

Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

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

Form C-101  
August 1, 2011

Permit 404583

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

1. Operator Name and Address HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002		2. OGRID Number 372171
		3. API Number 30-045-38519
4. Property Code 318426	5. Property Name RHODA ABRAMS	6. Well No. 002P

**7. Surface Location**

UL - Lot J	Section 5	Township 30N	Range 11W	Lot Idn	Feet From 1539	N/S Line S	Feet From 1823	E/W Line E	County San Juan
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**8. Proposed Bottom Hole Location**

UL - Lot J	Section 5	Township 30N	Range 11W	Lot Idn J	Feet From 1956	N/S Line S	Feet From 2324	E/W Line E	County San Juan
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**9. Pool Information**

BLANCO-MESAVERDE (PRORATED GAS)	72319
BASIN DAKOTA (PRORATED GAS)	71599

**Additional Well Information**

11. Work Type New Well	12. Well Type GAS	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 5673
16. Multiple Y	17. Proposed Depth 6915	18. Formation Dakota Formation	19. Contractor	20. Spud Date 3/1/2026
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	32.3	300	136	0
Int1	8.75	7	23	4183	465	0
Prod	6.25	4.5	11.6	6915	185	3683

**Casing/Cement Program: Additional Comments**

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**22. Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
Annular	250	3000	

<p>23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I hereby certify that no additives containing PFAS chemicals will be added to the completion or recompletion of this well. <b>I further certify I have complied with 19.15.14.9 (A) NMAC <input checked="" type="checkbox"/> and/or 19.15.14.9 (B) NMAC <input checked="" type="checkbox"/> if applicable.</b></p> <p>Signature:</p> <p>Printed Name: Electronically filed by Jamie L Olivarez</p> <p>Title: L48W Regulatory Advisor</p> <p>Email Address: jolivarez@hilcorp.com</p> <p>Date: 12/10/2025</p>	<p style="text-align: center;"><b>OIL CONSERVATION DIVISION</b></p> <p>Approved By: Jeffrey Harrison</p> <p>Title: Petroleum Specialist III</p> <p>Approved Date: 1/13/2026</p> <p>Expiration Date: 1/13/2028</p> <p>Conditions of Approval Attached</p>
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C-102  Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department <b>OIL CONSERVATION DIVISION</b>	Revised July 9, 2024	
		Submittal Type:	<input checked="" type="checkbox"/> Initial Submittal
			<input type="checkbox"/> Amended Report
		<input type="checkbox"/> As Drilled	

**WELL LOCATION INFORMATION**

API Number <b>30-045-38519</b>	Pool Code 72319	Pool Name BLANCO MESAVERDE
Property Code 318426	Property Name RHODA ABRAMS	Well Number 2P
OGRID No. 372171	Operator Name HILCORP ENERGY COMPANY	Ground Level Elevation 5672.7'
Surface Owner: <input type="checkbox"/> State <input checked="" type="checkbox"/> Fee <input type="checkbox"/> Tribal <input type="checkbox"/> Federal		Mineral Owner: <input type="checkbox"/> State <input checked="" type="checkbox"/> Fee <input type="checkbox"/> Tribal <input type="checkbox"/> Federal

## Surface Location

UL J	Section 5	Township 30N	Range 11W	Lot	Ft. from N/S 1539 SOUTH	Ft. from E/W 1823 EAST	Latitude (NAD 83) 36.838315°	Longitude (NAD 83) -108.011314°	County SAN JUAN
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## Bottom Hole Location

UL J	Section 5	Township 30N	Range 11W	Lot	Ft. from N/S 1956 SOUTH	Ft. from E/W 2324 EAST	Latitude (NAD 83) 36.839454°	Longitude (NAD 83) -108.013014°	County SAN JUAN
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Dedicated Acres 319.71	Infill or Defining Well Infill	Defining Well API 30-045-35162	Overlapping Spacing Unit (Y/N) N	Consolidation Code C
Order Numbers. R-24077		Well setbacks are under Common Ownership: <input type="checkbox"/> Yes <input type="checkbox"/> No		

## Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude (NAD 83)	Longitude (NAD 83)	County
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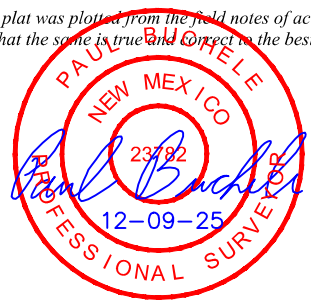
## First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude (NAD 83)	Longitude (NAD 83)	County
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## Last Take Point (LTP)

