2Q
2020

Stage 1 Report

From: Smith, Cory, EMNRD
To: "Jim Foster"
Cc: "jdeal@hilcorp.com"
Subject: Kaufman No.1 - 2Q20 Report (AP-0138)
Date: Wednesday, June 24, 2020 3:34:00 PM

Jennifer,

OCD has received and reviewed the 2Q2020 Report for the Kaufman No.1 - (AP-0138).

HEC does not need OCD approval to install additional Monitor wells/delineation points.

The 2Q 2020 report has been scanned into the incident# nCS1833331001 online incident file.

If you have any additional questions please let me know.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From:	Jim Foster
To:	Smith, Cory, EMNRD
Cc:	Jennifer Deal
Subject:	[EXT] Kaufman No. 1 - 2Q20 Report (AP-0138)
Date:	Tuesday, June 23, 2020 9:35:31 AM
Attachments:	image001.png StatusReport_2Q20_Kaufman_No1.pdf

Cory,

Attached the Kaufman No. 1 status report for the second quarter 2020 (2Q20). This report was also submitted to the NMOCD online portal under company name Timberwolf Environmental.

Please let me know if you have any questions or need anything further.

Jim Foster

TIMBERWOLF ENVIRONMENTAL

1920 W. Villa Maria, Suite 205
Bryan, Texas 77807
979-324-2139
teamtimberwolf.com

691 CR 233, Suite B4
Durango, Colorado 81301
970.516.8419
www.teamtimberwolf.com

June 19, 2020

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

Re: Status Report – 2nd Quarter 2020
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 2nd Quarter 2020 (2Q20) groundwater monitoring activities and threatened and endangered species surveys (T&E survey) 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 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.

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. Two riparian wetland features (previously delineated on 07/02/19 and 07/03/19), one approximately 30 ft to the north and one immediately adjacent to the south and east of the site were also surveyed in.

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

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

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

2Q20 Groundwater Sampling Event

On 04/09/20, Timberwolf conducted the 2Q20 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 by using a 6-ft bubble level and water interface probe capable of measuring to the nearest one-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 11/19/20 and documented in Section 9 of the *Stage 2 Abatement Plan*.

Gauging data are 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 2Q20 PSE map revealed that groundwater flow across the Site was west-southwest towards the La Plata River.

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.

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 2Q20 groundwater monitoring event are summarized in Table 2 below and shown in Figure 6.

Table 2. Groundwater Analytical Results – 2Q20

Sample Station	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW1	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW2	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW3	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW4	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW5	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW6	04/09/20	< 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

Quality Assurance Program

To ensure quality assurance in laboratory data, Timberwolf collected a field duplicate sample. 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:

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

Analytical results are documented in the attached laboratory report and summarized in Table 3.

Table 3. Groundwater Quality Assurance Results – 2Q20

Sample ID	Date	Volatile Organic Compounds (mg/L)			
		B	T	E	X
MW5	04/09/20	< 0.001	< 0.001	< 0.001	< 0.002
Dup	04/09/20	< 0.001	< 0.001	< 0.001	< 0.002

mg/L – milligrams per liter
B – benzene
T – toluene
E – ethylbenzene
X –xylenes

The RPD between sample MW5 and the Dup was 0%, which demonstrates laboratory reproducibility between samples.

Threatened and Endangered Species Survey

At the request of the BLM, T&E surveys are being conducted at the Site. The purpose of the surveys is to conduct absence/presence determination surveys for *Southwestern Willow Flycatcher* and *Yellowbilled Cuckoo* using US Fish & Wildlife protocols.

Timberwolf contracted with SME Environmental Consultants (SME) of Durango, Colorado, a contract surveyor certified for T&E surveys, to conduct the T&E surveys at the Site. The surveys began on 05/20/20 and will include a total of six T&E survey visits between 05/20/20 and 08/07/20. The survey area is shown in Figure 7.

During 2Q20, SME completed three of the six T&E survey visits. The 1st T&E survey visit was conducted on 05/20/20; the 2nd visit was conducted on 06/05/20; and the 3rd visit was conducted on 06/18/20. The findings will be presented in the 3rd Quarter 2020 (3Q20) status report following the completion of the final survey visit.

Conclusions

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

- BTEX concentrations were below regulatory criteria at all sampling stations (i.e., MW1 – MW6)
    - Concentrations of BTEX were below human health criteria and laboratory detection limits in all samples (i.e., MW1 – MW6)
- Groundwater flow across the Site is west-southwest towards the La Plata River
- Three T&E survey visits were completed

Further Actions

Timberwolf will conduct the following activities at the Site during the 3rd quarter of 2020:

- Conduct a quarterly groundwater monitoring event
- Continue a threatened and endangered species surveys for the *Southwestern willow flycatcher* and *Western yellow-billed cuckoo*
- Pending OCD approval, install an additional monitoring well (i.e., MW7); as shown in Figure 8

