volume in order to produce the best data precision. As such, these data have been qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-1

Date Collected: 09/25/25 10:55
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-1

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 20:06	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 20:06	1
Toluene	ND		1.0		ug/L			10/03/25 20:06	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*10/03/25 20:06*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*10/03/25 20:06*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*10/03/25 20:06*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*10/03/25 20:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1400**		5.0		mg/L			09/30/25 10:03	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.69**		0.0020		mg/L			09/30/25 09:57	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3200**		100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-2

Date Collected: 09/25/25 11:35
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-2

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 21:21	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 21:21	1
Toluene	ND		1.0		ug/L			10/03/25 21:21	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*10/03/25 21:21*	*1*
4-Bromofluorobenzene (Surr)	*121*		*70 - 130*		*10/03/25 21:21*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*10/03/25 21:21*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*10/03/25 21:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**240**		5.0		mg/L			09/30/25 10:30	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.4**		0.020		mg/L			09/30/25 10:03	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1900**		100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-3

Date Collected: 09/25/25 12:10
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-3

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 21:45	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 21:45	1
Toluene	ND		1.0		ug/L			10/03/25 21:45	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 21:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*10/03/25 21:45*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*10/03/25 21:45*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*10/03/25 21:45*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*10/03/25 21:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1900**		5.0		mg/L			09/30/25 10:57	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**5.3**		0.020		mg/L			09/30/25 10:10	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**5600**	**E**	100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-4

Date Collected: 09/25/25 10:15
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-4

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 22:10	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 22:10	1
Toluene	ND		1.0		ug/L			10/03/25 22:10	1
Xylenes, Total	**41**		1.5		ug/L			10/03/25 22:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*10/03/25 22:10*	*1*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*10/03/25 22:10*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*10/03/25 22:10*	*1*
Toluene-d8 (Surr)	*113*		*70 - 130*		*10/03/25 22:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**950**		5.0		mg/L			09/30/25 11:52	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.35**		0.0020		mg/L			09/30/25 10:12	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2200**		100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-5

Date Collected: 09/25/25 12:55
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-5

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 22:35	1
Ethylbenzene	**1.0**		1.0		ug/L			10/03/25 22:35	1
Toluene	ND		1.0		ug/L			10/03/25 22:35	1
Xylenes, Total	**1.9**		1.5		ug/L			10/03/25 22:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*10/03/25 22:35*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*10/03/25 22:35*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*10/03/25 22:35*	*1*
Toluene-d8 (Surr)	*108*		*70 - 130*		*10/03/25 22:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1600**		5.0		mg/L			09/30/25 12:19	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**2.5**		0.020		mg/L			09/30/25 10:17	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4200**	**E**	100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-6

Date Collected: 09/25/25 13:40
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-6

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**11**		1.0		ug/L			10/03/25 23:49	1
Ethylbenzene	**6.0**		1.0		ug/L			10/03/25 23:49	1
Toluene	ND		1.0		ug/L			10/03/25 23:49	1
Xylenes, Total	**340**		15		ug/L			10/03/25 23:25	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*10/03/25 23:25*	*10*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*10/03/25 23:49*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*10/03/25 23:25*	*10*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*10/03/25 23:49*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*10/03/25 23:25*	*10*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*10/03/25 23:49*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*10/03/25 23:25*	*10*
Toluene-d8 (Surr)	*116*		*70 - 130*		*10/03/25 23:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			09/30/25 12:46	1

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.4**		0.020		mg/L			09/30/25 10:20	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1300**		100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-7

Date Collected: 09/25/25 14:20
Date Received: 09/26/25 08:00

Lab Sample ID: 885-34253-7

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 23:00	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 23:00	1
Toluene	ND		1.0		ug/L			10/03/25 23:00	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*10/03/25 23:00*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*10/03/25 23:00*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*10/03/25 23:00*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*10/03/25 23:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**980**		5.0		mg/L			09/30/25 13:14	10

Method: SW846 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.91**		0.0020		mg/L			09/30/25 10:24	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3100**		100		mg/L			10/02/25 09:43	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: Trip Blank

