District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

APPROVED
By Nelson Velez at 12:21 pm, Jan 05, 2022

Release Notification

Responsible Party

1. OCD approves the Proposed Delineation Activities.
2. Notify OCD of approximate commencement scheduling of the activities.

Responsible Party: Hilcorp Energy Company	OGRID: 372171
Contact Name: Lindsay Dumas	Contact Telephone: 832-839-4585
Contact email: Ldumas@hilcorp.com	Incident # *(assigned by OCD)*
Contact mailing address: 1111 Travis St. Houston, TX 77002	

Location of Release Source

Latitude 36.5631485 Longitude -107.2507401
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: San Juan 27-4 Unit 60	Site Type: Gas
Date Release Discovered: 4-16-19	API# *(if applicable)* 30-039-20484

Unit Letter	Section	Township	Range	County
A	21	27N	04W	Rio Arriba

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 5	Volume Recovered (bbls) 5
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Release discovered by NMOCD inspector Jonathan Kelly. The BGT has been out of service for the last three years. Snow melt entered the pit and cribbing area, mixing with BS&W in the pit and exited via a corrosion hole in the pit.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Lindsay Dumas Title: Environmental Specialist

Signature: Lindsay Dumas Date: 9-27-19

email: Ldumas@hilcorp.com Telephone: 832-839-4585

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Billy Ginn_____ Title: Environmental Specialist_____

Signature:___ _____ Date: 3/10/2022_____

email: William.ginn@hilcorp.com_____ Telephone: 346-237-2073_____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Nelson Velez Date: 03/23/2022

Printed Name: Nelson Velez Title: Environmental Specialist - Adv

Executive Summary

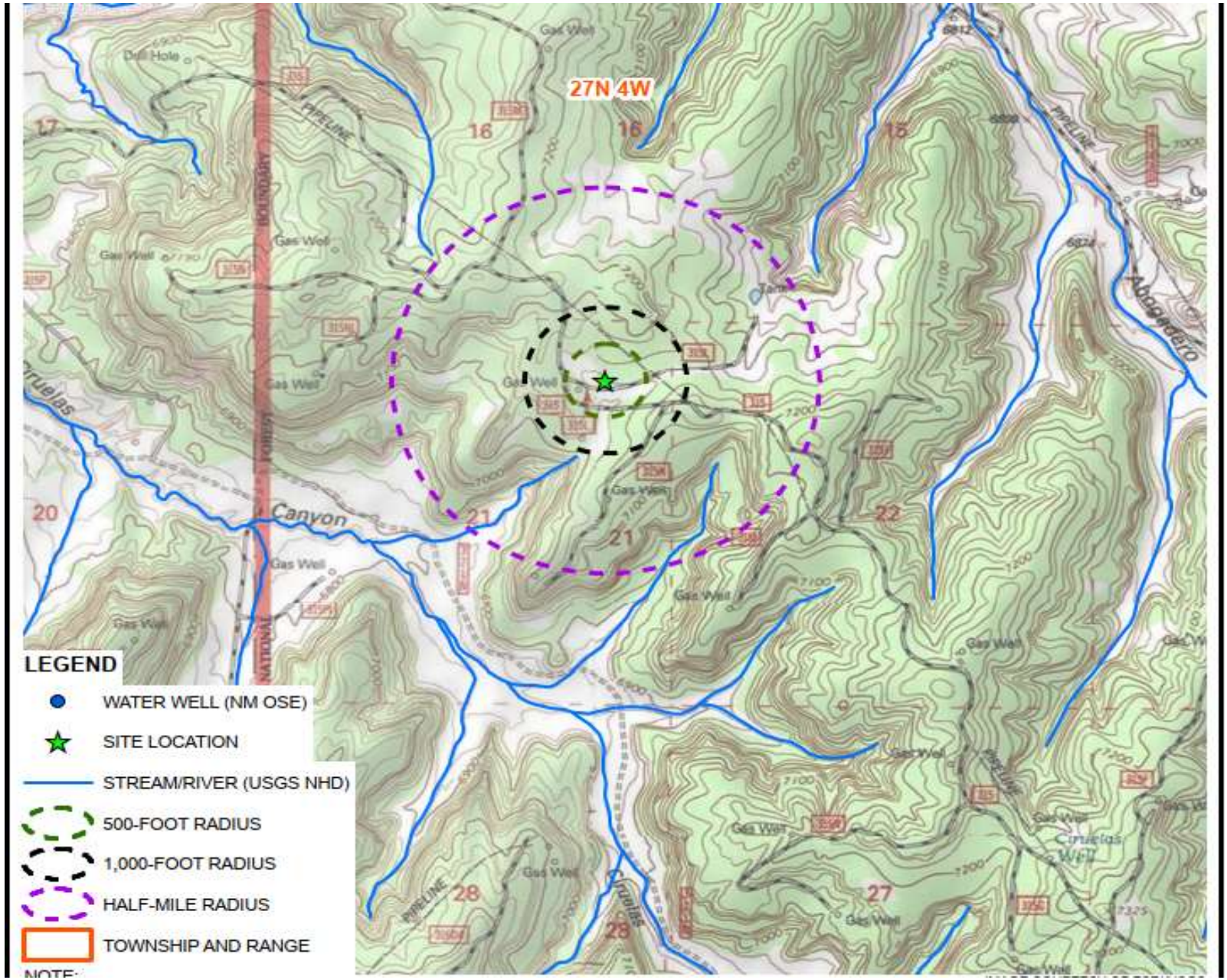
During an onsite inspection on April 16, 2019, Mr. Jonathan Kelly, an inspector with the New Mexico Oil Conservation Division (NMOCD), discovered a release originating from an out of service below-grade tank (BGT). Specifically, Mr. Kelly noted that melted snow had entered the BGT, mixing with bottom sludge and water, and exited through corrosion holed in the steel tank. It was estimated that five (5) barrels of produced water was released at the San Juan 27-4 Unit 60 (API No. 30-039-20484). Upon discovery, HEC cleaned and removed the BGT from the Site and LT Environmental, Inc. (LTE) collected one, 5-point composite soil sample from the area below the BGT. All soil analytical results were compared to the site-specific Table 1 Closure Criteria. Results for all soil samples were shown to be above the applicable clean up action levels. The release was isolated within the BGT pit.