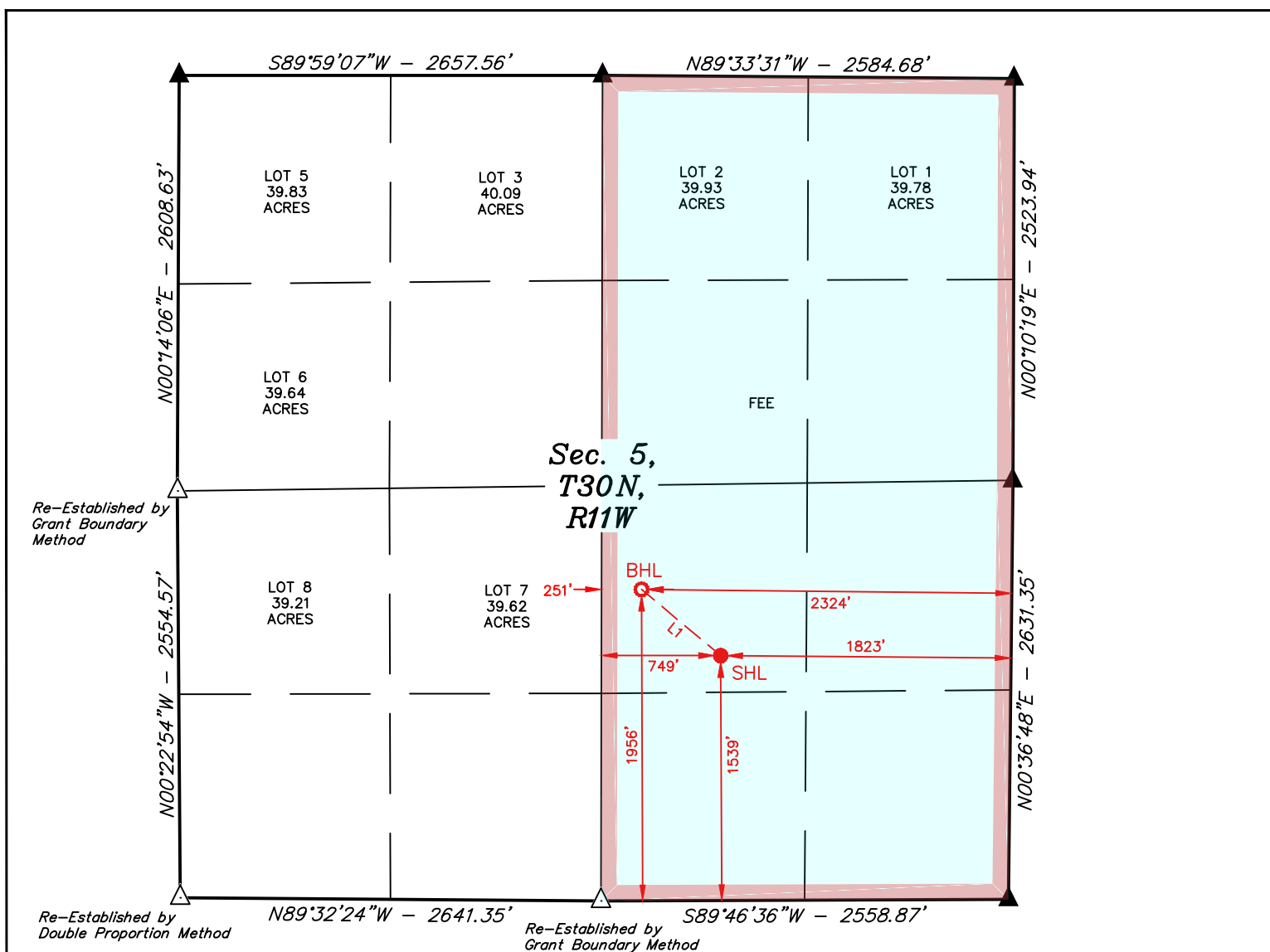
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude (NAD 83)	Longitude (NAD 83)	County
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Unitized Area or Area of Uniform Interest	Spacing Unit Type <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	Ground Floor Elevation: 5673'
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<b>OPERATOR CERTIFICATIONS</b>  <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i>  <i>If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.</i>  <b>Cherylene Weston</b> 12/08/2025  Signature Date  Cherylene Weston, Operations/Regulatory Tech-Sr.  Printed Name  cweston@hilcorp.com Email Address	<b>SURVEYOR CERTIFICATIONS</b>  <i>I hereby certify that the well location shown on this plat was plotted from the 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.</i>    Signature and Seal of Professional Surveyor  23782 November 19, 2025  Certificate Number Date of Survey
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Note: No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

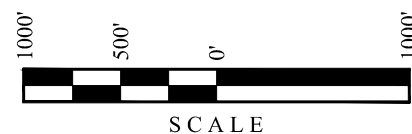
Property Name RHODA ABRAMS	Well Number 2P	Drawn By C.D. 11-20-25	Revised By REV. 2 C.D. 12-09-25 (TYPO CORRECTIONS)
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<b>NAD 83 (SURFACE HOLE LOCATION)</b>
LATITUDE = 36°50'17.93" (36.838315°)
LONGITUDE = -108°00'40.73" (-108.011314°)
<b>NAD 27 (SURFACE HOLE LOCATION)</b>
LATITUDE = 36°50'17.92" (36.838311°)
LONGITUDE = -108°00'38.48" (-108.010690°)
<b>STATE PLANE NAD 83 (N.M. WEST)</b>
N: 2124517.71' E: 2671010.14'
<b>STATE PLANE NAD 27 (N.M. WEST)</b>
N: 2124454.26' E: 448099.80'

