Review of 2020 Annual Groundwater Report: Content satisfactory

1. Continue quarterly sampling from monitoring well MW-1R to examine BTEX concentrations in groundwater
2. Submit the Annual Monitoring Report to the OCD no later than March 31, 2022

Hilcorp

February 17, 2021

Mr. Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

RE: 2020 Annual Groundwater Report
Hilcorp Energy Company
McCoy Gas Com D 1E – 3RP-414 (Incident #NCS2105634419)
San Juan County, New Mexico

Dear Mr. Smith:

Hilcorp Energy Company (Hilcorp) presents the following annual report discussing ground water monitoring activities conducted at the McCoy Gas Com D 1E natural gas production well (Site) during 2020. Groundwater was impacted by a former earthen pit previously utilized at the site. Hilcorp acquired the production well in August 2017 from XTO Energy Inc. (XTO), which previously acquired the well from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone Formation and is currently active. The Site is located in Unit E of Section 28 within Township 30N and R12W in San Juan County, New Mexico. The Halford Independent Irrigation Ditch, which flows during the summer months, while remaining dry during the winter months, runs directly south of the site. A topographic map is attached as Figure 1. Currently, there are three monitoring wells on site which were previously monitored semi-annually but changed to quarterly starting in 2020. This report represents the results for 2020 monitoring events. A full history of this site can be found in the annual reports previously submitted.

Methodology

In 2020, quarterly depth to groundwater data were collected from monitoring wells MW-1R, MW-2, and MW-3. Quarterly groundwater samples were collected from groundwater monitoring well MW-1R and submitted to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, NM and PACE Analytical in Mount Juliet, TN for analysis of BTEX by US EPA Method 8021B.

Static groundwater level monitoring included measuring depth to groundwater with a Keck oil/water interface probe. Presence of free-phase product was investigated using the interface probe. The interface probe was decontaminated with soap and rinsed with de-ionized water prior to each measurement.

The volume of groundwater in monitoring well MW-1 was calculated and a minimum of three well casing volumes of groundwater were purged from the monitoring well (unless the monitoring well purged dry) using a new disposable polyvinyl chloride (PVC) bailer or a dedicated PVC bailer. All purge water was disposed of into Hilcorp's on-site tanks. Once the monitoring well was purged, groundwater samples were collected by filling three 40-mililiter (mL) glass vials. The laboratory supplied vials were filled and capped with zero headspace to prevent degradation of the sample. Samples were labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. They were immediately sealed, packed on ice, and submitted for analysis of BTEX. 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, analysis required, and sample collector's signature. Laboratory analytical reports are presented in Attachment 1.

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Conclusions

No measurable free-phase product was observed in groundwater monitoring wells MW-1R, MW-2, or MW-3 during 2020. No BTEX concentrations exceeding the NMWQCC standards were detected during the 2020 sampling events, but ethylbenzene concentrations of 130 micrograms per liter (µg/l), 21 (µg/l), 7 (µg/l), and 40 (µg/l) were detected in monitoring well MW-1R in March, June, August, and November sampling events, respectively. Total Xylene concentrations were detected at 110 (µg/l), 12 (µg/l) and 98 (µg/l) in March, June, and November, respectively.

As documented in past reports, groundwater elevations vary by as much as 10 feet depending upon the presence or absence of water in the adjacent Halford Independent Irrigation Ditch. Groundwater flows away from the irrigation ditch when the ditch contains water and toward the irrigation ditch when the ditch is dry. The groundwater analytical results for 2020 monitoring events are presented in Figures 2, 3, 4 and 5. Groundwater potentiometric contours were inferred for monitoring events when the irrigation ditch contained flowing water and when dry.

Recommendations

Hilcorp proposes to continue quarterly sampling for monitoring well MW-1R to monitor BTEX concentrations in groundwater. If BTEX concentrations are below NMWQCC standards for eight consecutive quarters, Hilcorp will request closure of the site. Depth to groundwater in monitoring wells MW-1R, MW-2, and MW-3 will be measured quarterly in 2021.

If you have any questions or comments regarding this work plan, do not hesitate to contact me.

Sincerely,

Jennifer Deal

Jennifer Deal
Environmental Specialist
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505-324-5128 – Office
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Attachments:

- Figure 1-5
- Table 1 – Groundwater Elevation Summary
- Table 2 – Groundwater Analytical Results Summary
- Attachment 1 – Analytical Laboratory Reports

