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March 24, 2025

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

Re: 2024 Annual Groundwater Monitoring Report
Charles et al #1
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NRMD0928136813
NMOCD Administrative Order: 3R-432

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *2024 Annual Groundwater Monitoring Report* to the New Mexico Oil Conservation Division (NMOCD). This report documents groundwater monitoring activities conducted at the former Charles et al #1 natural gas production well (Site) during 2024. The Site is located on Navajo Nation Tribal land in Section 12 within Township 27 North and Range 9 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

Impacted groundwater at the Site was discovered by ConocoPhillips (previous Site owner) in 2008 during an investigation of a pipeline release located approximately 0.25 miles from the Site. In response, ConocoPhillips conducted additional investigation and subsequently installed seven groundwater monitoring wells (MW-1 through MW-7). In August 2008, a solar-powered fan was installed on monitoring well MW-1 to facilitate soil and groundwater remediation via soil-vapor extraction (SVE) technology. Following seven years of monitoring, concentrations of contaminants in wells MW-2 through MW-7 had attenuated to levels below the Navajo Nation Environmental Protection Agency (NNEPA) standards. As such, shallow groundwater monitoring wells MW-2 through MW-7 were decommissioned and removed using a backhoe in June 2016.

Because petroleum hydrocarbon contaminants remained in soil and groundwater near monitoring well MW-1, impacted soil was excavated in June 2016 to mitigate further contaminant migration. Approximately 30 cubic yards of impacted soil were removed and disposed of off-Site; however, the extent of the excavation was limited by the presence of two pipelines in the area. Following backfilling, replacement monitoring well MW-1R was installed in the same general location as former monitoring well MW-1 to continue groundwater monitoring. Hilcorp acquired the Site from ConocoPhillips in August 2017 and has continued monitoring groundwater conditions in well MW-1R. Current and former well locations are depicted in Figure 2.

SITE GROUNDWATER CLEANUP STANDARDS

The Site is located on Navajo Nation Tribal land and regulated by both the NMOCD and NNEPA. Groundwater cleanup standards are specified in the NNEPA document titled *The Navajo Nation Leaking Storage Tank Soil and Water Cleanup Standards* (2012). In addition, the NMOCD requires compliance with groundwater quality standards established by the New Mexico Water Quality Control Commission (NMWQCC) and listed in Title 20, Chapter 6, Part 2, Section 3103 (20.6.2.3103) of the New Mexico Administrative Code (NMAC).

Because two regulatory groundwater standards apply to this Site, the most conservative cleanup levels established by the NNEPA and NMWQCC have been used to evaluate groundwater analytical results. Manganese, sulfate and total dissolved solids (TDS) were removed from the semiannual sampling criteria per approval from the NMOCD dated April 12, 2022. Groundwater standards for the Site are presented in milligrams per liter (mg/L) and are as follows:

- Benzene: 0.005 mg/L
- Toluene: 1.0 mg/L
- Ethylbenzene: 0.7 mg/L
- Total Xylenes: 0.62 mg/L

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

As approved by the NMOCD, groundwater gauging and sampling were conducted on a semiannual basis at the Site, with events occurring on March 29, 2024, and September 24, 2024. Static groundwater level monitoring included measuring depth-to-water in monitoring well MW-1R using a Keck oil/water interface probe. Depth-to-groundwater during March and September 2024 sampling events was recorded at 4.63 feet and 6.43 feet below top of well casing, respectively. Well construction and depth-to-groundwater data are presented in Table 1. Based on historical well gauging information (prior to plugging and abandoning wells MW-2 through MW-7), groundwater flow direction was consistently to the east-northeast.

GROUNDWATER SAMPLING

During the March 2024 sampling event, groundwater from well MW-1R was purged and sampled using a disposable bailer. Purging was conducted by removing stagnant groundwater from the well prior to sample collection. Approximately 0.32 gallons of groundwater were purged before the well bailed dry, which was insufficient to achieve three well volumes. Due to limited recharge and low water volume, field measurements of water quality parameters, including temperature, pH, and electrical conductivity, were not collected during purging.

During the September 2024 sampling event, approximately 0.26 gallons of groundwater were purged before the well again bailed dry. An insufficient volume remained in the well to collect a groundwater sample, and field water quality measurements were not obtained due to the low water level. Groundwater quality measurements are presented in Table 2.

Following well purging in March 2024, a groundwater sample was placed directly into laboratory-provided containers and labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. Containers were immediately sealed, packed on ice, and submitted to Eurofins Environmental Testing Albuquerque Laboratory (Eurofins) for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) following Environmental Protection Agency (EPA) Method 8260B. Proper chain-of-custody procedures were followed documenting the date and time sampled, sample number, type of sample, sample collector's name, preservative used, analyses required, and sample collector's signature.

GROUNDWATER ANALYTICAL RESULTS

During the March 2024 groundwater sampling event, total xylenes were detected in well MW-1R at a concentration of 5.400 mg/L, which exceeds the applicable NNEPA/NMWQCC groundwater cleanup standard of 0.620 mg/L. Benzene, toluene, and ethylbenzene were also detected in the March 2024 sample at concentrations of 0.0040 mg/L, 0.1100 mg/L, and 0.9000 mg/L, respectively. While benzene and toluene concentrations remained below their respective standards of 0.0050 mg/L and 1.0000 mg/L, the ethylbenzene concentration slightly exceeded the NNEPA/NMWQCC standard of 0.7000 mg/L.

During the September 2024 sampling event, there was an insufficient volume of groundwater in well MW-1R to collect a sample. As such, no analytical results were obtained for this event. Analytical results from the March 2024 sampling event are summarized in Table 3 and depicted on Figure 2. Complete laboratory reports are provided in Appendix A.