Lab Sample ID: 885-34253-8

Date Collected: 09/25/25 00:00
Matrix: Water
Date Received: 09/26/25 08:00

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 19:41	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 19:41	1
Toluene	ND		1.0		ug/L			10/03/25 19:41	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*10/03/25 19:41*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*10/03/25 19:41*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*10/03/25 19:41*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*10/03/25 19:41*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-36091/5
Matrix: Water
Analysis Batch: 36091

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			10/03/25 15:09	1
Ethylbenzene	ND		1.0		ug/L			10/03/25 15:09	1
Toluene	ND		1.0		ug/L			10/03/25 15:09	1
Xylenes, Total	ND		1.5		ug/L			10/03/25 15:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*10/03/25 15:09*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*10/03/25 15:09*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*10/03/25 15:09*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*10/03/25 15:09*	*1*

Lab Sample ID: LCS 885-36091/3
Matrix: Water
Analysis Batch: 36091

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	19.5		ug/L		98	70 - 130		
Ethylbenzene			20.0	19.7		ug/L		99	70 - 130		
m&p-Xylene			40.0	39.7		ug/L		99	70 - 130		
o-Xylene			20.0	18.5		ug/L		93	70 - 130		
Toluene			20.0	19.8		ug/L		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*101*		*70 - 130*
Toluene-d8 (Surr)	*100*		*70 - 130*

Lab Sample ID: 885-34253-1 MS
Matrix: Water
Analysis Batch: 36091

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		20.0	20.2		ug/L		101	70 - 130		
Toluene	ND		20.0	20.0		ug/L		100	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
Dibromofluoromethane (Surr)	*101*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: 885-34253-1 MSD
Matrix: Water
Analysis Batch: 36091

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	20.0		ug/L		100	70 - 130	1	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 885-34253-1 MSD
Matrix: Water
Analysis Batch: 36091

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	ND		20.0	21.1		ug/L		105	70 - 130	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-35673/4
Matrix: Water
Analysis Batch: 35673

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			09/30/25 08:50	1

Lab Sample ID: MB 885-35673/66
Matrix: Water
Analysis Batch: 35673

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			09/30/25 23:42	1

Lab Sample ID: LCS 885-35673/5
Matrix: Water
Analysis Batch: 35673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			10.0	9.68		mg/L		97	90 - 110		

Lab Sample ID: LCS 885-35673/67
Matrix: Water
Analysis Batch: 35673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			10.0	9.77		mg/L		98	90 - 110		

Lab Sample ID: MRL 885-35673/3
Matrix: Water
Analysis Batch: 35673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			0.500	0.517		mg/L		103	50 - 150		

QC Sample Results

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 885-35718/22
Matrix: Water
Analysis Batch: 35718

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.0020		mg/L			09/30/25 09:37	1

Lab Sample ID: LCS 885-35718/23
Matrix: Water
Analysis Batch: 35718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			0.500	0.498		mg/L		100	80 - 120		

Lab Sample ID: MRL 885-35718/13
Matrix: Water
Analysis Batch: 35718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			0.00200	0.00217	J	mg/L		109	50 - 150		

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-35889/1
Matrix: Water
Analysis Batch: 35889

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50		mg/L			10/02/25 09:43	1

Lab Sample ID: LCS 885-35889/2
Matrix: Water
Analysis Batch: 35889

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			1000	1000		mg/L		100	80 - 120		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