<b>NAD 83 (BOTTOM HOLE LOCATION)</b>
LATITUDE = 36°50'22.04" (36.839454°)
LONGITUDE = -108°00'46.85" (-108.013014°)
<b>NAD 27 (BOTTOM HOLE LOCATION)</b>
LATITUDE = 36°50'22.02" (36.839451°)
LONGITUDE = -108°00'44.61" (-108.012390°)
<b>STATE PLANE NAD 83 (N.M. WEST)</b>
N: 2124933.47' E: 2670513.22'
<b>STATE PLANE NAD 27 (N.M. WEST)</b>
N: 2124870.01' E: 447602.89'

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N50°04'54"W	647.90'



- = SURFACE HOLE LOCATION
- = BOTTOM HOLE LOCATION
- ▲ = SECTION CORNER LOCATED
- △ = SECTION CORNER RE-ESTABLISHED. (Not Set on Ground.)
- = DESIGNATED SPACING UNIT

## NOTE:

- Distances referenced on plat to section lines are perpendicular.
- Bearings, Distances, Coordinates and Areas are based on the New Mexico Coordinate System of 1983, West Zone, in U.S. Feet.
- Colored areas within section lines represent oil & gas leases.
- Section breakdown information for this plat may be obtained from Uintah Engineering & Land Survey.

C-102  Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department <b>OIL CONSERVATION DIVISION</b>	Revised July 9, 2024	
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**WELL LOCATION INFORMATION**

API Number <b>30-045-38519</b>	Pool Code 71599	Pool Name BASIN DAKOTA
Property Code 318426	Property Name RHODA ABRAMS	Well Number 2P
OGRID No. 372171	Operator Name HILCORP ENERGY COMPANY	Ground Level Elevation 5672.7'
Surface Owner: <input type="checkbox"/> State <input checked="" type="checkbox"/> Fee <input type="checkbox"/> Tribal <input type="checkbox"/> Federal		Mineral Owner: <input type="checkbox"/> State <input checked="" type="checkbox"/> Fee <input type="checkbox"/> Tribal <input type="checkbox"/> Federal

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Order Numbers. R-24076		Well setbacks are under Common Ownership: <input type="checkbox"/> Yes <input type="checkbox"/> No		

## Kick Off Point (KOP)

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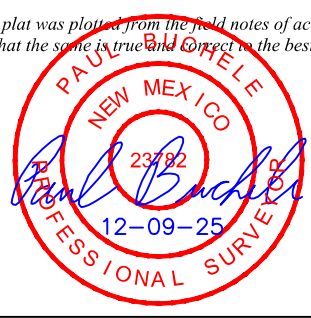
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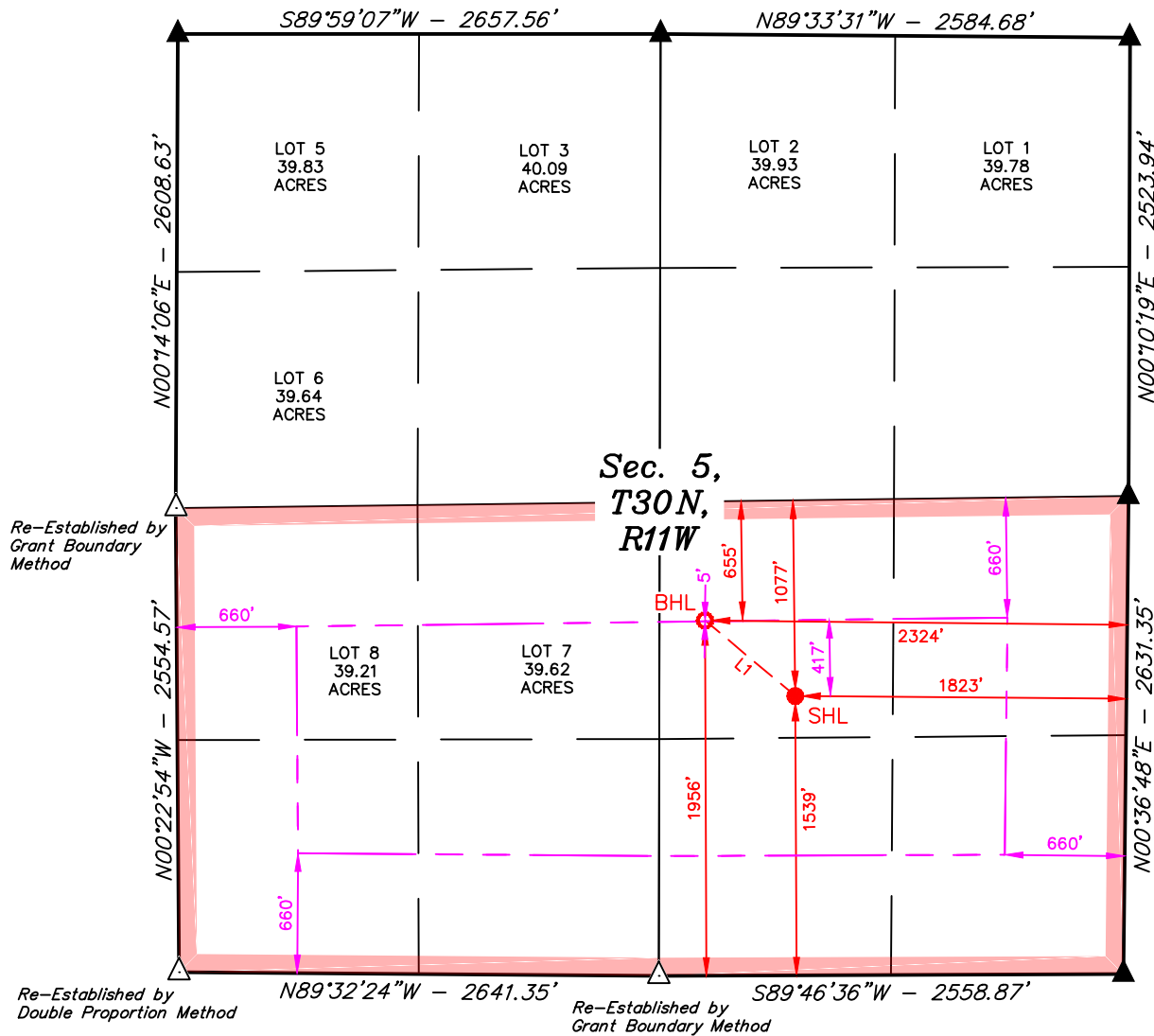
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Property Name RHODA ABRAMS	Well Number 2P	Drawn By C.D. 11-20-25	Revised By REV. 2 C.D. 12-09-25 (TYPO CORRECTIONS)
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SCALE