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

Sincerely,
Timberwolf Environmental, LLC

Chris Perez
Project Scientist

Jim Foster
President

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

cc. Jennifer Deal – Hilcorp Energy Company

TIMBERWOLF ENVIRONMENTAL

Figures

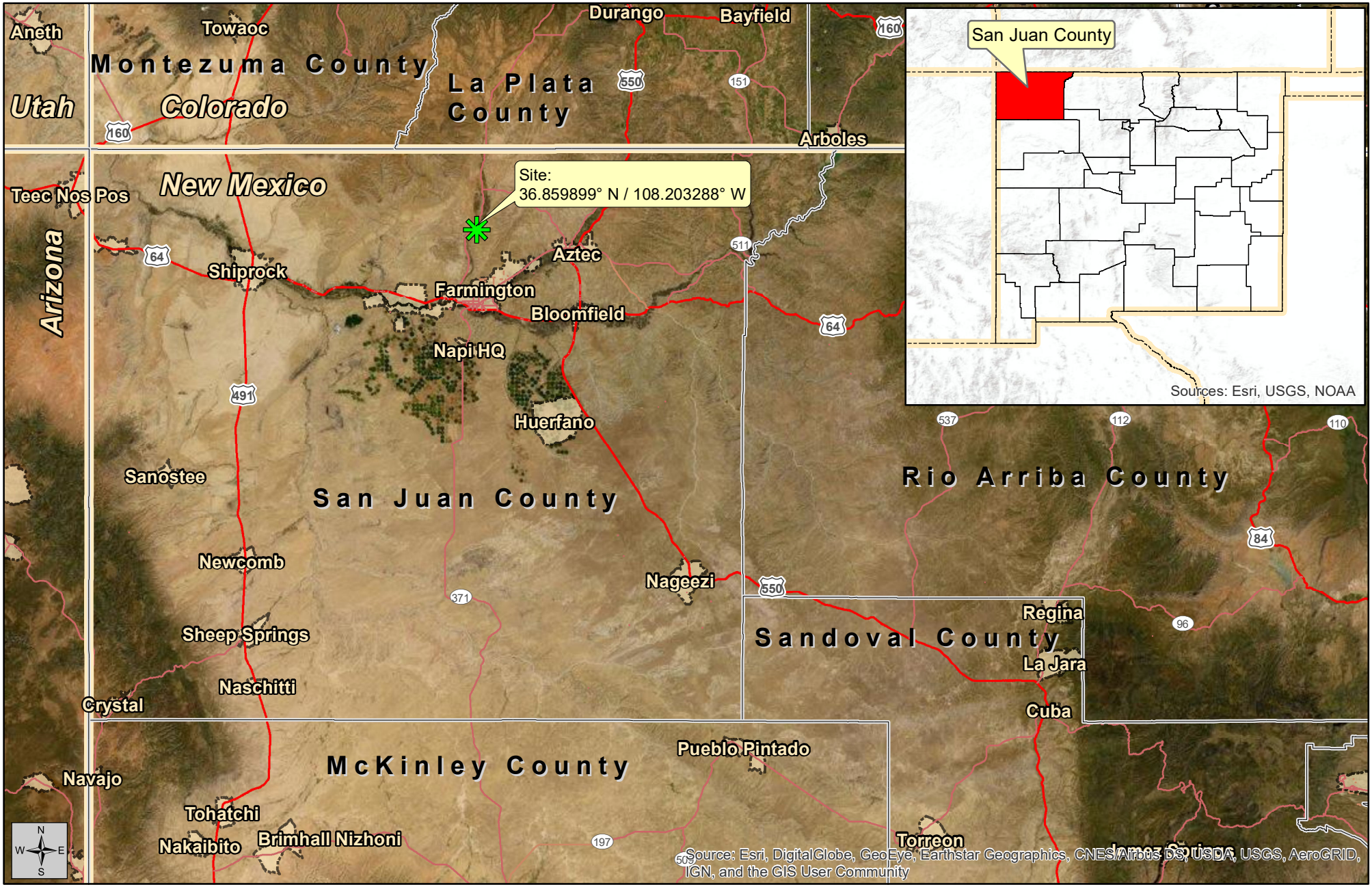

Figure 1 **Site Location Map**	**Status Report - 2nd Quarter 2020 (AP-0138)**	**April 20, 2020**
TIMBERWOLF ENVIRONMENTAL	1:1,250,000 0 20 40 60 80 100 120 Miles **Kaufman No. 1 (SE1/4 NE1/4, Sec. 33, T31N, R13W)** **Hilcorp Energy Company** **San Juan County, New Mexico**	Site
Created By: Kevin Cole TE Project No.: HEC-180061	Datum: NAD83 Imagery Source: ESRI Vector Source: ESRI and TE	