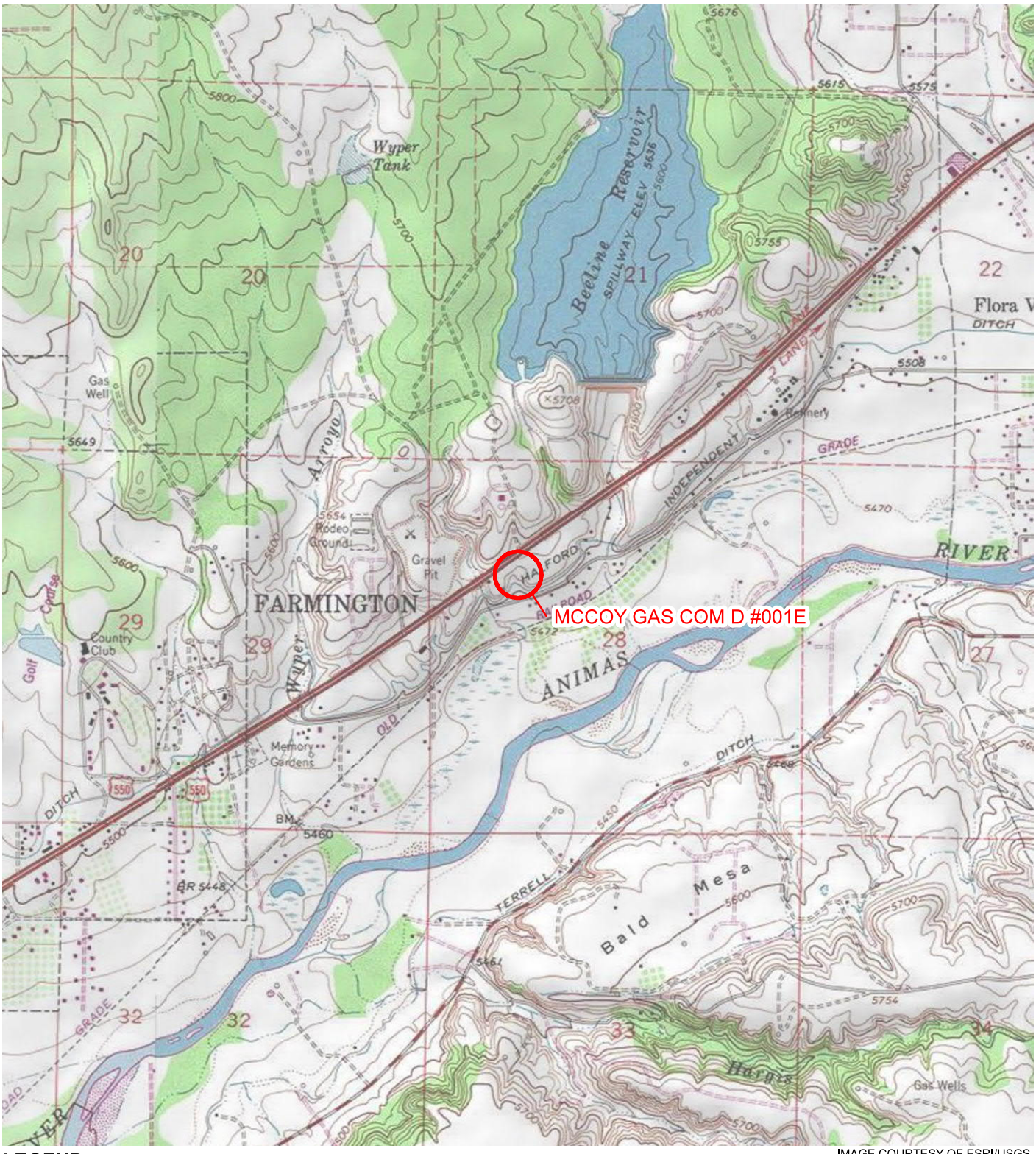


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
MCCOY GAS COM D #001E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