CONCLUSIONS AND RECOMMENDATIONS

Since 2008, concentrations of BTEX in groundwater at the Site have declined in well MW-1 and its replacement, MW-1R. While benzene concentrations have shown minor fluctuations, they have remained generally consistent and below the applicable NNEPA/NMWQCC standard since 2022. The overall downward trend in BTEX concentrations is indicative of ongoing natural attenuation, likely driven by biodegradation processes within the saturated zone.

The recent exceedance of ethylbenzene and total xylenes observed during the March 2024 sampling event, following prior periods of lower concentrations, suggests residual impacts may persist intermittently due to slow desorption from the soil matrix or limited recharge conditions as further supported by insufficient water volume in MW-1R; however, benzene has remained below NNEPA/NMWQCC standards for the past two years, while toluene has been below standards since 2018. The long-term reduction in BTEX concentrations supports the effectiveness of monitored natural attenuation (MNA) as a remedial strategy at the Site.

Hilcorp recommends continued semiannual groundwater monitoring at well MW-1R to track concentrations of ethylbenzene and total xylenes to ensure compliance with applicable groundwater quality standards. Once ethylbenzene and total xylenes consistently remain below the NNEPA/NMWQCC standard, a reduction in monitoring frequency or a closure evaluation may be considered in coordination with the NMOCD and NNEPA.

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

Sincerely,
Ensolum, LLC

Tracy Dembrowski
Project Geologist
(720) 989-6175
tdembrowski@ensolum.com

Wes Weichert, PG (Licensed in WY)
Project Geologist
(816) 266-8732
wweichert@ensolum.com

Attachments:

Figure 1: Site Location Map
Figure 2: 2024 Groundwater Analytical Results

Table 1: Groundwater Elevations
Table 2: Groundwater Quality Parameters
Table 3: Groundwater Analytical Results

Appendix A: Laboratory Analytical Reports

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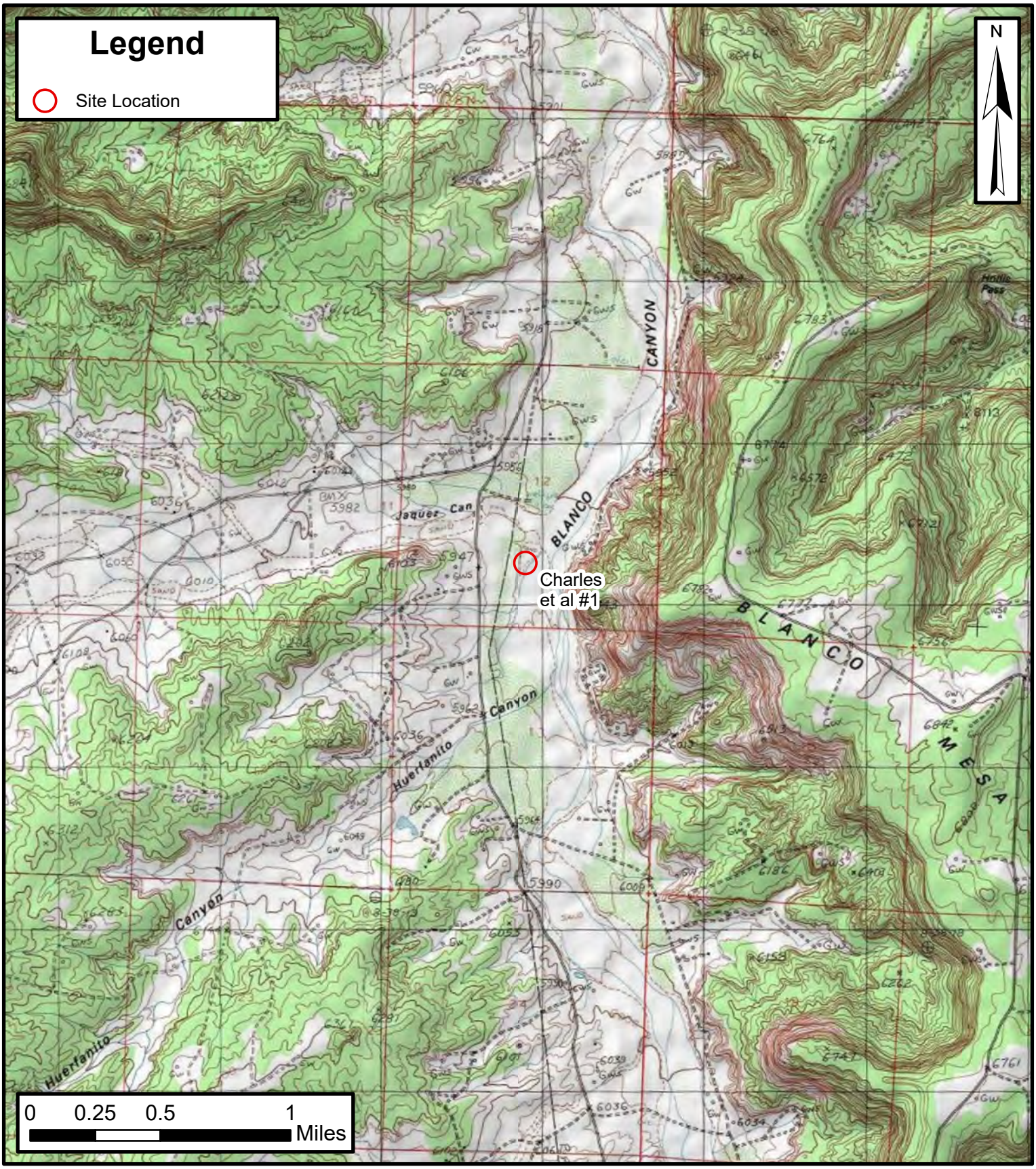
FIGURES