GC/MS VOA

Analysis Batch: 36091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-34253-1	MW-1	Total/NA	Water	8260B	
885-34253-2	MW-2	Total/NA	Water	8260B	
885-34253-3	MW-3	Total/NA	Water	8260B	
885-34253-4	MW-4	Total/NA	Water	8260B	
885-34253-5	MW-5	Total/NA	Water	8260B	
885-34253-6	MW-6	Total/NA	Water	8260B	
885-34253-6	MW-6	Total/NA	Water	8260B	
885-34253-7	MW-7	Total/NA	Water	8260B	
885-34253-8	Trip Blank	Total/NA	Water	8260B	
MB 885-36091/5	Method Blank	Total/NA	Water	8260B	
LCS 885-36091/3	Lab Control Sample	Total/NA	Water	8260B	
885-34253-1 MS	MW-1	Total/NA	Water	8260B	
885-34253-1 MSD	MW-1	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 35673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-34253-1	MW-1	Total/NA	Water	300.0	
885-34253-2	MW-2	Total/NA	Water	300.0	
885-34253-3	MW-3	Total/NA	Water	300.0	
885-34253-4	MW-4	Total/NA	Water	300.0	
885-34253-5	MW-5	Total/NA	Water	300.0	
885-34253-6	MW-6	Total/NA	Water	300.0	
885-34253-7	MW-7	Total/NA	Water	300.0	
MB 885-35673/4	Method Blank	Total/NA	Water	300.0	
MB 885-35673/66	Method Blank	Total/NA	Water	300.0	
LCS 885-35673/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-35673/67	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-35673/3	Lab Control Sample	Total/NA	Water	300.0	

Metals

Analysis Batch: 35718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-34253-1	MW-1	Dissolved	Water	6010B	
885-34253-2	MW-2	Dissolved	Water	6010B	
885-34253-3	MW-3	Dissolved	Water	6010B	
885-34253-4	MW-4	Dissolved	Water	6010B	
885-34253-5	MW-5	Dissolved	Water	6010B	
885-34253-6	MW-6	Dissolved	Water	6010B	
885-34253-7	MW-7	Dissolved	Water	6010B	
MB 885-35718/22	Method Blank	Total/NA	Water	6010B	
LCS 885-35718/23	Lab Control Sample	Total/NA	Water	6010B	
MRL 885-35718/13	Lab Control Sample	Total/NA	Water	6010B	

General Chemistry

Analysis Batch: 35889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-34253-1	MW-1	Total/NA	Water	2540C	
885-34253-2	MW-2	Total/NA	Water	2540C	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

General Chemistry (Continued)

Analysis Batch: 35889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-34253-3	MW-3	Total/NA	Water	2540C	
885-34253-4	MW-4	Total/NA	Water	2540C	
885-34253-5	MW-5	Total/NA	Water	2540C	
885-34253-6	MW-6	Total/NA	Water	2540C	
885-34253-7	MW-7	Total/NA	Water	2540C	
MB 885-35889/1	Method Blank	Total/NA	Water	2540C	
LCS 885-35889/2	Lab Control Sample	Total/NA	Water	2540C	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-1
Lab Sample ID: 885-34253-1

Date Collected: 09/25/25 10:55
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 20:06
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 10:03
Dissolved	Analysis	6010B		1	35718	VP	EET ALB	09/30/25 09:57
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: MW-2
Lab Sample ID: 885-34253-2

Date Collected: 09/25/25 11:35
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 21:21
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 10:30
Dissolved	Analysis	6010B		10	35718	VP	EET ALB	09/30/25 10:03
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: MW-3
Lab Sample ID: 885-34253-3

Date Collected: 09/25/25 12:10
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 21:45
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 10:57
Dissolved	Analysis	6010B		10	35718	VP	EET ALB	09/30/25 10:10
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: MW-4
Lab Sample ID: 885-34253-4

Date Collected: 09/25/25 10:15
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 22:10
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 11:52
Dissolved	Analysis	6010B		1	35718	VP	EET ALB	09/30/25 10:12
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: MW-5
Lab Sample ID: 885-34253-5

Date Collected: 09/25/25 12:55
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 22:35
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 12:19
Dissolved	Analysis	6010B		10	35718	VP	EET ALB	09/30/25 10:17
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Client Sample ID: MW-6
Lab Sample ID: 885-34253-6

Date Collected: 09/25/25 13:40
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		10	36091	CM	EET ALB	10/03/25 23:25
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 23:49
Total/NA	Analysis	300.0		1	35673	RC	EET ALB	09/30/25 12:46
Dissolved	Analysis	6010B		10	35718	VP	EET ALB	09/30/25 10:20
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: MW-7
Lab Sample ID: 885-34253-7

