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Durango, Colorado 81301
970.516.8419
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January 20, 2021

Mr. Cory Smith, Environmental Specialist
New Mexico Oil Conservation Division – District 3
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: Status Report – 1st Quarter 2021
Kaufman No. 1
San Juan County, New Mexico
OCD No.: AP-0138

Dear Mr. Smith,

On behalf of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) prepared this letter to document the 1st Quarter 2021 (1Q21) groundwater monitoring activities at the Kaufman No. 1 (Site). The Site is located approximately 9.1 miles north of Farmington in San Juan County, New Mexico (Figure 1).

Site Description and Environmental Setting

The Site is situated on Federal land (managed by the Bureau of Land Management (BLM)) and is immediately east of the La Plata River (Figures 2 and 3). The Site is comprised of approximately 1 acre, all of which is located within the La Plata River flood plain and adjacent to riparian zones or wetlands.

The Site was temporarily abandoned following a release in November 2018; equipment removed from service included: storage tanks, separators, and a glycol dehydrator. Other surface equipment at the Site includes a well head and gas meter.

The Site is situated in a rural area and surrounding land use is predominantly recreational and oil and gas production. According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of Walrees loam, 0 to 2 percent slope. This soil series consist of a loam underlain by stratified gravelly sand; native salinity is very slightly saline to moderately saline (2.0 to 8.0 millimhos per centimeter (mmhos/cm)).

An unnamed intermittent stream located approximately 500 feet (ft) south of the Site empties into the La Plata River flood plain and has deposited sufficient sand to form a small alluvial fan over the flood plain. The alluvial fan extends north within 100 ft of the Site and is visible on aerial photographs (e.g., Figure 3) and is characterized by sparse vegetation, with the understory most affected.

The average elevation at the Site is approximately 5,537 feet above mean sea level. Area topography is flat with a slight dip west, toward the La Plata River.

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Site History

On 11/16/18, approximately 8 barrels (bbls) of oil and 10 bbls of produced water was released from the storage tank. Enduring Resources was the operator of record at the time of the release; Hilcorp assumed operations of the Site on or about December 1, 2018.

After Hilcorp assumed operations, the well was temporarily abandoned. All surface equipment within the tank battery was removed, and impacted soil within the battery was excavated and disposed. The excavation was primarily along the eastern and southern portion of the tank battery. The excavation was approximately 50 ft by 60 ft; the excavation depth ranged from 1 ft to 5 ft. A safety fence was constructed along the perimeter of the excavation.

Six groundwater monitoring wells (i.e. MW1 – MW6) were installed in January 2019. On 07/02/19 and 07/03/19, Timberwolf conducted a wetland investigation; the purpose of the wetland investigation was to delineate the extent of the wetland features to comply with United States Army Corps of Engineers (USACE) during ongoing remedial activities.

On 11/06/19, Hilcorp contracted with Sierra Oilfield Services of Farmington, New Mexico to excavate impacted soil in and around the initial excavation (i.e. former tank battery). Soil exceeding soil-to-groundwater migration criteria and soil exceeding the ecological protective concentration limits (PCLs) was excavated and removed from the site. All excavation activities were completed on 11/08/19. The excavation was backfilled following confirmation samples.

On 11/19/19, Timberwolf contracted with NCE Surveys, Inc. of Farmington, New Mexico to survey the tops of casings of each monitor well and two steel rods relative to mean sea level. The perimeter of two riparian wetland features were also surveyed (as delineated on 07/02/19 and 07/03/19 with one approximately 30 ft to the north and one immediately adjacent to the south and east of the site).

In 2020 and at the request of the BLM, Threatened and Endangered Species surveys (i.e., T&E surveys) were conducted at the Site to determine the absence/presence of *Southwestern Willow Flycatcher* and *Yellow-billed Cuckoo*. Timberwolf contracted SME Environmental Consultants (SME) of Durango, Colorado, a biological consultant certified for T&E surveys, to conduct the T&E surveys at the Site. A total of six (6) T&E survey visits were conducted between 05/20/20 and 08/01/20. Findings of the T&E survey are documented in Timberwolf's *Status Report – 3rd Quarter 2020*, dated 09/20/20.

On 08/11/20, Timberwolf conducted an additional groundwater investigation at the Site. The purpose of the investigation was to determine if a residual groundwater plume was present between MW1 and MW5. To evaluate the area of concern, a groundwater sample was collected by installing a temporary sampling point in lieu of proposed MW7. Analytical results revealed that all constituents of concern (COCs) were below regulatory criteria. Findings of the additional groundwater investigation are documented in Timberwolf's *Status Report – 3rd Quarter 2020*, dated 09/20/20.



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The work conducted is documented in the following reports:

- *Site Characterization Report and Stage 1 Abatement Plan*, dated 06/18/19
- *Wetland Delineation (Revised)*, dated 10/03/19
- *Stage 2 Abatement Plan*, dated 01/03/20
- *Status Report – 1st Quarter 2020*, dated 04/28/20
- *Status Report – 2nd Quarter 2020*, dated 06/19/2020
- *Status Report – 3rd Quarter 2020*, dated 09/20/2020
- *Status Report – 4th Quarter 2020*, dated 11/25/2020

Regulatory Criteria – Groundwater

Human health standards for usable groundwater (i.e., total dissolved solids (TDS) less than 10,000 milligrams per kilograms (mg/L)) have been established under NMAC 20.6.2§3103. Additionally, this statute provides standards for domestic water supply. These criteria provide standards for a variety of constituents, including: metals, anions, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), certain radioactive isotopes, salinity, and pH.