HEC submitted a Remediation Work Plan on December 7th, 2021, which was approved on January 5th, 2022 (see attached). Following the initial investigation, on January 12th, 2022, Hilcorp chose to assess soil impacts by taking samples of the impacted area. In order to delineate potential petroleum hydrocarbon impacts to soil originating from the release, HEC's Kurt Hoekstra advanced five borings at the site. During sampling, soil was inspected for visual staining and the presence or absence of odor. The soil was characterized, visually, by inspecting the soil samples and field screening the soil headspace using a photoionization detector (PID) to monitor for the presence of organic vapors. Two (2) soil samples were collected from each boring and submitted to Hall Environmental Analysis Laboratory for analysis of TPH, BTEX, and chloride. Lab samples confirmed that the impacts were detected at 4' bgs. Hilcorp chose to remediate the site via dig/haul with the use of a backhoe. One excavation/confirmation sampling event occurred from Monday, February 21st through Tuesday, February 22nd, 2022. A total of approximately 50 cubic yards (yd^3) was excavated from the release area. Confirmation sampling was scheduled for Monday, February 21st, 2022, at 11:00 am in accordance with NMAC 19.15.29.12.D. However, no representation from NMOCD was present at the time of the scheduled sampling. Prior to commencing any excavation activities, a one-call was made. WSP, on behalf of HEC, proceeded with the confirmation sampling event as scheduled. In order to confirm remediation of potential petroleum hydrocarbon impacts to soil originating from the release, WSP collected samples every 200 square feet, including four (4) sidewall composite samples and three (3) floor samples at eleven (11) feet at the site in the locations indicated on Figure 4. During sampling, soil was inspected for visual staining and the presence or absence of odor. The soil was characterized, visually, by inspecting the soil samples and field screening the soil headspace using a photoionization detector (PID) to monitor for the presence of organic vapors. All soil analytical results were compared to the site-specific Table 1 Closure Criteria. Results for all soil samples were shown to be below the applicable clean up action levels.

Figure 1: Scaled Map

Figure 4: Scaled Map – Close-up

Figure 5: Determination of water sources, significant watercourses, & mapped water wells within ½ mile of the lateral extent of the release

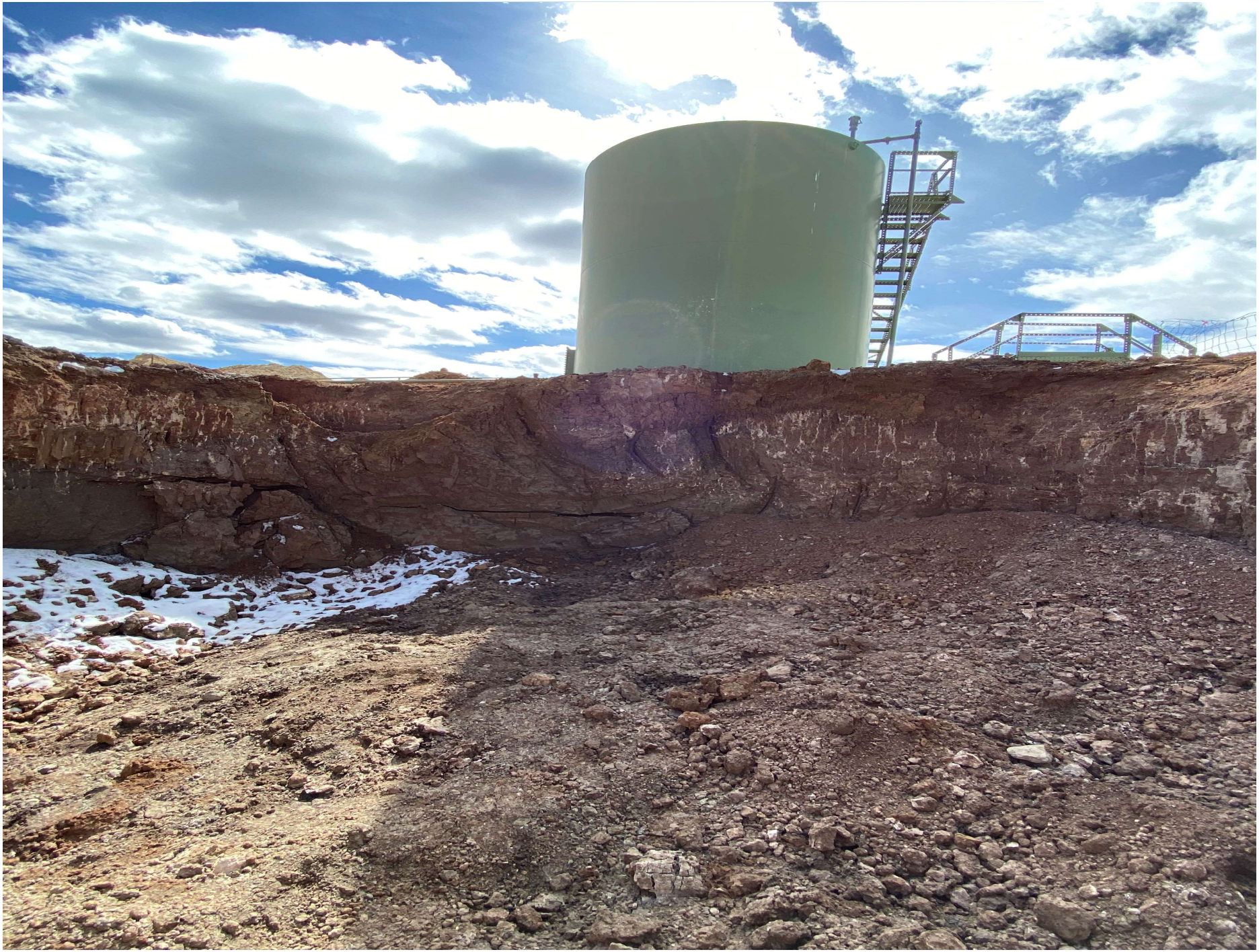


Note 1: Release point is not shown to be within 300 ft of any continuously flowing watercourse or any other significant water course.
Note 2: The lateral extents of the release point are not shown to be within 300 feet of a mapped wetland.
Note 3: The lateral extents of the release point are not shown to be within 500 ft of a spring or domestic freshwater well used by less than 5 households (or stock watering) or within 1,000 ft of any freshwater water well or spring.