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- ▲ = SECTION CORNER LOCATED

- △ = SECTION CORNER RE-ESTABLISHED.  
(Not Set on Ground.)

- = DESIGNATED SPACING UNIT
- = SETBACK BOUNDARY

**NOTE:**

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**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

Form APD Conditions

Permit 404583

**PERMIT CONDITIONS OF APPROVAL**

Operator Name and Address: HILCORP ENERGY COMPANY [372171] 1111 Travis Street Houston, TX 77002	API Number: 30-045-38519
	Well: RHODA ABRAMS #002P

OCD Reviewer	Condition
jeffrey.harrison	Administrative order required for non-standard location prior to production if not covered under an existing order.
jeffrey.harrison	No additives containing PFAS chemicals will be added to the drilling fluids or completion fluids used during drilling, completions, or recompletions operations.
jeffrey.harrison	File As Drilled C-102 and a directional Survey with C-104 completion packet.
jeffrey.harrison	Notify the OCD 24 hours prior to casing & cement.
jeffrey.harrison	A [C-103] Sub. Drilling (C-103N) is required within (10) days of spud.
jeffrey.harrison	Cement is required to circulate on both surface and intermediate1 strings of casing.
jeffrey.harrison	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.
jeffrey.harrison	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.
jeffrey.harrison	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.

San Juan County, NM

Rhoda Abrams 2P



### Technical Drilling Plan (Rev. 0)

Hilcorp Energy Company proposes to drill and complete the referenced well targeting the Mesa Verde and Dakota formations.

*Note: This technical drilling plan will be adjusted based upon actual conditions.*

#### 1. Location

<b>Date:</b>	December 9, 2025	<b>Pool:</b>	Mesa Verde / Dakota
<b>Well Name:</b>	Rhoda Abrams 2P	<b>Ground Elevation (ft. MSL):</b>	5,673'
<b>Surface Hole Location:</b>	36.838311° N, 108.010690° W	<b>Total Depth (ft. TMD/TVD)</b>	6,915' / 6,852'
<b>Bottom Hole Location:</b>	36.839451° N, 108.012390° W	<b>County, State:</b>	San Juan County, NM

*Note: All geographic coordinates on the drilling tech plan and the directional drilling plan refer to NAD 27 geodetic coordinate system. All depths on the drilling tech plan and the directional drilling plan are referenced from an estimated RKB datum of 17' above ground level.*

#### 2. Geological Markers

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

Formation	Depth (ft. TVD)	Remarks
Ojo Alamo	643'	Water (fresh/useable)
Kirtland	762'	None
Fruitland Coal	1,663'	Gas, Water, depleted
Pictured Cliffs	2,132'	Gas, depleted
Lewis Shale	2,248'	None
Chacra	3,180'	None, Gas
Cliff House	3,699'	Gas, Water, possible depletion
Menefee	3,920'	Gas, possible water & depletion
Point Lookout	4,435'	Gas, likely depletion
Mancos	4,809'	Gas, possible condensate
Gallup	5,701'	Gas, possible condensate
Juana Lopez	6,108'	None, Gas
Greenhorn	6,438'	None, Gas
Graneros	6,492'	None, Gas
Two Wells	6,548'	Gas
Paguate	6,620'	Gas, possible depletion
Cubero	6,663'	Gas, possible depletion
Encinal Canyon	6,709'	Gas, Water
Burro Canyon	6,802'	Likely water, Gas possible

San Juan County, NM

Rhoda Abrams 2P



### 3. Pressure Control Equipment

#### A. BOP Equipment

See Appendix A for BOP equipment and choke manifold diagram.

- BOP equipment will be nipped up on top of the wellhead after surface casing is set and cemented.
- Pressure control configurations will be designed to meet the minimum 3M standards.
- All equipment will have 3M pressure rating at a minimum.
- A rotating head will be installed on top of the annular as seen in the attached diagram.