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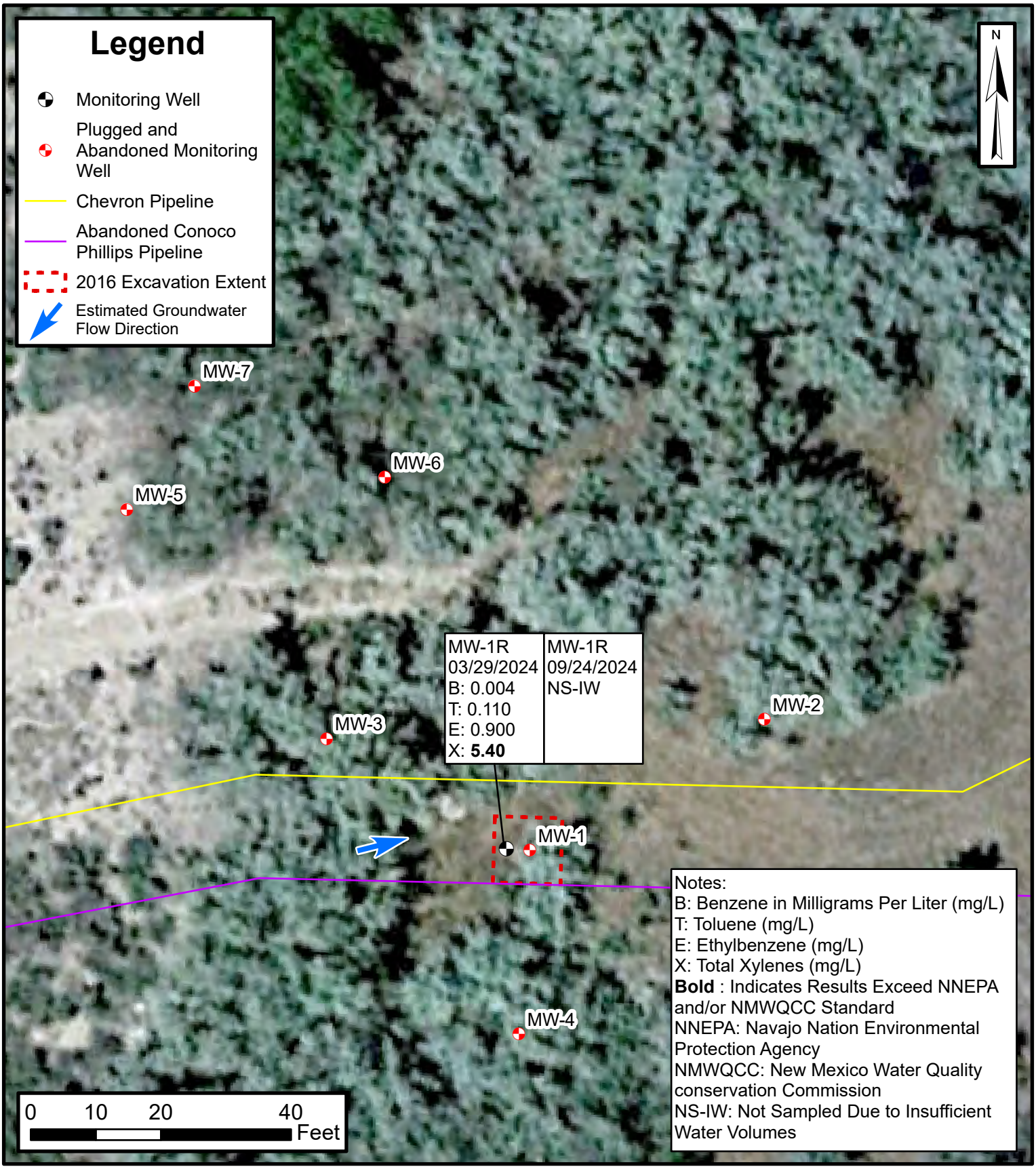
Site Location Map

Charles et al #1
Hilcorp Energy Company
36.586167, -107.740284
San Juan County, New Mexico

FIGURE
1

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



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2024 Groundwater Analytical Results

Charles et al #1
Hilcorp Energy Company
36.586167, -107.740284
San Juan County, New Mexico

FIGURE
2

Sources: Google Earth 2022

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TABLES

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TABLE 1
GROUNDWATER ELEVATIONS
Charles et al #1
Hilcorp Energy Company
San Juan County, New Mexico

Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	5,917.87	6/25/2008	4.71	5,913.16
		8/14/2008	5.21	5,912.66
	5,917.05	10/2/2008	5.13	5,911.92
		1/13/2009	4.41	5,912.64
		3/23/2009	3.01	5,914.04
		6/29/2009	2.12	5,914.93
		3/30/2010	2.68	5,914.37
		6/11/2010	4.74	5,912.31
		9/21/2010	5.52	5,911.53
		12/16/2010	3.71	5,913.34
		3/18/2011	2.98	5,914.07
		6/23/2011	4.99	5,912.06
		9/27/2011	4.55	5,912.50
		12/12/2011	3.23	5,913.82
		3/7/2012	3.67	5,913.38
		6/4/2012	4.75	5,912.30
		9/17/2012	5.57	5,911.48
		1/9/2013	3.87	5,913.18
		3/18/2013	3.09	5,913.96
		6/14/2013	4.83	5,912.22
		9/13/2013	5.42	5,911.63
		12/13/2013	3.67	5,913.38
		3/21/2014	3.27	5,913.78
		6/16/2014	5.13	5,911.92
		9/19/2014	5.70	5,911.35
		12/17/2014	4.22	5,912.83
		3/19/2015	3.36	5,913.69
		6/19/2015	4.34	5,912.71
		9/14/2015	5.55	5,911.50
		6/2/2016	Plugged and Abandoned	
MW-1R	Not Surveyed	6/23/2016	6.28	--
		9/12/2016	6.49	--
		11/28/2016	5.13	--
		3/6/2017	4.29	--
		6/12/2017	3.07	--