Date Collected: 09/25/25 14:20
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 23:00
Total/NA	Analysis	300.0		10	35673	RC	EET ALB	09/30/25 13:14
Dissolved	Analysis	6010B		1	35718	VP	EET ALB	09/30/25 10:24
Total/NA	Analysis	2540C		1	35889	HR	EET ALB	10/02/25 09:43

Client Sample ID: Trip Blank
Lab Sample ID: 885-34253-8

Date Collected: 09/25/25 00:00
Matrix: Water
Date Received: 09/26/25 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	36091	CM	EET ALB	10/03/25 19:41

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Mangum 1

Job ID: 885-34253-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-27-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540C		Water	Total Dissolved Solids
300.0		Water	Sulfate
6010B		Water	Manganese
8260B		Water	Benzene
8260B		Water	Ethylbenzene
8260B		Water	Toluene
8260B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-26-26

Chain-of-Custody Record

Client: Hilcorp - 4 Corners
Attn: Kate Kaufman
Mailing Address:
Phone #:
email or Fax#: kkaufman@hilcorp.com
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Mangum 1
Project #:
Project Manager: Stuart Hyde
Sampler: Aaron Lamerson
On Ice: ☒ Yes ☐ No
# of Coolers: 1 (ambient)
Cooler Temp (including CF): 2.1+0.2 = 2.3°C

eurofins | Environment
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107

885-34253 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 8011)	PAHs by 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA) BTEX	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Dissolved Manganese / Sulfate	TDS				
9/25/25	1055	Water	MW-1										X	X			X	X				
	1135	Water	MW-2										X	X			X	X				
	1210	Water	MW-3										X	X			X	X				
	1015	Water	MW-4										X	X			X	X				
	1255	Water	MW-5										X	X			X	X				
	1340	Water	MW-6										X	X			X	X				
↓	1420	Water	MW-7										X	X			X	X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/25/25	1600			Courier	9.26.25	8:00
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:
cc: shyde@ensolum.com

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-34253-1

Login Number: 34253 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 1/14/2026 2:43:40 PM

JOB DESCRIPTION

Magnum 1

JOB NUMBER

885-40561-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
1/14/2026 2:43:40 PM

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Magnum 1

Laboratory Job ID: 885-40561-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Magnum 1

Job ID: 885-40561-1

Job ID: 885-40561-1 Eurofins Albuquerque

Job Narrative
885-40561-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt
The samples were received on 12/31/2025 4:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.1°C.

Receipt Exceptions
Times on COC do not match times on labels. Attempted to call client on 1/2/26 but no response. Will go with times on COC unless client states otherwise.

MW-1 (885-40561-1), MW-2 (885-40561-2), MW-3 (885-40561-3), MW-4 (885-40561-4), MW-5 (885-40561-5), MW-6 (885-40561-6) and MW-7 (885-40561-7)

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_SingleDry: The following samples were prepared outside of preparation holding time due to samples being swapped with -1 day bottles : MW-6 (885-40561-6) and MW-7 (885-40561-7).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-1

Date Collected: 12/30/25 11:15
Date Received: 12/31/25 16:00

Lab Sample ID: 885-40561-1

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/02/26 15:49	1
Ethylbenzene	ND		1.0		ug/L			01/02/26 15:49	1
Toluene	ND		1.0		ug/L			01/02/26 15:49	1
Xylenes, Total	ND		1.5		ug/L			01/02/26 15:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*01/02/26 15:49*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*01/02/26 15:49*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*01/02/26 15:49*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*01/02/26 15:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1300**		5.0		mg/L			01/02/26 12:53	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.46**		0.020		mg/L		01/06/26 10:30	01/06/26 17:24	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1300**		50		mg/L			01/06/26 11:00	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-2

