REVIEWED
By Mike Buchanan at 4:48 pm, May 13, 2024

February 18, 2022

NMOCD, District 3
1000 Rio Brazos Drive
Aztec, New Mexico 87410

Subject: **2021 Annual Groundwater Monitoring Report**
Federal Gas Com H#1
NMOCD Incident Number: NDGF0000010
San Juan County, New Mexico

Review of the 2021 Annual Groundwater Monitoring Report for Federal Gas Com H#1: Content Satisfactory
1. Continue to conduct groundwater monitoring until eight (8) consecutive monitoring events below the allowable concentrations in the NMWQCC have been achieved.
2. Submit the 2022 and 2023 Annual Groundwater monitoring reports (if not already submitted).
3. Submit the 2024 Annual Groundwater Monitoring Report by April 1, 2025.

To Whom It May Concern,

WSP USA Inc. (WSP) on behalf of Hilcorp Energy Company (Hilcorp) presents this 2021 Annual Groundwater Monitoring report to the New Mexico Oil Conservation Division (NMOCD) to document groundwater monitoring activities conducted in 2021 at the Federal Gas Com H #1 natural gas production well (Site), located within Unit Letter C of Section 31 within Township 30 North and Range 12 West, San Juan County, New Mexico (Figure 1). The Site was previously owned and operated by Amoco and then XTO Energy (XTO) prior to the acquisition by Hilcorp.

Currently, there are three monitoring wells (MW-1, MW-2, and MW-3R) onsite which are monitored quarterly for groundwater elevations. Groundwater from monitoring well MW-1 is sampled quarterly for laboratory analysis. This report presents the results of the 2021 monitoring events.

SITE BACKGROUND

In November 1999, XTO responded to a release of approximately 69 barrels (bbls) of produced water and condensate. The response involved excavating and disposing of 304 cubic yards of impacted soil and collecting confirmation soil samples from the perimeter of the excavation.

On January 28, 2000, Blagg Engineering, Inc. (Blagg) submitted the *Spill Cleanup Report* detailing response activities, which is was included in the *2020 Annual Groundwater Report*, submitted by Hilcorp on March 11, 2021 and approved by the NMOCD on December 28, 2021. Field and analytical data presented in the report suggested that the vertical extent of the release had been established and the lateral extent of soil impact met closure standards except for the source area. Vertical vent piping was installed in the source area to passively remediate the remaining impacted soil.

In March 2005, while upgrading equipment on site, XTO discovered what was believed to be a historical earthen blowdown pit. Approximately 300 cubic yards of impacted soil were excavated and disposed of offsite. Groundwater was encountered in the excavation; therefore, monitoring wells MW-1 and MW-2 were installed near the 2005 and 1999 excavations, respectively. Completion diagrams and borehole logs documenting drilling activities in 2005 are presented in Enclosure B. In April 2006, monitoring well MW-3 was installed cross-gradient of the source areas. In June 2010, monitoring well MW-3 was plugged and abandoned. In January 2011, monitoring well MW-3R was installed near former monitoring well MW-3. The completion diagram was included in the *2020 Annual Groundwater Report*. A borehole log was not completed for monitoring well MW-3R as it replaced the former monitoring well MW-3.

The *2006 Annual Groundwater Report* was submitted to the NMOCD proposing the removal of the passive remediation system and implementation of quarterly sampling of the three monitoring wells in accordance with the NMOCD approved *Groundwater Management Plan*, a field-wide response plan under which the original Amoco assets were operated. Between 2007 and 2009, XTO conducted regular groundwater sampling of source monitoring wells MW-1 and MW-2 and measured groundwater elevations in all existing monitoring wells. XTO submitted annual groundwater reports comparing laboratory analytical results to the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards. In June 2010, the vertical vent piping was removed.

The *2010 Annual Groundwater Report* and the *2011 Annual Groundwater Report* submittals to NMOCD by XTO recommended continued quarterly sampling of monitoring wells MW-1 and MW-2 until analytical results indicated hydrocarbon constituents were

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compliant with NMWQCC groundwater standards for four consecutive quarters. Additionally, XTO recommended injection of hydrogen peroxide into the groundwater aquifer using monitoring wells MW-1 and MW-2 as injection points to oxygenate the aquifer and enhance naturally occurring bioremediation.

In October 2011, XTO met with the NMOCD to present a brief history of the Site and the hydrogen peroxide injection work plan. The NMOCD did not provide comments for the hydrogen peroxide injection work plan; therefore, XTO did not proceed with the remediation, but continued to sample monitoring wells MW-1 and MW-2 and monitor groundwater elevations in the three monitoring wells quarterly through 2012.

In the *2012 Annual Groundwater Report*, XTO presented laboratory analytical results of benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in groundwater samples collected from monitoring well MW-2 for four consecutive quarters that were compliant with NMWQCC standards. As a result, XTO proposed removing monitoring well MW-2 from the sampling management plan and continued sampling monitoring well MW-1 and monitoring groundwater elevations in MW-1, MW-2, and MW-3R quarterly during 2013 and 2014.

In the *2015 Annual Groundwater Report*, XTO proposed semi-annual groundwater sampling of monitoring well MW-1 and collecting semi-annual depth to groundwater measurements of monitoring wells MW-1, MW-2, and MW-3R. As documented in the *2016 and 2017 Annual Groundwater Report*, semi-annual depth to groundwater data were collected from monitoring wells MW-1, MW-2, and MW-3R. Semi-annual groundwater samples were collected from groundwater monitoring well MW-1.

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

GROUNDWATER SAMPLING ACTIVITIES AND RESULTS

In 2021, depth to groundwater was measured in monitoring wells MW-1, MW-2, and MW-3R quarterly on January 22, June 22, August 26, and October 4, 2021. Quarterly groundwater samples were collected from groundwater monitoring well MW-1 and submitted to Pace Analytical (Pace) in Mount Juliet, Tennessee in the first quarter of 2021 for laboratory analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8260B, and to Hall Environmental Analytical Laboratory (HEAL) in Albuquerque, New Mexico, in the last three quarters of 2021 for laboratory analysis of BTEX by EPA Method 8260.

GROUNDWATER-LEVEL MEASUREMENTS

Prior to collection of groundwater samples, depth to groundwater in each well was measured using a Keck oil/water interface probe. Groundwater elevations are detailed in Table 1. Presence of any free-phase petroleum hydrocarbons was investigated using the interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with distilled water prior to each measurement to prevent cross-contamination.

GROUNDWATER SAMPLING

The volume of groundwater in monitoring well MW-1 was calculated, and a minimum of three well casing volumes of groundwater was purged (unless the well purged dry) using a new disposable polyvinyl chloride (PVC) bailer. All purged groundwater was disposed of into Hilcorp tanks. Once the monitoring well was purged, a groundwater sample was collected by filling a minimum of two 40-milliliter (mL) glass vials. The laboratory-supplied vials were filled and capped with zero headspace to prevent degradation of the samples. Samples were labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. The samples were immediately sealed, packed on ice, mailed to Pace or hand delivered to HEAL. Proper chain-of-custody (COC) 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. Laboratory analytical reports for 2021 are included as Enclosure A and the 2021 groundwater sample collection forms quarterly monitoring events are included as Enclosure B.

GROUNDWATER CONTOUR MAPS

Groundwater elevations measured in monitoring wells during quarterly 2021 visits were used to draft groundwater potentiometric surface maps (Figures 2, 3, 4, and 5). Contours were inferred based on groundwater elevations and observation of physical

characteristics (topography, proximity to irrigation ditches, etc.) at the Site. Groundwater elevations measured during 2021 Site monitoring activities indicate the groundwater continues to flow to the southeast, which is consistent with historical monitoring events. Groundwater elevation data are summarized in Table 1.