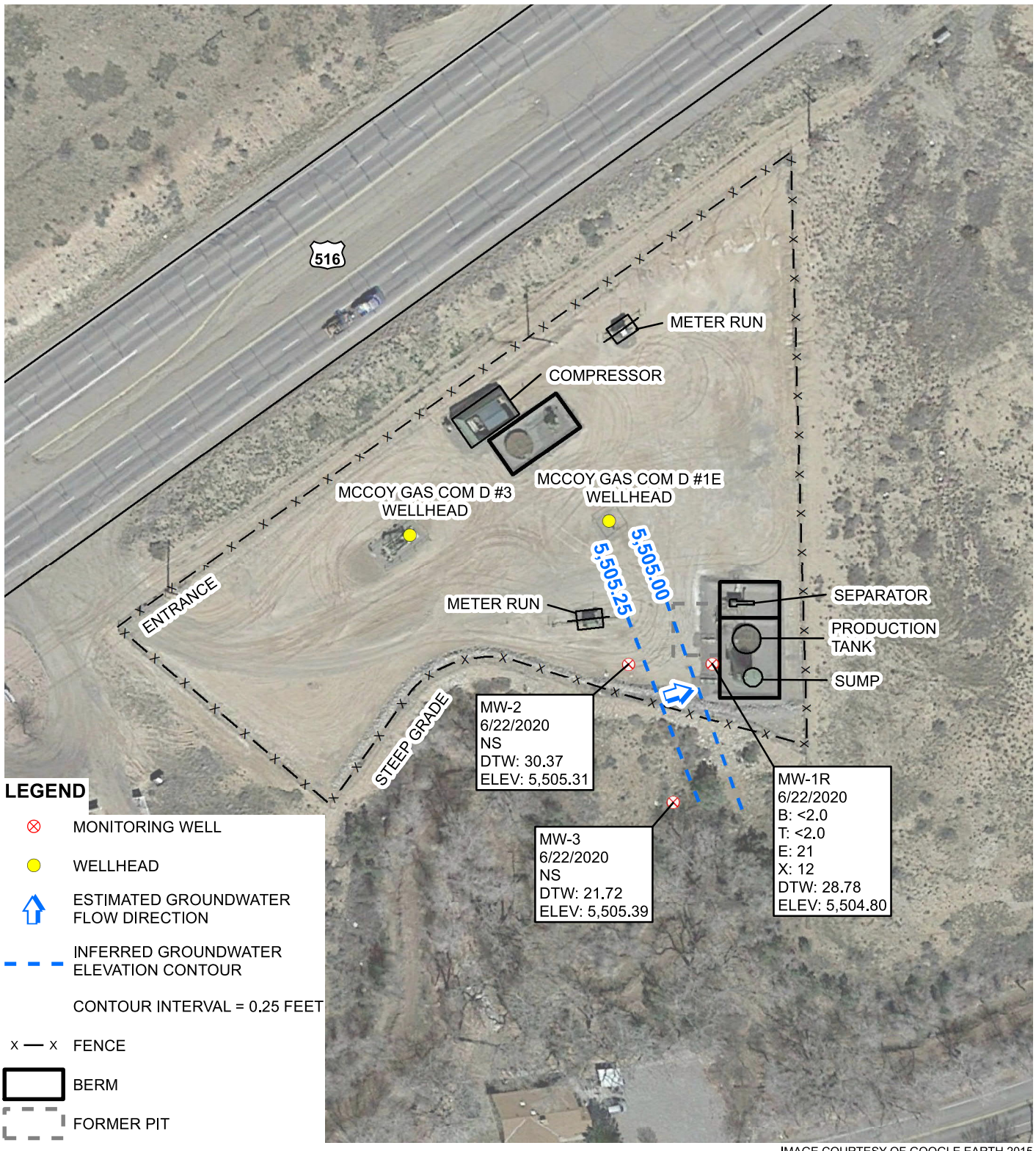
IMAGE COURTESY OF GOOGLE EARTH 2015

0 80 160
Feet

N

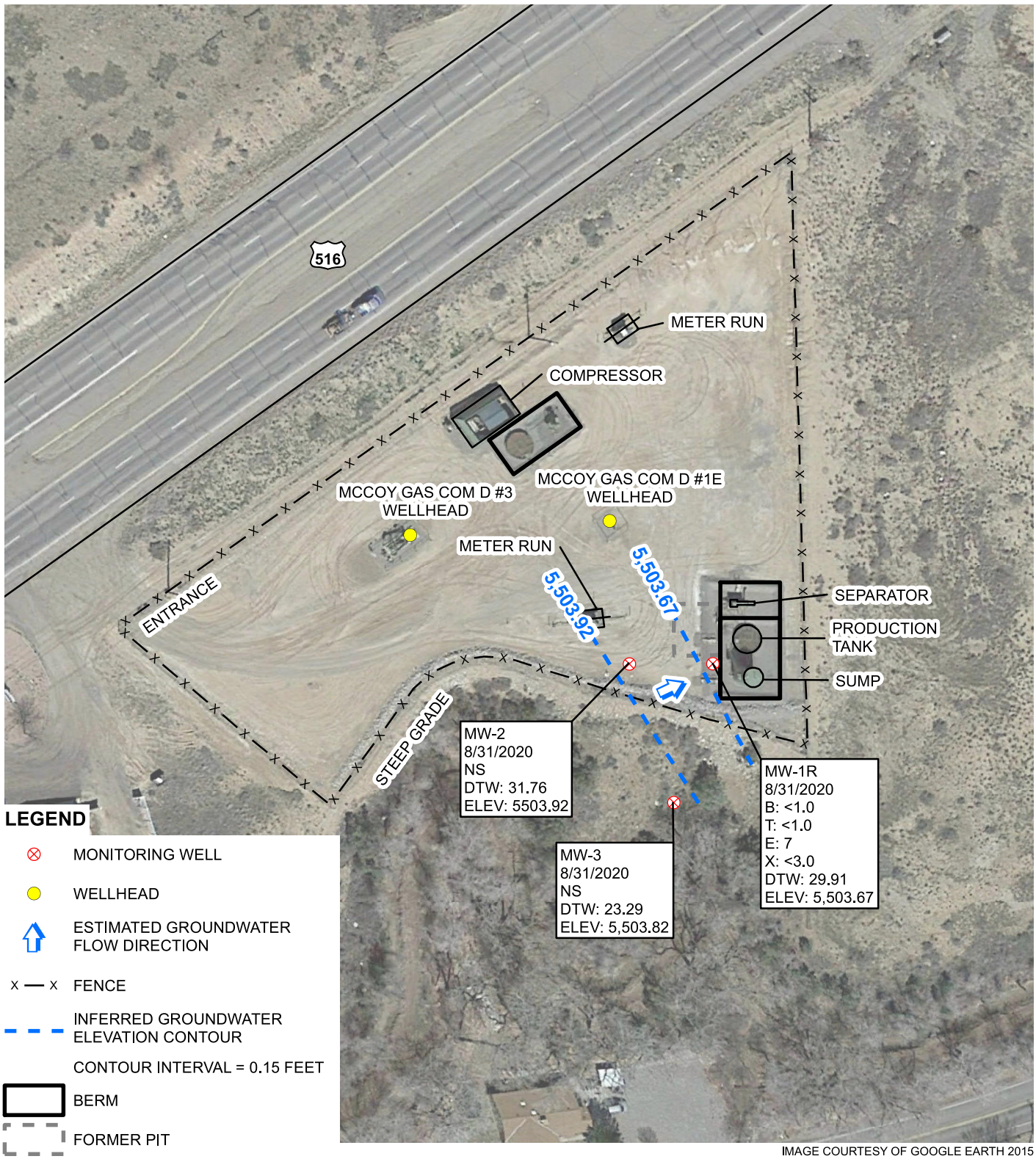
SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED
NS-DRY: NOT SAMPLED - DRY WELL

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (MARCH 2020)
MCCOY GAS COM D #1E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY



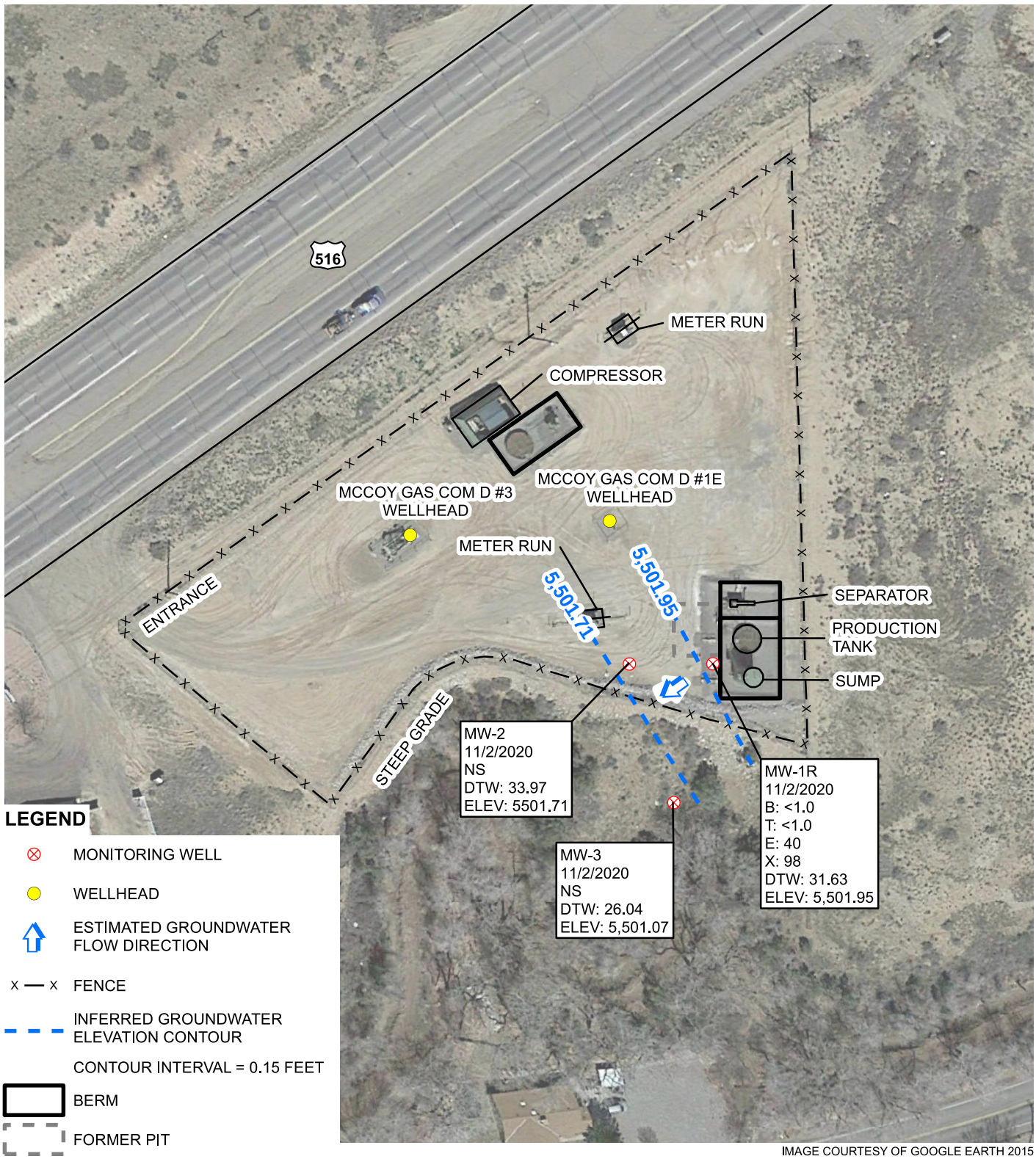
SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED
NS-DRY: NOT SAMPLED - DRY WELL

FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (JUNE 2020)
MCCOY GAS COM D #1E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY



SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED

FIGURE 4
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (AUGUST 2020)
MCCOY GAS COM D #1E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY



SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
NS: NOT SAMPLED

FIGURE 5
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS (NOVEMBER 2020)
MCCOY GAS COM D #1E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

TABLE 1
GROUNDWATER ELEVATION SUMMARY

MCCOY GAS COM D #1E
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Product (feet BTOC)	Depth to Groundwater (feet BTOC)	Product Thickness (feet)	Groundwater Elevation (feet AMSL)
MW-1	10/16/2006	NP	32.86	0.00	5,502.27
MW-1	5/16/2007	NP	30.69	0.00	5,504.44
MW-1	7/23/2007	NP	30.57	0.00	5,504.56
MW-1	9/27/2007	NP	32.01	0.00	5,503.12
MW-1	11/27/2007	NP	34.60	0.00	5,500.53
MW-1	5/13/2008	NP	31.97	0.00	5,503.16
MW-1	1/21/2009	NP	36.88	0.00	5,498.25
MW-1	5/26/2009	NP	30.68	0.00	5,504.45
MW-1	5/25/2010	NP	30.13	0.00	5,505.00
MW-1	8/12/2010	NP	30.87	0.00	5,504.26
MW-1	11/17/2010	NP	33.96	0.00	5,501.17
MW-1	2/14/2011	NP	37.27	0.00	5,497.86
MW-1R *	5/17/2011	NP	29.31	0.00	5,504.27
MW-1R	8/9/2011	NP	29.04	0.00	5,504.54
MW-1R	11/9/2011	NP	31.51	0.00	5,502.07
MW-1R **	3/8/2012	37.07	37.41	0.34	5,496.44
MW-1R **	6/14/2012	28.29	28.39	0.10	5,505.27
MW-1R	9/12/2012	NP	29.89	0.00	5,503.69
MW-1R **	12/21/2012	34.19	34.22	0.03	5,499.38
MW-1R	3/14/2013	NP	38.31	0.00	5,495.27
MW-1R	6/17/2013	NP	28.05	0.00	5,505.53
MW-1R	9/11/2013	NP	29.11	0.00	5,504.47
MW-1R	12/16/2013	NP	34.61	0.00	5,498.97
MW-1R	3/12/2014	NP	35.78	0.00	5,497.80
MW-1R	6/11/2014	NP	28.05	0.00	5,505.53
MW-1R	9/22/2014	NP	29.25	0.00	5,504.33
MW-1R	12/9/2014	NP	34.61	0.00	5,498.97
MW-1R	3/12/2015	NP	35.55	0.00	5,498.03
MW-1R	6/11/2015	NP	28.35	0.00	5,505.23
MW-1R	9/21/2015	NP	29.20	0.00	5,504.38
MW-1R	12/21/2015	NP	34.20	0.00	5,499.38
MW-1R	6/20/2016	NP	29.20	0.00	5,504.38
MW-1R	12/14/2016	NP	34.22	0.00	5,499.36
MW-1R	6/26/2017	NP	28.95	0.00	5,504.63
MW-1R	12/12/2017	NP	34.03	0.00	5,499.55
MW-1R	6/28/2018	NP	28.42	0.00	5,505.16
MW-1R	12/10/2018	NP	33.67	0.00	5,499.91
MW-1R	6/20/2019	NP	29.59	0.00	5,503.99
MW-1R	12/9/2019	NP	34.12	0.00	5,499.46
MW-1R	3/18/2020	NP	38.79	0.00	5,494.79
MW-1R	6/22/2020	NP	28.78	0.00	5,504.80
MW-1R	8/31/2020	NP	29.91	0.00	5,503.67
MW-1R	11/2/2020	NP	31.63	0.00	5,501.95
MW-2	5/17/2007	NP	30.56	0.00	5,505.12
MW-2	7/23/2007	NP	31.98	0.00	5,503.70
MW-2	9/27/2007	NP	32.44	0.00	5,503.24
MW-2	11/27/2007	NP	35.29	0.00	5,500.39
MW-2	5/13/2008	NP	31.98	0.00	5,503.70
MW-2	5/26/2009	NP	36.46	0.00	5,499.22
MW-2	5/25/2010	NP	29.88	0.00	5,505.80
MW-2	8/12/2010	NP	31.30	0.00	5,504.38
MW-2	11/17/2010	NP	34.61	0.00	5,501.07
MW-2	2/14/2011	NP	Dry	Dry	Dry
MW-2	5/17/2011	NP	30.60	0.00	5,505.08
MW-2	8/9/2011	NP	31.22	0.00	5,504.46
MW-2	11/9/2011	NP	33.70	0.00	5,501.98
MW-2	3/8/2012	NP	Dry	Dry	Dry
MW-2	6/14/2012	NP	29.66	0.00	5,506.02
MW-2	9/12/2012	NP	31.77	0.00	5,503.91
MW-2	12/21/2012	NP	36.44	0.00	5,499.24
MW-2	3/14/2013	NP	Dry	Dry	Dry
MW-2	6/17/2013	NP	29.45	0.00	5,506.23
MW-2	9/11/2013	NP	31.11	0.00	5,504.57
MW-2	12/16/2013	OBS	OBS	OBS	OBS
MW-2	3/12/2014	OBS	OBS	OBS	OBS
MW-2	6/11/2014	NP	30.26	0.00	5,505.42
MW-2	9/22/2014	NP	31.11	0.00	5,504.57
MW-2	12/9/2014	NP	34.31	0.00	5,501.37
MW-2	3/12/2015	NP	Dry	0.00	Dry
MW-2	6/11/2015	NP	30.00	0.00	5,505.68
MW-2	9/21/2015	NP	30.96	0.00	5,504.72
MW-2	12/21/2015	NP	Dry	0.00	Dry