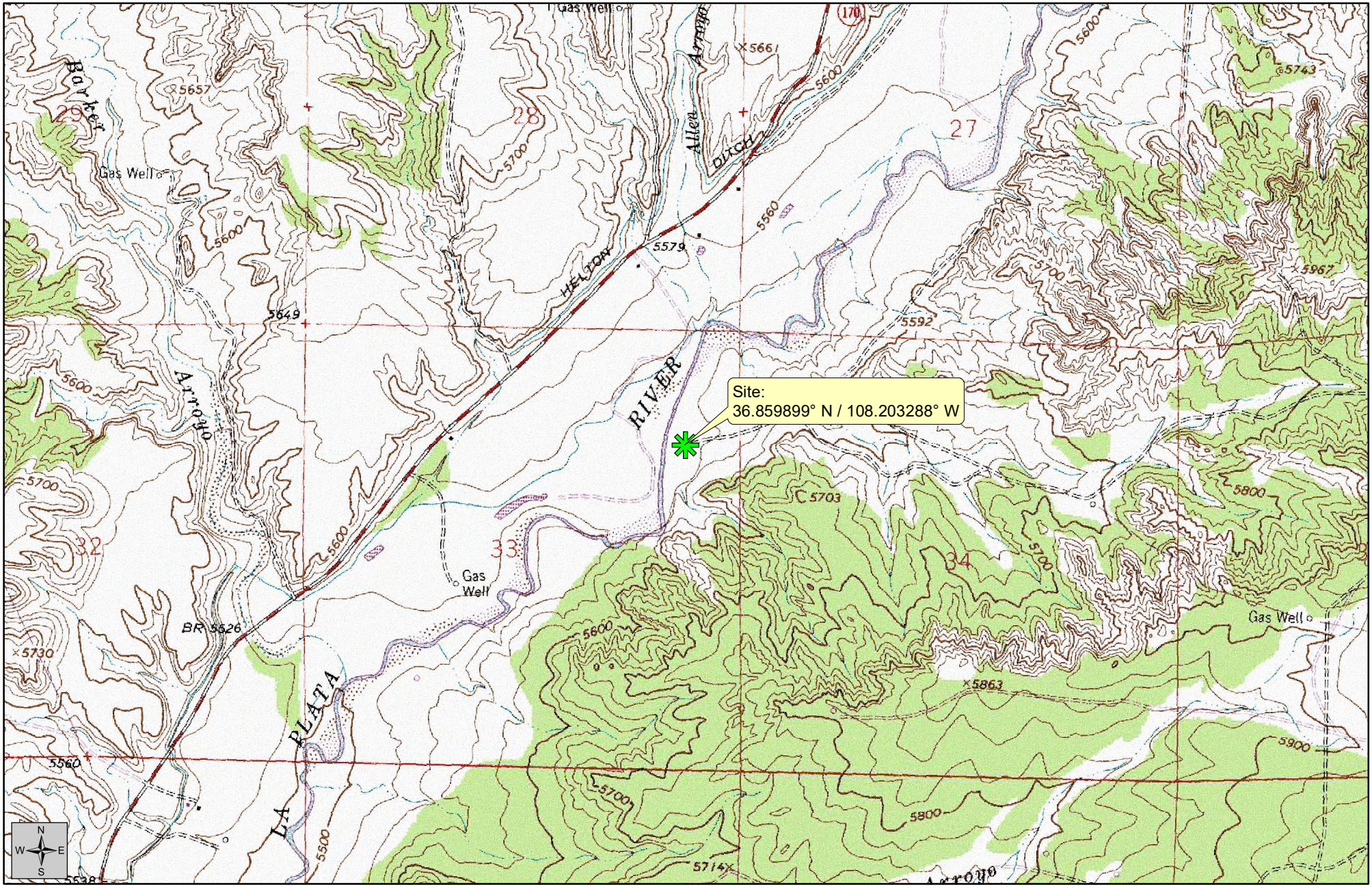

Figure 2
Topographic Map

Status Report - 2nd Quarter 2020 Report (AP-0138)

April 20, 2020

1:24,000

0 0.5 1 1.5 2 2.5 Miles

TIMBERWOLF ENVIRONMENTAL

Created By:
Kevin Cole
TE Project No.: HEC-180061

Kaufman No. 1 (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

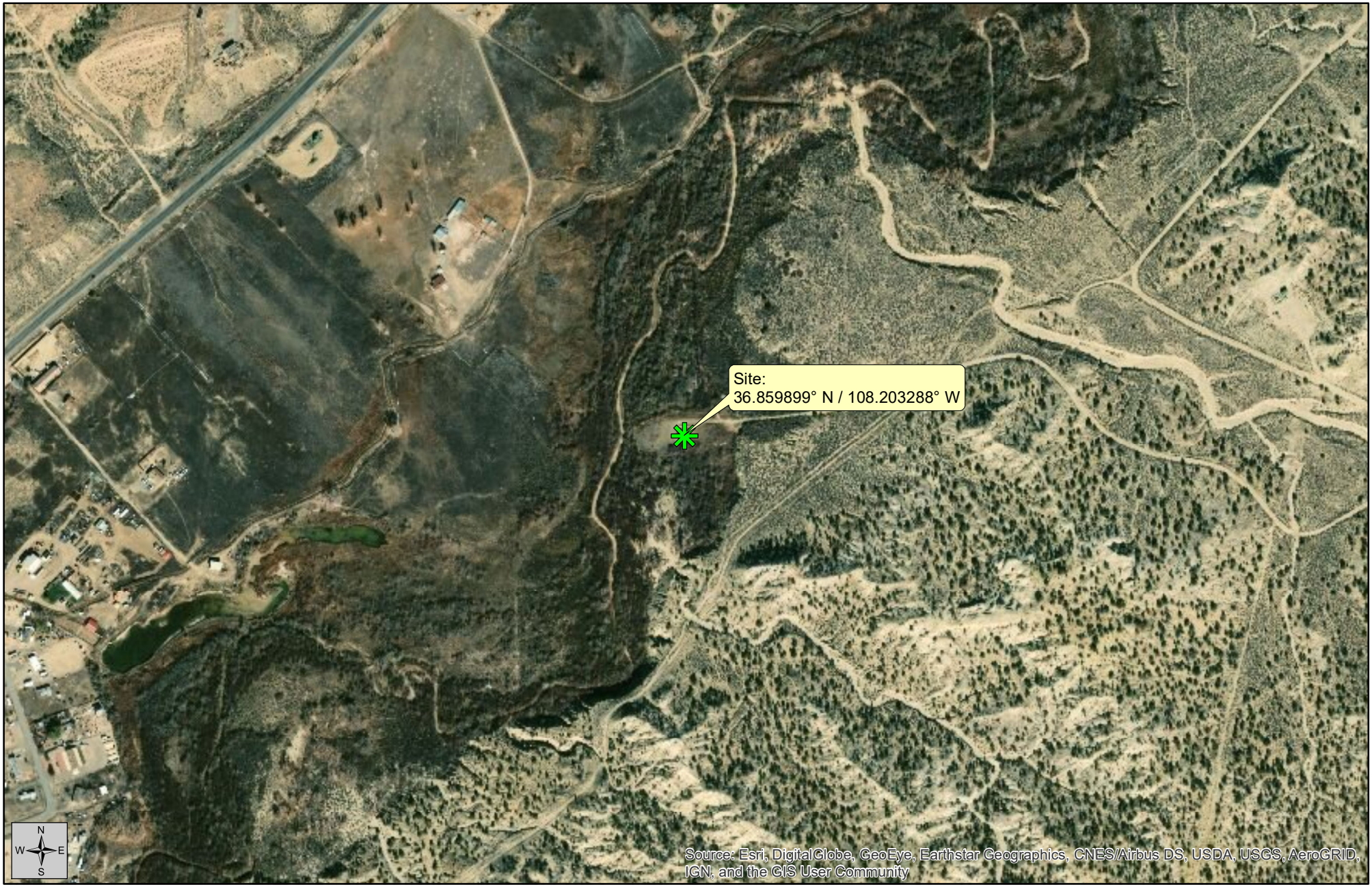

Figure 3
Aerial Map

Status Report - 2nd Quarter Report (AP-0138)