GROUNDWATER ANALYTICAL RESULTS

During 2021, laboratory analytical results indicated benzene concentrations in samples from monitoring well MW-1 exceeded the NMWQCC standards during the first and third quarter 2021 sampling events. Benzene concentrations ranged from 3.7 micrograms per liter (µg/L) in the fourth quarter 2021 to 10.6 µg/L in the first quarter 2021. The toluene, ethylbenzene, and total xylenes concentrations were in compliance with NMWQCC standards for all four quarterly 2021 sampling events. Figures 2, 3, 4, and 5 depict the groundwater analytical results for monitoring well MW-1 for the four quarterly 2021 monitoring events. Laboratory analytical results are summarized in Table 2. Laboratory analytical reports for 2021 are included as Enclosure A and the 2021 groundwater sample collection forms quarterly monitoring events are included as Enclosure B.

CONCLUSIONS AND RECOMMENDATIONS

Groundwater elevations measured during 2021 Site monitoring activities indicate the groundwater continues to flow to the southeast, which is consistent with historical monitoring events. Laboratory analytical results from quarterly groundwater monitoring in 2021 indicate benzene concentrations in monitoring well MW-1 exceeded NMWQCC standards during two of the four quarterly sampling events. Toluene, ethylbenzene, and total xylenes concentrations were in compliance with NMWQCC standards in monitoring well MW-1 during all 2021 quarterly sampling events. Based on historical sampling results, dissolved phase benzene in the vicinity of monitoring well MW-1 appears to be naturally attenuating close to the NMWQCC.

WSP proposes continued monitoring of groundwater elevations quarterly in all monitoring wells and collecting groundwater samples quarterly from monitoring well MW-1 in 2022.

Kind regards,

Gregory Palese
Assistant Consultant, Geologist

Daniel R. Moir, P.G.
Senior Lead Consultant, Geologist

Enclosed:

Figure 1: Site Location Map
Figure 2: Groundwater Elevation and Analytical Results- January 2021
Figure 3: Groundwater Elevation and Analytical Results- June 2021
Figure 4: Groundwater Elevation and Analytical Results- August 2021
Figure 5: Groundwater Elevation and Analytical Results- October 2021

Table 1: Groundwater Elevation Summary
Table 2: Groundwater Analytical Results

Enclosure A: 2021 Laboratory Analytical Reports
Enclosure B: 2021 Groundwater Sample Collection Forms