Based on site characterization activities conducted during the Stage 1 and Stage 2 Abatement Plans the identified constituents of concern for the Site are: benzene, toluene, ethylbenzene, and xylene (BTEX). The regulatory criteria for human health for these constituents are provided in Table 1.

Table 1. Groundwater Regulatory Criteria

Constituent	Regulatory Criteria ¹ (mg/L)
Benzene	0.01
Toluene	0.75
Ethylbenzene	0.75
Xylenes	0.62

¹New Mexico human health standard
mg/L – milligrams per liter

1Q21 Groundwater Monitoring Event

On 1/11/21, Timberwolf conducted the 1Q21 groundwater monitoring event at the Site. Groundwater and surface water gauging, groundwater sample collection, and analytical results are documented below. Monitor well locations are shown in the attached Figure 4.

River and Well Gauging

River elevations were measured relative to two steel rods (i.e., North Stake and South Stake) by using a 6-ft bubble level and water interface probe capable of measuring to the nearest one hundredth of a foot. Depth to water in monitor wells were also measured from the tops of casing using the water interface probe. Prior to well gauging, well caps were removed, and water levels were allowed to equilibrate. Monitoring wells tops of casing and steel rods were surveyed on 11/19/19 and documented in Section 9 of the *Stage 2 Abatement Plan*.



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Gauging data is recorded in Table A-1 (attached). Depth to groundwater measurements were subtracted from the corresponding monitor well elevations to determine the depth of groundwater relative to mean sea level in each well. Likewise, river elevations were calculated by subtracting the measured depth to water from the top of each steel rod.

Timberwolf prepared a potentiometric surface elevation (PSE) map as shown in Figure 5. The 1Q21 PSE map revealed that groundwater flow across the Site was west-southwest towards the La Plata River with an average linear velocity of 21.2 feet per year (ft/yr).

Groundwater Sample Collection

The six sampling stations (i.e., MW1 through MW6) were sampled using the EPA low-flow technique. A submersible pump was placed within the screened interval of each well. Water was extracted from each well and pumped through a flow-through cell equipped with a YSI probe. Field water quality parameters were analyzed and recorded, which included: dissolved oxygen, conductivity, pH, temperature, and ORP. Groundwater stabilization parameters are documented in the attached Table A-2. After water quality parameters stabilized, the YSI flow-through cell was bypassed and samples were collected directly into laboratory-provided sample containers.

One monitoring well pumped dry (i.e., MW-6). This well was allowed to recharge prior to sample collection.

Samples were labeled, stored on ice, and transported under proper chain-of-custody protocol to Hall Environmental Analytical Laboratories, Inc. in Albuquerque, New Mexico.

Groundwater Analytical Results

Groundwater samples were analyzed for the following constituents: BTEX by EPA Method 8260. Cumulative analytical results from each groundwater sampling station is documented in Table A-3 (attached). Analytical results for the 1Q21 groundwater monitoring event are summarized in Table 2 below and shown in Figure 6.

Table 2. Groundwater Analytical Results – 1Q21

Sample Station	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW1	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW2	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW3	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW4	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW5	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW6	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
Regulatory Criteria		0.01	0.75	0.75	0.62

BTEX – benzene, toluene, ethylbenzene, and xylenes

– exceeds regulatory criteria

mg/L – milligrams per liter



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Quality Assurance Program

To ensure quality assurance in laboratory data, Timberwolf collected a field duplicate sample and utilized a Trip Blank. The field duplicated (“Dup”) was collected from MW5 to evaluate laboratory reproducibility. The field duplicate was collected immediately after the MW5 sample to ensure homogeneity between the sample and the field duplicate. The acceptable limit for relative percent difference (RPD) between duplicate samples for organic compounds is 30 percent relative percent difference (i.e., 30% RDP) or less. Formula used to calculate RPD is as follows:

$$RPD = \left(\frac{|sample\ result - duplicate\ result|}{\left(\frac{sample\ result + duplicate\ result}{2} \right)} \right) * 100$$

The Trip Blank was always maintained with the sampling kit to evaluate the potential for in-field contaminations or contaminants encountered traveling to and from the laboratory. Both the field duplicate and Trip Blank were analyzed for BTEX. Analytical results are documented in the attached laboratory report and summarized in Table 3.

Table 3. Quality Assurance Results – 1Q21

Sample ID	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW5	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
Dup	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
Trip Blank	1/11/21	< 0.001	< 0.001	< 0.001	< 0.0015

mg/L – milligrams per liter

BTEX – benzene, toluene, ethylbenzene, and xylenes

The RPD between sample MW5 and the Dup was 0%, which demonstrates laboratory reproducibility between samples. Additionally, analytical results of the Trip Blank revealed no indication of in-field contamination.

Conclusions

Based on analytical results of groundwater samples and the regulatory criteria, the following is concluded:

- BTEX concentrations were below regulatory human health criteria and laboratory detection limits at all sampling stations (i.e., MW1 – MW6)
- Groundwater flow across the Site is west-southwest towards the La Plata River

Further Actions

Timberwolf will conduct a quarterly groundwater monitoring event at the Site during the 2nd quarter of 2021.



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If you have any questions regarding this letter or need further assistance, please call us at 979-324-2139.