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San Juan County, New Mexico

Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1R	Not Surveyed	9/25/2017	3.38	--
		12/4/2017*	1.84	--
		3/13/2018*	1.85	--
		6/25/2018**	3.25	--
		9/4/2018**	3.53	--
		12/6/2018**	4.04	--
		2/26/2019***	4.37	--
		5/17/2019***	4.60	--
		8/9/2019***	6.39	--
		10/28/2019***	6.15	--
		1/27/2020***	4.81	--
		7/7/2020***	6.51	--
		3/12/2021***	4.98	--
		8/6/2021***	NM	--
		1/7/2022***	5.54	--
		9/26/2022***	5.53	--
		3/29/2023***	4.85	--
		9/29/2023***	7.11	--
		3/29/2024***	4.63	--
		9/24/2024***	6.43	--
MW-2	5,917.33	6/25/2008	4.66	5,912.67
		8/14/2008	5.35	5,911.98
	5,916.53	10/2/2008	5.12	5,911.41
		1/13/2009	3.15	5,913.38
		3/23/2009	2.65	5,913.88
		6/29/2009	4.20	5,912.33
		3/30/2010	2.57	5,913.96
		6/11/2010	4.63	5,911.90
		9/21/2010	5.53	5,911.00
		12/16/2010	3.53	5,913.00
		3/18/2011	2.70	5,913.83
		6/23/2011	4.80	5,911.73
		9/27/2011	4.30	5,912.23
		12/12/2011	3.13	5,913.40
		3/7/2012	2.58	5,913.95

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Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-2	5,916.53	6/4/2012	4.51	5,912.02
		9/17/2012	5.56	5,910.97
		1/9/2013	3.75	5,912.78
		3/18/2013	3.02	5,913.51
		6/14/2013	4.69	5,911.84
		9/13/2013	5.09	5,911.44
		12/13/2013	3.55	5,912.98
		3/21/2014	3.15	5,913.38
		6/16/2014	4.98	5,911.55
		9/19/2014	5.49	5,911.04
		12/17/2014	4.11	5,912.42
		3/19/2015	3.30	5,913.23
		6/19/2015	4.24	5,912.29
		9/14/2015	5.57	5,910.96
		6/2/2016	Plugged and Abandoned	
MW-3	5,920.57	6/25/2008	7.16	5,913.41
		8/14/2008	8.86	5,911.71
	5,919.80	10/2/2008	7.63	5,912.17
		1/13/2009	5.56	5,914.24
		3/23/2009	5.56	5,914.24
		6/29/2009	1.10	5,918.70
		3/30/2010	5.38	5,914.42
		6/11/2010	7.44	5,912.36
		9/21/2010	8.22	5,911.58
		12/16/2010	6.06	5,913.74
		3/18/2011	5.42	5,914.38
		6/23/2011	7.68	5,912.12
		9/27/2011	7.13	5,912.67
		12/12/2011	5.78	5,914.02
		3/7/2012	5.33	5,914.47
		6/4/2012	7.27	5,912.53
		9/17/2012	8.15	5,911.65
		1/9/2013	6.37	5,913.43
		3/18/2013	5.68	5,914.12
		6/14/2013	7.36	5,912.44

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Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	5,919.80	9/13/2013	7.72	5,912.08
		12/13/2013	6.20	5,913.60
		3/21/2014	5.89	5,913.91
		6/16/2014	7.71	5,912.09
		9/19/2014	8.13	5,911.67
		12/17/2014	6.71	5,913.09
		3/19/2015	5.98	5,913.82
		6/19/2015	7.01	5,912.79
		9/14/2015	8.21	5,911.59
		6/2/2016	Plugged and Abandoned	
MW-4	5,920.48	6/25/2008	4.27	5,916.21
		8/14/2008	7.89	5,912.59
	5,919.69	10/2/2008	7.73	5,911.96
		1/13/2009	5.94	5,913.75
		3/23/2009	5.64	5,914.05
		6/29/2009	6.84	5,912.85
		3/30/2010	5.40	5,914.29
		6/11/2010	7.23	5,912.46
		9/21/2010	8.17	5,911.52
		12/16/2010	6.24	5,913.45
		3/18/2011	5.50	5,914.19
		6/23/2011	7.50	5,912.19
		9/27/2011	6.98	5,912.71
		12/12/2011	5.94	5,913.75
		3/7/2012	5.36	5,914.33
		6/4/2012	7.18	5,912.51
		9/17/2012	8.18	5,911.51
		1/9/2013	6.53	5,913.16
		3/18/2013	5.81	5,913.88
		6/14/2013	7.40	5,912.29
		9/13/2013	7.77	5,911.92
		12/13/2013	6.37	5,913.32
		3/21/2014	6.03	5,913.66
		6/16/2014	7.63	5,912.06
		9/19/2014	8.09	5,911.60