FIGURES

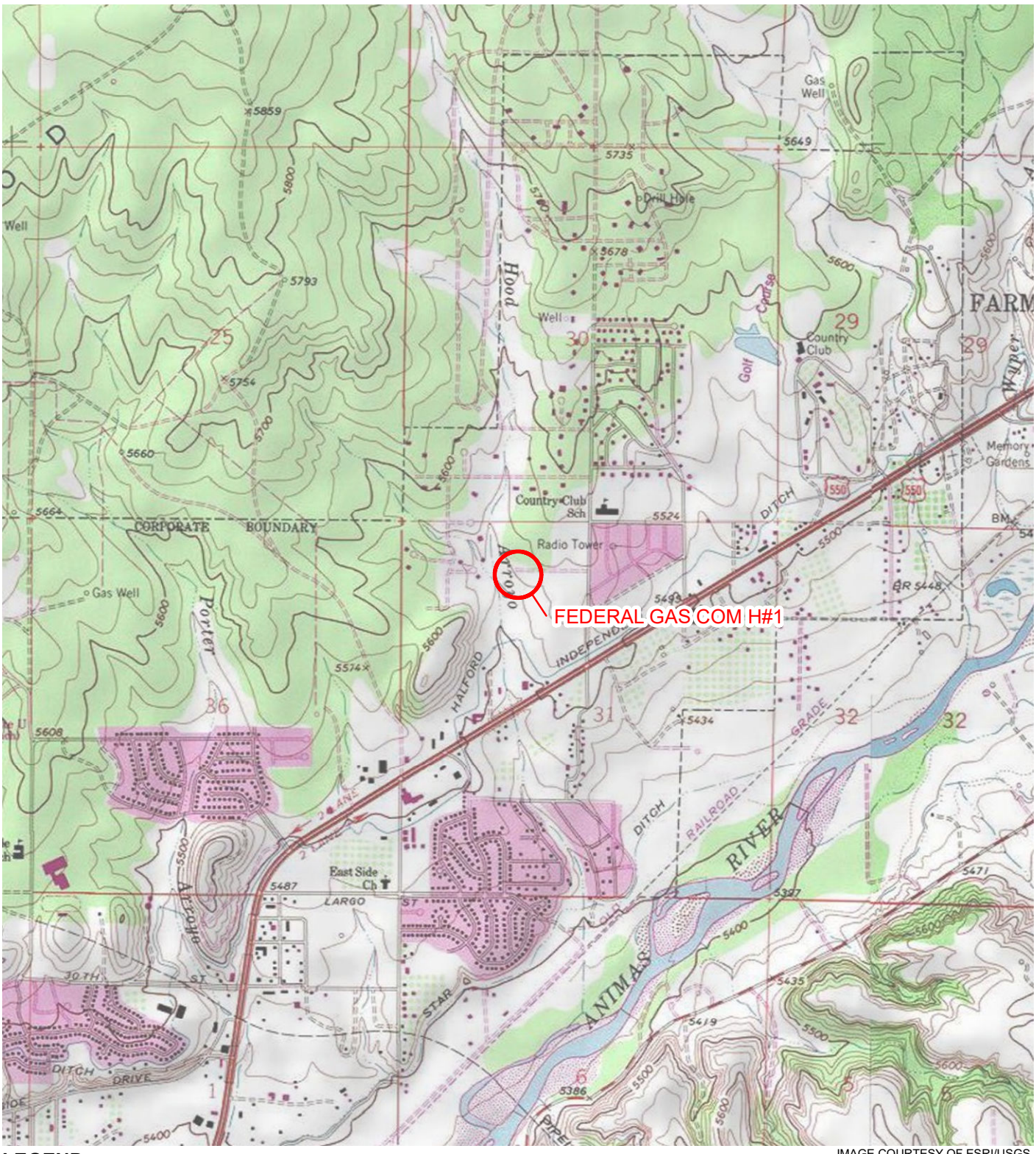

IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
FEDERAL GAS COM H#1
UNIT C SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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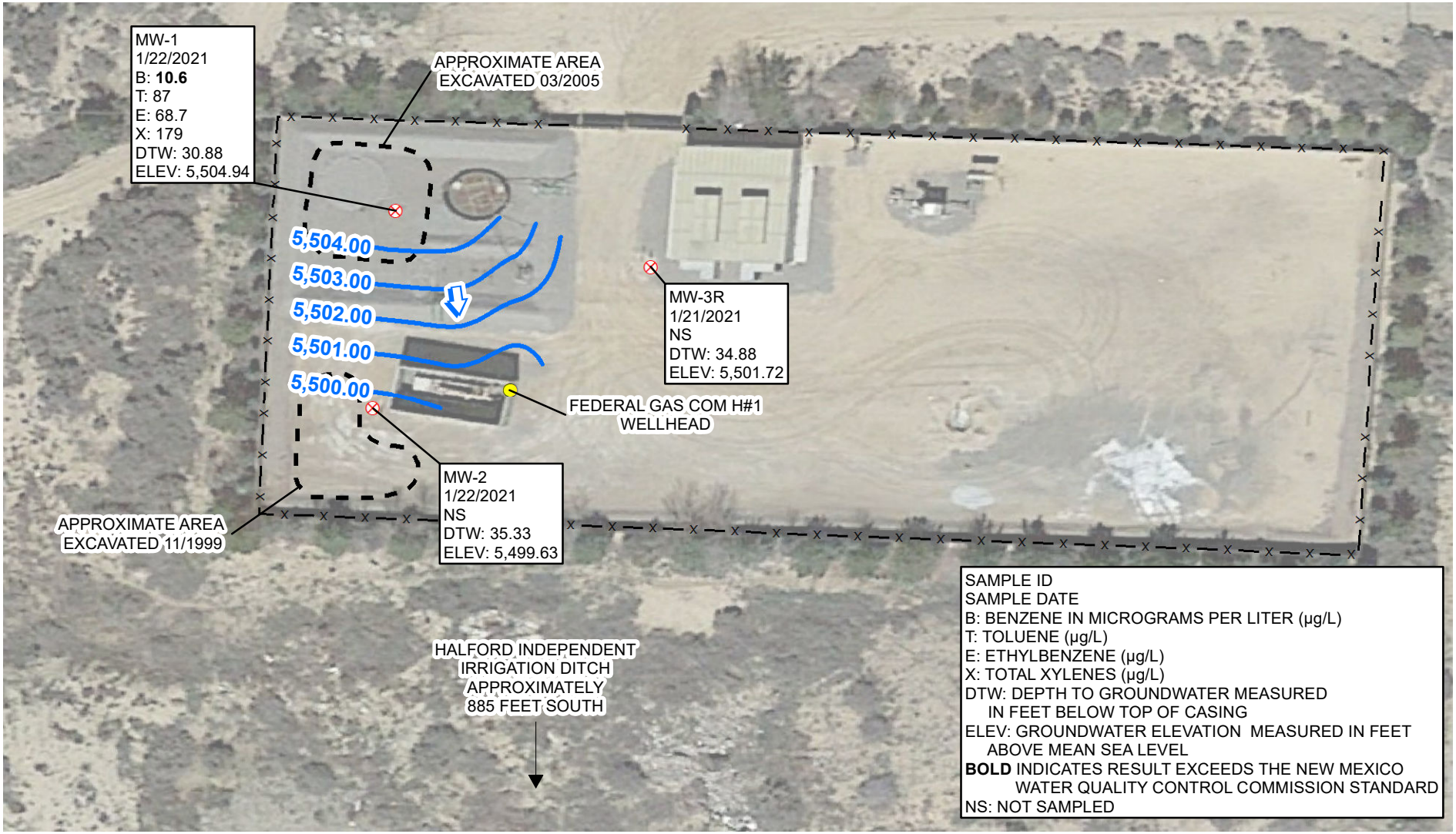

LEGEND

- MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- FENCE
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1.00 FOOT

GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

IMAGE COURTESY OF GOOGLE EARTH 2015

0 50 100
Feet

N

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (JANUARY 2021)
FEDERAL GAS COM H#1
UNIT C SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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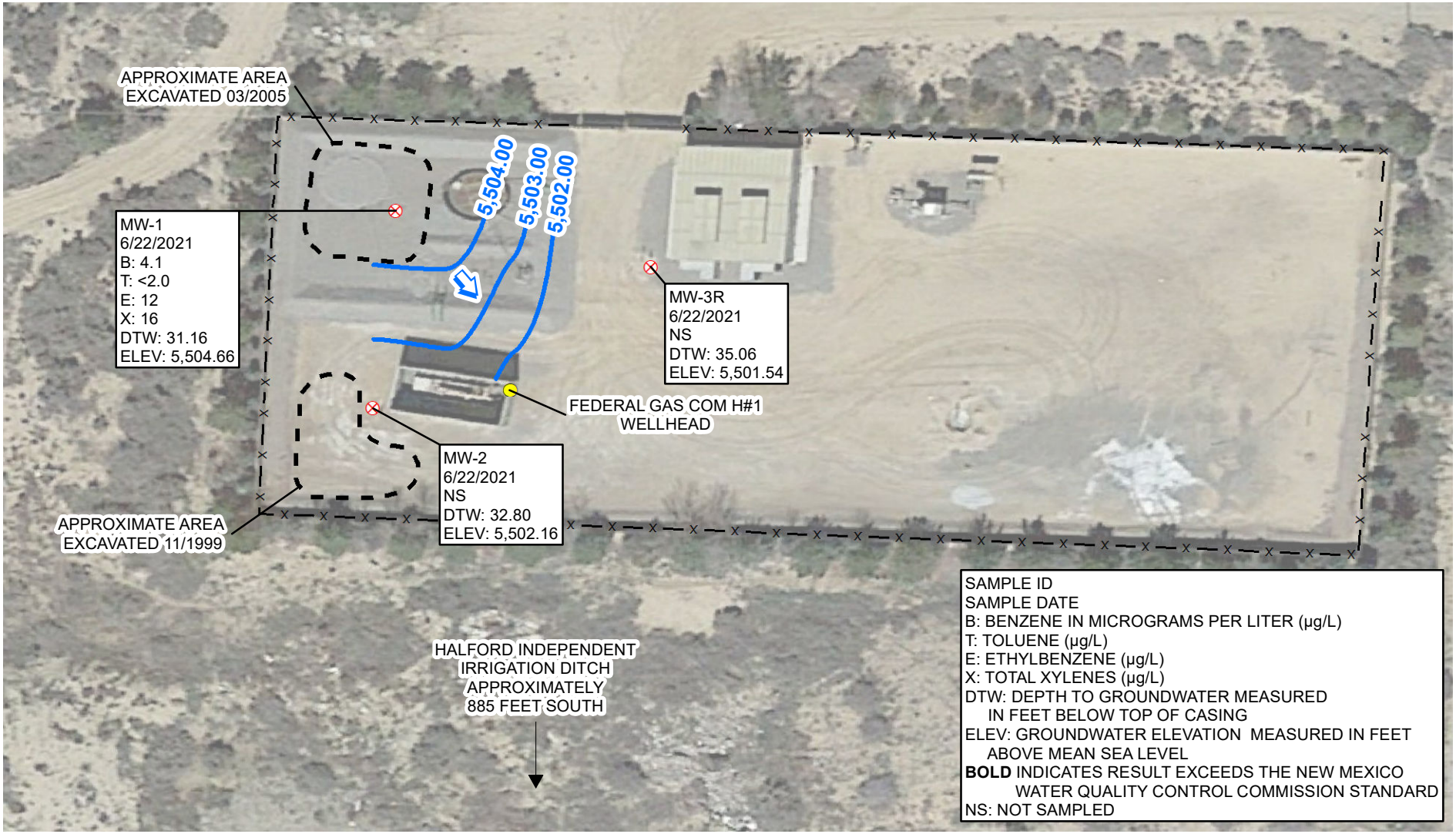

LEGEND

- MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- FENCE
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1.00 FOOT

GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

IMAGE COURTESY OF GOOGLE EARTH 2015

0 50 100
Feet

N

FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (JUNE 2021)
FEDERAL GAS COM H#1
UNIT C SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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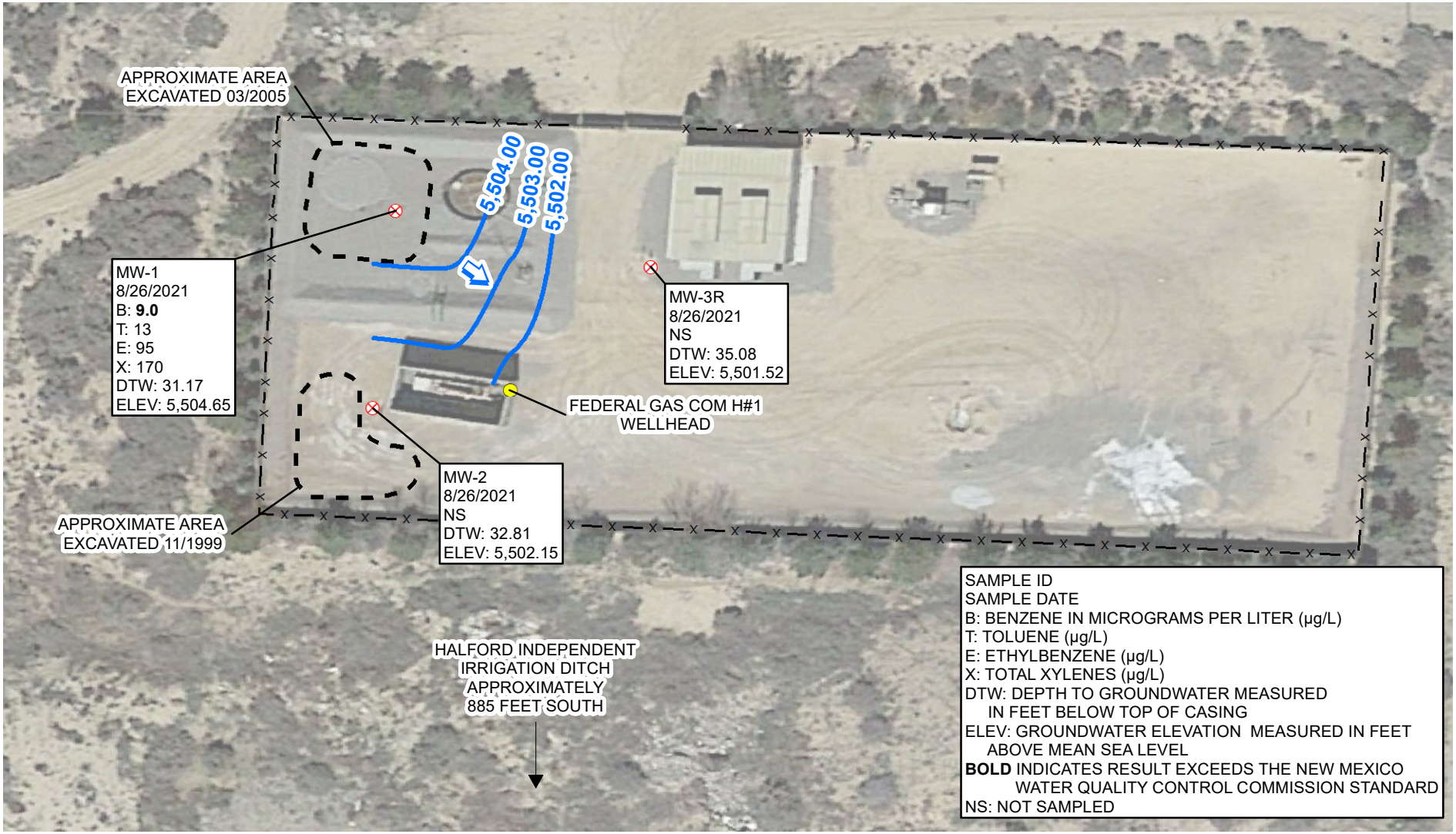

LEGEND

- MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- FENCE
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1.00 FOOT

GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

IMAGE COURTESY OF GOOGLE EARTH 2015

0 50 100
Feet

N

FIGURE 4
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (AUGUST 2021)
FEDERAL GAS COM H#1
UNIT C SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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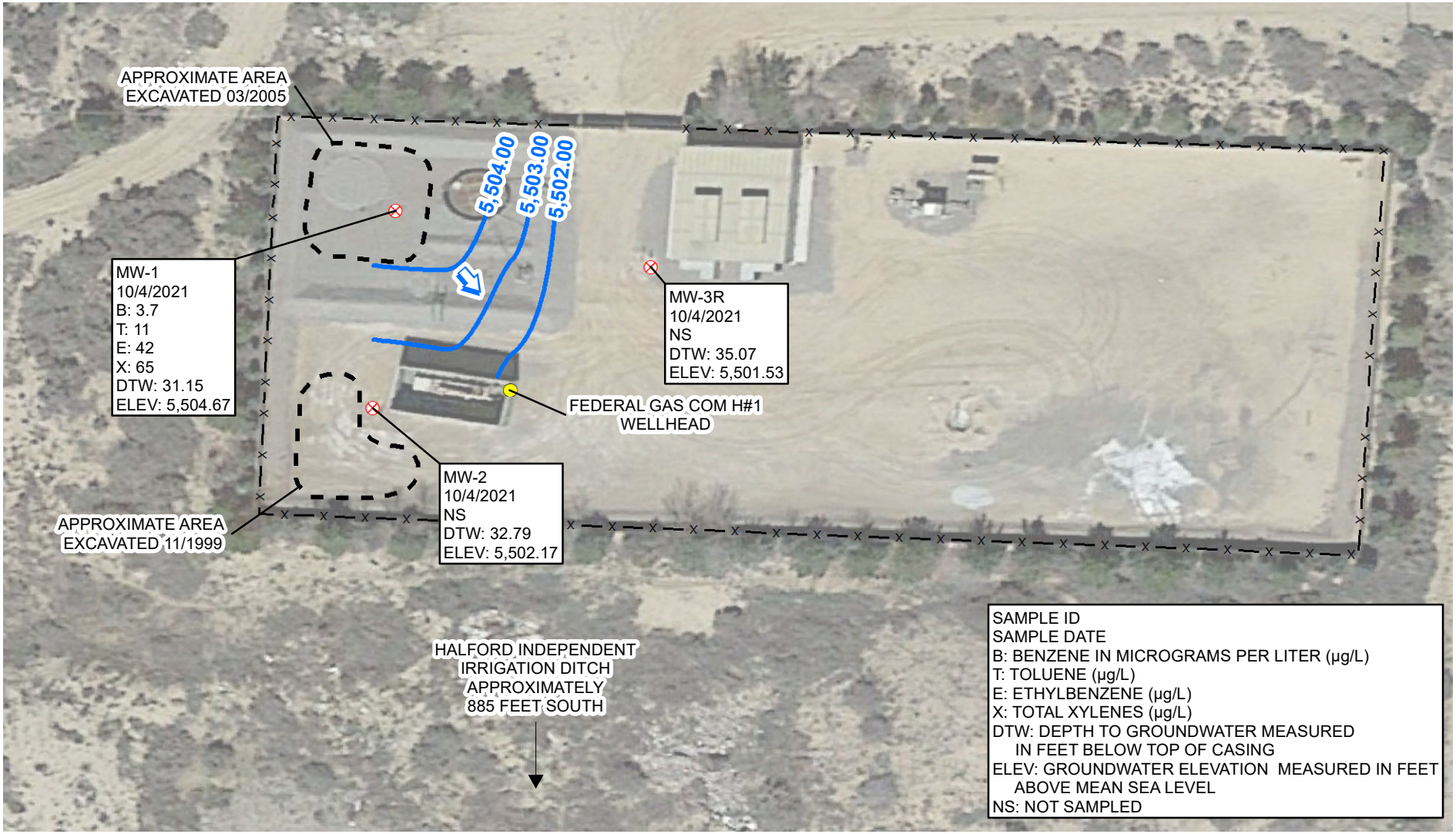

IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

- MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- FENCE
- GROUNDWATER ELEVATION CONTOUR
- CONTOUR INTERVAL = 1.00 FOOT

0 50 100
Feet

N

GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

FIGURE 5
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (OCTOBER 2021)
FEDERAL GAS COM H#1
UNIT C SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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TABLES