#### B. BOP Pressure Testing

- For all BOP pressure testing, a test unit with a chart recorder and a BOP test plug will be utilized.
- All tests and inspections will be recorded and logged with time and results.
- A full BOP pressure test will be conducted when initially installed for the first well on the pad or if a seal subject to test pressure is broken, following related repairs, and at a minimum in 30-day intervals.
- A BOPE shell pressure test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken, repaired, and fall within the 30-day interval of the first full test.
- **The New Mexico Oil & Gas Conservation Division and the BLM will be notified 24 hours in advance of pressure testing BOPE.**
- The BOPE will be tested to **250 psi (Low) for 5 minutes and 3,000 psi (High) for 10 minutes.**

#### C. BOP Function Testing

- Annular preventors will be functionally tested at least once per week.
- Pipe and blind rams will be function tested each trip.

#### D. Casing Pressure Testing

- For all casing pressure testing, a test unit with a chart recorder will be utilized.
- **Surface casing will be pressure tested to 600 psi for 30 minutes.**
- **Intermediate casing will be pressure tested to 1,500 psi for 30 minutes.**



San Juan County, NM

Rhoda Abrams 2P



#### 4. Casing Program

##### A. Proposed Casing Program:

Proposed Casing Design							
Casing String	Hole Size	Casing (size/weight/grade)	Top Depth (MD/TVD)	Shoe Depth (MD/TVD)	Collapse	Burst	Tensile
Surface	12-1/4"	9-5/8"-32.3#-H40 (or equiv.)-LTC/BTC	0'	300'/300'	1,370 psi	2,270 psi	254 klbs
Intermediate	8-3/4"	7"-23#-J55 (or equiv.)-LTC/BTC	0'	4,183'/4,120'	3,270 psi	4,360 psi	366 klbs
Production	6-1/4"	4-1/2"-11.6#-J55 (or equiv.)-LTC/BTC	0'	6,915'/6,852'	4,960 psi	5,350 psi	184 klbs

Proposed Casing Design Safety Factors				
Casing String	Burst Design SF	Collapse Design SF	Joint Tensile Design SF	Connection Tensile Design SF
Surface	16.2	12.4	43.7	30.4
Intermediate	2.1	2.0	4.4	5.3
Production	1.5	1.7	2.7	3.3

##### B. Casing Design Parameters & Calculations:

- Designed for full wellbore evacuation.
- Mud Weights used for calculations:
  - Surface = 9.0 ppg
  - Intermediate = 9.5 ppg
  - Production = 10.0 ppg
- Minimum Acceptable Safety Factors:
  - Burst: 1.15
  - Collapse: 1.15
  - Tensile: 1.50
- Casing Safety Factor Calculations:

$$\text{Casing Burst Safety Factor} = \frac{\text{Casing Burst Rating (psi)}}{\text{Maximum Mud Weight (ppg)} \times \text{TVD (ft)} \times 0.052}$$

$$\text{Casing Collapse Safety Factor} = \frac{\text{Hydrostatic of Mud Weight in Annulus (psi)}}{\left[ \text{TVD of Casing Shoe (ft)} \times 0.10 \frac{\text{psi}}{\text{ft}} \right]}$$

$$\text{Tensile Safety Factor} = \frac{\text{Tensile Rating of Casing String (lbs)}}{\text{Measured Depth of Casing (ft)} \times \text{Casing Weight} \frac{\text{lb}}{\text{ft}} \times \text{Drilling Fluid Bouyancy Factor}}$$

##### Production Casing Notes:

- Production casing will be run from surface to TD.
- The 6-1/4" production hole section will be drilled 50' into the Burro Canyon formation and exact TD will be determined onsite by the mud logger.

San Juan County, NM

Rhoda Abrams 2P

**5. Proposed Centralizer Program:**

Proposed Centralizer Program	
Casing String	Centralizers & Placement
Surface Casing	1 centralizer per joint on bottom 3 joints.
Intermediate Casing	1 centralizer per joint in shoe track. 1 centralizer every 3 <sup>rd</sup> joint from float collar to base of Ojo Alamo. 1 centralizer per joint from base of Ojo Alamo to the top of the Ojo Alamo. 1 centralizer every 3 <sup>rd</sup> joint from top of Ojo Alamo to surface.
Production Casing	1 centralizer per joint in shoe track. 1 centralizer every other joint for bottom 1,000' of casing.

