State of New Mexico
Energy, Minerals and Natural Resources Department

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 4/22/2019
Well information;
Operator Hilcorp, Well Name and Number Huerfano Unit Stat Test 601

API# 30-045-35922, Section 5, Township 26 (N)/S, Range 9 E/(W)

Conditions of Approval: (See the below checked and handwritten conditions)

- o Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ If cement doesn't circulate on any casing string or stage tool a CBL will be required. Contact the regulatory agencies prior to proceeding.
- o Hold C-104 for directional survey & "As Drilled" Plat
- o Hold C-104 for: NSL, NSP, DHC, 5.9 Compliance
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- o Submit Gas Capture Plan form prior to spudding or initiating recompletion operations
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

✓ Submit a sundry through BLM correcting the proposed depth (#19)

NMOCD Approved by Signature

1/24/20
Date

10

NMOCD

JAN 14 2020

DISTRICT III

Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMSF0077980A

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☑ Other OTH

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
HUERFANO UNIT STRAT TEST 601
1

2. Name of Operator
HILCORP ENERGY COMPANY

9. API Well No.
30-045-35922

3a. Address
1111 Travis Street Houston TX 77002

3b. Phone No. *(include area code)*
(713)209-2400

10. Field and Pool, or Exploratory
Wildcat

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface M SWSW / 348 FSL / 701 FWL / LAT 36.511081 / LONG -107.818294
At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 5 / T26N / R9W / NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
SAN JUAN

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
701 feet

16. No of acres in lease
1442.25

17. Spacing Unit dedicated to this well
0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
1378 feet

19. Proposed Depth
0 feet / 0 feet

20. BLM/BIA Bond No. in file
FED: NMB001486

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6556 feet

22. Approximate date work will start*
08/01/2019

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Christine Brock / Ph: (505)324-5155	04/22/2019

Title
Regulatory Technician

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Mellisa Reeves-Wientjes / Ph: (505)564-7738	12/09/2019

Title	Office
Land Law Examiner	FARMINGTON

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

Approval Date: 12/09/2019

(Continued on page 2)

*(Instructions on page 2)

1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

Revised August 1, 2011

Submit one copy to Appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-045-35922		

[4] Property Code	[5] Property Name	[6] Well Number
327021	HUERFANO UNIT STRAT TEST 601	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
372171	HILCORP ENERGY COMPANY	6556'