TABLE 1
GROUNDWATER ELEVATION SUMMARY

MCCOY GAS COM D #1E
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Well ID	Date	Depth to Product (feet BTOC)	Depth to Groundwater (feet BTOC)	Product Thickness (feet)	Groundwater Elevation (feet AMSL)
MW-2	6/20/2016	NP	31.63	0.00	5,504.05
MW-2	12/14/2016	NP	Dry	0.00	Dry
MW-2	6/26/2017	NP	30.63	0.00	5,505.05
MW-2	12/12/2017	NP	Dry	0.00	Dry
MW-2	6/28/2018	NP	30.10	0.00	5,505.58
MW-2	12/10/2018	NP	Dry @ 34.37	0.00	Dry @ 34.37
MW-2	6/20/2019	NP	31.57	0.00	5,504.11
MW-2	12/9/2019	NP	Dry @ 34.33	0.00	Dry
MW-2	3/18/2020	NP	Dry/OBS @ 2.69	0.00	Dry
MW-2	6/22/2020	NP	30.37	0.00	5,505.31
MW-2	8/31/2020	NP	31.76	0.00	5,503.92
MW-2	11/2/2020	NP	33.97	0.00	5,501.71
MW-3	5/17/2007	NP	21.55	0.00	5,505.56
MW-3	7/23/2007	NP	30.65	0.00	5,496.46
MW-3	9/27/2007	NP	24.02	0.00	5,503.09
MW-3	11/27/2007	NP	28.94	0.00	5,498.17
MW-3	5/12/2008	NP	22.55	0.00	5,504.56
MW-3	5/26/2009	NP	21.37	0.00	5,505.74
MW-3	5/25/2010	NP	20.99	0.00	5,506.12
MW-3	8/12/2010	NP	23.03	0.00	5,504.08
MW-3	11/17/2010	NP	26.85	0.00	5,500.26
MW-3	2/14/2011	NP	Dry	Dry	Dry
MW-3	5/17/2011	NP	21.49	0.00	5,505.62
MW-3	8/9/2011	NP	22.12	0.00	5,504.99
MW-3	11/9/2011	NP	25.69	0.00	5,501.42
MW-3	3/8/2012	NP	Dry	Dry	Dry
MW-3	6/14/2012	NP	20.97	0.00	5,506.14
MW-3	9/12/2012	NP	23.31	0.00	5,503.80
MW-3	12/21/2012	NP	30.61	0.00	5,496.50
MW-3	3/14/2013	NP	Dry	Dry	Dry
MW-3	6/17/2013	NP	20.80	0.00	5,506.31
MW-3	9/11/2013	NP	22.75	0.00	5,504.36
MW-3	12/16/2013	NP	31.95	0.00	5,495.16
MW-3	3/12/2014	NP	Dry	Dry	Dry
MW-3	6/11/2014	NP	20.93	0.00	5,506.18
MW-3	9/22/2014	NP	22.62	0.00	5,504.49
MW-3	12/9/2014	NP	29.24	0.00	5,497.87
MW-3	3/12/2015	NP	32.60	0.00	5,494.51
MW-3	6/11/2015	NP	21.30	0.00	5,505.81
MW-3	9/21/2015	NP	22.13	0.00	5,504.98
MW-3	12/21/2015	NP	30.65	0.00	5,496.46
MW-3	6/20/2016	NP	22.33	0.00	5,504.78
MW-3	12/14/2016	NP	31.10	0.00	5,496.01
MW-3	6/26/2017	NP	21.97	0.00	5,505.14
MW-3	12/12/2017	NP	30.44	0.00	5,496.67
MW-3	6/28/2018	NP	21.63	0.00	5,505.48
MW-3	12/10/2018	NP	29.65	0.00	5,497.46
MW-3	6/20/2019	NP	22.92	0.00	5,504.19
MW-3	12/9/2019	NP	30.79	0.00	5,496.32
MW-3	3/18/2020	NP	Dry	0.00	Dry
MW-3	6/22/2020	NP	21.72	0.00	5,505.39
MW-3	8/31/2020	NP	23.29	0.00	5,503.82
MW-3	11/2/2020	NP	26.04	0.00	5,501.07

Notes:
AMSL - Above Mean Sea Level
BTOC - Below Top of Casing
NP - No Product
OBS - Obstruction in well
* - New Top of Casing Elevation; Casing Cut Off 1.55 Feet to Remove ORC Socks in May 2011, well designation changed to MW-1R
** - Groundwater elevation calculation: (Top of Casing Elevaton - Depth to Water) + (Product Thickness * 0.8)

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

MCCOY GAS COM D #1E
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	10/16/2006	22	2,500	2,700	19,000
MW-1	5/16/2007	30	760	1,700	24,000
MW-1	5/13/2008	<10	640	540	11,000
MW-1	1/21/2009	<100	1,200	1,100	12,000
MW-1	5/26/2009	<10	620	640	11,000
MW-1	5/25/2010	130	160	430	7,100
MW-1	8/12/2010	120	<120	260	6,700
MW-1	11/17/2010	360	<2,500	1,400	16,000
MW-1	2/14/2011	16	1,000	870	13,000
MW-1R*	5/17/2011	300	290	850	13,000
MW-1R	8/9/2011	<5	53.6	19.3	6,220
MW-1R	11/9/2011	11	<50	<5	1,600
MW-1R	3/8/2012	NS	NS	NS	NS
MW-1R	6/14/2012	120	110	750	5,000
MW-1R	9/12/2012	78	<250	120	4,600
MW-1R	12/21/2012	<25	<250	280	7,400
MW-1R	3/21/2013	98	<250	<25.0	7,100
MW-1R	6/17/2013	66	<250	94	4,500
MW-1R	9/11/2013	33	<25	76	840
MW-1R	12/13/2013	52	<100	160	2,000
MW-1R	3/12/2014	100	<120	680	8,800
MW-1R	6/11/2014	36	<25	430	4,100
MW-1R	9/22/2014	2.7	<25	490	1,400
MW-1R	12/9/2014	<9.5	<250	840	8,500
MW-1R	3/12/2015	96	<25	860	8,900
MW-1R	6/11/2015	<25	<250	610	5,700
MW-1R	9/21/2015	24.8	<5	525	4,340
MW-1R	12/21/2015	92.9	<250	765	7,850
MW-1R	6/20/2016	55.5	<25.0	617	5,370
MW-1R	12/14/2016	<25.0	<50.0	961	9,700
MW-1R	6/26/2017	<12.5	<25.0	457	3,890
MW-1R	12/3/2017	108	<100	790	8,050
MW-1R	6/28/2018	<5.0	<5.0	430	3,200
MW-1R	12/10/2018	<5.0	<5.0	730	6,400
MW-1R	6/19/2019	<2.5	<2.5	4.3	<5.0
MW-1R	12/9/2019	<1.0	<1.0	20	<2.0
MW-1R	3/18/2020	<1.0	<1.0	130	110
MW-1R	6/22/2020	<2.0	<2.0	21	12
MW-1R	8/31/2020	<1.0	<1.0	7	<3.00
MW-1R	11/2/2020	<1.0	<1.0	40	98