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	3/29/2007	31.34	5,504.48
MW-1	7/23/2007	31.55	5,504.27
MW-1	10/11/2007	31.09	5,504.73
MW-1	1/8/2008	31.26	5,504.56
MW-1	7/1/2008	31.40	5,504.42
MW-1	1/20/2009	31.29	5,504.53
MW-1	7/8/2009	31.58	5,504.24
MW-1	10/20/2009	31.31	5,504.51
MW-1	1/12/2010	31.29	5,504.53
MW-1	4/7/2010	31.03	5,504.79
MW-1	7/20/2010	31.11	5,504.71
MW-1	10/7/2010	30.51	5,505.31
MW-1	1/18/2011	30.56	5,505.26
MW-1	4/12/2011	30.83	5,504.99
MW-1	8/9/2011	30.92	5,504.90
MW-1	11/9/2011	30.46	5,505.36
MW-1	3/8/2012	30.64	5,505.18
MW-1	6/14/2012	31.00	5,504.82
MW-1	9/12/2012	31.11	5,504.71
MW-1	12/12/2012	31.05	5,504.77
MW-1	3/14/2013	29.94	5,505.88
MW-1	6/17/2013	30.98	5,504.84
MW-1	9/11/2013	31.05	5,504.77
MW-1	12/16/2013	30.14	5,505.68
MW-1	3/12/2014	30.33	5,505.49
MW-1	6/11/2014	30.36	5,505.46
MW-1	9/22/2014	30.46	5,505.36
MW-1	12/9/2014	30.17	5,505.65
MW-1	3/12/2015	30.25	5,505.57
MW-1	6/11/2015	29.95	5,505.87
MW-1	9/21/2015	29.57	5,506.25
MW-1	12/21/2015	29.75	5,506.07
MW-1	6/20/2016	30.30	5,505.52
MW-1	12/14/2016	30.29	5,505.53
MW-1	6/26/2017	29.98	5,505.84
MW-1	12/12/2017	30.19	5,505.63
MW-1	6/28/2018	30.55	5,505.27

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	12/10/2018	30.87	5,504.95
MW-1	3/18/2019	30.49	5,505.33
MW-1	6/19/2019	30.35	5,505.47
MW-1	7/10/2019	30.30	5,505.52
MW-1	9/26/2019	30.31	5,505.51
MW-1	12/9/2019	30.26	5,505.56
MW-1	3/13/2020	30.32	5,505.50
MW-1	6/22/2020	30.54	5,505.28
MW-1	8/31/2020	30.88	5,504.94
MW-1	11/13/2020	30.94	5,504.88
MW-1	1/22/2021	30.88	5,504.94
MW-1	6/22/2021	31.16	5,504.66
MW-1	8/26/2021	31.17	5,504.65
MW-1	10/4/2021	31.15	5,504.67
MW-2	3/29/2007	33.05	5,501.91
MW-2	7/23/2007	33.24	5,501.72
MW-2	10/11/2007	32.87	5,502.09
MW-2	1/8/2008	32.98	5,501.98
MW-2	7/1/2008	33.08	5,501.88
MW-2	1/20/2009	35.34	5,499.62
MW-2	7/8/2009	33.23	5,501.73
MW-2	10/20/2009	32.94	5,502.02
MW-2	1/12/2010	32.94	5,502.02
MW-2	4/7/2010	32.71	5,502.25
MW-2	7/20/2010	32.80	5,502.16
MW-2	10/7/2010	32.30	5,502.66
MW-2	1/18/2011	32.33	5,502.63
MW-2	4/12/2011	32.55	5,502.41
MW-2	8/9/2011	32.70	5,502.26
MW-2	11/9/2011	32.28	5,502.68
MW-2	3/8/2012	32.39	5,502.57
MW-2	6/14/2012	32.74	5,502.22
MW-2	9/12/2012	32.84	5,502.12
MW-2	12/12/2012	32.78	5,502.18
MW-2	3/14/2013	32.67	5,502.29

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-2	6/17/2013	32.68	5,502.28
MW-2	9/11/2013	32.76	5,502.20
MW-2	12/16/2013	31.90	5,503.06
MW-2	3/12/2014	32.05	5,502.91
MW-2	6/11/2014	32.15	5,502.81
MW-2	9/22/2014	32.28	5,502.68
MW-2	12/9/2014	32.03	5,502.93
MW-2	3/12/2015	31.96	5,503.00
MW-2	6/11/2015	31.82	5,503.14
MW-2	9/21/2015	31.47	5,503.49
MW-2	12/21/2015	31.61	5,503.35
MW-2	6/20/2016	32.11	5,502.85
MW-2	12/14/2016	32.14	5,502.82
MW-2	6/26/2017	31.90	5,503.06
MW-2	12/12/2017	32.03	5,502.93
MW-2	6/28/2018	32.35	5,502.61
MW-2	12/10/2018	32.62	5,502.34
MW-2	3/18/2019	32.31	5,502.65
MW-2	6/19/2019	32.22	5,502.74
MW-2	7/10/2019	32.12	5,502.84
MW-2	9/26/2019	32.12	5,502.84
MW-2	12/9/2019	32.04	5,502.92
MW-2	3/13/2020	32.09	5,502.87
MW-2	6/22/2020	32.32	5,502.64
MW-2	8/31/2020	32.60	5,502.36
MW-2	11/13/2020	Dry	Dry
MW-2	1/22/2021	35.33	5,499.63
MW-2	6/22/2021	32.80	5,502.16
MW-2	8/26/2021	32.81	5,502.15
MW-2	10/4/2021	32.79	5,502.17
MW-3	12/6/2006	34.76	5,504.79
MW-3	3/29/2007	34.85	5,504.70
MW-3	7/23/2007	35.00	5,504.55
MW-3	10/11/2007	34.55	5,505.00
MW-3	1/8/2008	31.74	5,507.81
MW-3	7/1/2008	34.86	5,504.69

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	1/20/2009	34.75	5,504.80
MW-3	7/8/2009	35.01	5,504.54
MW-3	10/20/2009	34.68	5,504.87
MW-3	1/12/2010	34.71	5,504.84
MW-3	4/7/2010	34.53	5,505.02
MW-3R	1/18/2011	34.69	5,501.91
MW-3R	4/12/2011	34.91	5,501.69
MW-3R	8/9/2011	35.01	5,501.59
MW-3R	11/9/2011	34.59	5,502.01
MW-3R	3/8/2012	34.72	5,501.88
MW-3R	6/14/2012	35.04	5,501.56
MW-3R	9/12/2012	35.13	5,501.47
MW-3R	12/12/2012	35.07	5,501.53
MW-3R	3/14/2013	34.97	5,501.63
MW-3R	6/17/2013	34.98	5,501.62
MW-3R	9/11/2013	35.05	5,501.55
MW-3R	12/16/2013	34.28	5,502.32
MW-3R	3/12/2014	34.43	5,502.17
MW-3R	6/11/2014	34.57	5,502.03
MW-3R	9/22/2014	34.60	5,502.00
MW-3R	12/9/2014	34.35	5,502.25
MW-3R	3/12/2015	34.31	5,502.29
MW-3R	6/11/2015	34.19	5,502.41
MW-3R	9/21/2015	33.83	5,502.77
MW-3R	12/21/2015	33.95	5,502.65
MW-3R	6/20/2016	34.55	5,502.05
MW-3R	12/14/2016	34.45	5,502.15
MW-3R	6/26/2017	34.17	5,502.43
MW-3R	12/12/2017	34.31	5,502.29
MW-3R	6/28/2018	34.65	5,501.95
MW-3R	12/10/2018	34.92	5,501.68
MW-3R	3/18/2019	34.71	5,501.89
MW-3R	6/19/2019	34.52	5,502.08
MW-3R	7/10/2019	34.49	5,502.11
MW-3R	9/26/2019	34.36	5,502.24
MW-3R	12/9/2019	34.31	5,502.29
MW-3R	3/13/2020	34.35	5,502.25

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3R	6/22/2020	34.58	5,502.02
MW-3R	8/31/2020	34.89	5,501.71
MW-3R	11/13/2020	34.96	5,501.64
MW-3R	1/21/2021	34.88	5,501.72
MW-3R	6/22/2021	35.06	5,501.54
MW-3R	8/26/2021	35.08	5,501.52
MW-3R	10/4/2021	35.07	5,501.53

Notes:

AMSL - above mean sea level

BTOC - below top of casing

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**5**	**1,000**	**700**	**620**
MW-1	3/12/2015	**8.0**	26	72	140
MW-1	6/11/2015	**44**	220	320	**980**
MW-1	9/21/2015	**65.9**	391	212	599
MW-1	12/21/2015	**105**	105	205	**634**
MW-1	6/20/2016	**37.6**	182	239	**626**
MW-1	12/14/2016	**19.0**	118	118	323
MW-1	6/26/2017	**13.7**	85.2	87.3	250
MW-1	12/12/2017	**10.5**	20.6	31.2	65.5
MW-1	6/28/2018	**14**	160	94	290
MW-1	12/10/2018	3.8	17	23	53
MW-1	3/18/2019	**7.1**	72	68	150
MW-1	7/10/2019	**8.6**	92	58	150
MW-1	9/26/2019	**13**	73	67	170
MW-1	12/9/2019	**10**	60	69	140
MW-1	3/13/2020	**14**	190	71	270
MW-1	6/22/2020	**8.4**	61	50	130
MW-1	8/31/2020	**15.3**	141	94	333
MW-1	11/13/2020	**7.5**	60	86	216
MW-1	1/22/2021	**10.6**	87	68.7	179
MW-1	6/22/2021	4.1	<2.0	12	16
MW-1	8/26/2021	**9.0**	13	95	170
MW-1	10/4/2021	3.7	11	42	65
MW-2	3/29/2007	**55**	ND	39	60
MW-2	7/23/2007	**39**	ND	25	9.2
MW-2	10/11/2007	**86**	ND	97	140
MW-2	1/8/2008	**65**	ND	82	56
MW-2	7/1/2008	**15**	ND	22	7.3

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

FEDERAL GAS COM H #1
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**5**	**1,000**	**700**	**620**
MW-2	1/20/2009	**38**	ND	85	49
MW-2	7/8/2009	**7.5**	ND	13	3
MW-2	10/20/2009	**20**	<1.0	31	29
MW-2	1/12/2010	**22**	<1.0	54	41
MW-2	4/7/2010	**37**	1.3	110	130
MW-2	7/20/2010	**17**	<1.0	94	92
MW-2	10/7/2010	**34**	<5	120	140
MW-2	1/18/2011	**30**	<50	160	170
MW-2	4/12/2011	**25**	<25	62	100
MW-2	8/9/2011	4	<1	9.8	33.2
MW-2	11/9/2011	**26**	<5	160	160
MW-2	3/8/2012	**9.3**	<10	79	90
MW-2	6/14/2012	2.6	<5	29	44
MW-2	9/12/2012	0.91	<5	8.8	5.2
MW-2	12/12/2012	0.71	<5	3.5	3.9
MW-3	12/6/2006	ND	ND	ND	ND
MW-3	3/29/2007	ND	ND	ND	ND
MW-3	7/23/2007	ND	ND	ND	ND
MW-3	10/11/2007	ND	ND	ND	ND
MW-3*	1/8/2008	ND	ND	ND	ND

Notes:

µg/L - micrograms per liter

ND - Not detected above the laboratory detection limit

NMWQCC - New Mexico Water Quality Control Commission

BOLD values exceed the NMWQCC Standard

< - indicates result is less than the stated laboratory method detection limit

* MW-3 was abandoned on May 10, 2010

ENCLOSURE A – 2021 LABORATORY ANALYTICAL REPORTS

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

February 02, 2021

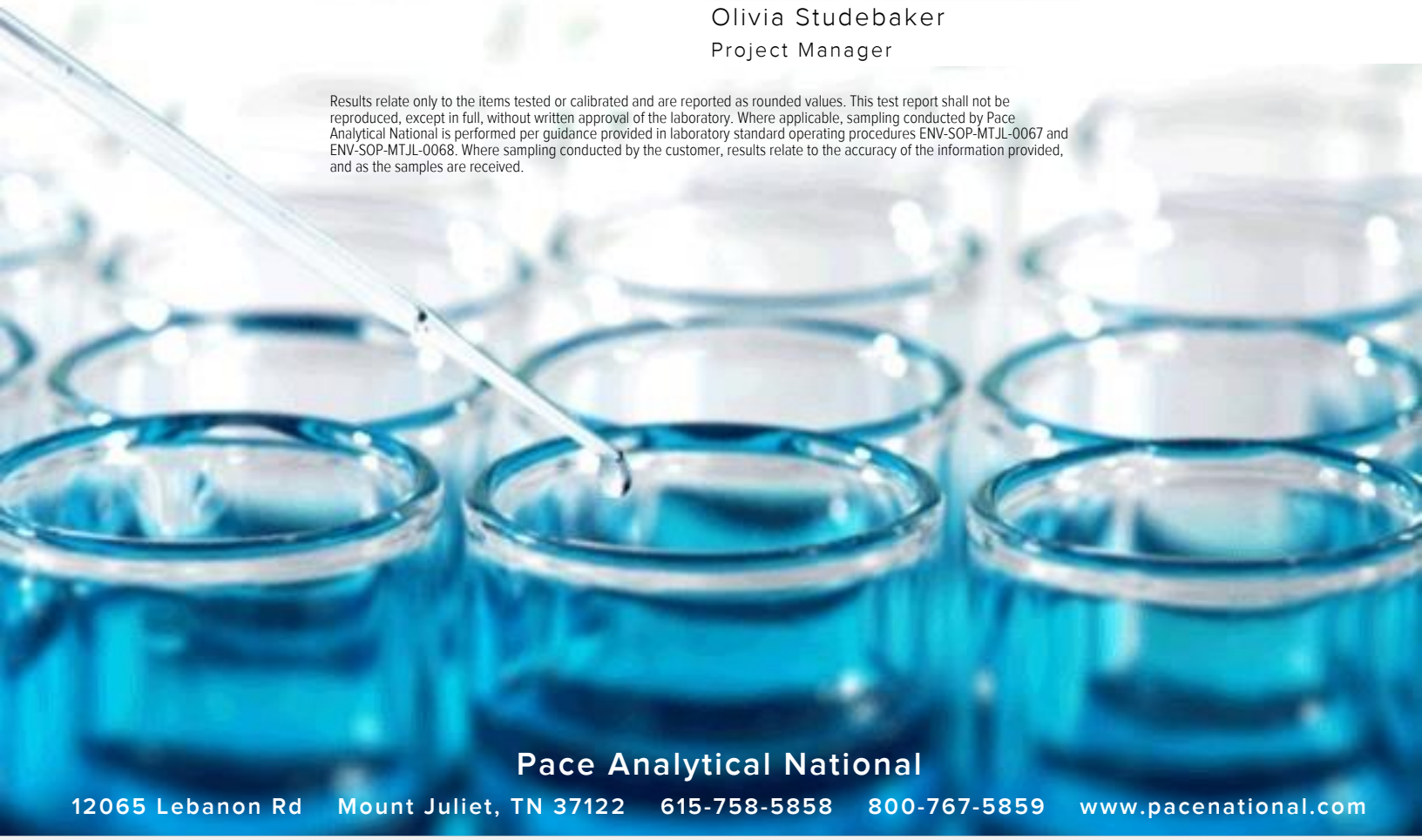
HilCorp-Farmington, NM

Sample Delivery Group:	L1310911
Samples Received:	01/27/2021
Project Number:	
Description:	Federal GC H 1
Site:	FEDERAL GC H 1
Report To:	Kurt Hoekstra 382 Road 3100 Aztec, NM 87410

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1
Tc: Table of Contents 2
Ss: Sample Summary 3
Cn: Case Narrative 4
Sr: Sample Results 5
MW-1 L1310911-01 5
Qc: Quality Control Summary 6
Volatile Organic Compounds (GC/MS) by Method 8260B 6
Gl: Glossary of Terms 7
Al: Accreditations & Locations 8
Sc: Sample Chain of Custody 9

MW-1 L1310911-01 GW

			Collected by	Collected date/time	Received date/time
			KURT	01/22/21 08:43	01/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1613599	1	01/30/21 04:33	01/30/21 04:33	JCP	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker
Project Manager