[10] Surface Location

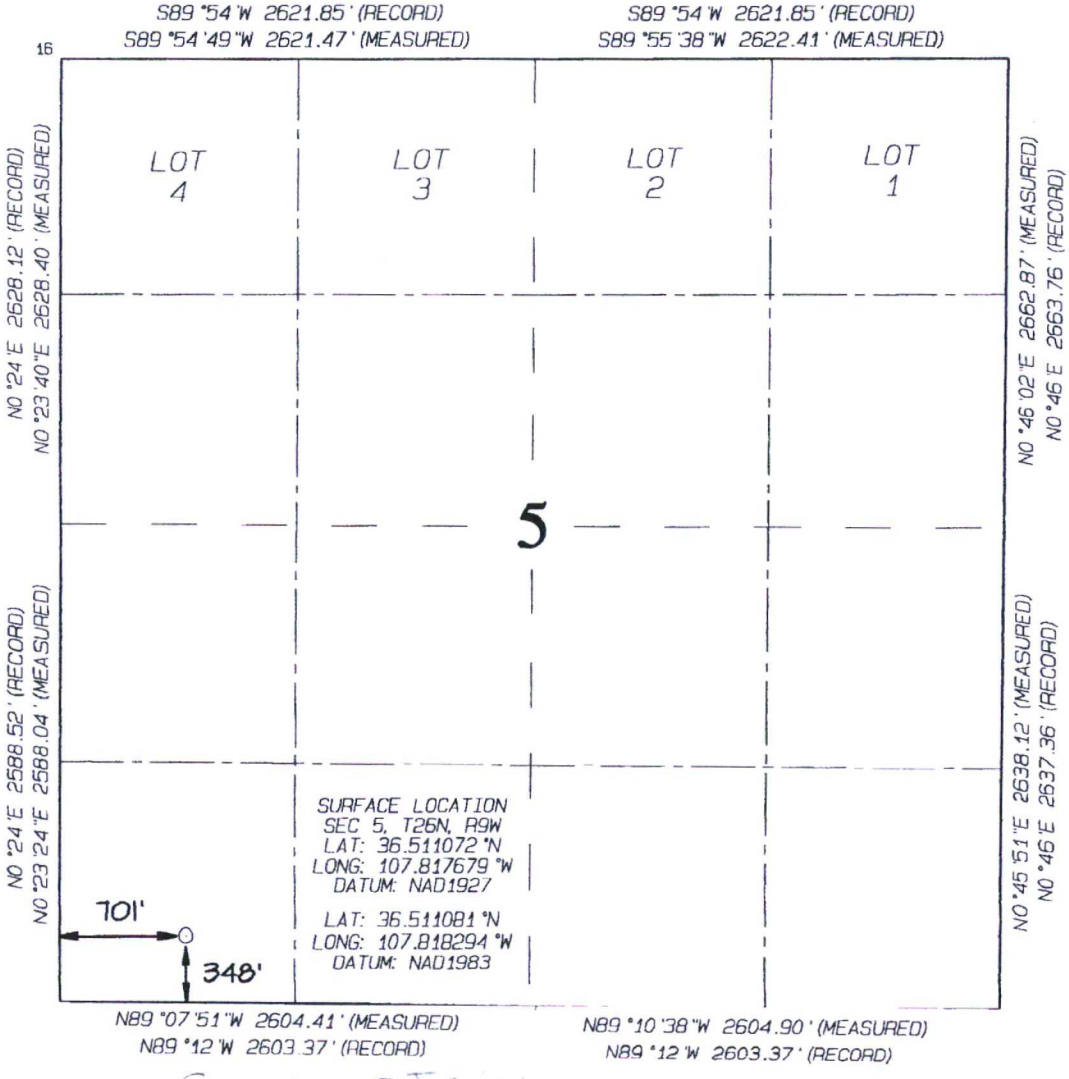
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	5	26N	9W		348	SOUTH	701	WEST	SAN JUAN

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



Surface = Fee

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Christine Brock 12/21/2018
Signature Date

Christine Brock
Printed Name

cbrock@hilcorp.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: DECEMBER 20, 2018
Survey Date: DECEMBER 5, 2018

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

Hilcorp Energy Company

Huerfano Strat Test 600 #1

Hilcorp Energy Company

Technical Plan

1. Location

HUERFANO STRAT TEST 600 #1
SHL: 348' FSL, 701' FWL -- T 26N, R 9W, Sec 5
BHL: 348' FSL, 701' FWL -- T 26N, R 9W, Sec 5
GL: 6556'

2. Geological Markers

Anticipated formation tops with comments of any possible water, gas, or oil shows are indicated below:

Formation	Depth (MD/TVD)	Remarks
San Jose	Surface	Wet
Ojo Alamo	1337'	Wet
Kirtland	1505'	Wet
Fruitland	1984'	Possible Gas/Water
Pictured Cliffs	2237'	Possible Gas/Water
Lewis Shale	2313'	
Massive Cliffhouse	3816'	Possible Gas/Water
Menefee	3911'	Possible Gas/Water
Point Lookout	4667'	Possible Gas/Water
Mancos	4959'	Oil/Gas
Greenhorn	6598'	Possible Gas/Water
Dakota	6678'	Possible Gas/Water
Morrison	7077'	Possible Gas/Water
Entrada	7977'	Possible Gas/Water
TD	8600'	

3. Pressure Control Equipment

See Attached BOPE & Choke Manifold Schematic for a diagram of pressure control equipment.

- BOPE will be nippled up on top of wellhead after surface casing is set and cemented.
- Pressure control configuration will be designed to meet and exceed 3M standards.
- All equipment will have 3M pressure ratings.
- A rotating head will be rigged up on top of annular as seen in attached diagram.