NNE Sidewall View Looking from Inside Pit – 3/9/22 at 01:36 pm, 36.56319°N 107.25150°W

East Sidewall View Looking from Inside Pit – 3/9/22 at 01:36 pm, 36.56319°N 107.25150°W

SSW Sidewall View Looking from Inside Pit – 3/9/22 at 01:36 pm, 36.56319°N 107.25150°W



West Sidewall View Looking from Above Pit – 3/9/22 at 01:36 pm, 36.56317°N 107.25148°W

Data table of soil contaminant concentration data

SAN JUAN 27-4 #60
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Soil Sample Identification	Sample Date	Field Headspace (ppm)	Sample Depth (feet bgs)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)
NE-CPST	2/22/2022	4,212.0	wall composite	<60	<0.024	<0.048	0.095	0.095	0.20	20	270	85	290	375
SE-CPST	2/22/2022	1,880.0	wall composite	<60	<0.025	<0.050	0.14	1.2	1.3	29	180	<48	29	209
SW-CPST	2/22/2022	1,311.0	wall composite	<60	<0.12	<0.24	<0.24	0.90	0.90	27	140	<46	27	167
NW-CPST	2/22/2022	772.0	wall composite	<61	<0.12	<0.24	<0.24	1.6	1.6	61	440	130	191	631
FLR-1	2/22/2022	1,227.0	10.0	<60	<0.12	<0.24	0.37	3.2	3.6	96	340	130	226	566
FLR-2	2/22/2022	3,244.0	10.0	<60	<0.12	<0.24	<0.24	2.0	2.0	85	160	<45	85	245
FLR-3	2/22/2022	3,317.0	10.0	<60	<0.12	<0.24	1.0	14	15	230	300	54	284	584
NMOCD Table 1 Closure Criteria				**20,000**	**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**

Notes:
bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes analyzed by US EPA Method 8021B
DRO - diesel range organics analyzed by US EPA Method 8015D
GRO - gasoline range organics analyzed by US EPA Method 8015D
mg/kg - milligrams per kilogram
MRO - motor oil range organics analyzed by US EPA Method 8015D
NE - not established
NMOCD - New Mexico Oil Conservation Division
ppm - parts per million
TPH - total petroleum hydrocarbon (sum of GRO, DRO, and MRO)
< - indicates result is below laboratory reporting limits

Note: Confirmation samples were collected on 2/22/2022 by WSP personnel. All samples came back below action levels.

Billy Ginn

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Thursday, February 17, 2022 11:38 AM
To: Enviro, OCD, EMNRD; Velez, Nelson, EMNRD; jon.miller@usda.gov; jjmiller@fs.fed.us
Cc: Hencmann, Devin; Billy Ginn
Subject: [EXTERNAL] NCS1929537483 - San Juan 27-4 Unit 60 Notification of Confirmation Sampling

All,

On behalf of Hilcorp, WSP is submitting this notification for conducting excavation and confirmation soil sampling at the San Juan 27-4 Unit 60 (36.5631485, -107.2507401) on February , 21 2022 at 11:00 a.m. With potential weather coming in on Monday, we will update everyone as soon as possible if the sampling schedule changes.

Please reach out with any questions. Thanks.

Stuart Hyde, L.G.
Senior Geologist

T+ 1 970-385-1096
M+ 1 970-903-1607
Stuart.hyde@wsp.com

WSP USA Inc.
848 East 2nd Avenue
Durango, Colorado 81301

wsp.com

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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

March 08, 2022

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

RE: San Juan 27 4 60 OrderNo.: 2202C23

Dear William Ginn:

Hall Environmental Analysis Laboratory received 7 sample(s) on 2/25/2022 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 **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: NE-CPST
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:10:00 PM
Lab ID: 2202C23-001 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	270	9.5		mg/Kg	1	3/2/2022 3:20:48 PM
Motor Oil Range Organics (MRO)	85	47		mg/Kg	1	3/2/2022 3:20:48 PM
Surr: DNOP	88.5	51.1-141		%Rec	1	3/2/2022 3:20:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	20	4.8		mg/Kg	1	2/28/2022 6:58:00 PM
Surr: BFB	161	70-130	S	%Rec	1	2/28/2022 6:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/28/2022 6:58:00 PM
Toluene	ND	0.048		mg/Kg	1	2/28/2022 6:58:00 PM
Ethylbenzene	0.095	0.048		mg/Kg	1	2/28/2022 6:58:00 PM
Xylenes, Total	0.95	0.095		mg/Kg	1	2/28/2022 6:58:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/28/2022 6:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 3:17:26 AM

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	Estimated value
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 interference

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SE-CPST
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:12:00 PM
Lab ID: 2202C23-002 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	180	9.6		mg/Kg	1	3/2/2022 3:32:09 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/2/2022 3:32:09 PM
Surr: DNOP	115	51.1-141		%Rec	1	3/2/2022 3:32:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	29	5.0		mg/Kg	1	2/28/2022 7:17:00 PM
Surr: BFB	282	70-130	S	%Rec	1	2/28/2022 7:17:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	2/28/2022 7:17:00 PM
Toluene	ND	0.050		mg/Kg	1	2/28/2022 7:17:00 PM
Ethylbenzene	0.14	0.050		mg/Kg	1	2/28/2022 7:17:00 PM
Xylenes, Total	1.2	0.099		mg/Kg	1	2/28/2022 7:17:00 PM
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	1	2/28/2022 7:17:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 3:29:50 AM

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	Estimated value
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 interference

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW-CPST
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:14:00 PM
Lab ID: 2202C23-003 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	140	9.2		mg/Kg	1	3/2/2022 3:43:32 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/2/2022 3:43:32 PM
Surr: DNOP	86.8	51.1-141		%Rec	1	3/2/2022 3:43:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	27	24		mg/Kg	5	2/28/2022 10:49:44 AM
Surr: BFB	141	70-130	S	%Rec	5	2/28/2022 10:49:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	2/28/2022 10:49:44 AM
Toluene	ND	0.24		mg/Kg	5	2/28/2022 10:49:44 AM
Ethylbenzene	ND	0.24		mg/Kg	5	2/28/2022 10:49:44 AM
Xylenes, Total	0.90	0.48		mg/Kg	5	2/28/2022 10:49:44 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	5	2/28/2022 10:49:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 3:42:14 AM

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	Estimated value
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 interference		