April 20, 2020

TIMBERWOLF ENVIRONMENTAL

1:8,000

0 1,000 2,000 3,000 4,000 Feet

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

Created By:
Kevin Cole
TE Project No.: HEC-180061

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Site

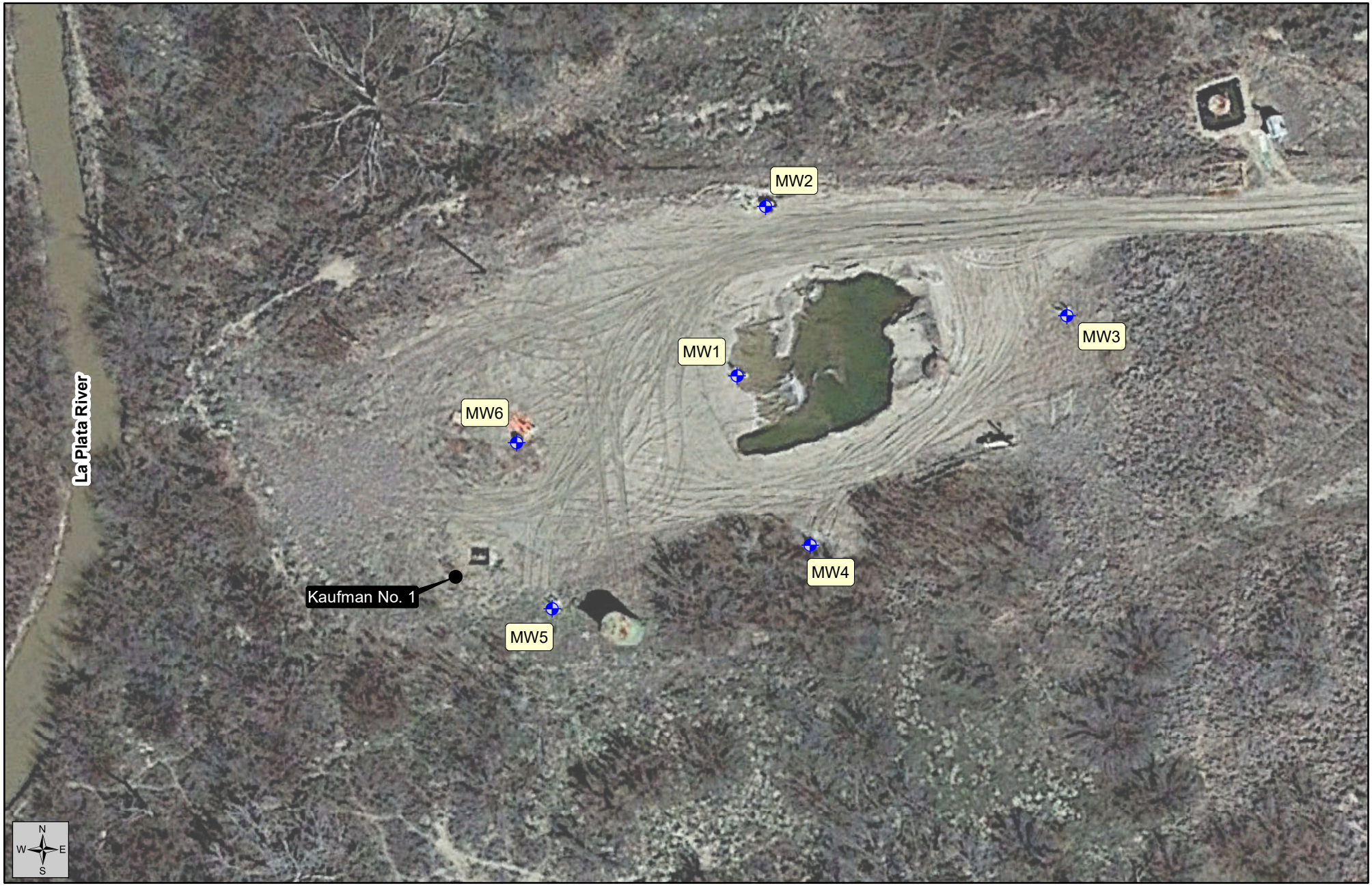

Figure 4
Monitor Well Location Map

Status Report - 2nd Quarter Report (AP-0138)