Sincerely,
Timberwolf Environmental, LLC



Michael Morse
Project Scientist



Jim Foster
President

Attachments: Figures
Tables
Laboratory Report and Chain-of-Custody Documents

cc. Jennifer Deal – Hilcorp Energy Company

Figures

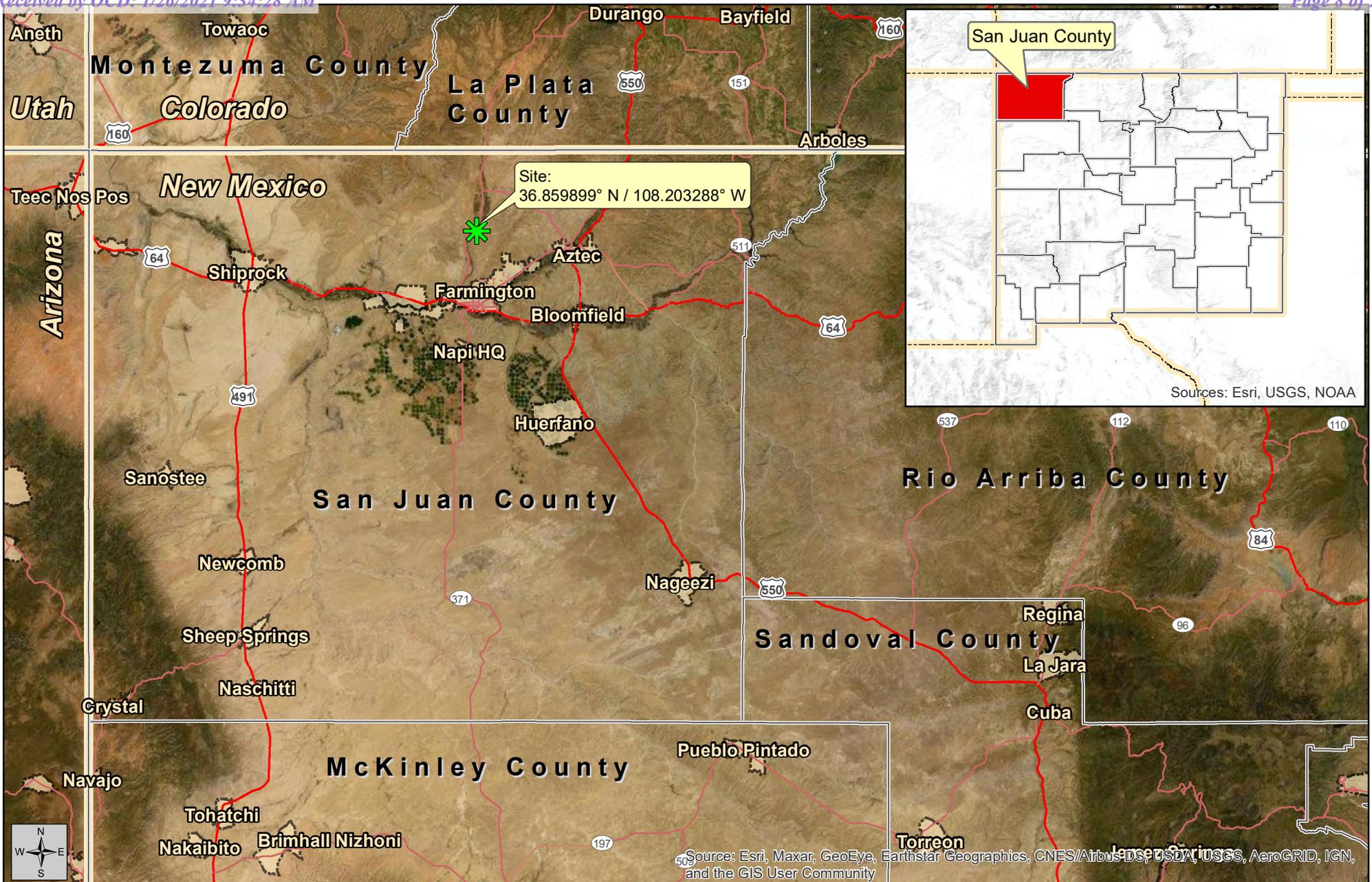


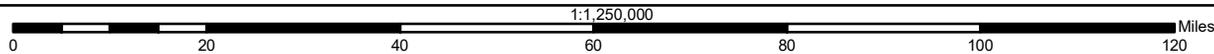
Figure 1
Site Location Map

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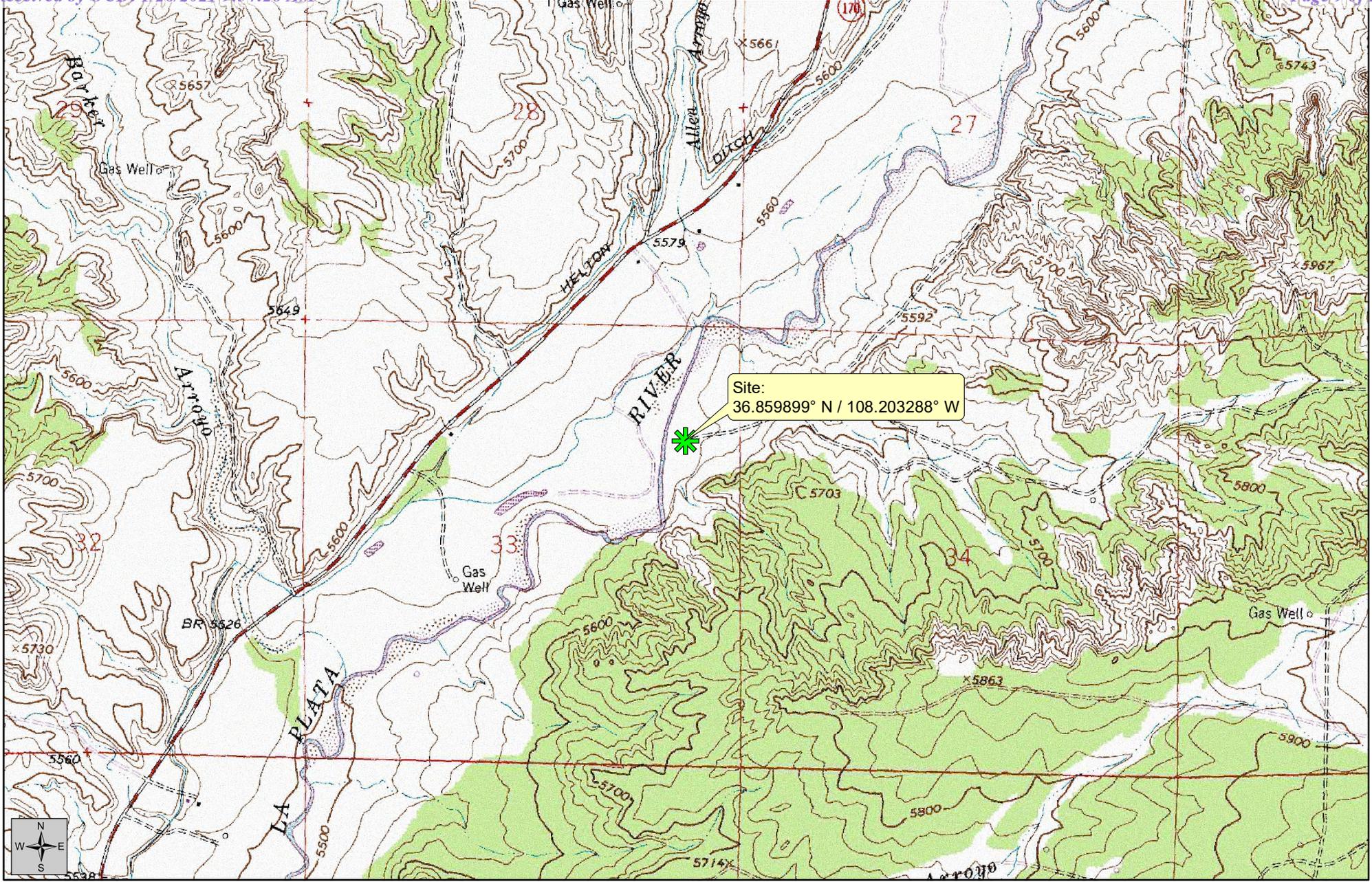