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Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-4	5,919.69	12/17/2014	6.87	5,912.82
		3/19/2015	6.05	5,913.64
		6/19/2015	6.92	5,912.77
		9/14/2015	DRY	--
		6/2/2016	Plugged and Abandoned	
MW-5	5,923.63	6/26/2008	8.23	5,915.40
		8/14/2008	8.68	5,914.95
	5,921.55	10/2/2008	8.70	5,912.85
		1/13/2009	6.96	5,914.59
		3/23/2009	6.58	5,914.97
		6/29/2009	4.10	5,917.45
		3/30/2010	NM	--
		6/11/2010	8.20	5,913.35
		9/21/2010	9.25	5,912.30
		12/16/2010	7.40	5,914.15
		3/18/2011	6.74	5,914.81
		6/23/2011	NM	--
		9/26/2011	8.25	5,913.30
		12/12/2011	7.12	5,914.43
		3/7/2012	6.65	5,914.90
		6/4/2012	8.17	5,913.38
		9/17/2012	9.30	5,912.25
		1/9/2013	7.76	5,913.79
		3/18/2013	7.05	5,914.50
		6/14/2013	8.49	5,913.06
		9/13/2013	8.97	5,912.58
		12/13/2013	7.55	5,914.00
		3/21/2014	7.17	5,914.38
		6/16/2014	8.72	5,912.83
		9/19/2014	9.35	5,912.20
		12/17/2014	8.07	5,913.48
		3/19/2015	7.33	5,914.22
		6/19/2015	8.24	5,913.31
		9/14/2015	9.48	5,912.07
		6/2/2016	Plugged and Abandoned	

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Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-6	5,920.68	6/26/2008	6.75	5,913.93
		8/14/2008	6.97	5,913.71
	5,918.64	10/2/2008	6.83	5,911.81
		1/13/2009	4.89	5,913.75
		3/23/2009	4.12	5,914.52
		6/29/2009	1.80	5,916.84
		3/30/2010	NM	--
		6/11/2010	6.63	5,912.01
		9/21/2010	7.41	5,911.23
		12/16/2010	5.12	5,913.52
		3/15/2011	4.49	5,914.15
		6/23/2011	6.80	5,911.84
		9/26/2011	6.33	5,912.31
		12/12/2011	4.84	5,913.80
		3/7/2012	4.46	5,914.18
		6/4/2012	6.45	5,912.19
		9/17/2012	7.37	5,911.27
		1/9/2013	5.46	5,913.18
		3/18/2013	4.80	5,913.84
		6/14/2013	6.60	5,912.04
		9/13/2013	6.90	5,911.74
		12/13/2013	5.32	5,913.32
		3/21/2014	5.03	5,913.61
		6/16/2014	6.85	5,911.79
		9/19/2014	7.34	5,911.30
		12/17/2014	5.79	5,912.85
		3/19/2015	5.22	5,913.42
		6/19/2015	6.21	5,912.43
		9/14/2015	DRY	--
		6/2/2016	Plugged and Abandoned	
MW-7	5,920.75	6/26/2008	6.32	5,914.43
		8/14/2008	7.17	5,913.58
	5,918.74	10/2/2008	6.42	5,912.32
		1/13/2009	NM	--
		3/23/2009	4.67	5,914.07

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GROUNDWATER ELEVATIONS
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San Juan County, New Mexico

Well ID	Top of Casing Elevation (feet AMSL)	Sample Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-7	5,918.74	6/29/2009	1.56	5,917.18
		3/30/2010	NM	--
		6/11/2010	NM	--
		9/21/2010	NM	--
		12/16/2010	4.91	5,913.83
		3/18/2011	DRY	--
		6/23/2011	6.55	5,912.19
		9/26/2011	6.14	5,912.60
		12/12/2011	DRY	--
		3/7/2012	DRY	--
		6/4/2012	6.08	5,912.66
		9/17/2012	7.11	5,911.63
		1/9/2013	5.28	5,913.46
		3/18/2013	4.54	5,914.20
		6/14/2013	6.31	5,912.43
		9/13/2013	6.66	5,912.08
		12/13/2013	5.35	5,913.39
		3/21/2014	4.70	5,914.04
		6/16/2014	6.59	5,912.15
		9/19/2014	7.14	5,911.60
		12/17/2014	5.59	5,913.15
		3/19/2015	4.98	5,913.76
		6/19/2015	6.10	5,912.64
		9/14/2015	7.34	5,911.40
		6/3/2016	Plugged and Abandoned	

Notes:

AMSL: above mean sea level

BTOC: below top of casing

NM: not measured

** PVC casing stick up broken off, likely by cattle. Shallower depth to water reflects new top of casing (TOC) measuring point.*

***Section of PVC reattached above ground surface. Depth to water reflects new measuring point.*

**** 39-inch section PVC added to top of casing resulting in new TOC elevation*

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

Well ID	Sample Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (mS/cm)	DO (mg/L)	ORP (mV)
MW-1R	6/23/2016	18.40	6.43	--	3.63	2.23	-68.3
	3/6/2017	--	--	--	--	--	--
	3/13/2018	--	--	--	--	--	--
	6/25/2018	--	--	--	--	--	--
	9/4/2018	--	--	--	--	--	--
	12/6/2018	--	--	--	--	--	--
	2/26/2019	--	--	--	--	--	--
	5/17/2019	--	--	--	--	--	--
	8/9/2019	18.70	8.03	2.85	5.83	1.40	-72.9
	10/28/2019	--	7.27	1.23	5.80	5.70	-85.5
	1/27/2020	5.20	6.80	3.98	7.99	7.23	-67.1
	7/7/2020	22.70	6.67	2.46	4.90	0.35	-51.1
	3/12/2021	7.90	7.54	4.32	8.75	5.71	-44.3
	8/6/2021	--	--	--	--	--	--
	1/7/2022	6.90	7.73	--	6.42	--	--
	9/26/2022	--	--	--	--	--	--
	3/29/2023	6.10	7.27	3.29	6.58	--	--
	9/29/2023	--	--	--	--	--	--
	3/29/2024	--	--	--	--	--	--
	9/24/2024	--	--	--	--	--	--

Notes:

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

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

Well ID	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)
NNEPA/NMWQCC Standard			0.005	1.0	0.7	0.62
MW-1	6/25/2008	(orig)	**1.85**	0.486	**0.971**	0.379
	9/25/2008	(orig)	**0.575**	0.66	0.293	**1.547**
	1/13/2009	(orig)	**0.494**	0.581	0.474	**3.572**
	3/23/2009	(orig)	**0.21**	0.311	0.378	**1.418**
	6/29/2009	(orig)	**0.839**	0.107	0.674	**3.404**
	3/30/2010	(orig)	**0.48**	0.11	0.25	**1.573**
	6/11/2010	(orig)	**3.2**	0.45	0.69	**4.51**
	9/21/2010	(orig)	**2.3**	**1.1**	0.25	**4.84**
	12/16/2010	(orig)	**0.18**	0.2	0.25	**1.79**
	3/18/2011	(orig)	**0.15**	0.14	0.16	**1.083**
	6/23/2011	(orig)	**3.2**	0.933	**0.972**	**5.8**
	6/23/2011	(Duplicate)	**3.38**	**1.45**	**1.06**	**6.76**
	9/26/2011	(orig)	**1.56**	**2.61**	0.624	**6.59**
	9/26/2011	(Duplicate)	**1.57**	**3.02**	**0.756**	**7.26**
	12/12/2011	(orig)	**0.232**	0.947	0.5	**3.94**
	12/12/2011	(Duplicate)	**0.244**	0.994	0.58	**4.65**
	3/7/2012	(orig)	**0.0637**	0.366	0.293	**2.23**
	3/7/2012	(Duplicate)	**0.0693**	0.416	0.333	**2.63**
	6/4/2012	(orig)	**0.956**	**2.38**	**0.919**	**6.71**
	6/4/2012	(Duplicate)	**0.934**	**2.26**	**0.966**	**6.36**
	9/17/2012	(orig)	**0.941**	**3.51**	**0.785**	**5.56**
	9/17/2012	(Duplicate)	**0.984**	**3.04**	**0.852**	**5.87**
	1/9/2013	(orig)	**0.125**	**1.14**	0.334	**2.44**
	1/9/2013	(Duplicate)	**0.142**	**1.52**	0.438	**3.09**
	3/18/2013	(orig)	**0.012**	0.195	0.0871	0.581
	3/18/2013	(Duplicate)	**0.0114**	0.188	0.0891	0.575
	6/14/2013	(orig)	**0.174**	**1.41**	0.668	**3.26**
	6/14/2013	(Duplicate)	**0.189**	**2.02**	**0.742**	**4.17**
	9/13/2013	(orig)	**0.0414**	**3.24**	0.123	**4.34**
	9/13/2013	(Duplicate)	**0.0372**	**3.3**	0.126	**4.43**
	12/13/2013	(orig)	**0.0053**	0.188	0.122	**0.681**
	12/13/2013	(Duplicate)	**0.0071**	0.258	0.148	**0.843**
	3/21/2014	(orig)	<0.001	0.0348	0.0591	0.247
	3/21/2014	(Duplicate)	<0.001	0.0385	0.0651	0.26
	6/16/2014	(orig)	**0.133**	**1.94**	**0.994**	**4.5**
	6/16/2014	(Duplicate)	**0.134**	**1.92**	**0.921**	**4.5**
	9/19/2014	(orig)	**0.159**	**2.34**	0.630	**3.38**
	12/17/2014	(orig)	**0.0138**	0.422	0.248	**1.48**
	12/17/2014	(Duplicate)	**0.0137**	0.44	0.251	**1.52**
	3/19/2015	(orig)	<0.005	0.227	0.174	**1.03**
	6/19/2015	(orig)	**0.025**	0.326	0.496	**2.44**
	6/19/2015	(Duplicate)	**0.0241**	0.306	0.472	**2.31**
	9/14/2015	(orig)	**0.0339**	0.0257	0.242	0.504
	Plugged and Abandoned June 2016					

ENSOLUM

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

Well ID	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)
NNEPA/NMWQCC Standard			0.005	1.0	0.7	0.62
MW-1R	6/23/2016	(orig)	0.0026	0.002	0.0521	0.215
	9/23/2016	(orig)	<0.001	< 0.001	0.191	0.518
	11/28/2016	(orig)	**0.028**	0.0084	**0.901**	**4.39**
	3/6/2017	(orig)	**0.0342**	<0.020	0.333	**1.940**
	6/12/2017	(orig)	**0.0162**	<0.010	0.304	0.522
	9/25/2017	(orig)	**0.0126**	<0.010	0.600	**1.05**
	12/4/2017	(dup)	**0.015**	**1.880**	**0.946**	**7.96**
	3/13/2018	(orig)	<0.050	0.505	**0.840**	**4.80**
	6/25/2018	(orig)	<0.025	**1.010**	0.165	**4.41**
	9/4/2018	(orig)	<0.020	0.798	<0.020	**1.55**
	12/6/2018	(orig)	<0.010	0.268	**0.922**	**3.40**
	2/26/2019	(orig)	**0.0101**	0.519	0.576	**6.71**
	5/17/2019	(orig)	<0.0100	<0.100	**0.923**	**3.66**
	8/9/2019	(orig)	**0.0211**	<0.100	0.594	**1.56**
	10/28/2019	(orig)	<0.250	<0.250	**1.11**	**3.29**
	1/27/2020	(orig)	<0.050	0.335	**0.737**	**5.13**
	7/7/2020	(orig)	**0.0344**	<0.05	**0.866**	**3.54**
	3/12/2021	(orig)	<0.025	0.0822	**0.502**	**3.48**
	8/6/2021	(orig)	**0.024**	<0.005	**0.990**	**1.20**
	1/7/2022	(orig)	**0.012**	0.094	0.700	**1.90**
	9/26/2022	(orig)	**0.059**	<0.005	0.440	0.077
	3/29/2023	(orig)	<0.0020	<0.0020	0.400	**0.830**
	9/29/2023	(orig)	Insufficient Volume to Sample			
	3/29/2024	(orig)	0.0040	0.1100	**0.900**	**5.400**
	9/24/2024	(orig)	Insufficient Volume to Sample			
MW-2	6/25/2008	(orig)	0.0042	0.0046	0.0016	0.0011
	9/25/2008	(orig)	**0.0195**	0.0258	0.0051	0.1008
	1/13/2009	(orig)	0.0021	0.002	0.0022	0.0281
	3/23/2009	(orig)	0.0014	0.0004	0.0006	0.0073
	6/29/2009	(orig)	0.0015	< 0.0002	0.0002	0.0004
	3/30/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/11/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	9/21/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	3/18/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/23/2011	(orig)	0.0006	< 0.001	< 0.001	< 0.003
	9/26/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/12/2011	(orig)	0.00034	< 0.001	< 0.001	< 0.003
	3/7/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/4/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/17/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	1/9/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/18/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/14/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003