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: NW-CPST
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:16:00 PM
Lab ID: 2202C23-004 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	440	9.7		mg/Kg	1	3/2/2022 3:54:45 PM
Motor Oil Range Organics (MRO)	130	49		mg/Kg	1	3/2/2022 3:54:45 PM
Surr: DNOP	84.7	51.1-141		%Rec	1	3/2/2022 3:54:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	61	24		mg/Kg	5	3/1/2022 2:33:37 PM
Surr: BFB	196	70-130	S	%Rec	5	3/1/2022 2:33:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	3/1/2022 2:33:37 PM
Toluene	ND	0.24		mg/Kg	5	3/1/2022 2:33:37 PM
Ethylbenzene	ND	0.24		mg/Kg	5	3/1/2022 2:33:37 PM
Xylenes, Total	1.6	0.49		mg/Kg	5	3/1/2022 2:33:37 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	5	3/1/2022 2:33:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	61		mg/Kg	20	3/3/2022 3:54:39 AM

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	Estimated value
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 interference

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FLR-1
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:18:00 PM
Lab ID: 2202C23-005 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	340	8.4		mg/Kg	1	3/2/2022 4:05:49 PM
Motor Oil Range Organics (MRO)	130	42		mg/Kg	1	3/2/2022 4:05:49 PM
Surr: DNOP	91.9	51.1-141		%Rec	1	3/2/2022 4:05:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	96	24		mg/Kg	5	2/28/2022 1:12:32 PM
Surr: BFB	206	70-130	S	%Rec	5	2/28/2022 1:12:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	2/28/2022 1:12:32 PM
Toluene	ND	0.24		mg/Kg	5	2/28/2022 1:12:32 PM
Ethylbenzene	0.37	0.24		mg/Kg	5	2/28/2022 1:12:32 PM
Xylenes, Total	3.2	0.49		mg/Kg	5	2/28/2022 1:12:32 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	5	2/28/2022 1:12:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 4:07:03 AM

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	Estimated value
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 interference

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FLR-2
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:20:00 PM
Lab ID: 2202C23-006 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	160	9.1		mg/Kg	1	3/3/2022 1:54:47 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/3/2022 1:54:47 PM
Surr: DNOP	87.5	51.1-141		%Rec	1	3/3/2022 1:54:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	85	24		mg/Kg	5	2/28/2022 1:36:41 PM
Surr: BFB	192	70-130	S	%Rec	5	2/28/2022 1:36:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	2/28/2022 1:36:41 PM
Toluene	ND	0.24		mg/Kg	5	2/28/2022 1:36:41 PM
Ethylbenzene	ND	0.24		mg/Kg	5	2/28/2022 1:36:41 PM
Xylenes, Total	2.0	0.47		mg/Kg	5	2/28/2022 1:36:41 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	5	2/28/2022 1:36:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 4:19:28 AM

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	Estimated value
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 interference

Analytical Report
Lab Order **2202C23**
Date Reported: **3/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FLR-3
Project: San Juan 27 4 60
Collection Date: 2/22/2022 3:22:00 PM
Lab ID: 2202C23-007 **Matrix:** SOIL **Received Date:** 2/25/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	300	9.0		mg/Kg	1	3/2/2022 4:27:44 PM
Motor Oil Range Organics (MRO)	54	45		mg/Kg	1	3/2/2022 4:27:44 PM
Surr: DNOP	95.1	51.1-141		%Rec	1	3/2/2022 4:27:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	230	24		mg/Kg	5	2/28/2022 2:00:55 PM
Surr: BFB	328	70-130	S	%Rec	5	2/28/2022 2:00:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	2/28/2022 2:00:55 PM
Toluene	ND	0.24		mg/Kg	5	2/28/2022 2:00:55 PM
Ethylbenzene	1.0	0.24		mg/Kg	5	2/28/2022 2:00:55 PM
Xylenes, Total	14	0.49		mg/Kg	5	2/28/2022 2:00:55 PM
Surr: 4-Bromofluorobenzene	117	70-130		%Rec	5	2/28/2022 2:00:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	3/3/2022 4:31:52 AM

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	Estimated value
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 interference

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**

08-Mar-22

Client: HILCORP ENERGY

Project: San Juan 27 4 60

Sample ID: **MB-65909**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **65909**	RunNo: **86196**
Prep Date: **3/2/2022**	Analysis Date: **3/2/2022**	SeqNo: **3038531** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-65909**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **65909**	RunNo: **86196**
Prep Date: **3/2/2022**	Analysis Date: **3/2/2022**	SeqNo: **3038532** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.8	90	110			

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**

08-Mar-22

Client: HILCORP ENERGY

Project: San Juan 27 4 60

Sample ID: **LCS-65852**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **65852**	RunNo: **86180**
Prep Date: **3/1/2022**	Analysis Date: **3/2/2022**	SeqNo: **3038792** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.1	68.9	135			
Surr: DNOP	4.5		5.000		89.4	51.1	141			

Sample ID: **MB-65852**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **65852**	RunNo: **86180**
Prep Date: **3/1/2022**	Analysis Date: **3/2/2022**	SeqNo: **3038794** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	51.1	141			

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**
08-Mar-22

Client: HILCORP ENERGY
Project: San Juan 27 4 60

Sample ID: **mb-65809** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **65809** RunNo: **86141**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035700** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	70	130			

Sample ID: **lcs-65809** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **65809** RunNo: **86141**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035701** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	78.6	131			
Surr: BFB	1200		1000		117	70	130			

Sample ID: **2202c23-003ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SW-CPST** Batch ID: **65809** RunNo: **86141**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035703** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	52	24	23.72	27.05	107	70	130			
Surr: BFB	7100		4744		150	70	130			S

Sample ID: **2202c23-003amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SW-CPST** Batch ID: **65809** RunNo: **86141**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035704** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	51	24	23.67	27.05	102	70	130	2.38	20	
Surr: BFB	7300		4735		154	70	130	0	0	S

Sample ID: **lcs-65808** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **65808** RunNo: **86147**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035960** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	112	78.6	131			
Surr: BFB	1500		1000		153	70	130			S

Sample ID: **mb-65808** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **65808** RunNo: **86147**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035961** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**
08-Mar-22

Client: HILCORP ENERGY
Project: San Juan 27 4 60

Sample ID: **mb-65808** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **65808** RunNo: **86147**
Prep Date: **2/25/2022** Analysis Date: **2/28/2022** SeqNo: **3035961** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1200		1000		122	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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**
08-Mar-22