**6. Proposed Cement Program:**

Proposed Cement Design								
Interval	Depth (ft. MD)	Lead/Tail	Volume (ft <sup>3</sup> )	Sacks	Excess (%)	Slurry	Density (ppg)	Planned TOC
Surface	300'	Lead	188 ft <sup>3</sup>	136	100%	Class G Cement Yield: 1.38 ft <sup>3</sup> /sk	14.6	Surface
Slurry Additives: CaCl <sub>2</sub> (1%), Cello Flake (0.25 lb/sk), CD-2 (0.2%)								
Intermediate	4,183'	Lead	815 ft <sup>3</sup>	383	50%	ASTM Type II Yield: 2.13 ft <sup>3</sup> /sk	12.0	Surface
		Slurry Additives: CaCl <sub>2</sub> (3.0%), Celloflake (0.25 lb/sk), LCM-1 (5.0 lb/sk), FL-52 (0.4%), bentonite (8.0%), SMS (0.4%)						
		Tail	113 ft <sup>3</sup>	82	50%	ASTM Type II Yield: 1.38 ft <sup>3</sup> /sk	14.5	3,683'
		Slurry Additives: CaCl <sub>2</sub> (1.0%), Celloflake (0.25 lb/sk), LCM-1 (5.0 lb/sk), FL-52 (0.2%)						
Production	6,915'	Lead	406 ft <sup>3</sup>	185	25%	ASTM Type II Yield: 2.19 ft <sup>3</sup> /sk	12.5	3,683'
		Slurry Additives: D-CSE 1 (5.0%), D-MPA 2 (1.2%), D-FP 1 (0.5%), D-R 1 (0.2%), Bentonite (4.0%), Plexfiber (0.25 lb/sx), PhenoSeal (0.25 lb/sx), CelloFlake (0.25 lb/sx)						

**Cement Program Notes:**

- The cement slurry additives may be adjusted to accommodate required pump and compressive test times.
- Actual cement volumes will be determined and may be adjusted onsite based on well conditions.
- For the intermediate hole section, a 2-stage or 3-stage cement job may be performed if hole conditions dictate. If needed, the stage tool(s) will be placed appropriately.
- Cement will be circulated to surface on surface and intermediate casing sections to protect water bearing zones.
- A minimum of 8 hours of wait on cement time will be observed on each hole section to allow adequate time for cement to achieve a minimum of 500 psi of compressive strength. The BOP will not be nipped down, the wellhead will not be installed, the casing will not be tested and the prior casing shoe will not be drilled out until adequate wait on cement time has been observed (8 hours or time to reach 500 psi compressive strength).

San Juan County, NM

Rhoda Abrams 2P



## 7. Drilling Fluids Program

### A. Proposed Drilling Fluids Program:

Proposed Drilling Fluids Program					
Interval	Fluid Type	Density (ppg)	Fluid Loss (mL/30 min)	Maximum Chlorides (ppm)	Depth (ft. MD)
Surface	Water/Gel	8.4 – 9.2	NC	1,000	0' – 300'
Intermediate	LSND / Gel	8.4 – 9.2	6-16	5,000	300' – 4,183'
Production	LSND / Gel / Air	8.4 – 9.2	6-16	5,000	4,183' – 6,915'

### Drilling Fluids Notes:

- Lost circulation material may be added to the mud systems to manage fluid losses as hole conditions dictate.
- Depending on the area and losses encountered, the production section may be drilled on air instead of fluid.
- The well will be drilled utilizing a closed-loop circulating system. Drill cuttings for all hole sections will be transported to an approved disposal site.
- Estimated total volume of drill cuttings for disposal: 436 bbls (2,449 ft<sup>3</sup>).

## 8. Estimated Pressures & Drilling Hazards

### A. Estimated Pressures

- Fruitland Coal: 400 psi
- Pictured Cliffs: 460 psi
- Mesa Verde: 900 psi
- Mancos: 1,830 psi
- Dakota: 1,400 psi
- No abnormal temperatures or drilling hazards are anticipated.
- The Mesa Verde and Dakota formations will be completed and comingled if both formations are completed.

### B. Water Flows

- Water flows are possible in the intermediate section. Water flows will be mitigated with increased mud weight.

### C. Lost Circulation

- Lost circulation is possible in the intermediate and production sections. Losses will be mitigated by utilizing LCM in the mud system.

### D. Hydrogen Sulfide

- No hydrogen sulfide is expected to be encountered based on nearby well production.

San Juan County, NM

Rhoda Abrams 2P



## **9. Pilot Hole**

- No pilot hole is planned for this wellbore.

## **10. Testing, Logging, Coring**

### **A. Mud Logging**

- Mud loggers will collect formation samples every 60' from intermediate casing shoe to TD of the well.

### **B. MWD**

- Measurement while drilling tools will be utilized from the surface casing shoe to TD of the intermediate hole section to measure and record inclination and azimuth.
- The single-shot inclination survey will be run in the production hole section after the production hole has been cased and cemented. The single-shot survey will be run to plug back TD (depth of float collar in the production casing). If deemed necessary, a gyro survey will be substituted for the single-shot inclination survey.

### **C. LWD**

- There are no plans for logging while drilling.

### **D. Open Hole Logging**

- There are no plans to open hole log the well.

### **E. Coring & Formation Testing**

- There are no plans for coring or formation testing.

### **F. Cased Hole Logging**

- The 7" intermediate casing will be cemented to surface to protect water bearing zones. If cement is not circulated to surface on the intermediate cement job, a cement bod log will be run to verify top of cement.

## **11. Directional Drilling Plan**

- The intermediate section of this wellbore is directional and surveys will be recorded and monitored to ensure adherence to the planned wellpath.
- The production section of this wellbore is planned to be vertical.
- If the production section of this wellbore is drilled on air, the wellbore will be assumed to be vertical that point forward.
- The directional plan is attached in the APD application.