April 20, 2020

TIMBERWOLF ENVIRONMENTAL

1:500

0 50 100 150 200 250 Feet

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

Created By:
Kevin Cole
TE Project No.: HEC-180061

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

Monitor Well
Kaufman No. 1 Well Head

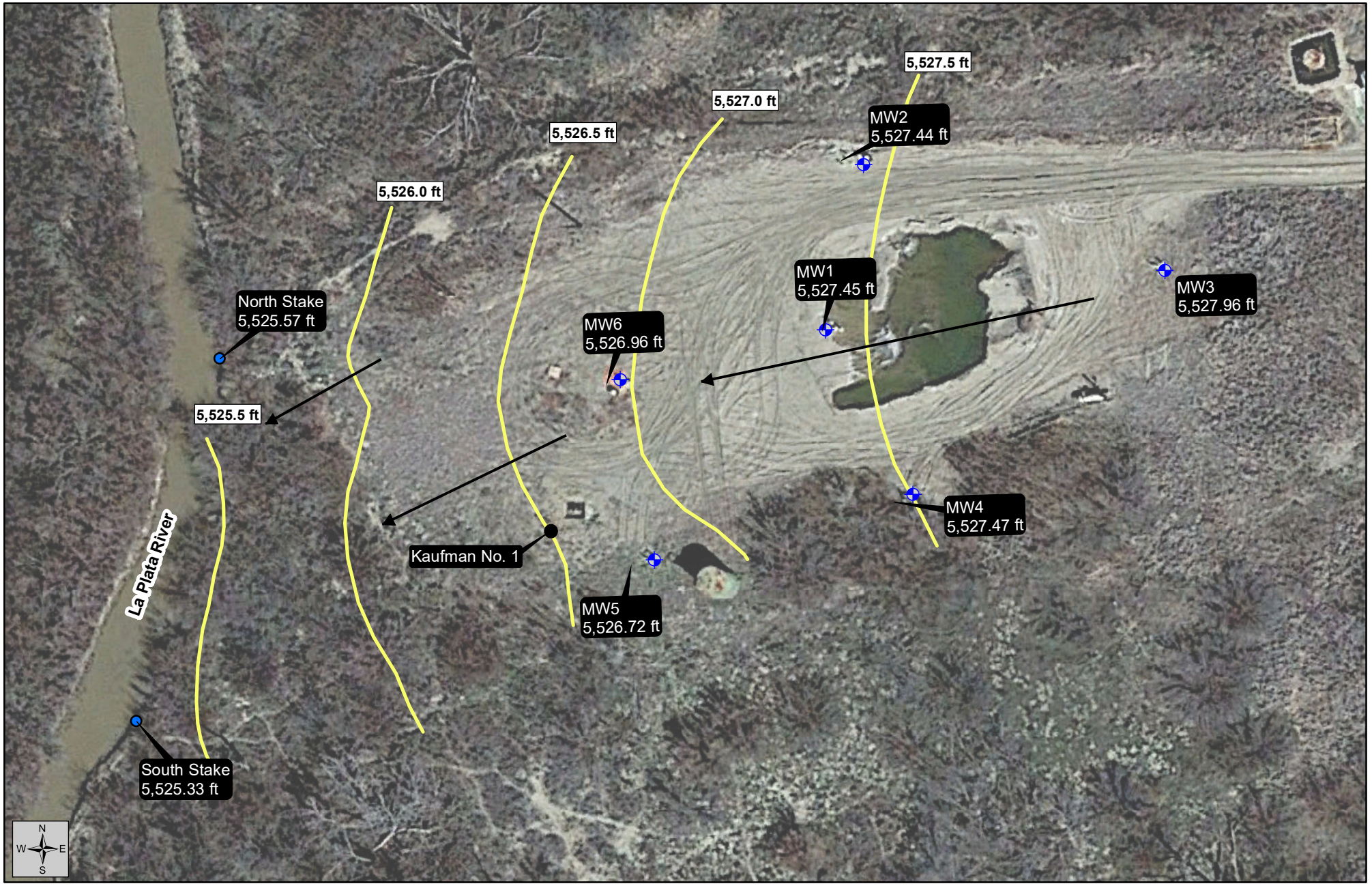

Figure 5
Potentiometric Surface Elevation Map

Status Report - 2nd Quarter Report (AP-0138)

Gauging Date:
April 9, 2020

1:500

0 50 100 150 200 250 Feet

TIMBERWOLF ENVIRONMENTAL

Created By:
Chris Perez
April 20, 2020
TE Project No.: HEC-180061

Kaufman No. 1 (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	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW2	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW3	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW4	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW5	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
MW6	04/09/20	< 0.001	< 0.001	< 0.001	< 0.0015
Regulatory Criteria		**0.01**	**0.75**	**0.75**	**0.62**