Client: HILCORP ENERGY
Project: San Juan 27 4 60

Sample ID: **mb-65809**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **65809**	RunNo: **86141**
Prep Date: **2/25/2022**	Analysis Date: **2/28/2022**	SeqNo: **3035742** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: **LCS-65809**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **65809**	RunNo: **86141**
Prep Date: **2/25/2022**	Analysis Date: **2/28/2022**	SeqNo: **3035743** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.0	80	120			
Toluene	0.96	0.050	1.000	0	95.5	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.2	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	70	130			

Sample ID: **lcs-65808**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **65808**	RunNo: **86147**
Prep Date: **2/25/2022**	Analysis Date: **2/28/2022**	SeqNo: **3036041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.8	80	120			
Toluene	0.96	0.050	1.000	0	95.7	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.5	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.9	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		127	70	130			

Sample ID: **mb-65808**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **65808**	RunNo: **86147**
Prep Date: **2/25/2022**	Analysis Date: **2/28/2022**	SeqNo: **3036042** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		108	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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2202C23**
08-Mar-22

Client: HILCORP ENERGY
Project: San Juan 27 4 60

Sample ID: **2202C23-004AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **NW-CPST** Batch ID: **65809** RunNo: **86154**
Prep Date: **2/25/2022** Analysis Date: **3/1/2022** SeqNo: **3037123** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.12	0.9747	0	81.2	80	120			
Toluene	0.85	0.24	0.9747	0	87.0	80	120			
Ethylbenzene	1.1	0.24	0.9747	0.2016	88.0	80	120			
Xylenes, Total	4.5	0.49	2.924	1.569	100	80	120			
Surr: 4-Bromofluorobenzene	5.1		4.873		105	70	130			

Sample ID: **2202C23-004AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **NW-CPST** Batch ID: **65809** RunNo: **86154**
Prep Date: **2/25/2022** Analysis Date: **3/1/2022** SeqNo: **3037124** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.12	0.9728	0	82.9	80	120	1.88	20	
Toluene	0.87	0.24	0.9728	0	89.1	80	120	2.13	20	
Ethylbenzene	1.1	0.24	0.9728	0.2016	92.9	80	120	4.21	20	
Xylenes, Total	4.7	0.49	2.918	1.569	106	80	120	3.63	20	
Surr: 4-Bromofluorobenzene	5.2		4.864		108	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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY | Work Order Number: 2202C23 | RcptNo: 1

Received By: Cheyenne Cason 2/25/2022 8:00:00 AM

Completed By: Sean Livingston 2/25/2022 9:25:11 AM

Reviewed By: JN 2/25/22

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: KPG 2/25/22

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	2.2	Good				

Chain-of-Custody Record

Client: Hilcorp

Attn: Billy Ginn

Mailing Address:

Phone #:

email or Fax#: william.Ginn@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: Need by 3/3/22

☒ Standard ☐ Rush

Project Name: San Juan 27-4 #60

Project #: TE01782108

Project Manager: Stuart Hyde
stuart.hyde@wsp.com

Sampler: Reece Hanson

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.3-0.1=2.2 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2202623	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)
2/22/22	1510	soil	NE-CPST	1-4 oz		001	X	X					X			
	1512		SE-CPST			002										
	1514		SW-CPST			003										
	1516		NW-CPST			004										
	1518		FLR-1			005										
	1520		FLR-2			006										
	1522		FLR-3			007										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
2/23/22	1600					
2/23/22	1810				2/25/22	0800

Remarks: cc: stuart.hyde@wsp.com
reece.hanson@wsp.com

Seal intact

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.

December 7, 2021

New Mexico Energy, Minerals, and Natural Resources Department
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

Subject: **Remediation Work Plan**
San Juan 27-4 Unit 60
Rio Arriba County, New Mexico
NMOCD Incident Number: NCS1929537483

To Whom It May Concern:

WSP USA Inc. (WSP, formerly LT Environmental, Inc.), on behalf of Hilcorp Energy Company (Hilcorp), has prepared this *Remediation Work Plan* for the San Juan 27-4 Unit 60 natural gas production well (Site). The Site is located in Unit A of Section 21, Township 27 North, Range 04 West, within the Carson National Forest in Rio Arriba County, New Mexico (Figure 1).

SITE BACKGROUND

During an onsite inspection, Mr. Jonathan Kelly, an inspector with the New Mexico Oil Conservation Division (NMOCD), discovered a release originating from an out-of-service below-grade tank (BGT). Specifically, Mr. Kelly noted that melted snow had entered the BGT, mixing with bottom sludge and water, and exited through corrosion holes in the steel tank. It was estimated that 5 barrels of produced water was released at the Site. Upon discovery, Hilcorp cleaned and removed the BGT from the Site and LT Environmental, Inc. (LTE) collected one, 5-point composite soil sample from the area below the BGT (Figure 2). Analytical results from the composite sample are presented on Table 1.

SITE CHARACTERIZATION

As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were accessed in accordance with 19.15.29.11 of the New Mexico Administrative Code (NMAC). This information is further discussed below.

GEOLOGY AND HYDROGEOLOGY

Based on United States Geological Survey (USGS) geologic mapping, the Site is located within the Tertiary San Jose Formation. In the report titled “Hydrogeology and Water Resources of San Juan Basin, New Mexico” (Stone, Lyford, Frenzel, Mizell, & Padgett, 1983), the San Jose Formation as characterized by various lithologies including course-grained arkose, mudstones, and lenses of claystone, siltstone, and poorly consolidated sandstone. This formation ranges in thickness from 200 to 2,700 feet. The San Jose Formation is the youngest Tertiary bedrock unit in the San Juan Basin and is underlain by the Nacimiento Formation.

SITE CHARACTERIZATION AND POTENTIAL RECEPTORS

Assessment of potential nearby receptors was conducted through desktop reviews of topographic maps, Federal Emergency Management Administration (FEMA) Geographic Information System (GIS) maps, United States Geological Survey (USGS) GIS maps, New Mexico Office of the State Engineer database, and aerial photographs, as well as site-specific observations.