San Juan County, NM

Rhoda Abrams 2P



## 12. Completion

### A. Pressure Testing

- A pressure test of the 4-1/2" production casing will be conducted to the maximum anticipated frac pressure for 30 minutes.

### B. Stimulation

- The well will be stimulated with sand and water. The number of stages and amount of proppant used will be adjusted based on actual reservoir thickness and real-time pumping conditions during the stimulation.

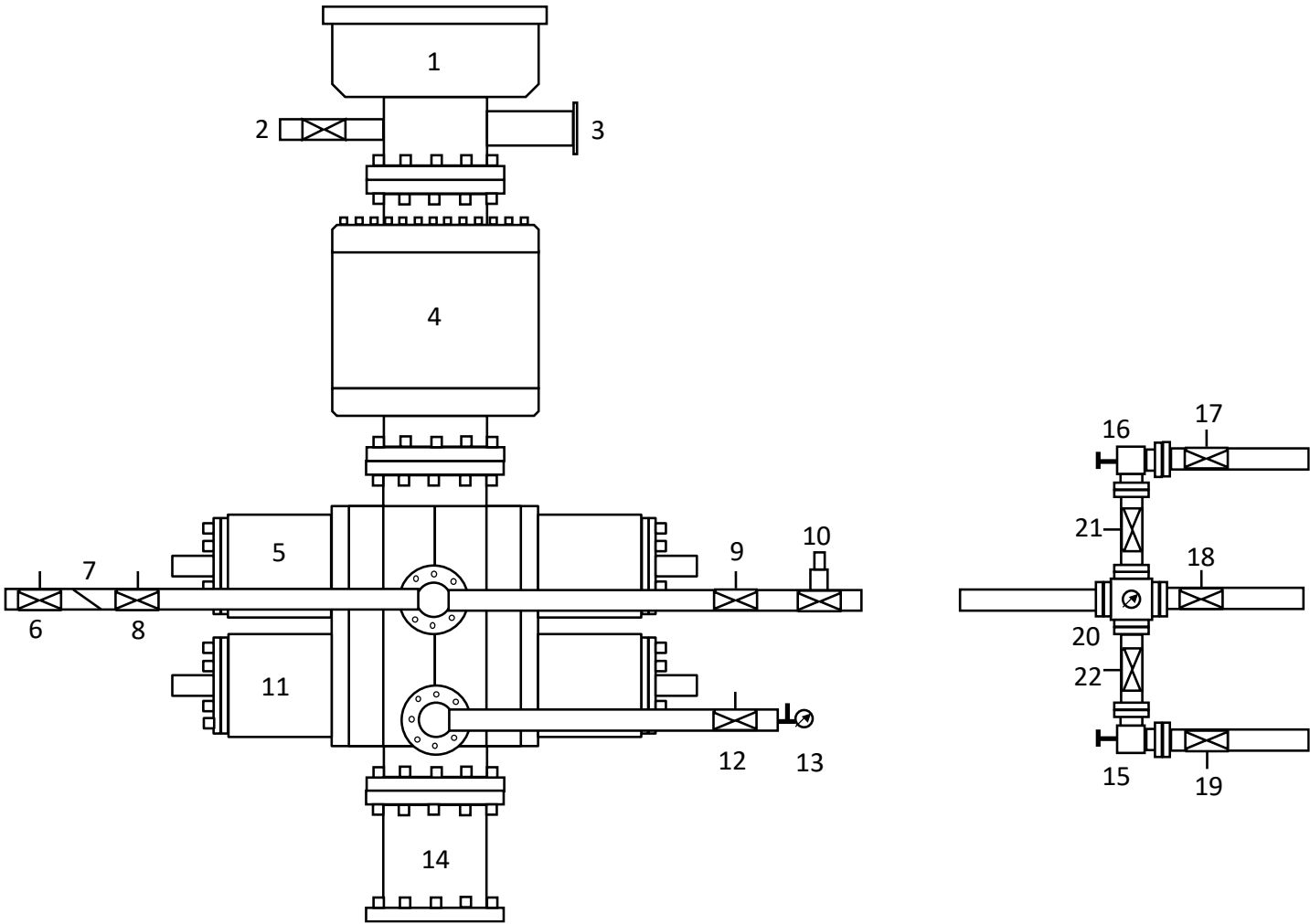
San Juan County, NM

Rhoda Abrams 2P



Appendix A

11" 3M BOP & 3M Choke Manifold Configuration



1	Rotating Head	12	Manual Isolation Valve
2	Fill-Up Line	13	Needle Valve & Pressure Gauge
3	Flow Line	14	Spacer Spool (if needed)
4	3M Annular Preventer	15	Manual Choke
5	3M Pipe Rams	16	Hydraulically Operated Choke
6	Manual Isolation Valve	17	Manual Isolation Valve
7	Check Valve	18	Manual Isolation Valve
8	Manual Isolation Valve	19	Manual Isolation Valve
9	Manual Isolation Valve	20	Valve Block & Pressure Gauge
10	High Closing Ratio Valve	21	Manual Isolation Valve
11	3M Blind Rams	22	Manual Isolation Valve