4. Casing & Cement Program

A) The proposed casing program is outlined below:

Proposed Casing				
Casing	**Hole Size**	**Casing Size**	**Weight/Grade**	**Depth**
Surface	17-1/2"	13-3/8"	54.5#, J-55, BTC, New	0' - 340' (MD)
Intermediate	12-1/4"	9-5/8"	40.0#, P-110 IC, LTC, New	0' - 5000' (MD)
Production	8-3/4"	7"	26.0#, P-110, Hyd 513, New	0' – TD (MD)

The production casing will be run from total MD to surface. If the 8-3/4" hole is not drilled to total MD, the production casing setting depth and length will be adjusted accordingly.

B) The proposed cement program is shown below:

Cement Program						
Interval	**Depth (MD)**	**Sacks**	**Slurry**	**Excess**	**Volume**	**Planned Cement Top**
Surface	340'	503	Lead Cmt: Premium Cement 2% CaCl, 0.125 lb/sk Poley E flake 1.175 ft^3 /sk -- 5.14 gal/sk, 15.8 ppg	100%	590 ft^3	Surface
Intermediate	4000'	838	Lead Cmt: Halcem Sytem 0.3% HR-5, 0.125 lb/sk Poly E flake, 1.974 ft^3 /sk -- 10.28 gal/sk, 12.3 ppg	30%	1654 ft^3	Surface
	5000'	328	Tail Cmt: Varicem Cement 0.1% HR-5, 0.125 lb/sk Poly E flake, 1.295 ft^3 /sk -- 5.69 gal/sk, 13.5 ppg	30%	424 ft^3	4000'
Production	8600'	601	Tail Cmt: Bondcem 0.3% Super CBL, 0.1% HR -601, 6.08 gal/sk FW. 13.3 ppg, 1.365 ft^3 /sk	15%	820 ft^3	4000'

Actual cement volumes will be determined and may be adjusted onsite based on well conditions. For the intermediate hole, a 2-stage cement job may be performed if hole conditions indicate during operations. Stage tool will be placed appropriately as conditions indicate.

C) The proposed centralizer program is shown below:

Centralizer Program	
Interval	**Centralizers**
Surface	1 per joint on bottom 3 joints
Intermediate	1 above intermediate shoe joint with collar clamp 1 every 2nd joint to surface
Production	1 every joint to intermediate casing 1 every 3rd joint to surface

To allow adequate time for cement to achieve a minimum of 500 psi compressive strength, a minimum of 8 hours wait on cement time for each hole section will be observed. The wellhead will not be installed, casing will not be tested, and the prior casing shoe will not be drilled out until adequate wait on cement time is achieved.

5. Drilling Fluids

A) The proposed drilling fluid program is outlined below:

Mud Program					
Interval	**Mud Type**	**Weight (ppg)**	**Fluid Loss (cc)**	**Invert Ratio (Diesel/Brine)**	**Depth (MD)**
Surface	Water / Gel System	8.3 - 9.2	NC		0-340'
Intermediate	LSND / Gel system	8.4 - 9	<6		340 – 5000'
Production	LSND / Gel system	10 - 12	6-8		5000 – 8600'

LCM may be added to the mud system if hole conditions indicate.

B) Closed loop equipment will be utilized for solids control. Cuttings from surface, intermediate, and production hole will be hauled to an approved disposal site.