Lab Sample ID: 885-40561-2

Date Collected: 12/30/25 11:55
Matrix: Water
Date Received: 12/31/25 16:00

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**9.4**		1.0		ug/L			01/02/26 16:14	1
Ethylbenzene	**3.8**		1.0		ug/L			01/02/26 16:14	1
Toluene	ND		1.0		ug/L			01/02/26 16:14	1
Xylenes, Total	ND		1.5		ug/L			01/02/26 16:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*01/02/26 16:14*	*1*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*		*01/02/26 16:14*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*01/02/26 16:14*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/02/26 16:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**78**		0.50		mg/L			01/02/26 13:21	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		01/06/26 10:30	01/06/26 17:26	1
Manganese	**1.2**		0.020		mg/L		01/06/26 10:30	01/06/26 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**790**		50		mg/L			01/06/26 11:00	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-3

Lab Sample ID: 885-40561-3

Date Collected: 12/30/25 12:30
Matrix: Water
Date Received: 12/31/25 16:00

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**18**		1.0		ug/L			01/02/26 16:39	1
Ethylbenzene	**3.5**		1.0		ug/L			01/02/26 16:39	1
Toluene	ND		1.0		ug/L			01/02/26 16:39	1
Xylenes, Total	**6.5**		1.5		ug/L			01/02/26 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*01/02/26 16:39*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/02/26 16:39*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*01/02/26 16:39*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*01/02/26 16:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**380**		5.0		mg/L			01/02/26 14:18	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.6**		0.020		mg/L		01/06/26 10:30	01/06/26 17:27	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1800**		50		mg/L			01/06/26 11:00	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-4

Date Collected: 12/30/25 10:30
Date Received: 12/31/25 16:00

Lab Sample ID: 885-40561-4

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/02/26 17:04	1
Ethylbenzene	ND		1.0		ug/L			01/02/26 17:04	1
Toluene	ND		1.0		ug/L			01/02/26 17:04	1
Xylenes, Total	**28**		1.5		ug/L			01/02/26 17:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*01/02/26 17:04*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*01/02/26 17:04*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*01/02/26 17:04*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*		*01/02/26 17:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1100**		5.0		mg/L			01/02/26 14:46	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.34**		0.020		mg/L		01/06/26 10:30	01/06/26 17:29	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1200**		50		mg/L			01/06/26 11:00	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-5

Lab Sample ID: 885-40561-5

Date Collected: 12/30/25 13:15
Matrix: Water
Date Received: 12/31/25 16:00

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/02/26 17:29	1
Ethylbenzene	ND		1.0		ug/L			01/02/26 17:29	1
Toluene	ND		1.0		ug/L			01/02/26 17:29	1
Xylenes, Total	**2.0**		1.5		ug/L			01/02/26 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*01/02/26 17:29*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*01/02/26 17:29*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*01/02/26 17:29*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/02/26 17:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1100**		5.0		mg/L			01/02/26 15:14	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**2.2**		0.020		mg/L		01/06/26 10:30	01/06/26 17:30	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1800**		50		mg/L			01/06/26 11:00	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-6

Date Collected: 12/30/25 13:55
Date Received: 12/31/25 16:00

Lab Sample ID: 885-40561-6

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**12**		1.0		ug/L			01/02/26 18:43	1
Ethylbenzene	**2.7**		1.0		ug/L			01/02/26 18:43	1
Toluene	ND		1.0		ug/L			01/02/26 18:43	1
Xylenes, Total	**420**		15		ug/L			01/02/26 18:18	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*01/02/26 18:18*	*10*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*01/02/26 18:43*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*01/02/26 18:18*	*10*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*01/02/26 18:43*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*01/02/26 18:18*	*10*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*01/02/26 18:43*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*01/02/26 18:18*	*10*
Toluene-d8 (Surr)	*102*		*70 - 130*		*01/02/26 18:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			01/02/26 15:43	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.4**		0.020		mg/L		01/06/26 10:30	01/06/26 17:32	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1300**	**H**	50		mg/L			01/07/26 11:37	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-7

Date Collected: 12/30/25 14:20
Date Received: 12/31/25 16:00

Lab Sample ID: 885-40561-7

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/02/26 17:53	1
Ethylbenzene	ND		1.0		ug/L			01/02/26 17:53	1
Toluene	ND		1.0		ug/L			01/02/26 17:53	1
Xylenes, Total	ND		1.5		ug/L			01/02/26 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*01/02/26 17:53*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*01/02/26 17:53*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*01/02/26 17:53*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*01/02/26 17:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1000**		5.0		mg/L			01/02/26 16:11	10