Created By:
Chris Perez
TE Project No.: HEC-180061



Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: ESRI
Vector Source: ESRI and TE

 Site



Site:
 36.859899° N / 108.203288° W



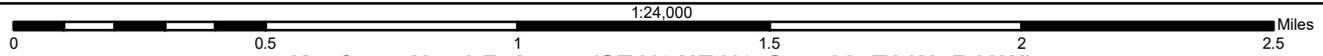
Figure 2
 Topographic Map

Status Report - 1st Quarter 2021 (AP-0138)

January 18, 2021



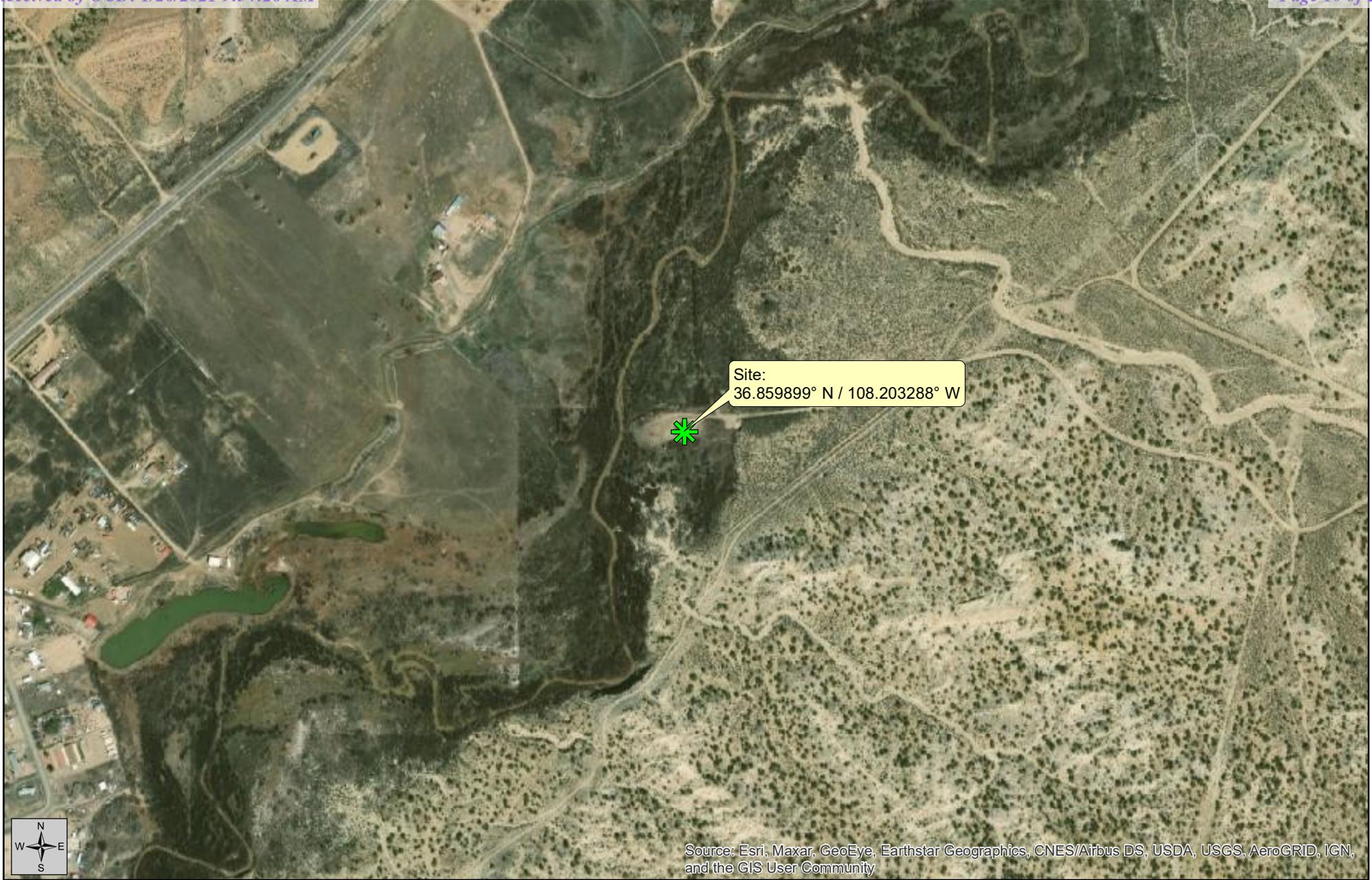
Created By:
 Chris Perez
 TE Project No.: HEC-180061



Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
 Hilcorp Energy Company
 San Juan County, New Mexico

Datum: NAD83
 Imagery Source: USGS
 Quad: Farmington North
 Vector Source: TE

 Site



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

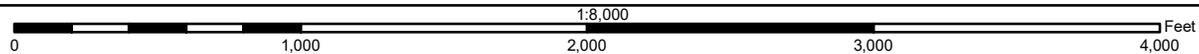
Figure 3
Aerial Map

Status Report - 1st Quarter 2021 (AP-0138)

January 18, 2021



Created By:
Chris Perez
TE Project No.: HEC-180061



Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

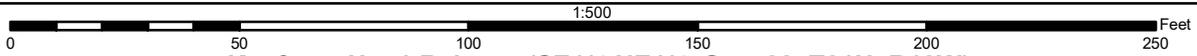
 Site



Figure 4
Monitor Well Location Map

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January 18, 2021



Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
Hilcorp Energy Company
San Juan County, New Mexico

- ◆ Monitor Well
- Kaufman No. 1 Well Head



Created By:
Chris Perez
TE Project No.: HEC-180061

Datum: NAD83
Imagery Source: Google Earth
Vector Source: TE

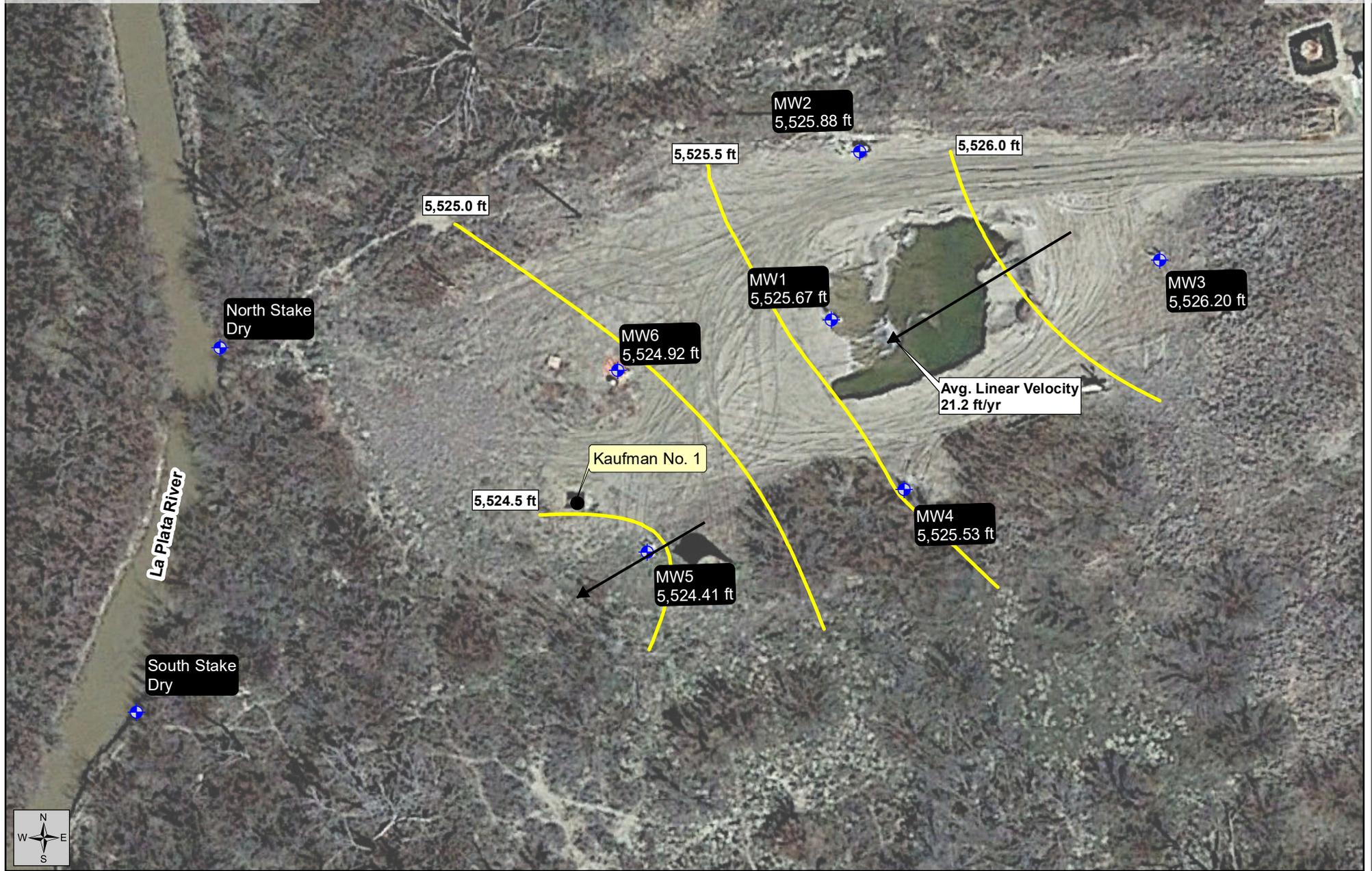


Figure 5
Potentiometric Surface
Elevation Map

Status Report - 1st Quarter 2021 (AP-0138)

Gauging Date:
January 11, 2021



Created By:
Chris Perez
January 14, 2021
TE Project No.: HEC-180061

Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: Google Earth
Vector Source: TE

- Monitor Well
- Surveyed Stake
- Kaufman No. 1 Well Head
- Groundwater Gradient
- Direction of Flow

Sample ID	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW1	01/11/21	<0.001	<0.001	<0.001	<0.0015
MW2	01/11/21	<0.001	<0.001	<0.001	<0.0015
MW3	01/11/21	<0.001	<0.001	<0.001	<0.0015
MW4	01/11/21	<0.001	<0.001	<0.001	<0.0015
MW5	01/11/21	<0.001	<0.001	<0.001	<0.0015
MW6	01/11/21	<0.001	<0.001	<0.001	<0.0015
Regulatory Criteria		0.01	0.75	0.75	0.62



Figure 6
BTEX Results - 1Q21

Status Report - 1st Quarter 2021 (AP-0138)

Sample Date:
January 11, 2021



Created By:
Chris Perez
January 18, 2021
TE Project No.: HEC-180061

Kaufman No. 1 Release (SE1/4 NE1/4, Sec. 33, T31N, R13W)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: Google Earth