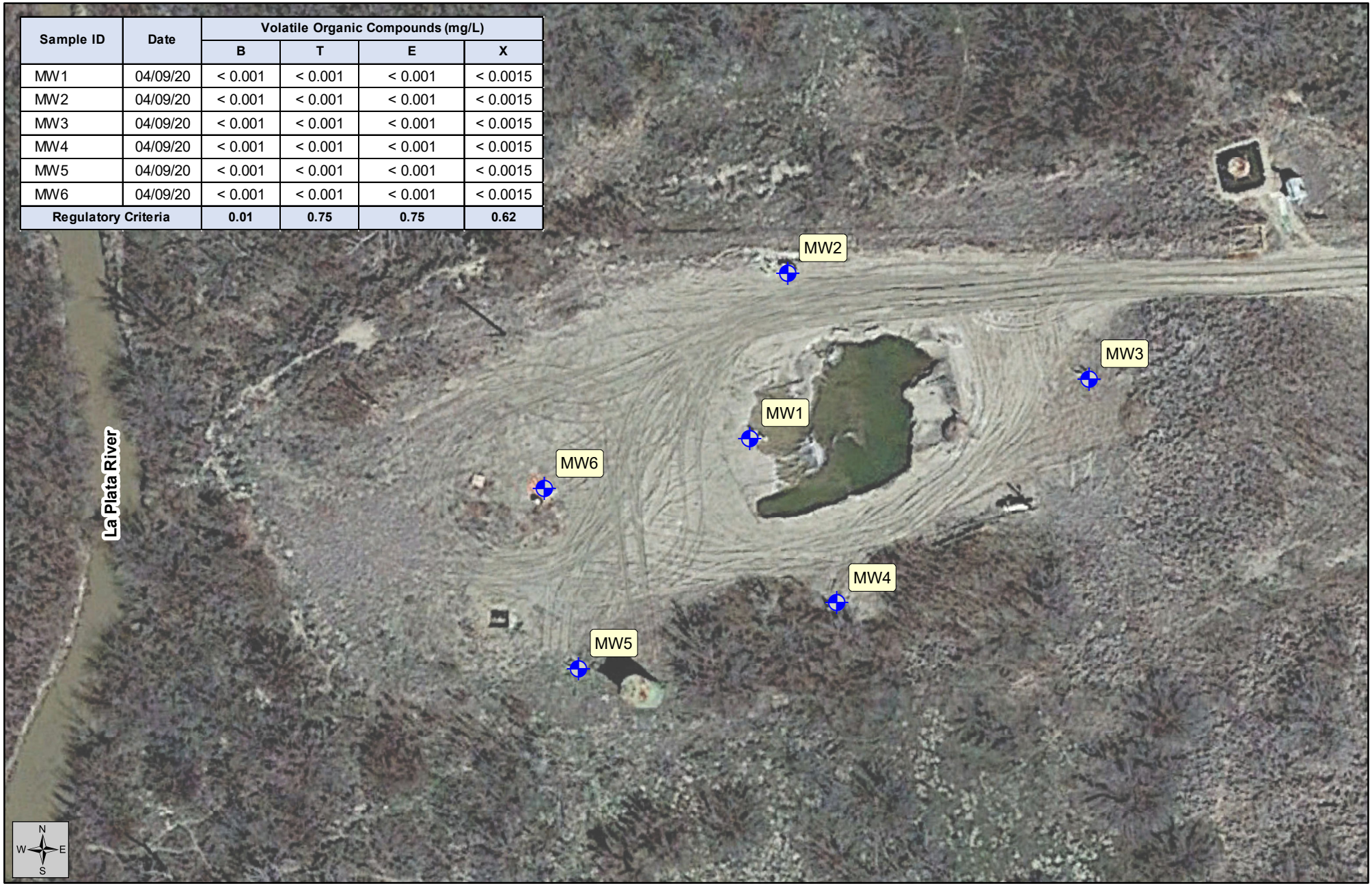

Figure 6
BTEX Results - 2Q20

Status Report - 2nd Quarter Report (AP-0138)