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.3**		0.020		mg/L		01/06/26 10:30	01/06/26 17:39	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**3100**	**H**	100		mg/L			01/07/26 11:37	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-40794/5
Matrix: Water
Analysis Batch: 40794

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/02/26 14:10	1
Ethylbenzene	ND		1.0		ug/L			01/02/26 14:10	1
Toluene	ND		1.0		ug/L			01/02/26 14:10	1
Xylenes, Total	ND		1.5		ug/L			01/02/26 14:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*01/02/26 14:10*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*01/02/26 14:10*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*01/02/26 14:10*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*01/02/26 14:10*	*1*

Lab Sample ID: LCS 885-40794/4
Matrix: Water
Analysis Batch: 40794

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	20.9		ug/L		105	70 - 130		
Toluene			20.0	20.7		ug/L		104	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*95*		*70 - 130*

Lab Sample ID: 885-40561-1 MS
Matrix: Water
Analysis Batch: 40794

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		20.0	20.1		ug/L		100	70 - 130		
Toluene	ND		20.0	19.6		ug/L		98	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
Toluene-d8 (Surr)	*93*		*70 - 130*

Lab Sample ID: 885-40561-1 MSD
Matrix: Water
Analysis Batch: 40794

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	19.3		ug/L		97	70 - 130	4	20
Toluene	ND		20.0	18.8		ug/L		94	70 - 130	4	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 885-40561-1 MSD
Matrix: Water
Analysis Batch: 40794

Client Sample ID: MW-1
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*92*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-40762/4
Matrix: Water
Analysis Batch: 40762

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			01/02/26 11:21	1

Lab Sample ID: LCS 885-40762/5
Matrix: Water
Analysis Batch: 40762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			10.0	10.8		mg/L		108	90 - 110		

Lab Sample ID: MRL 885-40762/3
Matrix: Water
Analysis Batch: 40762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			0.500	0.491	J	mg/L		98	50 - 150		

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: LLCS 860-286129/4-A
Matrix: Water
Analysis Batch: 286360

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 286129

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Iron			0.200	0.214		mg/L		107	50 - 150		
Manganese			0.0200	0.0222		mg/L		111	50 - 150		

Lab Sample ID: MB 860-285308/10-B
Matrix: Water
Analysis Batch: 286360

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 286129

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		01/06/26 10:30	01/06/26 17:05	1
Manganese	ND		0.020		mg/L		01/06/26 10:30	01/06/26 17:05	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 860-285308/11-B
Matrix: Water
Analysis Batch: 286360

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 286129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	5.00	5.12		mg/L		102	85 - 115
Manganese	1.00	1.05		mg/L		105	85 - 115

Lab Sample ID: LCSD 860-285308/12-B
Matrix: Water
Analysis Batch: 286360

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 286129

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	5.00	5.11		mg/L		102	85 - 115	0	20
Manganese	1.00	1.05		mg/L		105	85 - 115	0	20

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-40897/1
Matrix: Water
Analysis Batch: 40897