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

Well ID	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)
NNEPA/NMWQCC Standard			0.005	1.0	0.7	0.62
MW-2	3/21/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/16/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/19/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	Plugged and Abandoned June 2016					
MW-3	6/25/2008	(orig)	ND	ND	ND	ND
	9/25/2008	(orig)	ND	0.0023	0.0009	0.0121
	1/13/2009	(orig)	ND	ND	ND	ND
	3/23/2009	(orig)	< 0.0002	0.0002	0.0002	0.0014
	6/29/2009	(orig)	< 0.0002	0.0017	0.0007	0.0082
	3/30/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/11/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	9/21/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	3/18/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/23/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/26/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/7/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/4/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/17/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	1/9/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/18/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/14/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/21/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/16/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/19/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/19/2014	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003
	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	Plugged and Abandoned June 2016					
MW-4	6/25/2008	(orig)	0.0038	0.0199	0.0014	0.007
	9/25/2008	(orig)	ND	ND	ND	ND
	1/13/2009	(orig)	ND	ND	ND	ND
	3/23/2009	(orig)	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	6/29/2009	(orig)	< 0.0002	< 0.0002	0.0002	0.0029
	3/30/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/11/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	9/21/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	3/18/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001
	6/23/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/26/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003

ENSOLUM

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

Well ID	Sample Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)
NNEPA/NMWQCC Standard			**0.005**	**1.0**	**0.7**	**0.62**
MW-4	3/7/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/4/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	1/9/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/17/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/18/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/14/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/13/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	3/21/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	6/16/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	9/19/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003
	Plugged and Abandoned June 2016					
MW-5	6/26/2008	(orig)	ND	ND	ND	ND
	9/25/2008	(orig)	ND	ND	ND	ND
	1/13/2009	(orig)	ND	ND	ND	ND
	3/23/2009	(orig)	ND	ND	ND	ND
	Plugged and Abandoned June 2016					
MW-6	6/26/2008	(orig)	ND	ND	ND	ND
	9/25/2008	(orig)	ND	ND	ND	ND
	1/13/2009	(orig)	ND	ND	ND	ND
	3/23/2009	(orig)	ND	ND	ND	ND
	Plugged and Abandoned June 2016					
MW-7	6/26/2008	(orig)	ND	ND	ND	ND
	9/25/2008	(orig)	ND	ND	ND	ND
	3/23/2009	(orig)	ND	ND	ND	ND
	Plugged and Abandoned June 2016					
Background	3/12/2021	(orig)	<0.001	<0.001	<0.001	<0.003

Notes:

mg/L: milligrams per liter

ND: not detected, practical quantitation limit unknown

NMWQCC: New Mexico Water Quality Control Commission

NNEPA: Navajo Nation Environmental Protection Agency

--: not analyzed

<: 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 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 4/18/2024 8:01:35 AM

JOB DESCRIPTION

Charles et al No. 1

JOB NUMBER

885-2139-1

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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4/18/2024 8:01:35 AM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Laboratory Job ID: 885-2139-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Job ID: 885-2139-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

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: Charles et al No. 1

Job ID: 885-2139-1

Job ID: 885-2139-1 Eurofins Albuquerque

Job Narrative
885-2139-1

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 are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample 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 sample was received on 4/2/2024 7:15 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

GC/MS VOA
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: Charles et al No. 1

Job ID: 885-2139-1

Client Sample ID: MW-1R
Date Collected: 03/29/24 13:30
Date Received: 04/02/24 07:15

Lab Sample ID: 885-2139-1
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.0**		2.0		ug/L			04/04/24 21:15	2
Ethylbenzene	**900**		20		ug/L			04/05/24 13:02	20
Toluene	**110**		2.0		ug/L			04/04/24 21:15	2
Xylenes, Total	**5400**		75		ug/L			04/08/24 13:06	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*70 - 130*		*04/04/24 21:15*	*2*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*		*04/04/24 21:15*	*2*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*04/04/24 21:15*	*2*
Toluene-d8 (Surr)	*95*		*70 - 130*		*04/04/24 21:15*	*2*
Toluene-d8 (Surr)	*94*		*70 - 130*		*04/05/24 13:02*	*20*
Toluene-d8 (Surr)	*88*		*70 - 130*		*04/08/24 13:06*	*50*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Job ID: 885-2139-1