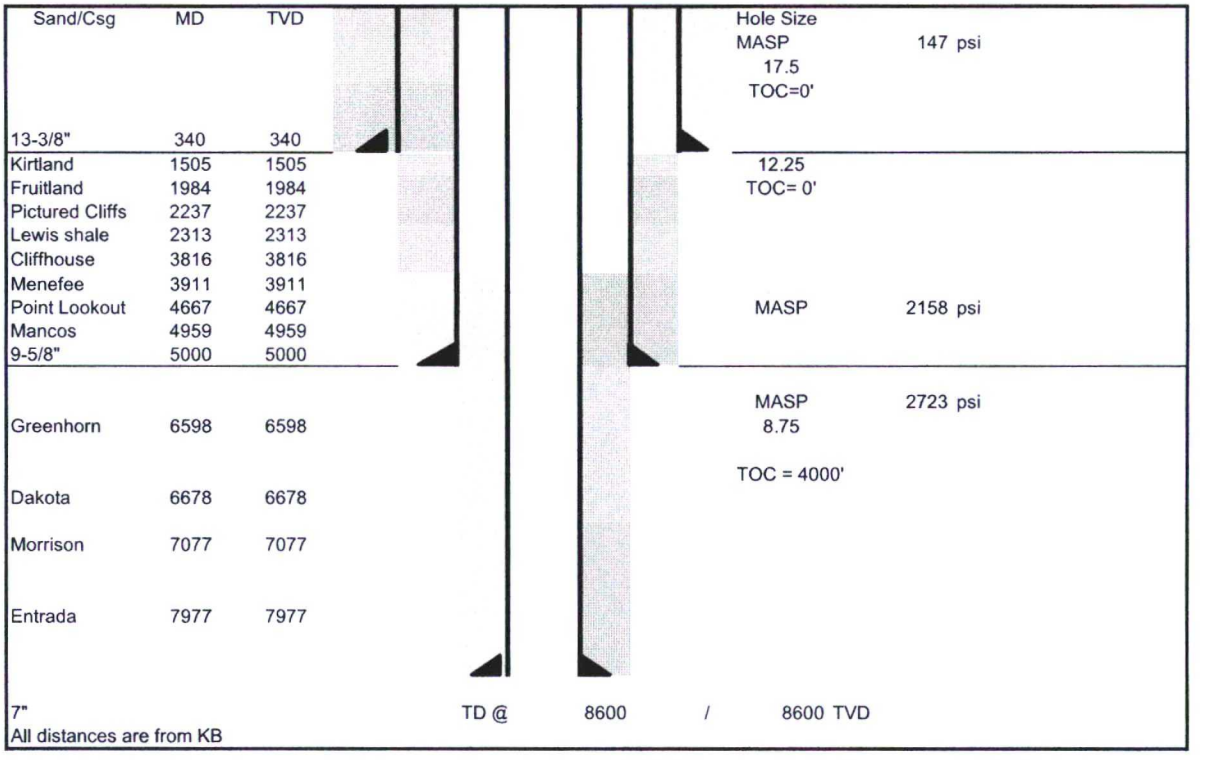
6. Abnormal Pressures & Hazards

- No over-pressured intervals expected.
- There is some offset Fruitland Coal, Mesa Verde, and Picture Cliffs production within the area which could result in these respective formations being under pressured.
- No hydrogen sulfide gas is expected based on nearby well production.

7. Testing, Logging, Coring

- Mud Logs: Mud loggers will be rigged up from intermediate casing shoe to production hole TD.
- Surveys: Surveys will be completed as needed to ensure hole direction. This well is not planned as a directional well
- Core: Whole Core and Sidewall Cores planned in Mancos Formation
- Logs: Triple Combo, Dipole Sonic, and image log planned in the Production hole below 5000' intermediate casing shoe
- Cased Hole Logs: A Temp Survey or CBL will be ran on the intermediate hole if cement is not circulated to surface during intermediate cement job.

Huerfano Strat Test 600 #1 Wellbore Schematic



	Size	Wt	Depth	Grade	Cxn		Design Factors Collapse	Burst	Tension
						Rating	1130	2740	514000
Surface	13.375	54.5	340	J55	BTC	**SF**	6.73	15.83	4.34
						Rating	3470.00	7910.00	988000.00
Int	9.625	40.0	5000	P110	BTC	SF	1.40	3.20	3.29
					Hyd	**Rating**	4850	9960	548000
Prod	7.000	26.0	8600	P110	513	**SF**	1.03	2.17	1.69