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50	mg/L			01/06/26 11:00	1

Lab Sample ID: LCS 885-40897/2
Matrix: Water
Analysis Batch: 40897

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	973		mg/L		97	80 - 120

Lab Sample ID: MB 885-40972/1
Matrix: Water
Analysis Batch: 40972

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50	mg/L			01/07/26 11:37	1

Lab Sample ID: LCS 885-40972/2
Matrix: Water
Analysis Batch: 40972

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	992		mg/L		99	80 - 120

QC Association Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

GC/MS VOA

Analysis Batch: 40794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-1	MW-1	Total/NA	Water	8260B	
885-40561-2	MW-2	Total/NA	Water	8260B	
885-40561-3	MW-3	Total/NA	Water	8260B	
885-40561-4	MW-4	Total/NA	Water	8260B	
885-40561-5	MW-5	Total/NA	Water	8260B	
885-40561-6	MW-6	Total/NA	Water	8260B	
885-40561-6	MW-6	Total/NA	Water	8260B	
885-40561-7	MW-7	Total/NA	Water	8260B	
MB 885-40794/5	Method Blank	Total/NA	Water	8260B	
LCS 885-40794/4	Lab Control Sample	Total/NA	Water	8260B	
885-40561-1 MS	MW-1	Total/NA	Water	8260B	
885-40561-1 MSD	MW-1	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 40762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-1	MW-1	Total/NA	Water	300.0	
885-40561-2	MW-2	Total/NA	Water	300.0	
885-40561-3	MW-3	Total/NA	Water	300.0	
885-40561-4	MW-4	Total/NA	Water	300.0	
885-40561-5	MW-5	Total/NA	Water	300.0	
885-40561-6	MW-6	Total/NA	Water	300.0	
885-40561-7	MW-7	Total/NA	Water	300.0	
MB 885-40762/4	Method Blank	Total/NA	Water	300.0	
LCS 885-40762/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-40762/3	Lab Control Sample	Total/NA	Water	300.0	

Metals

Filtration Batch: 285308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-285308/10-B	Method Blank	Dissolved	Water	Filtration	
LCS 860-285308/11-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 860-285308/12-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 286129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-1	MW-1	Dissolved	Water	200.7	
885-40561-2	MW-2	Dissolved	Water	200.7	
885-40561-3	MW-3	Dissolved	Water	200.7	
885-40561-4	MW-4	Dissolved	Water	200.7	
885-40561-5	MW-5	Dissolved	Water	200.7	
885-40561-6	MW-6	Dissolved	Water	200.7	
885-40561-7	MW-7	Dissolved	Water	200.7	
MB 860-285308/10-B	Method Blank	Dissolved	Water	200.7	285308
LCS 860-285308/11-B	Lab Control Sample	Dissolved	Water	200.7	285308
LCSD 860-285308/12-B	Lab Control Sample Dup	Dissolved	Water	200.7	285308
LLCS 860-286129/4-A	Lab Control Sample	Total Recoverable	Water	200.7	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Metals

Analysis Batch: 286360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-1	MW-1	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-2	MW-2	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-3	MW-3	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-4	MW-4	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-5	MW-5	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-6	MW-6	Dissolved	Water	200.7 Rev 4.4	286129
885-40561-7	MW-7	Dissolved	Water	200.7 Rev 4.4	286129
MB 860-285308/10-B	Method Blank	Dissolved	Water	200.7 Rev 4.4	286129
LCS 860-285308/11-B	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	286129
LCSD 860-285308/12-B	Lab Control Sample Dup	Dissolved	Water	200.7 Rev 4.4	286129
LLCS 860-286129/4-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	286129

General Chemistry

Analysis Batch: 40897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-1	MW-1	Total/NA	Water	2540C	
885-40561-2	MW-2	Total/NA	Water	2540C	
885-40561-3	MW-3	Total/NA	Water	2540C	
885-40561-4	MW-4	Total/NA	Water	2540C	
885-40561-5	MW-5	Total/NA	Water	2540C	
MB 885-40897/1	Method Blank	Total/NA	Water	2540C	
LCS 885-40897/2	Lab Control Sample	Total/NA	Water	2540C	

Analysis Batch: 40972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-40561-6	MW-6	Total/NA	Water	2540C	
885-40561-7	MW-7	Total/NA	Water	2540C	
MB 885-40972/1	Method Blank	Total/NA	Water	2540C	
LCS 885-40972/2	Lab Control Sample	Total/NA	Water	2540C	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-1
Lab Sample ID: 885-40561-1
Date Collected: 12/30/25 11:15
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 15:49
Total/NA	Analysis	300.0		10	40762	JT	EET ALB	01/02/26 12:53
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:24
Total/NA	Analysis	2540C		1	40897	HR	EET ALB	01/06/26 11:00