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

Lab Sample ID: MB 885-2809/16
Matrix: Water
Analysis Batch: 2809

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			04/04/24 16:41	1
Ethylbenzene	ND		1.0		ug/L			04/04/24 16:41	1
Toluene	ND		1.0		ug/L			04/04/24 16:41	1
Xylenes, Total	ND		1.5		ug/L			04/04/24 16:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*04/04/24 16:41*	*1*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*		*04/04/24 16:41*	*1*
Dibromofluoromethane (Surr)	*123*		*70 - 130*		*04/04/24 16:41*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*04/04/24 16:41*	*1*

Lab Sample ID: LCS 885-2809/15
Matrix: Water
Analysis Batch: 2809

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	23.7		ug/L		118	70 - 130		
Toluene			20.2	18.9		ug/L		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*
Dibromofluoromethane (Surr)	*120*		*70 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*

Lab Sample ID: MB 885-2875/22
Matrix: Water
Analysis Batch: 2875

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			04/05/24 12:07	1
Ethylbenzene	ND		1.0		ug/L			04/05/24 12:07	1
Toluene	ND		1.0		ug/L			04/05/24 12:07	1
Xylenes, Total	ND		1.5		ug/L			04/05/24 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 130*		*04/05/24 12:07*	*1*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*		*04/05/24 12:07*	*1*
Dibromofluoromethane (Surr)	*131*	*S1+*	*70 - 130*		*04/05/24 12:07*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*04/05/24 12:07*	*1*

Lab Sample ID: LCS 885-2875/21
Matrix: Water
Analysis Batch: 2875

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	23.7		ug/L		118	70 - 130		
Ethylbenzene			20.0	19.0		ug/L		95	70 - 130		

QC Sample Results

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Job ID: 885-2139-1

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

Lab Sample ID: LCS 885-2875/21
Matrix: Water
Analysis Batch: 2875

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
m&p-Xylene	40.0	38.8		ug/L		97	70 - 130
o-Xylene	20.0	19.0		ug/L		95	70 - 130
Toluene	20.0	19.1		ug/L		95	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*
Dibromofluoromethane (Surr)	*119*		*70 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*

Lab Sample ID: MB 885-2938/24
Matrix: Water
Analysis Batch: 2938

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			04/08/24 12:38	1
Ethylbenzene	ND		1.0	ug/L			04/08/24 12:38	1
Toluene	ND		1.0	ug/L			04/08/24 12:38	1
Xylenes, Total	ND		1.5	ug/L			04/08/24 12:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 130*		*04/08/24 12:38*	*1*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*		*04/08/24 12:38*	*1*
Dibromofluoromethane (Surr)	*133*	*S1+*	*70 - 130*		*04/08/24 12:38*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*04/08/24 12:38*	*1*

Lab Sample ID: LCS 885-2938/23
Matrix: Water
Analysis Batch: 2938

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	23.1		ug/L		116	70 - 130
Ethylbenzene	20.0	18.8		ug/L		94	70 - 130
m&p-Xylene	40.0	38.7		ug/L		97	70 - 130
o-Xylene	20.0	19.8		ug/L		99	70 - 130
Toluene	20.0	19.5		ug/L		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 130*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*121*		*70 - 130*
Toluene-d8 (Surr)	*93*		*70 - 130*

QC Association Summary

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Job ID: 885-2139-1

GC/MS VOA

Analysis Batch: 2809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2139-1	MW-1R	Total/NA	Water	8260B	
MB 885-2809/16	Method Blank	Total/NA	Water	8260B	
LCS 885-2809/15	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 2875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2139-1	MW-1R	Total/NA	Water	8260B	
MB 885-2875/22	Method Blank	Total/NA	Water	8260B	
LCS 885-2875/21	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 2938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2139-1	MW-1R	Total/NA	Water	8260B	
MB 885-2938/24	Method Blank	Total/NA	Water	8260B	
LCS 885-2938/23	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Charles et al No. 1

Job ID: 885-2139-1

Client Sample ID: MW-1R
Date Collected: 03/29/24 13:30
Date Received: 04/02/24 07:15

Lab Sample ID: 885-2139-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		2	2809	JR	EET ALB	04/04/24 21:15
Total/NA	Analysis	8260B		20	2875	JR	EET ALB	04/05/24 13:02
Total/NA	Analysis	8260B		50	2938	JR	EET ALB	04/08/24 13:06

Laboratory References:

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

Accreditation/Certification Summary

Client: Hilcorp Energy
Job ID: 885-2139-1
Project/Site: Charles et al No. 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
8260B		Water	Benzene
8260B		Water	Ethylbenzene
8260B		Water	Toluene
8260B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

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:
☑ Standard ☐ Rush

Project Name: Charles et al No. 1

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No 4oz

# of Coolers: 1

Cooler Temp(including CF): 0.9-0.1=0.8 (°C)

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

885-2139 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 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	BTEX 8260
3-29	1330	Aq	MW-1R	(3) 40mL VOA	HCl Cool	-1											✓

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/1/24	1453				4/1/24	1453
4/1/24	1800			courier	4/2/24	7:15

Remarks: [redacted]
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: 885-2139-1

Login Number: 2139 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Lowman, Nick

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	

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:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 444891
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Report accepted for record.	9/10/2025
amaxwell	OCD records indicate that an approved Stage 1 plan is not on file. Pursuant to 19.15.30 NMAC [372171] HILCORP ENERGY COMPANY must submit a Stage 1 Abatement plan no later than November 10, 2025, that meets all the requirements of 19.15.30.13 NMAC.	9/10/2025
amaxwell	Alternatively, if a Stage 1/Stage 2 Abatement Report has been previously approved by OCD, provide a copy of Stage 1/ Stage 2 Abatement Report by October 10, 2025, so OCD can update the Online records.	9/10/2025
amaxwell	Submit a C-141N for all future monitoring and sampling events.	9/10/2025