Vector Source: TE

Monitor Well

Attached Tables

**Table A-1. Groundwater Gauging Data
Status Report - 1st Quarter 2021
Kaufman No. 1 Release (AP-0138)
San Juan County, New Mexico**

Well ID	TOC (ft ^A)	Date	DTW (ft,btoc ^B)	PSE (ft ^A)	PSH (ft ^C)
MW1	5,529.97	01/11/21	4.30	5,525.67	--
MW2	5,530.64	01/11/21	4.76	5,525.88	--
MW3	5,531.28	01/11/21	5.08	5,526.20	--
MW4	5,531.78	01/11/21	6.25	5,525.53	--
MW5	5,530.79	01/11/21	6.38	5,524.41	--
MW6	5,530.56	01/11/21	5.64	5,524.92	--
North Stake	5,529.98	01/11/21	Dry	N/A	--
South Stake	5,529.38	01/11/21	Dry	N/A	--

TOC - top of casing

DTW - depth to water

PSE - potentiometric surface elevation

PSH - phase separated hydrocarbons

* - Volume of PSH was unmeasurable

^A ft - feet, referenced to mean sea level

^B ft, btoc - feet below top of casing

^C ft - thickness of PSH was unmeasurable

-- - PSH not detected

N/A - not applicable

**Table A-2. Groundwater Stabilization Parameters
Status Report - 1st Quarter 2021
Kaufman No. 1 (AP-0138)
San Juan County, New Mexico**

Well ID	Date	Time	Amount Purged (gallons)	Depth to Water (ft bgs)	Temperature (°C)	Disolved Oxygen (mg/L)	Electric Conductivity (mS/cm)	pH	Oxidation Reduction Potential (mV)	
MW1	01/11/21	1412	6	4.43	11.5	--	0.196	6.76	-19.2	
		1414	7	4.43	11.6	--	0.195	6.76	-20.7	
		1416	8	4.43	11.6	--	0.195	6.76	-21.7	
MW2	01/11/21	1013	7	4.23	5.3	0.93	0.183	6.77	149.1	
		1015	8	4.23	5.3	0.8	0.186	6.78	140.8	
		1017	9	4.23	5.4	0.74	0.183	6.79	135.6	
MW3	01/11/21	1048	5	5.30	11.3	0.23	0.204	6.78	135.2	
		1050	6	5.30	11.3	0.22	0.207	6.78	135.3	
		1052	7	5.30	11.3	0.21	0.208	6.78	135.0	
MW4	01/11/21	1134	7	6.68	10.8	0.24	0.210	6.78	46.2	
		1136	8	6.68	10.8	0.2	0.210	6.78	43.3	
		1138	9	6.68	10.8	0.18	0.210	6.78	40.8	
MW5	01/11/21	1220	8	7.40	7.3	--	0.072	6.73	-69.0	
		1222	9	7.40	7.3	--	0.072	6.73	-69.0	
		1224	10	7.40	7.3	--	0.720	6.73	-69.0	
MW6	01/11/21	Pumped Dry @ 8 gals, sampled @1325								