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

MCCOY GAS COM D #1E
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	5/17/2007	<1.0	<1.0	<1.0	3.10
MW-2	5/13/2008	<1.0	<1.0	<1.0	<2.0
MW-2	5/25/2010	<1.0	<1.0	<1.0	<2.0
MW-3	5/17/2007	<1.0	<1.0	<1.0	<2.0
MW-3	5/12/2008	<1.0	<1.0	<1.0	<2.0
MW-3	5/25/2010	<1.0	<1.0	<1.0	<2.0

Notes:
µg/L - micrograms per liter
NMWQCC - New Mexico Water Quality Control Commission
NS - Not Sampled
MDL - Method Detection Limit
BOLD indicates the result exceeds the NMWQCC Standard
< indicates result is less than the stated laboratory method detection limit
* Casing Cut Off 1.55 Feet to Remove ORC Socks in May 2011, well designation changed to MW-1R
* The Laboratory was unable to report benzene any lower due to the high amount of xylenes present. This would cause the internal standard/surrogate to fail. Analytes were evaluated down to the MDL and they have been given a U (evaluated to the MDL and were not detected).

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

March 27, 2020

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TEL: (505) 564-0733
FAX:

RE: McCoy OrderNo.: 2003891

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/19/2020 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2003891**
Date Reported: **3/27/2020**

CLIENT: HILCORP ENERGY
Client Sample ID: MW 1R
Project: McCoy
Collection Date: 3/18/2020 4:00:00 PM
Lab ID: 2003891-001 **Matrix:** AQUEOUS **Received Date:** 3/19/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	1.0		µg/L	1	3/23/2020 7:37:52 PM
Toluene	ND	1.0		µg/L	1	3/23/2020 7:37:52 PM
Ethylbenzene	130	10		µg/L	10	3/24/2020 2:17:08 PM
Xylenes, Total	110	15		µg/L	10	3/24/2020 2:17:08 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	3/23/2020 7:37:52 PM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	3/23/2020 7:37:52 PM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	1	3/23/2020 7:37:52 PM
Surr: Toluene-d8	99.2	70-130		%Rec	1	3/23/2020 7:37:52 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#: **2003891**

27-Mar-20

Client: HILCORP ENERGY

Project: McCoy

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R67514**	RunNo: **67514**
Prep Date:	Analysis Date: **3/23/2020**	SeqNo: **2330424** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.8	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	8.8		10.00		88.1	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R67514**	RunNo: **67514**
Prep Date:	Analysis Date: **3/23/2020**	SeqNo: **2330442** 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								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.3	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.8	70	130			
Surr: Toluene-d8	9.7		10.00		97.2	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R67530**	RunNo: **67530**
Prep Date:	Analysis Date: **3/24/2020**	SeqNo: **2331948** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	21	1.0	20.00	0	106	70	130			
Xylenes, Total	63	1.5	60.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	8.8		10.00		87.6	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.5	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.7	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R67530**	RunNo: **67530**
Prep Date:	Analysis Date: **3/24/2020**	SeqNo: **2331959** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	7.8		10.00		78.2	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.9	70	130			

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#: **2003891**

27-Mar-20

Client: HILCORP ENERGY

Project: McCoy

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R67530**	RunNo: **67530**
Prep Date:	Analysis Date: **3/24/2020**	SeqNo: **2331959** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	9.9		10.00		98.7	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY FAR** Work Order Number: **2003891** RcptNo: 1

Received By: **Yazmine Garduno** **3/19/2020 8:00:00 AM**

Completed By: **Juan Rojas** **3/19/2020 10:57:32 AM**

Reviewed By: JR 3/19/20

Chain of Custody

1. Is Chain of Custody sufficiently 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: 3/19/20 (<2 or >12 unless noted)

Adjusted?

Checked by:

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 Energy

Mailing Address: Jennifer Deal

Phone #: 505 324 5128

email or Fax#: Jdeal@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: McCoy

Project #: 17820006

Project Manager: Josh Adams

Sampler: Travis Short

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 23-0.3=20

HALL E
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www.haller
4901 Hawkins NE - A
Tel. 505-345-3975

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2003891	~~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, NO3, PO4, SO4
3/18	1600	H2O	MW 1R	3(VOA's)	HCL	-001	X						

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
3/18	1650		Christa Waller		3/18/20	1654
3/18/20	1910	Christa Waller		courier	3/19/20	0800

Remarks: Please CC

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

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

July 01, 2020

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

RE: McCoy OrderNo.: 2006B25

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/23/2020 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 **2006B25**
Date Reported: **7/1/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW 1R
Project: McCoy
Collection Date: 6/22/2020 2:00:00 PM
Lab ID: 2006B25-001 **Matrix:** AQUEOUS **Received Date:** 6/23/2020 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	2.0		µg/L	2	6/26/2020 5:43:24 PM	SL69947
Toluene	ND	2.0		µg/L	2	6/26/2020 5:43:24 PM	SL69947
Ethylbenzene	21	2.0		µg/L	2	6/26/2020 5:43:24 PM	SL69947
Xylenes, Total	12	3.0		µg/L	2	6/26/2020 5:43:24 PM	SL69947
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	2	6/26/2020 5:43:24 PM	SL69947
Surr: 4-Bromofluorobenzene	94.1	70-130		%Rec	2	6/26/2020 5:43:24 PM	SL69947
Surr: Dibromofluoromethane	102	70-130		%Rec	2	6/26/2020 5:43:24 PM	SL69947
Surr: Toluene-d8	103	70-130		%Rec	2	6/26/2020 5:43:24 PM	SL69947