The Site is at an elevation of approximately 7,135 feet above mean sea level (amsl). The data sheet for a deep ground bed cathodic protection well (included as Enclosure A) for the Site indicates that groundwater at the Site is approximately 100 feet below ground surface (bgs). The nearest groundwater well to the Site (monitoring well SJ-01049) is located approximately 1.9 miles northwest of the Site. The closest water well to the Site (livestock well SJ-04056) is located approximately 3.3 miles west of the Site.

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wsp.com

The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any significant watercourse and/or wetland. The nearest wetland/watercourse is located approximately 900 feet south of the Site. Surface land use surrounding the Site consists primarily of oil and gas development and livestock grazing. No occupied permanent residence or structures, including schools, hospitals, institutions, and/or churches, are located within 300 feet of the Site. The Site is not within the area of a subsurface mine or unstable area and is not within the 100-year floodplain. Nearby receptors are shown on Figure 3.

REGULATORY CLOSURE CRITERIA

WSP has characterized the Site according to *Table 1, Closure Criteria for Soils Impacted by a Release* of 19.15.29.12 NMAC. Due to the Site being located on an active well pad and having a depth to groundwater greater than 100 feet, the following Table 1 Closure Criteria apply to the Site for delineation purposes: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 2,500 mg/kg total petroleum hydrocarbons (TPH); 1,000 mg/kg gasoline range organics (GRO) + diesel range organics (DRO); and 20,000 mg/kg chloride.

PROPOSED DELINEATION ACTIVITIES

In order to delineate potential petroleum hydrocarbon impacts to soil originating from the BGT release, WSP proposes to advance five borings at the Site using a hand auger in the locations indicated on Figure 4. During sampling, soil will be inspected for visual staining and the presence or absence of odor. The soil will be characterized by visually inspecting the soil samples and field screening the soil headspace using a photoionization detector (PID) to monitor for the presence of organic vapors. At least two soil samples will be collected from each boring and submitted to Hall Environmental Analysis Laboratory for analysis of TPH, BTEX, and chloride. For each boring, one soil sample displaying the highest PID and/or chloride field screening measurements will be submitted for laboratory analysis. One additional sample collected from the terminus of each boring will be submitted for laboratory analysis. Boring locations will be recorded using a handheld Global Positing System (GPS) unit.

All soil analytical results will be compared to the site-specific Table 1 Closure Criteria. If analytical results are compliant with Table 1 Closure Criteria, Hilcorp will submit a report documenting sampling activities and request closure. If analytical results for any soil sample exceeds Table 1 Closure Criteria, Hilcorp will submit an updated remediation work plan to address the identified elevated concentrations in soil.

REFERENCES

Stone, W., Lyford, F., Frenzel, P., Mizell, N., & Padgett, E. (1983). Hydrogeology and Water Resources of San Juan Basin, New Mexico. New Mexico Bureau of Mines & Mineral Resources.

WSP appreciates the opportunity to provide this work plan to the NMOCD. If you have any questions or comments regarding this report, do not hesitate to contact Stuart Hyde at (970) 903-1607 or stuart.hyde@wsp.com, or Billy Ginn at (346) 237-2073 or William.ginn@hilcorp.com.

Kind regards,

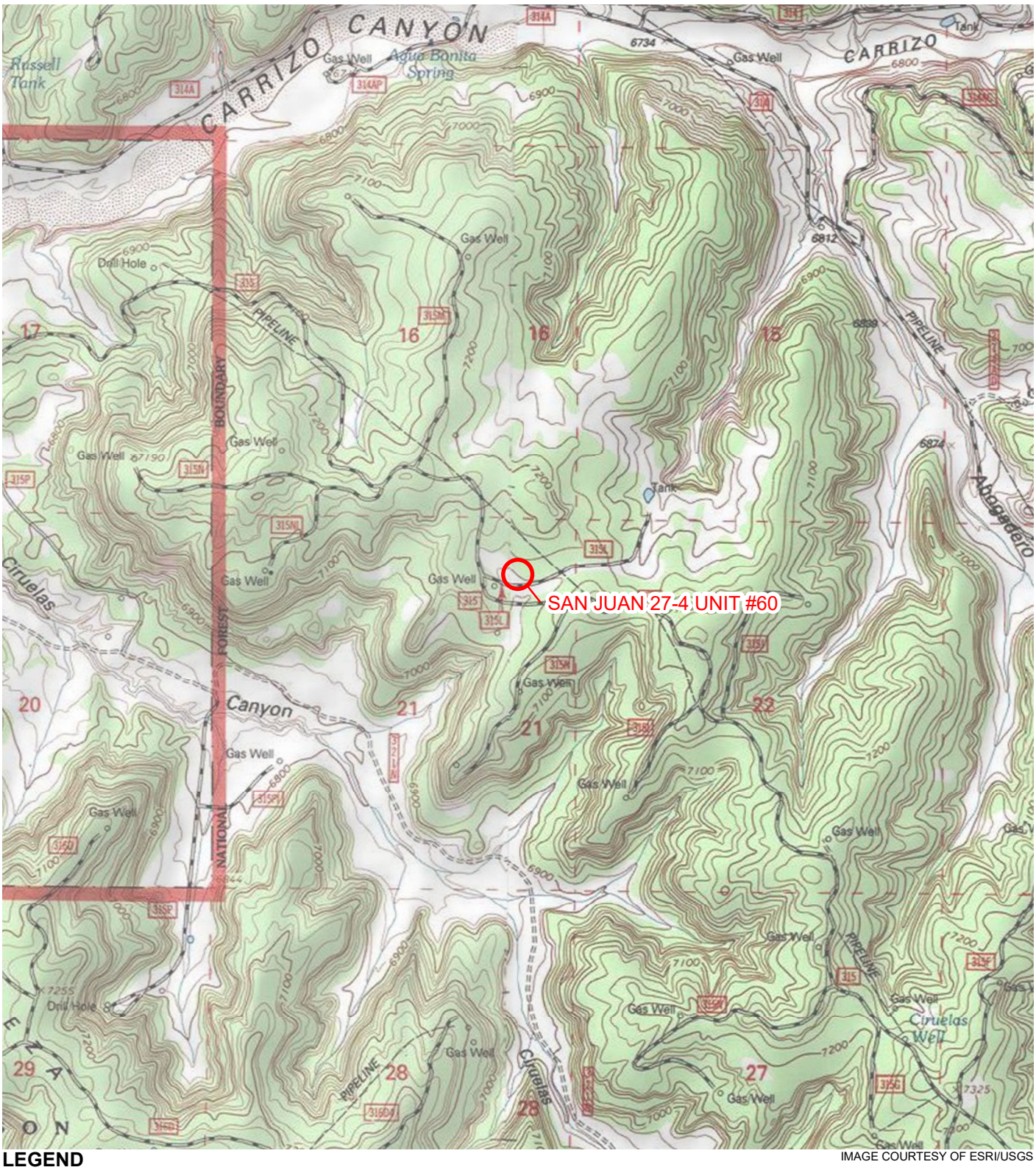
Stuart Hyde, L.G.
Senior Geologist

Ashley Ager, M.S., P.G.
Regional Vice President, Geologist

Enclosed:

Figure 1	Site Location Map
Figure 2	Soil Sample Locations Map
Figure 3	Site Receptor Map
Figure 4	Proposed Soil Boring Locations
Table 1	Soil Analytical Results – BGT Closure Sampling
Enclosure A	Data Sheet for Deep Ground Bed Cathodic Protection Wells

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
SAN JUAN 27-4 UNIT #60
NENE SEC 21-T27N-R4W
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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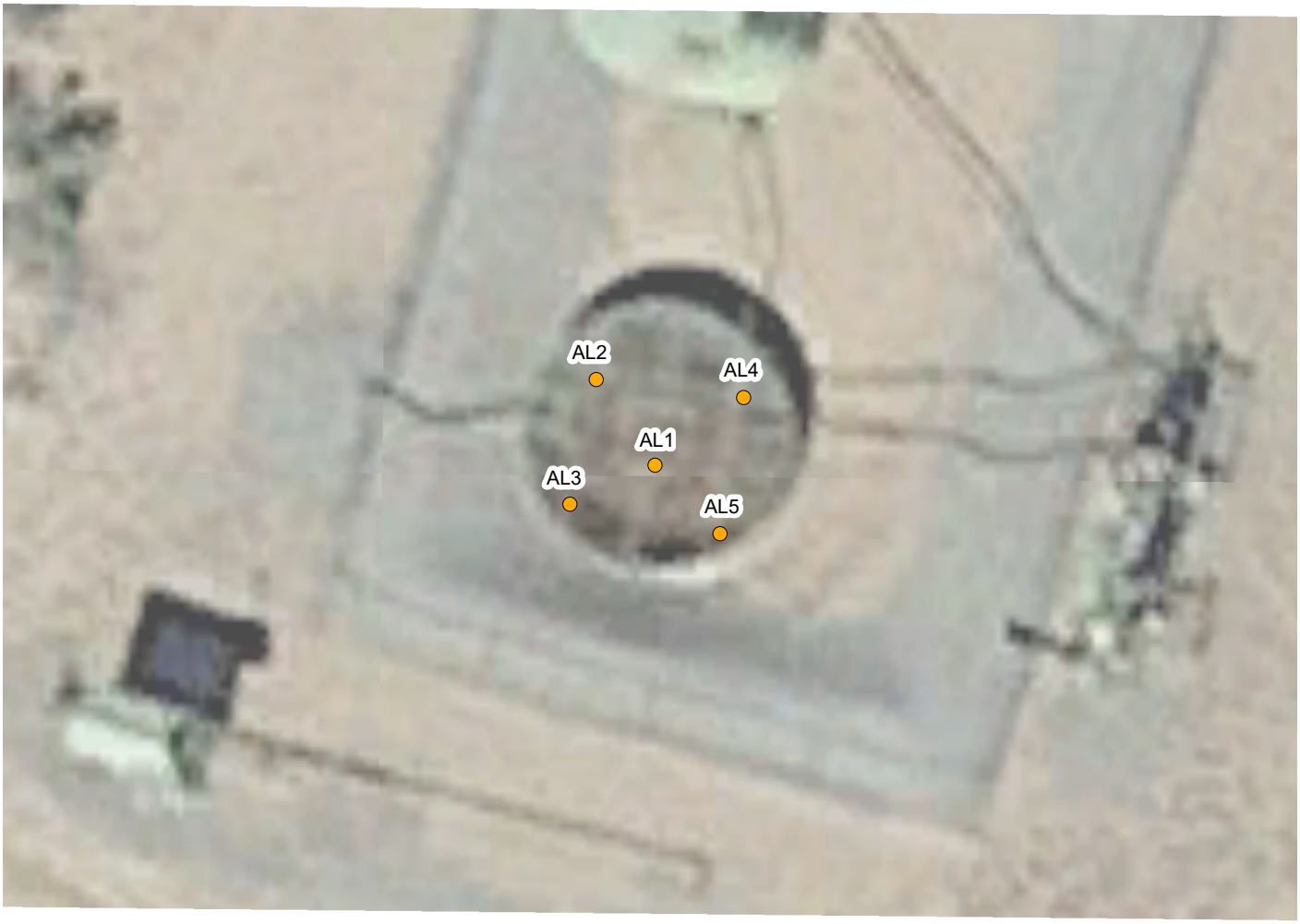