Sample Date:
April 9, 2020

TIMBERWOLF ENVIRONMENTAL

1:500
0 50 100 150 200 250 Feet

Created By:
Chris Perez
April 20, 2020
TE Project No.: HEC-180061

Kaufman No. 1 (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

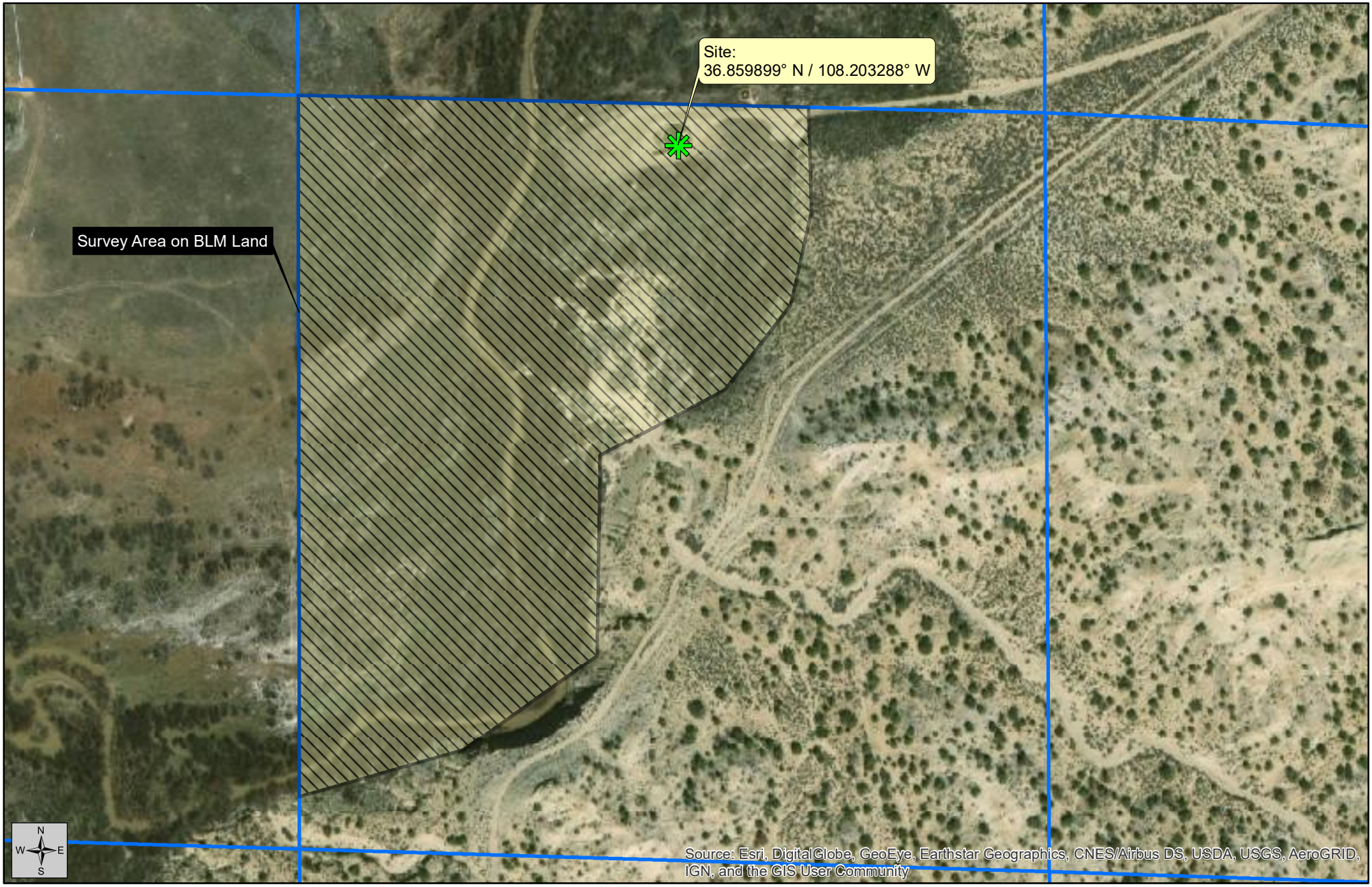

Figure 7
Threatened and Endangered Speices Survey Area

Status Report - 2nd Quarter Report (AP-0138)

April 20, 2020

TIMBERWOLF ENVIRONMENTAL

1:3,500

0 500 1,000 1,500 2,000 Feet

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

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

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Site
Survey Area

Figure 8
Proposed Monitor Well Location Map

Status Report - 2nd Quarter Report (AP-0138)

April 20, 2020

TIMBERWOLF ENVIRONMENTAL

1:500

0 50 100 150 200 250 Feet

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

Created By:
Kevin Cole
TE Project No.: HEC-180061

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

- Monitor Well
- Proposed Monitor Well
- Kaufman No. 1 Well Head

Attached Tables

Table A-1. Groundwater Gauging Data
Status Report - 2nd Quarter 2020
Kaufman No. 1
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	04/09/20	2.52	5,527.45	--
MW2	5,530.64	04/09/20	3.2	5,527.44	--
MW3	5,531.28	04/09/20	3.32	5,527.96	--
MW4	5,531.78	04/09/20	4.31	5,527.47	--
MW5	5,530.79	04/09/20	4.07	5,526.72	--
MW6	5,530.56	04/09/20	3.6	5,526.96	--
North Stake	5,529.98	04/09/20	4.41	5,525.57	--
South Stake	5,529.38	04/09/20	4.05	5,525.33	--

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 unmeasureable

-- - PSH not detected

Table A-2. Groundwater Stabilization Parameters
Status Report - 2nd Quarter 2020
Kaufman No. 1
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[1]	Oxidation Reduction Potential (mV)
MW1	04/09/20	1413	10	2.73	10.3	0.32	2.67	9.62	-244.2
		1415	11	2.73	10.3	0.32	2.67	9.62	-246.2
		1417	12	2.73	10.3	0.32	2.67	9.59	-247
MW2	04/09/20	1047	10	4.16	8.7	0.11	2.67	10.10	-82.5
		1049	11	4.16	8.7	0.11	2.66	10.05	-83.2
		1051	12	4.16	8.7	0.10	2.60	10.08	-85.2
MW3	04/09/20	1126	8	3.52	9.2	0.31	2.50	12.72	-62.3
		1128	9	3.52	9.3	0.28	2.52	12.51	-66.7
		1130	10	3.52	9.3	0.27	2.52	12.42	-67.3
MW4	04/09/20	1153	3	4.64	8.3	0.24	2.58	12.65	-60.8
		1155	4	4.64	8.3	0.29	2.59	12.65	-67.5
		1157	5	4.63	8.3	0.29	2.60	12.66	-70.1
MW5	04/09/20	1243	8	4.90	8.0	0.20	2.83	13.27	-213.3
		1245	9	4.90	8.0	0.19	2.82	13.20	-219.2
		1248	10	4.90	7.9	0.18	2.82	13.24	-219.5
MW6	04/09/20	1332	11	5.59	9.2	0.12	2.74	9.66	-357.5
		1334	12	5.59	9.2	0.12	2.74	9.74	-362.8
		1336	13	5.59	9.2	0.11	2.74	9.73	-368.5

* - 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. pH probe error

Table A-3 Cumulative Ground Water Analytical Data
Status Report - 2nd Quarter 2020
Kaufman No. 1
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				
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				
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				
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				
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				
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				
Regulatory Criteria		**0.01**	**0.75**	**0.75**	**0.62**

Laboratory Results and Chain-of-Custody Documents

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

April 20, 2020

Jim Foster

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

RE: Kaufman No 1 OrderNo.: 2004514

Dear Jim Foster:

Hall Environmental Analysis Laboratory received 7 sample(s) on 4/10/2020 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.

CLIENT: Timberwolf Environmental
Project: Kaufman No 1
Lab Order: 2004514

Lab ID: 2004514-001 **Collection Date:** 4/9/2020 2:19:00 PM
Client Sample ID: MW1 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 12:48:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 12:48:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 12:48:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 12:48:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	4/18/2020 12:48:00 AM	B68201
Surr: Dibromofluoromethane	96.8	70-130		%Rec	1	4/18/2020 12:48:00 AM	B68201
Surr: Toluene-d8	105	70-130		%Rec	1	4/18/2020 12:48:00 AM	B68201

Lab ID: 2004514-002 **Collection Date:** 4/9/2020 10:53:00 AM
Client Sample ID: MW2 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 1:13:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 1:13:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 1:13:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 1:13:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	99.4	70-130		%Rec	1	4/18/2020 1:13:00 AM	B68201
Surr: Dibromofluoromethane	98.9	70-130		%Rec	1	4/18/2020 1:13:00 AM	B68201
Surr: Toluene-d8	105	70-130		%Rec	1	4/18/2020 1:13:00 AM	B68201