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#: **2006B25**
08-Jul-20

Client: HILCORP ENERGY
Project: McCoy

Sample ID: **mb1**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL69947**	RunNo: **69947**
Prep Date:	Analysis Date: **6/26/2020**	SeqNo: **2429275** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.1	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL69947**	RunNo: **69947**
Prep Date:	Analysis Date: **6/26/2020**	SeqNo: **2429276** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		92.6	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	10		10.00		103	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: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Hilcorp Energy** Work Order Number: **2006B25** RcptNo: **1**

Received By: **Emily Mocho** **6/23/2020 8:05:00 AM**

Completed By: **Emily Mocho** **6/23/2020 8:26:50 AM**

Reviewed By: DAD 6/23/20

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: SPA 6.23.20

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	3.0	Good	Not Present			

Chain-of-Custody Record

Client: Hilcorp Energy

Mailing Address: Jennifer Deal

Phone #: 505 324 5128

email or Fax#: Jdeal@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: McCoy

Project #: 17820006

Project Manager: Josh Adams

Sampler: Travis Short

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.0 ±0 = 3.0

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4901 Hawkins NE - A
Tel. 505-345-3975

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006B25	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
6/22	1400	H2O	MW1R	3 (VOAs)	HCl	-001	X						

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/22	1425		Christa Waeta		6/22/2020	1425
6/22/2020	1753	Christa Waeta	Ekm	courier	6/23/20	805

Remarks: Please cc

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 b

ANALYTICAL REPORT

September 10, 2020

HilCorp-Farmington, NM

Sample Delivery Group:	L1256951
Samples Received:	09/01/2020
Project Number:	
Description:	McCoy Gas Com D 1E
Site:	MCCOY GAS COM D 1E
Report To:	Kurt Hoekstra 382 Road 3100 Aztec, NM 87410

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

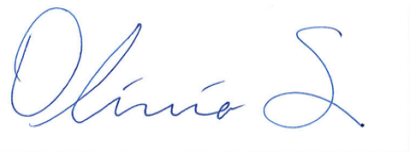
TABLE OF CONTENTS

MW1R L1256951-01 GW

Collected by	Collected date/time	Received date/time
Kurt	08/31/20 10:45	09/01/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1537273	1	09/03/20 05:39	09/03/20 05:39	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	ND		0.00100	1	09/03/2020 05:39	WG1537273
Toluene	ND		0.00100	1	09/03/2020 05:39	WG1537273
Ethylbenzene	0.00704		0.00100	1	09/03/2020 05:39	WG1537273
Total Xylenes	ND		0.00300	1	09/03/2020 05:39	WG1537273
(S) Toluene-d8	*87.9*		*80.0-120*		*09/03/2020 05:39*	WG1537273
(S) 4-Bromofluorobenzene	*88.1*		*77.0-126*		*09/03/2020 05:39*	WG1537273
(S) 1,2-Dichloroethane-d4	*91.1*		*70.0-130*		*09/03/2020 05:39*	WG1537273

Method Blank (MB)

(MB) R3567868-2 09/03/20 02:21

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	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*91.0*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3567868-1 09/03/20 01:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00529	106	70.0-123	
Ethylbenzene	0.00500	0.00526	105	79.0-123	
Toluene	0.00500	0.00519	104	79.0-120	
Xylenes, Total	0.0150	0.0152	101	79.0-123	
(S) Toluene-d8			*101*	*80.0-120*	
(S) 4-Bromofluorobenzene			*100*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*89.0*	*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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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.
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.
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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.
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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
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

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.
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State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

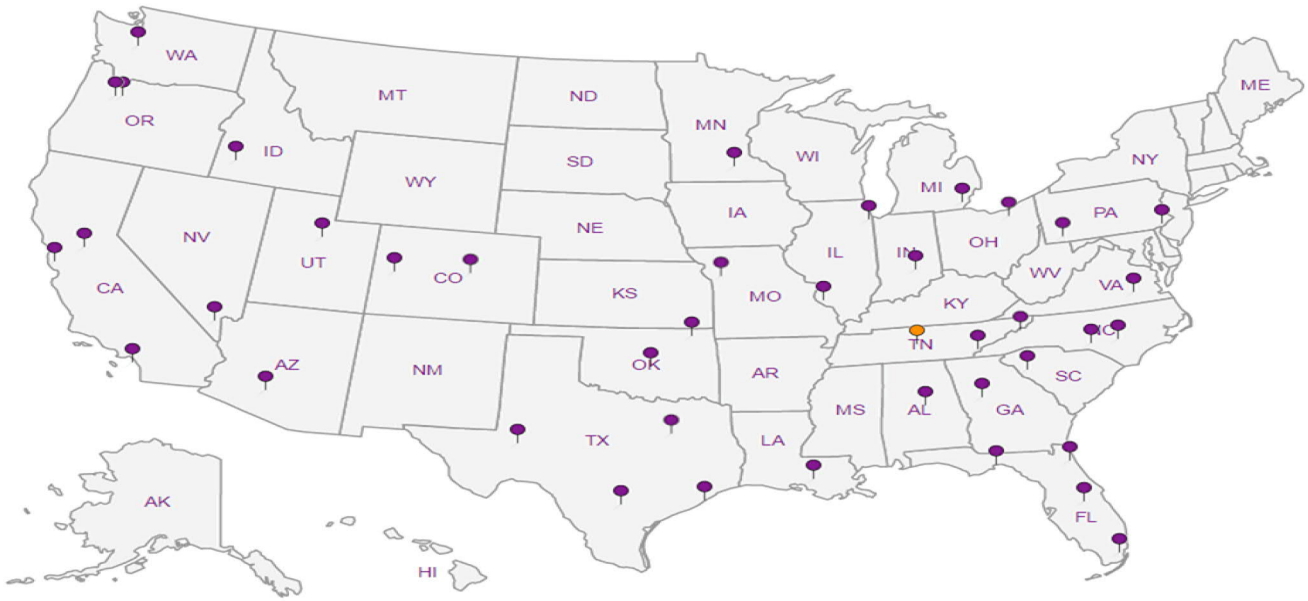
Third Party Federal Accreditations

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		

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HilCorp-Farmington, NM

382 Road 3100
Aztec, NM 87410

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

Pres Chk

Analysis / Container / Preservative

Report to: Kurt Hoekstra

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

Project Description: McCoy Gas Com D 1E

City/State Collected:

Please Circle: PT MT CT ET

Phone: 505-486-9543

Client Project #

Lab Project # HILCORANM-MCCOY GAS

Collected by (print): Kurt

Collected by (signature): Kurt Hoekstra

Site/Facility ID # MCCOY GAS COM D 1E

P.O. #

Quote #

Immediately Packed on Ice N ___ Y X

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	V8260BTEX 40ml/Amb-HCl
MW1R		GW		8-31	10:45	3	X

* 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 # 174999996278

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Kurt Hoekstra	8-31-20	1:40		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp 1.8-1.4.7 °C Bottles Received: 3
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 09/01/20 Time: 0915

COC
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Hold

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 11, 2020

HilCorp-Farmington, NM

Sample Delivery Group:	L1281184
Samples Received:	11/03/2020
Project Number:	
Description:	McCoy Gas Com D 1E
Site:	MCCOY GAS COM D 1E
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.