* - 10 gallons were purged prior to low flow to develop the monitor wells

ft bgs - feet below ground surface

°C - degrees celsius

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

mV - millivolts

--¹ - Not recorded. Value is zero / pH probe error

-- - Not recorded. Value is zero (0)

**Table A-3 Cumulative Groundwater Analytical Data
Status Report - 1st Quarter 2021
Kaufman No. 1 (AP-0138)
San Juan County, New Mexico**

Sample ID	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW1	01/18/19	0.074	0.35	0.027	0.33
	10/09/19	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/20	< 0.001	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW2	01/17/19	< 0.001	< 0.001	< 0.001	< 0.0015
	10/09/19	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/20	< 0.001	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW3	01/17/19	< 0.001	< 0.001	< 0.001	< 0.0015
	10/09/19	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/20	< 0.001	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW4	01/17/19	< 0.001	< 0.001	< 0.001	< 0.0015
	10/09/19	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/20	< 0.001	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
MW5	01/17/19	< 0.001	< 0.001	< 0.001	< 0.0015
	10/09/19	0.0041	< 0.001	< 0.001	< 0.001
	01/16/20	0.0012	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015

**Table A-3 Cumulative Groundwater Analytical Data
 Status Report - 1st Quarter 2021
 Kaufman No. 1 (AP-0138)
 San Juan County, New Mexico**

Sample ID	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW6	01/18/19	< 0.001	< 0.001	< 0.001	< 0.0015
	10/09/19	< 0.001	< 0.001	< 0.001	< 0.001
	01/16/20	< 0.001	< 0.001	< 0.001	< 0.002
	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
	07/02/20	< 0.001	< 0.001	< 0.001	< 0.0015
	11/05/20	< 0.001	< 0.001	< 0.001	< 0.0015
	01/11/21	< 0.001	< 0.001	< 0.001	< 0.0015
Regulatory Criteria		0.01	0.75	0.75	0.62

mg/L - milligrams per liter

Laboratory Results and Chain-of-Custody Documents



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

January 14, 2021

Jim Foster
Timberwolf Environmental
1920 W Villa Maria Ste 205
Bryan, TX 77807
TEL: (979) 324-2139
FAX:

RE: Kaufman 1

OrderNo.: 2101390

Dear Jim Foster:

Hall Environmental Analysis Laboratory received 8 sample(s) on 1/12/2021 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order: 2101390

Date Reported: 1/14/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental

Lab Order: 2101390

Project: Kaufman 1

Lab ID: 2101390-001

Collection Date: 1/11/2021 2:20:00 PM

Client Sample ID: MW1

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 5:43:31 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 5:43:31 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 5:43:31 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 5:43:31 AM	B74592
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	1/13/2021 5:43:31 AM	B74592
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	1/13/2021 5:43:31 AM	B74592
Surr: Dibromofluoromethane	104	70-130		%Rec	1	1/13/2021 5:43:31 AM	B74592
Surr: Toluene-d8	100	70-130		%Rec	1	1/13/2021 5:43:31 AM	B74592

Lab ID: 2101390-002

Collection Date: 1/11/2021 10:20:00 AM

Client Sample ID: MW2

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 6:11:59 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 6:11:59 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 6:11:59 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 6:11:59 AM	B74592
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	1/13/2021 6:11:59 AM	B74592
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	1	1/13/2021 6:11:59 AM	B74592
Surr: Dibromofluoromethane	103	70-130		%Rec	1	1/13/2021 6:11:59 AM	B74592
Surr: Toluene-d8	99.3	70-130		%Rec	1	1/13/2021 6:11:59 AM	B74592

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order: 2101390

Date Reported: 1/14/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental

Lab Order: 2101390

Project: Kaufman 1

Lab ID: 2101390-003

Collection Date: 1/11/2021 10:55:00 AM

Client Sample ID: MW3

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 6:40:37 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 6:40:37 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 6:40:37 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 6:40:37 AM	B74592
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	1/13/2021 6:40:37 AM	B74592
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	1/13/2021 6:40:37 AM	B74592
Surr: Dibromofluoromethane	106	70-130		%Rec	1	1/13/2021 6:40:37 AM	B74592
Surr: Toluene-d8	98.8	70-130		%Rec	1	1/13/2021 6:40:37 AM	B74592

Lab ID: 2101390-004

Collection Date: 1/11/2021 11:42:00 AM

Client Sample ID: MW4

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 7:09:15 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 7:09:15 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 7:09:15 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 7:09:15 AM	B74592
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	1/13/2021 7:09:15 AM	B74592
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/13/2021 7:09:15 AM	B74592
Surr: Dibromofluoromethane	102	70-130		%Rec	1	1/13/2021 7:09:15 AM	B74592
Surr: Toluene-d8	97.3	70-130		%Rec	1	1/13/2021 7:09:15 AM	B74592

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order: 2101390

Date Reported: 1/14/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental

Lab Order: 2101390

Project: Kaufman 1

Lab ID: 2101390-005

Collection Date: 1/11/2021 12:24:00 PM

Client Sample ID: MW5

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 7:37:46 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 7:37:46 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 7:37:46 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 7:37:46 AM	B74592
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	1/13/2021 7:37:46 AM	B74592
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/13/2021 7:37:46 AM	B74592
Surr: Dibromofluoromethane	104	70-130		%Rec	1	1/13/2021 7:37:46 AM	B74592
Surr: Toluene-d8	98.2	70-130		%Rec	1	1/13/2021 7:37:46 AM	B74592