LEGEND

SOIL SAMPLE

IMAGE COURTESY OF GOOGLE EARTH 2016

0 10 20

Feet

N

FIGURE 2
SOIL SAMPLE LOCATIONS MAP
SAN JUAN 27-4 UNIT #60
NENE SEC 21-T27N-R4W
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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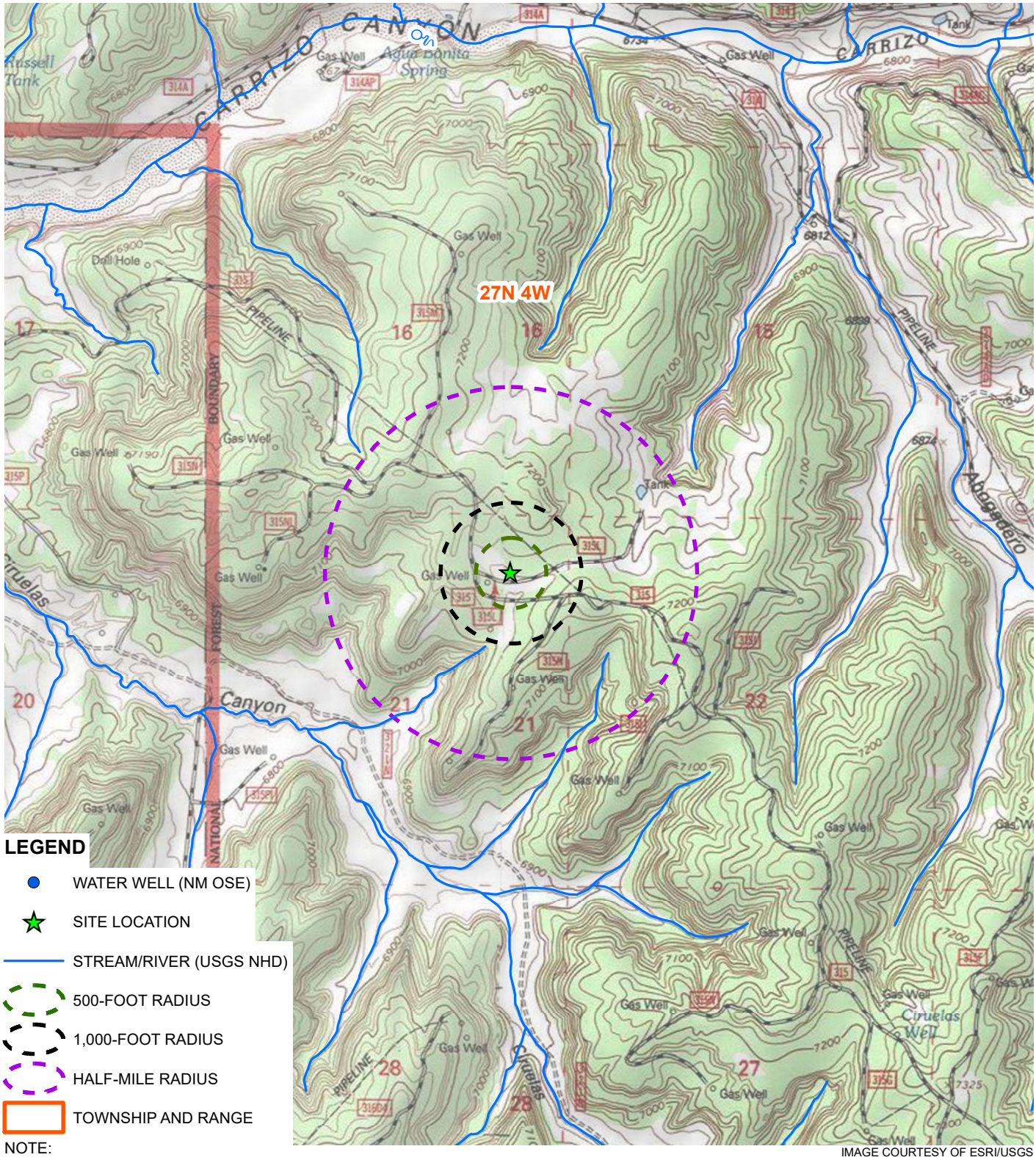

IMAGE COURTESY OF ESRI/USGS

NOTE:
ACCORDING TO 19.15.2 NMAC, A WELLHEAD PROTECTION AREA CONSISTS OF THE AREA WITHIN 200 HORIZONTAL FEET OF A PRIVATE, DOMESTIC FRESH WATER WELL OR SPRING USED BY <5 HOUSEHOLDS FOR DOMESTIC OR STOCK WATERING PURPOSE, OR WITHIN 1,000 HORIZONTAL FEET OF ANY OTHER FRESH WATER WELL OR SPRING. NO USGS WELLS IN AREA PER NWIS.

DTW: DEPTH TO WATER
ELEV: APPROXIMATE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
NM OSE: NEW MEXICO OFFICE OF THE STATE ENGINEER
': FEET

0 2,000 4,000
Feet

N

FIGURE 3
SITE RECEPTOR MAP
SAN JUAN 27-4 UNIT #60
NENE SEC 21-T27N-R4W
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820011_SAN JUAN 27-4 UNIT 60\TE017821008_FIG03_SJ 27-4 #60_RECEPTOR_2021.mxd

IMAGE COURTESY OF GOOGLE EARTH 2016

LEGEND

- SOIL SAMPLE
- PROPOSED SOIL BORING

0 10 20

Feet

N

FIGURE 4
PROPOSED SOIL BORING LOCATIONS
SAN JUAN 27-4 UNIT #60
NENE SEC 21-T27N-R4W
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

wsp

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TABLES

TABLE 1
SOIL ANALYTICAL RESULTS - BGT CLOSURE SAMPLING

SAN JUAN 27-4 UNIT 60
RIO ARRIBA COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
CompA	0 - 0.5	1/27/2020	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<20.0	270	168	270	438	<20.0
NMOCD Table 1 Closure Criteria			**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**

Notes:

bgs - below ground surface
BTEX - benzene, toluene, ethylbenzene, and total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
MRO - motor oil range organics
NMAC - New Mexico Administrative Code
NMOCD - New Mexico Oil Conservation Division
NE - not established
Table 1 - closure criteria for soils impacted by a release per NMAC 19.15.29 August 2018
TPH - total petroleum hydrocarbons
< - indicates result is below laboratory reporting limits

ENCLOSURE A – DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS

#142 30-039-22802
#60 30-039-20484

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO

Operator Meridian Oil Co. Location: Unit A Sec. 21 Twp 27 Rng 04

Name of Well/Wells or Pipeline Serviced

San Juan 27-4 Units #142, #60

Elevation 7121 Completion Date _____ Total Depth 405' Land Type F

Casing Strings, Sizes, Types & Depths 10/6 Set 99' of 8" PVC Casing

No Gas, Water, or Boulders Were Encountered During Casing.

If Casing Strings are cemented, show amounts & types used Cemented

With 20 Sacks

If Cement or Bentonite Plugs have been placed, show depths & amounts used

None

Depths & thickness of water zones with description of water: Fresh, Clear,

Salty, Sulphur, Etc. 100' fresh

Depths gas encountered: None

Ground bed depth with type & amount of coke breeze used: 405'

58 Sacks of Loresco type SW

Depths anodes placed: 375, 335, 328, 321, 315, 295, 288, 280, 273, 267, 260, 240, 230, 223, 180

Depths vent pipes placed: 405'

Vent pipe perforations: Bottom 305'

Remarks:

RECEIVED
JAN 31 1994
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

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 91072

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 91072
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	3/23/2022