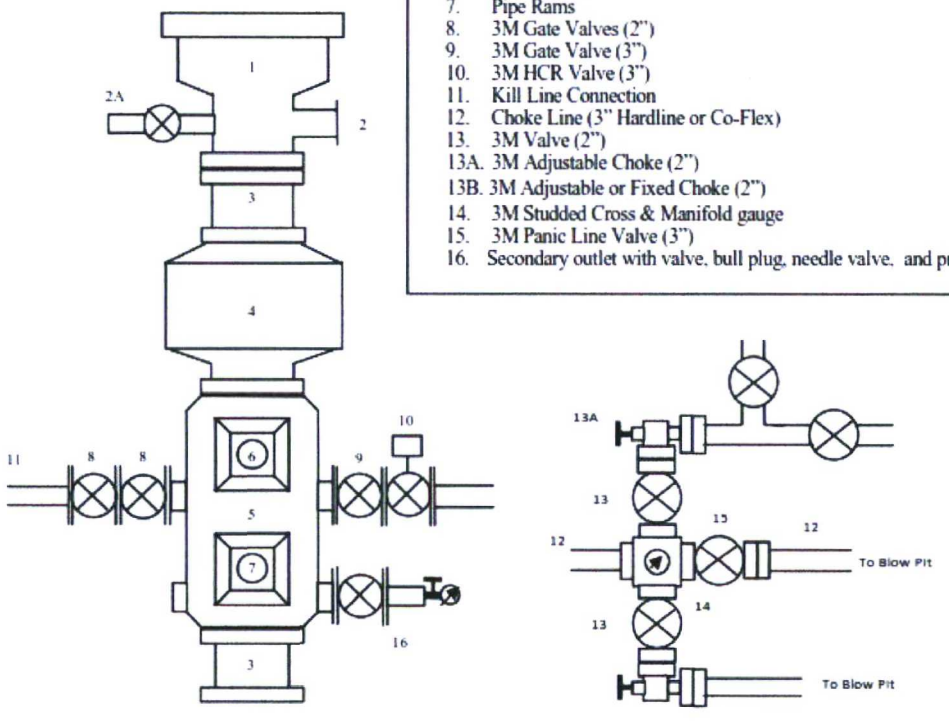
					Displacement BPF	
Csg		**ID**	**Drift**	**Capacity (bpf)**	**Closed end**	**Open end**
Surface		12.615	12.46	0.1546	0.1738	0.0192
Int		8.835	8.679	0.0758	0.0900	0.0142
Prod		6.276	6.151	0.0383	0.0476	0.0093

Hilcorp Energy Company

Huerfano Strat Test 600 #1

BOPE & Choke Manifold Schematic

1. Rotating Head
2. Flow line
2A. Fill up line and valve
3. Spacer Spools (as needed)
4. 11" 3M Annular Preventer
5. 11" 3M Double Ram Preventer
6. Blind Rams
7. Pipe Rams
8. 3M Gate Valves (2")
9. 3M Gate Valve (3")
10. 3M HCR Valve (3")
11. Kill Line Connection
12. Choke Line (3" Hardline or Co-Flex)
13. 3M Valve (2")
13A. 3M Adjustable Choke (2")
13B. 3M Adjustable or Fixed Choke (2")
14. 3M Studded Cross & Manifold gauge
15. 3M Panic Line Valve (3")
16. Secondary outlet with valve, bull plug, needle valve, and pressure gauge



Directions from the Intersection of US Hwy 64 & US Hwy 550

in Bloomfield, NM to Hilcorp Energy Company Huerfano Unit Strat Test 601 #1

348' FSL & 701' FWL, Section 5, T26N, R9W, N.M.P.M., San Juan County, NM

Latitude: 36.511081°N Longitude: 107.818294°W Datum: NAD1983

From the intersection of US Hwy 64 & US Hwy 550 in Bloomfield, NM, travel southerly on State Hwy 550 for 18.7 miles to Mile Marker 133.0;

Go Left (Easterly) exiting US Hwy 550 onto existing roadway for 4.2 miles to fork in roadway;

Go Left (Northerly) on existing roadway for 0.2 miles to fork in roadway;

Go Left (Northerly) which is straight on existing roadway for 2.3 miles to fork in roadway;

Go Right (Easterly) on existing roadway for 0.3 miles to begin proposed access on right-hand side of roadway, continuing for an additional 282.7' to Hilcorp Huerfano Unit Strat Test 601 #1 staked location.