Client Sample ID: MW-2
Lab Sample ID: 885-40561-2
Date Collected: 12/30/25 11:55
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 16:14
Total/NA	Analysis	300.0		1	40762	JT	EET ALB	01/02/26 13:21
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:26
Total/NA	Analysis	2540C		1	40897	HR	EET ALB	01/06/26 11:00

Client Sample ID: MW-3
Lab Sample ID: 885-40561-3
Date Collected: 12/30/25 12:30
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 16:39
Total/NA	Analysis	300.0		10	40762	JT	EET ALB	01/02/26 14:18
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:27
Total/NA	Analysis	2540C		1	40897	HR	EET ALB	01/06/26 11:00

Client Sample ID: MW-4
Lab Sample ID: 885-40561-4
Date Collected: 12/30/25 10:30
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 17:04
Total/NA	Analysis	300.0		10	40762	JT	EET ALB	01/02/26 14:46
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:29
Total/NA	Analysis	2540C		1	40897	HR	EET ALB	01/06/26 11:00

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Client Sample ID: MW-5

Lab Sample ID: 885-40561-5

Date Collected: 12/30/25 13:15
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 17:29
Total/NA	Analysis	300.0		10	40762	JT	EET ALB	01/02/26 15:14
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:30
Total/NA	Analysis	2540C		1	40897	HR	EET ALB	01/06/26 11:00

Client Sample ID: MW-6

Lab Sample ID: 885-40561-6

Date Collected: 12/30/25 13:55
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		10	40794	JP	EET ALB	01/02/26 18:18
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 18:43
Total/NA	Analysis	300.0		1	40762	JT	EET ALB	01/02/26 15:43
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:32
Total/NA	Analysis	2540C		1	40972	HR	EET ALB	01/07/26 11:37

Client Sample ID: MW-7

Lab Sample ID: 885-40561-7

Date Collected: 12/30/25 14:20
Matrix: Water
Date Received: 12/31/25 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	40794	JP	EET ALB	01/02/26 17:53
Total/NA	Analysis	300.0		10	40762	JT	EET ALB	01/02/26 16:11
Dissolved	Prep	200.7			286129	MD	EET HOU	01/06/26 10:30
Dissolved	Analysis	200.7 Rev 4.4		1	286360	JDM	EET HOU	01/06/26 17:39
Total/NA	Analysis	2540C		1	40972	HR	EET ALB	01/07/26 11:37

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Magnum 1

Job ID: 885-40561-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425	02-25-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540C		Water	Total Dissolved Solids
300.0		Water	Sulfate
8260B		Water	Benzene
8260B		Water	Ethylbenzene
8260B		Water	Toluene
8260B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-25-26

Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-05-26
Florida	NELAP	E871002	06-30-26
Louisiana (All)	NELAP	03054	06-30-26
New Mexico	State	TX00122	06-30-26
Oklahoma	NELAP	1306	01-31-26
Texas	NELAP	T104704215	06-30-26
Texas	TCEQ Water Supply	T104704215	11-24-28
USDA	US Federal Programs	525-23-79-79507	03-20-26

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: Mangum 1

Project #:

Project Manager:

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.9 +0.2 = 5.1°C

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

885-40561 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	Dissolved Mn	BTEX 8260B	Sulfate / TDS	Dissolved Fe
~~12/30~~	1115	Water	MW-1	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
12/30	1155	Water	MW-2	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	X
12/30	1230	Water	MW-3	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
12/30	1030	Water	MW-4	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
12/30	1315	Water	MW-5	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
12/30	1345	Water	MW-6	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	
12/30	1420 ~~1420~~	Water	MW-7	(3) 40ml VOA (1) Liter Plastic	HCl Cool		X	X	X	

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12/31/25	1600	Aaron Lameman	[signature]	C&D	12-31-25	1600
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

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

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-40561-1

Login Number: 40561 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-40561-1

Login Number: 40561 **List Source: Eurofins Houston**
List Number: 2 **List Creation: 01/05/26 01:11 PM**
Creator: Jimenez, Nicanor

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 565535
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Report accepted for record.	4/16/2026
amaxwell	Report accepted for record. Submit annual report by April 1, 2027.	4/16/2026