Lab ID: 2101390-006

Collection Date: 1/11/2021 1:25:00 PM

Client Sample ID: MW6

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 8:06:16 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 8:06:16 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 8:06:16 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 8:06:16 AM	B74592
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	1	1/13/2021 8:06:16 AM	B74592
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/13/2021 8:06:16 AM	B74592
Surr: Dibromofluoromethane	106	70-130		%Rec	1	1/13/2021 8:06:16 AM	B74592
Surr: Toluene-d8	101	70-130		%Rec	1	1/13/2021 8:06:16 AM	B74592

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order: 2101390

Date Reported: 1/14/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental

Lab Order: 2101390

Project: Kaufman 1

Lab ID: 2101390-007

Collection Date: 1/11/2021 12:28:00 PM

Client Sample ID: Dup

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 8:34:47 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 8:34:47 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 8:34:47 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 8:34:47 AM	B74592
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	1/13/2021 8:34:47 AM	B74592
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/13/2021 8:34:47 AM	B74592
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/13/2021 8:34:47 AM	B74592
Surr: Toluene-d8	96.9	70-130		%Rec	1	1/13/2021 8:34:47 AM	B74592

Lab ID: 2101390-008

Collection Date:

Client Sample ID: Trip Blank

Matrix: TRIP BLANK

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							
							Analyst: JMR
Benzene	ND	1.0		µg/L	1	1/13/2021 9:03:19 AM	B74592
Toluene	ND	1.0		µg/L	1	1/13/2021 9:03:19 AM	B74592
Ethylbenzene	ND	1.0		µg/L	1	1/13/2021 9:03:19 AM	B74592
Xylenes, Total	ND	1.5		µg/L	1	1/13/2021 9:03:19 AM	B74592
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	1/13/2021 9:03:19 AM	B74592
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	1/13/2021 9:03:19 AM	B74592
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/13/2021 9:03:19 AM	B74592
Surr: Toluene-d8	99.7	70-130		%Rec	1	1/13/2021 9:03:19 AM	B74592

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

WO#: 2101390

Hall Environmental Analysis Laboratory, Inc.

14-Jan-21

Client: Timberwolf Environmental**Project:** Kaufman 1

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: LCSW	Batch ID: B74592		RunNo: 74592							
Prep Date:	Analysis Date: 1/12/2021		SeqNo: 2633057		Units: µg/L					
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: VSB Fridge	SampType: MBLK		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: PBW	Batch ID: B74592		RunNo: 74592							
Prep Date:	Analysis Date: 1/12/2021		SeqNo: 2633058		Units: µg/L					
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	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 Quantitative 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

Page 5 of 5



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: **Timberwolf Environmental** Work Order Number: **2101390** RcptNo: 1

Received By: **Isaiah Ortiz** 1/12/2021 7:50:00 AM *I-Ox*
 Completed By: **Isaiah Ortiz** 1/12/2021 8:39:11 AM *I-Ox*
 Reviewed By: *JE 1/12/21*

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? Yes No
 (Note discrepancies on chain of custody)
 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? Yes No
 (If no, notify customer for authorization.)

of preserved bottles checked for pH: _____
 (<2 or >12 unless noted)
 Adjusted? _____
 Checked by: *SGC 1/12/21*

Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	0.8	Good	Yes			

Chain-of-Custody Record

Client: Timberwolf Environmental

Mailing Address: _____

Phone #: 979-304-2139

email or Fax#: jim@teamtimberwolf.com

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

Accreditation: AZ Compliance NELAC Other

EDD (Type) _____

Turn-Around Time: _____

Standard Rush

Project Name: Kaufman #1

Project #: 180061

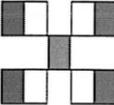
Project Manager: Jim Foster

Sampler: _____

On Ice: Yes No

of Coolers: 1

Cooler Temp (including CF): 0.5 ± 0.1 (°C)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request	
BTEX / MTBE / TMBs (8021)	<input checked="" type="checkbox"/>
TPH:8015D(GRO / DRO / MRO)	<input type="checkbox"/>
8081 Pesticides/8082 PCB's	<input type="checkbox"/>
EDB (Method 504.1)	<input type="checkbox"/>
PAHs by 8310 or 8270SIMS	<input type="checkbox"/>
RCRA 8 Metals	<input type="checkbox"/>
Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	<input type="checkbox"/>
8260 (VOA)	<input type="checkbox"/>
8270 (Semi-VOA)	<input type="checkbox"/>
Total Coliform (Present/Absent)	<input type="checkbox"/>

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	Temperature (°C)
1/11/21	1420	H ₂ O	MW1			2101390	001
1/11/21	1020		MW2				002
1/11/21	1055		MW3				003
1/11/21	1142		MW4				004
1/11/21	1224		MW5				005
1/11/21	1325		MW6				006
1/11/21	1228		Dup				007
			Trip Blank				008

Date: 1/11/21 Time: 1530 Relinquished by: [Signature]

Date: 1/11/21 Time: 1914 Relinquished by: [Signature]

Received by: Christina Waelen Date: 1/11/21 Time: 1530

Received by: [Signature] Date: 1/12/21 Time: 0750

Remarks: * Trip blank provided by client not filled at Hall * - ENM 1/12/21

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

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS
 Action 15640

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 15640
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record. See App ID 75457 for most updated status (Abatement Completion Report submitted).	9/21/2022