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0106		0.00100	1	01/30/2021 04:33	WG1613599
Toluene	0.0865		0.00100	1	01/30/2021 04:33	WG1613599
Ethylbenzene	0.0687		0.00100	1	01/30/2021 04:33	WG1613599
Total Xylenes	0.179		0.00300	1	01/30/2021 04:33	WG1613599
(S) Toluene-d8	*97.4*		*80.0-120*		*01/30/2021 04:33*	WG1613599
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*01/30/2021 04:33*	WG1613599
(S) 1,2-Dichloroethane-d4	*78.8*		*70.0-130*		*01/30/2021 04:33*	WG1613599

Volatile Organic Compounds (GC/MS) by Method 8260B

Method Blank (MB)

(MB) R3618292-3 01/29/21 22:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*99.2*			*80.0-120*
(S) 4-Bromofluorobenzene	*98.8*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*76.6*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3618292-1 01/29/21 21:06 • (LCSD) R3618292-2 01/29/21 21:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00520	0.00535	104	107	70.0-123			2.84	20
Ethylbenzene	0.00500	0.00489	0.00483	97.8	96.6	79.0-123			1.23	20
Toluene	0.00500	0.00526	0.00524	105	105	79.0-120			0.381	20
Xylenes, Total	0.0150	0.0144	0.0147	96.0	98.0	79.0-123			2.06	20
(S) Toluene-d8				*99.9*	*101*	*80.0-120*				
(S) 4-Bromofluorobenzene				*101*	*98.1*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*81.6*	*79.1*	*70.0-130*				

L1310897-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1310897-08 01/30/21 04:13 • (MS) R3618292-4 01/30/21 05:34 • (MSD) R3618292-5 01/30/21 05:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.0145	0.0192	0.0179	94.0	68.0	1	17.0-158			7.01	27
Ethylbenzene	0.00500	0.0328	0.0385	0.0349	114	42.0	1	30.0-155			9.81	27
Toluene	0.00500	0.134	0.140	0.126	120	0.000	1	26.0-154		V	10.5	28
Xylenes, Total	0.0150	0.264	0.282	0.256	120	0.000	1	29.0-154		V	9.67	28
(S) Toluene-d8					*100*	*98.8*		*80.0-120*				
(S) 4-Bromofluorobenzene					*99.6*	*103*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*78.1*	*80.0*		*70.0-130*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN, 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

Pace Analytical National 1313 Point Mallard Parkway SE Suite B Decatur, AL, 35601

Alabama	40160
ANSI National Accreditation Board	L2239

Pace Analytical National 660 Bercut Dr. Ste. C Sacramento, CA, 95811

California	2961	Oregon	CA300002
Minnesota	006-999-465	Washington	C926
North Dakota	R-214		

Pace Analytical National 6000 South Eastern Avenue Ste 9A Las Vegas, NV, 89119

Nevada	NV009412021-1

Pace Analytical National 1606 E. Brazos Street Suite D Victoria, TX, 77901

Texas	T104704328-20-18

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

HilCorp-Farmington, NM

382 Road 3100
Aztec, NM 87410

Billing Information:
~~Clara Cardoza~~
~~PO Box 61529~~
~~Houston, TX 77208~~
JENNIFER DEAL

Report to: Kurt Hoekstra

Email To: jdeal@hilcorp.com;khoekstra@hilcorp.com

Project Description: Federal GC H 1

City/State Collected:

Please Circle: PT MT CT ET

Phone: 505-486-9543

Client Project #

Lab Project # HILCORANM-FEDERALGCH

Collected by (print): KURT

Collected by (signature): Kurt Hoekstra

Immediately Packed on Ice N ___ Y X

Site/Facility ID # FEDERAL GC H 1

P.O. #

Quote #

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	V8260BTEX 40mlAmb-HCl										Remarks	Sample # (lab only)
MW-1		GW		1-22	8:43	3	X											-01

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

D190

Table # 713041

Acctnum: HILCORANM

Template: T170509

Prelogin: P816023

PM: 823 - Olivia Studebaker

PB: CR 12/9/2020

Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

	Date:	Time:		
Relinquished by: (Signature) Kurt Hoekstra	1-25-21	12:45	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by: (Signature)			Received by: (Signature)	Temp: NA °C Bottles Received: 3
Relinquished by: (Signature)			Received for lab by: (Signature)	Date: 1/27 Time: 0530

If preservation required by Login: Date/Time

Hold:

Condition: NCF OK

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 28, 2021

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

RE: Federal GC H 1 OrderNo.: 2106B97

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/23/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2106B97**
Date Reported: **6/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW 1
Project: Federal GC H 1 **Collection Date:** 6/22/2021 1:15:00 PM
Lab ID: 2106B97-001 **Matrix:** GROUNDWA **Received Date:** 6/23/2021 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	4.1	2.0		µg/L	2	6/23/2021 10:03:00 PM	R79292
Toluene	ND	2.0		µg/L	2	6/23/2021 10:03:00 PM	R79292
Ethylbenzene	12	2.0		µg/L	2	6/23/2021 10:03:00 PM	R79292
Xylenes, Total	16	3.0		µg/L	2	6/23/2021 10:03:00 PM	R79292
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	2	6/23/2021 10:03:00 PM	R79292
Surr: Dibromofluoromethane	98.0	70-130		%Rec	2	6/23/2021 10:03:00 PM	R79292
Surr: Toluene-d8	96.0	70-130		%Rec	2	6/23/2021 10:03:00 PM	R79292

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2106B97** RcptNo: 1

Received By: **Scott Anderson** **6/23/2021 8:45:00 AM** SPL

Completed By: **Desiree Dominguez** **6/23/2021 10:04:19 AM** DD

Reviewed By: IO 6-23-21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☑ No ☐
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPH 6/23/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

1 of 3 VOAs reveived broken. -DAD 6/23/21

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good				

Chain-of-Custody Record

Client: Hilcorp Energy

Mailing Address: Jennifer Deal

Phone #: Jdeal@hilcorp.com

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Federal GC H #1

Project #: TE01781800 7

Project Manager: Josh Adams

Sampler: Travis Short

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.3-0.1=1.2 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2106B97	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)						
6/22	1315	GW	MW 1	3(VOA)	HCl	-001	X															

Date: 6/22 Time: 1340 Relinquished by:

Received by: Via: Date: 6/22 Time: 1340

Date: 6/22 Time: 1540 Relinquished by:

Received by: SPA CDO Via: Date: 6.23.21 Time: 8:45

Remarks: Please CC Josh.adams@WSP.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 03, 2021

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

RE: Federal GC H 1 OrderNo.: 2108G57

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/28/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2108G57**
Date Reported: **9/3/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Federal GC H 1 **Collection Date:** 8/26/2021 1:40:00 PM
Lab ID: 2108G57-001 **Matrix:** GROUNDWA **Received Date:** 8/28/2021 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	9.0	1.0		µg/L	1	9/1/2021 12:17:39 PM	C80955
Toluene	13	1.0		µg/L	1	9/1/2021 12:17:39 PM	C80955
Ethylbenzene	95	10		µg/L	10	9/1/2021 6:12:45 PM	C80955
Xylenes, Total	170	2.0		µg/L	1	9/1/2021 12:17:39 PM	C80955
Surr: 4-Bromofluorobenzene	450	70-130	S	%Rec	1	9/1/2021 12:17:39 PM	C80955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108G57**

03-Sep-21

Client: HILCORP ENERGY

Project: Federal GC H 1

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **C80955**	RunNo: **80955**
Prep Date:	Analysis Date: **9/1/2021**	SeqNo: **2857936** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		96.7	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **C80955**	RunNo: **80955**
Prep Date:	Analysis Date: **9/1/2021**	SeqNo: **2857937** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.2	80	120			
Toluene	18	1.0	20.00	0	92.2	80	120			
Ethylbenzene	18	1.0	20.00	0	92.1	80	120			
Xylenes, Total	55	2.0	60.00	0	91.7	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		98.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2108G57** RcptNo: 1

Received By: **Desiree Dominguez** 8/28/2021 9:30:00 AM DD

Completed By: **Sean Livingston** 8/30/2021 8:33:52 AM

Reviewed By: DAD 8/30/21

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	# of preserved bottles checked for pH: (<2 or >12 unless noted)
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: KRK 8/30/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good				