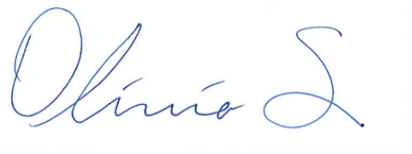
TABLE OF CONTENTS

MW1R L1281184-01 GW

Collected by	Collected date/time	Received date/time
Kurt	11/02/20 09:54	11/03/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1572815	1	11/07/20 21:52	11/07/20 21:52	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	ND		0.00100	1	11/07/2020 21:52	WG1572815
Toluene	ND		0.00100	1	11/07/2020 21:52	WG1572815
Ethylbenzene	0.0399		0.00100	1	11/07/2020 21:52	WG1572815
Total Xylenes	0.0980		0.00300	1	11/07/2020 21:52	WG1572815
(S) Toluene-d8	*146*	J1	*80.0-120*		*11/07/2020 21:52*	WG1572815
(S) 4-Bromofluorobenzene	*166*	J1	*77.0-126*		*11/07/2020 21:52*	WG1572815
(S) 1,2-Dichloroethane-d4	*87.4*		*70.0-130*		*11/07/2020 21:52*	WG1572815

Sample Narrative:

L1281184-01 WG1572815: Surrogate failure due to matrix interference.

Method Blank (MB)

(MB) R3590873-3 11/07/20 19:41

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	*108*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*87.3*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3590873-1 11/07/20 18:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00455	91.0	70.0-123	
Ethylbenzene	0.00500	0.00520	104	79.0-123	
Toluene	0.00500	0.00484	96.8	79.0-120	
Xylenes, Total	0.0150	0.0150	100	79.0-123	
(S) Toluene-d8			*103*	*80.0-120*	
(S) 4-Bromofluorobenzene			*100*	*77.0-126*	
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Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

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Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
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Montana	CERT0086	Wyoming	A2LA

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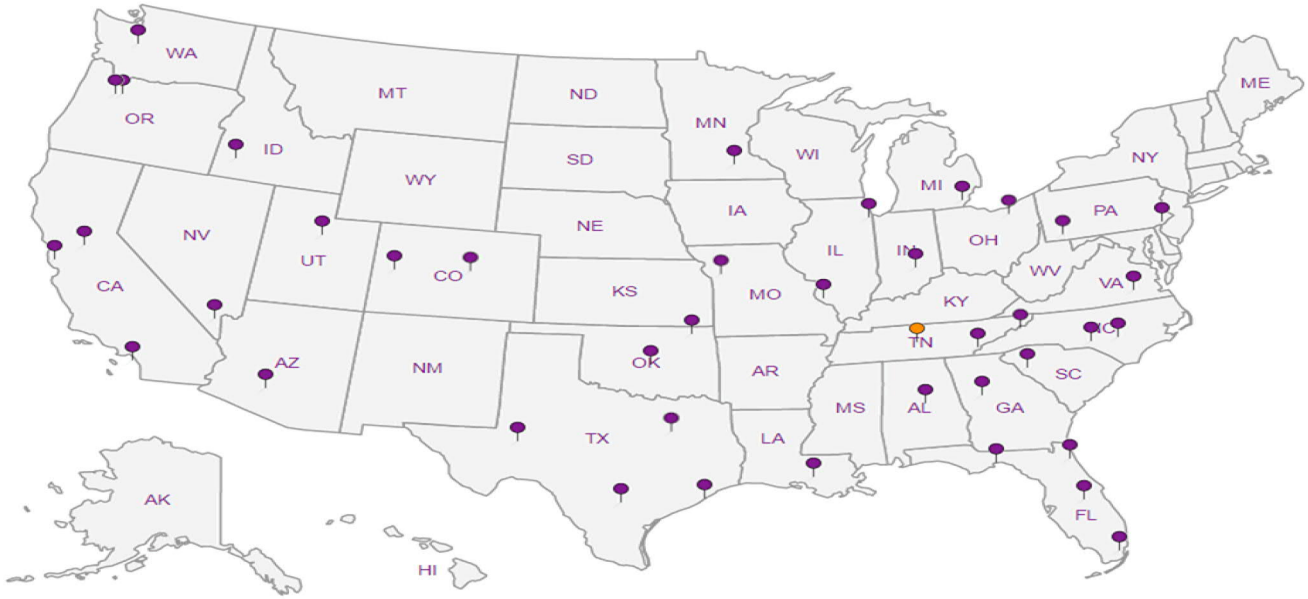

HilCorp-Farmington, NM

382 Road 3100
Aztec, NM 87410

Billing Information:
[redacted]
jdeal@hilcorp.com

Pres Chk

Analysis / Container

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

Report to:
Kurt Hoekstra

Project Description:
McCoy Gas Com D 1E

City/State Collected:

Please Circle:
PT MT CT ET

Phone: 505-486-9543

Client Project #

Lab Project #
HILCORANM-MCCOY GAS

Collected by (print):
Kurt

Site/Facility ID #
MCCOY GAS COM D 1E

P.O. #

Collected by (signature):
Kurt Hoekstra

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

Immediately Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	V8260BTEX 40mlAmb-HCl
MW1R		GW		11-2	9:54	3	X

* 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 # 9187 2503 4520

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Kurt Hoekstra	11-2-20	11:00		

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp:	Bottles Received:
				3.0+.2=3.2	3

Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:
			[signature]	11/3/20	9:30

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

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

CONDITIONS

Action 20493

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 20493
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Review of 2020 Annual Groundwater Report: Content satisfactory 1. Continue quarterly sampling from monitoring well MW-1R to examine BTEX concentrations in groundwater 2. Submit the Annual Monitoring Report to the OCD no later than March 31, 2022	12/28/2021