Lab ID: 2004514-003 **Collection Date:** 4/9/2020 11:32:00 AM
Client Sample ID: MW3 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 1:36:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 1:36:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 1:36:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 1:36:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	4/18/2020 1:36:00 AM	B68201
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	4/18/2020 1:36:00 AM	B68201
Surr: Toluene-d8	105	70-130		%Rec	1	4/18/2020 1:36:00 AM	B68201

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental
Project: Kaufman No 1
Lab Order: 2004514

Lab ID: 2004514-004 **Collection Date:** 4/9/2020 11:59:00 AM
Client Sample ID: MW4 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 2:01:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 2:01:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 2:01:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 2:01:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/18/2020 2:01:00 AM	B68201
Surr: Dibromofluoromethane	99.2	70-130		%Rec	1	4/18/2020 2:01:00 AM	B68201
Surr: Toluene-d8	104	70-130		%Rec	1	4/18/2020 2:01:00 AM	B68201

Lab ID: 2004514-005 **Collection Date:** 4/9/2020 12:50:00 PM
Client Sample ID: MW5 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 2:24:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 2:24:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 2:24:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 2:24:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	1	4/18/2020 2:24:00 AM	B68201
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	4/18/2020 2:24:00 AM	B68201
Surr: Toluene-d8	105	70-130		%Rec	1	4/18/2020 2:24:00 AM	B68201

Lab ID: 2004514-006 **Collection Date:** 4/9/2020 1:38:00 PM
Client Sample ID: MW6 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 2:48:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 2:48:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 2:48:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 2:48:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	4/18/2020 2:48:00 AM	B68201
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	4/18/2020 2:48:00 AM	B68201
Surr: Toluene-d8	106	70-130		%Rec	1	4/18/2020 2:48:00 AM	B68201

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Timberwolf Environmental
Project: Kaufman No 1
Lab Order: 2004514

Lab ID: 2004514-007
Collection Date: 4/9/2020 12:51:00 PM
Client Sample ID: Dup
Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **CCM**	
Benzene	ND	1.0		µg/L	1	4/18/2020 3:12:00 AM	B68201
Toluene	ND	1.0		µg/L	1	4/18/2020 3:12:00 AM	B68201
Ethylbenzene	ND	1.0		µg/L	1	4/18/2020 3:12:00 AM	B68201
Xylenes, Total	ND	1.5		µg/L	1	4/18/2020 3:12:00 AM	B68201
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	1	4/18/2020 3:12:00 AM	B68201
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	4/18/2020 3:12:00 AM	B68201
Surr: Toluene-d8	107	70-130		%Rec	1	4/18/2020 3:12:00 AM	B68201

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#: **2004514**

20-Apr-20

Client: Timberwolf Environmental

Project: Kaufman No 1

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **B68201**	RunNo: **68201**
Prep Date:	Analysis Date: **4/17/2020**	SeqNo: **2358926** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.6	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.5	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.8	70	130			
Surr: Dibromofluoromethane	10		10.00		99.8	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID: **mb2**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **B68201**	RunNo: **68201**
Prep Date:	Analysis Date: **4/17/2020**	SeqNo: **2358942** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.9	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID: **2004514-001ams**	SampType: **MS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW1**	Batch ID: **B68201**	RunNo: **68201**
Prep Date:	Analysis Date: **4/18/2020**	SeqNo: **2358960** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.3	70	130			
Toluene	20	1.0	20.00	0	98.2	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.5	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID: **2004514-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW1**	Batch ID: **B68201**	RunNo: **68201**
Prep Date:	Analysis Date: **4/18/2020**	SeqNo: **2358961** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	88.5	70	130	4.29	20	
Toluene	19	1.0	20.00	0	93.6	70	130	4.79	20	

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004514**
20-Apr-20

Client: Timberwolf Environmental
Project: Kaufman No 1

Sample ID: **2004514-001amsd** SampType: **MSD** TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **MW1** Batch ID: **B68201** RunNo: **68201**
Prep Date: Analysis Date: **4/18/2020** SeqNo: **2358961** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		99.8	70	130	0	0	
Surr: Toluene-d8	10		10.00		104	70	130	0	0	

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: **TIMBERWOLF ENVIRON** Work Order Number: **2004514** RcptNo: 1

Received By: **Desiree Dominguez** **4/10/2020 8:10:00 AM** DD

Completed By: **Leah Baca** **4/10/2020 9:42:02 AM** Leah S Baca

Reviewed By: JO 4/10/20

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: (<2 or >12 unless noted)
Adjusted?
Checked by: DAD 4/10/20

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	2.0	Good	Yes			

Chain-of-Custody Record

Client: Timberwolf

Mailing Address:

Phone #: 979-324-2139

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Kaufman No. 1

Project #: HEC-180061

Project Manager: Jim Foster

Sampler: Michael Morse

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.9 +0.1 = 2.0°c

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004514	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4-9-20	1419	water	MW1	Voa 2	HCl	-001	✓									
4-9-20	1053	w	MW2	Voa 2	HCl	-002	✓									
4-9-20	1132	w	MW3	Voa 2	HCl	-003	✓									
4-9-20	1159	w	MW4	Voa 2	HCl	-004	✓									
4-9-20	1250	w	MW5	Voa 2	HCl	-005	✓									
4-9-20	1338	w	MW6	Voa 2	HCl	-006	✓									
4-9-20	1251	w	Dup	Voa 2	HCl	-007	✓									

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4-9-20	1600		Christen Walker		4/9/2020	1600
4/9/2020	1746	Christen Walker		courier	4/10/20	8:10

Remarks:

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.