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address:

Phone #:

email or Fax#: mitch Killough

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☒ EDD (Type)

Turn-Around Time:

☒ Standard ☐ **Rush**

Project Name: Federal Gc H #1

Project #:

Project Manager: Josh Adams - WSP

Sampler: Eric Carroll

On Ice: ☒ Yes ☐ No

# of Coolers: \

Cooler Temp(including CF): 2.2 - 0.2 = 2.0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108657	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)						
8-26	13:40	GW	MW-1	3 VOA	HCl	001	X															

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8-27	13:00	Eric Carroll				
8/27/21	1937	Christine Walker		courier	8/28/21	9:30

Remarks:

CC: eric.carroll@wsp.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 20, 2021

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

RE: Federal GC H1 OrderNo.: 2110152

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/5/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2110152**
Date Reported: **10/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW-1
Project: Federal GC H1 **Collection Date:** 10/4/2021 1:03:00 PM
Lab ID: 2110152-001 **Matrix:** AQUEOUS **Received Date:** 10/5/2021 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**
Benzene	3.7	1.0		µg/L	1	10/13/2021 2:04:00 PM
Toluene	11	1.0		µg/L	1	10/13/2021 2:04:00 PM
Ethylbenzene	42	1.0		µg/L	1	10/13/2021 2:04:00 PM
Xylenes, Total	65	1.5		µg/L	1	10/13/2021 2:04:00 PM
Surr: 1,2-Dichloroethane-d4	90.7	70-130		%Rec	1	10/13/2021 2:04:00 PM
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	10/13/2021 2:04:00 PM
Surr: Dibromofluoromethane	91.5	70-130		%Rec	1	10/13/2021 2:04:00 PM
Surr: Toluene-d8	99.9	70-130		%Rec	1	10/13/2021 2:04:00 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2110152**

20-Oct-21

Client: HILCORP ENERGY

Project: Federal GC H1

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **LCSW** Batch ID: **SL81970** RunNo: **81970**

Prep Date: Analysis Date: **10/12/2021** SeqNo: **2902774** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.9	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.3	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **PBW** Batch ID: **SL81970** RunNo: **81970**

Prep Date: Analysis Date: **10/12/2021** SeqNo: **2902775** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.5	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **LCSW** Batch ID: **SL82008** RunNo: **82008**

Prep Date: Analysis Date: **10/13/2021** SeqNo: **2903974** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.3	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.9	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.2	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.4	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260: Volatiles Short List**

Client ID: **PBW** Batch ID: **SL82008** RunNo: **82008**

Prep Date: Analysis Date: **10/13/2021** SeqNo: **2903975** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.4	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.7	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.5	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2110152 RcptNo: 1

Received By: Sean Livingston 10/5/2021 8:15:00 AM S Livingston

Completed By: Isaiah Ortiz 10/5/2021 8:38:56 AM I-Ox

Reviewed By: KPA 10/05/21

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted? _____

Checked by: TMC 10/5/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			

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#: khoekstra@hilcorp.com

QA/QC Package: ~~kkoekstra@hilcorp.com~~ mkillough@hilcorp.com

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other_____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush_____

Project Name:

Federal GC H1

Project #:

Project Manager:

MITCH Killough ~~MITCH KATE KALTEMAN~~

Sampler: Kurt Hoekstra

On Ice: ~~X~~ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.1 +0.2=4.1 °C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2110157	BTEX Method 8260
10-4	1003	Water	MW-1	(3) 40ml VOA	HCL	001	X
			~~Trip Blank~~				~~X~~

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10-4	1540	Kurt Hoekstra	Christine Walker		10/4/21	1540
10/4/21	1746	Christine Walker	See courier		10/5/21	8:15

Remarks: Special Pricing See Andy

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

ENCLOSURE B – 2021 GROUNDWATER SAMPLE COLLECTION FORMS

Groundwater Sample Collection Form

Project Name: _____ Project Location: Federal Gas Com H # 1
Project Number: _____ Sampler: Kurt

Sample ID: MW # 1 Matrix: GW
Sample Date: 1/22/2021 Sample Time: 8:43
Laboratory: Pace Shipping Method: _____
Analyses: BTEX 8021

Depth to Water: 30.88 Total Depth of Well: 34.68
Time: 10:52 Depth to Product: _____

Vol. of Water to Purge: 1.85 Gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
8:43		1.85	6.16	11.2 C	3.74 ms	

Comments: _____

Describe Deviations from SOP: _____

Signature: Kurt Hoekstra **Date:** 1/22/2021

WSP USA Inc.
848 E. 2nd Ave.
Durango, Colorado 81301
T 970.385.1096

Groundwater Sample Collection Form

Project Name: Semi-Annual Groundwater Monitoring
Project Number:
Project Location: Federal GC H#1
Sampler: Travis Short

Sample ID: MW1
Sample Date: 6/22/2021
Laboratory: Hall Environmental
Analyses: BTEX 8021
Matrix: Groundwater
Sample Time: 1315
Shipping Method: Hand Delivery

Depth to Water: 31.16
Time: 1255
Total Depth of Well: 34.70
Depth to Product: -

Vol. of Water to Purge: 1.7 gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: PVC Bailer
Method of Sampling: PVC Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F) C	Conductivity (us or ms)	Comments
1256	0.5	0.5	7.01	17.11	6.11	Clear, Strong Hc odor
1300	0.5	1	7.01	17.02	6.09	↓
1304	0.5	1.5	7.01	16.89	6.11	

Comments: bailed dry @ 1.5 gal

Describe Deviations from SOP: None

Signature: [signature] Date: 6/22/2021

Groundwater Sample Collection Form

Project Name: Federal GC H#1
Project Number:
Project Location: Federal GC H#1
Sampler: EC

Sample ID: MW-1
Sample Date: 8-26-21
Laboratory: Hall
Analyses: BTEX
Matrix: GW
Sample Time: 1340
Shipping Method: Hand Deliver

Depth to Water: 31.17
Time: 1300
Total Depth of Well: ~~Hand~~ 34.70
Depth to Product: NA

Vol. of Water to Purge: ~1.75gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: PVC bailer
Method of Sampling: PVC bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. ~~(F)~~ C	Conductivity (us or (ms))	Comments
	0.5	0.5	7.04	17.45	6.25	clear, strong HC odor
	0.5	1	7.03	17.22	6.46	" "
	0.5	1.5	7.11	16.98	6.43	" "
	0.25	1.75	7.10	16.90	6.43	" "

Comments: sampled @ 1340, clear, HC odor

Describe Deviations from SOP: none

Signature: Eric Carroll
Date: 8/26/21

Groundwater Sample Collection Form

Project Name: _____ Project Location: Federal Gas Com H # 1
Project Number: _____ Sampler: Kurt

Sample ID: MW # 1 Matrix: GW
Sample Date: 10/4/2021 Sample Time: 1:03
Laboratory: Pace Shipping Method: _____
Analyses: BTEX 8260

Depth to Water: 31.15 Total Depth of Well: 34.68
Time: _____ Depth to Product: _____

Vol. of Water to Purge: 1.73 Gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (C)	Conductivity (us or ms)	Comments
1:03		1.75	6.03	20.5 C	3.74 ms	sewer odor

Comments: _____

Describe Deviations from SOP: _____

Signature: Kurt Hoekstra **Date:** 10/4/2021

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

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

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 87275
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 2021 Annual Groundwater Monitoring Report for Federal Gas Com H#1: Content Satisfactory 1. Continue to conduct groundwater monitoring until eight (8) consecutive monitoring events below the allowable concentrations in the NMWQCC have been achieved. 2. Submit the 2022 and 2023 Annual Groundwater monitoring reports (if not already submitted). 3. Submit the 2024 Annual Groundwater Monitoring Report by April 1, 2025.	5/13/2024