State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

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

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description Effective May 25, 2021

**I. Operator:** Hilcorp Energy Company **OGRID:** 372171 **Date:** 10/21/2025

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Rhoda Abrams 2P		B-26-31N-11W	927' FNL & 1836' FEL	12	650	17

**IV. Central Delivery Point Name:** Chaco-Blanco Processing Plant [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
<u>Rhoda Abrams 2P</u>	<u>2026</u>				<u>2026</u>	

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

## **Section 2 – Enhanced Plan**

### **EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

#### **IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

#### **X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.



### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: <b>Cherylene Weston</b>
Printed Name: Cherylene Weston
Title: Operations/Regulatory Tech-Sr.
E-mail Address: <a href="mailto:cweston@hilcorp.com">cweston@hilcorp.com</a>
Date: 10/21/2025
Phone: 713-289-2615
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
Approved By:
Title:
Approval Date:
Conditions of Approval:

## Hilcorp Energy Natural Gas Management Plan Attachments

### VI. Separation Equipment

The operator will select separation equipment for the maximum anticipated throughput and pressure to optimize gas capture. Separation equipment is sized according to manufacturer's design specifications. Separation vessels are built following the A.S.M.E. section VIII division 1 codes for pressure vessel design, fabrication, inspection, testing and certification. Anticipated well pressures and production rates are evaluated to select separation equipment according to the equipment's designed operating pressure and throughput.

After completion, the operator utilizes flowback equipment, including separators, to manage wellbore fluids and solids during the initial separation period. After the initial flowback period is complete the operator utilizes iterative facility separation equipment to ensure that optimal separation is achieved.

### VII. Operational Practices 19.15.27.8 NMAC A through F

- A. The operator will maximize the recovery of natural gas and minimize the amount of gas vented or flared when technically and safely feasible as further described and detailed within the following subsections (B-F of 19.15.27.8). In all cases where natural gas venting and flaring requires regulatory reporting, reporting will be submitted accurately and within the required time frames.
- B. Venting and flaring during drilling operations:
  - a. New Drill HZ Gas Wells: The operator drills wells in the area by utilizing a balanced mud to safely drill the wellbore. This technique prevents gas from coming to surface during the drilling process. If there is an emergency or malfunction and natural gas does come to surface the natural gas will be captured and routed to sales if technically and safely feasible.
- C. Venting and flaring during completion or recompletion operations:
  - a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. The natural gas will be utilized on site as needed for fuel gas and natural gas will be sold.
- D. Venting and flaring during production operations:
  - a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible.

Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

- (a) If there is an emergency or malfunction vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
- (b) If the wellbore needs to be unloaded to atmosphere the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
- (c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low pressure vessel. The formation is only anticipated to produce water and therefore tank emissions are anticipated to be negligible.
- (d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will always utilize the water transfer systems when available. Water loading emissions are anticipated to be negligible.
- (e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
- (f) Electric controllers and pumps will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
- (g) No dehydration or amine units are anticipated to be set on location.
- (h) Compressors, compressor engines, turbines, flanges, connectors, valves, storage tanks, and other low-pressure vessels and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operations.
- (i) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
- (j) If natural gas does not meet gathering pipeline specifications gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
- (k) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

## E. Performance standards:

- a. The production facilities are designed to handle the maximum throughput and pressures from producing wellbores and will be designed to minimize waste. The amount of gas vented and flared will be minimized when technically and safely feasible.
  - b. All tanks that are routed to a control device that is installed after 5/25/2021 will have an automatic gauging system to minimize the amount of vented natural gas.
  - c. If a flare stack is installed or replaced after 5/25/2021 it will be equipped with an automatic ignitor or continuous pilot. The flare stack will be properly sized and designed to ensure proper combustion efficiency. The flare stack will be located 100 feet away from the nearest wellhead or storage tank.
  - d. AVO inspections will be conducted weekly for the year after completion and for all wells producing greater than 60,000 cubic feet of natural gas daily. The AVO inspection will include all components, including flare stacks, thief hatches, closed vent systems, pumps, compressors, pressure relief devices, valves, lines, flanges, connectors, and associated pipeline to identify any leaks and releases by comprehensive auditory, visual, and olfactory inspection. The AVO inspection records will be maintained for 5 years which will be available at the department's request. Identified leaks will be repaired as soon as feasible to minimize the amount of vented natural gas.
- F. Measurement or estimation of vented and flared natural gas.
- a. The volume of natural gas that is vented, flared or consumed for beneficial use will be measured when possible, or estimated, during drilling, completions, or production operations.
  - b. Equipment will be installed to measure the volume of natural gas flared for all APD's issued after 5/25/2021 on facilities that will have an average daily gas rate greater than 60,000 cubic feet of natural gas. Measurement equipment will conform to API MPMS Chapter 14.10 regulations. The measurement equipment will not have a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment. If metering is not practical then the volume of gas will be estimated.



Company: Hilcorp Energy - San Juan Basin  
 Project: San Juan, NM NAD27  
 Site: Rhoda Abrams 2P Pad  
 Well: Rhoda Abrams 2P  
 Wellbore: OH  
 Design: Plan #2



## Well Details: Rhoda Abrams 2P

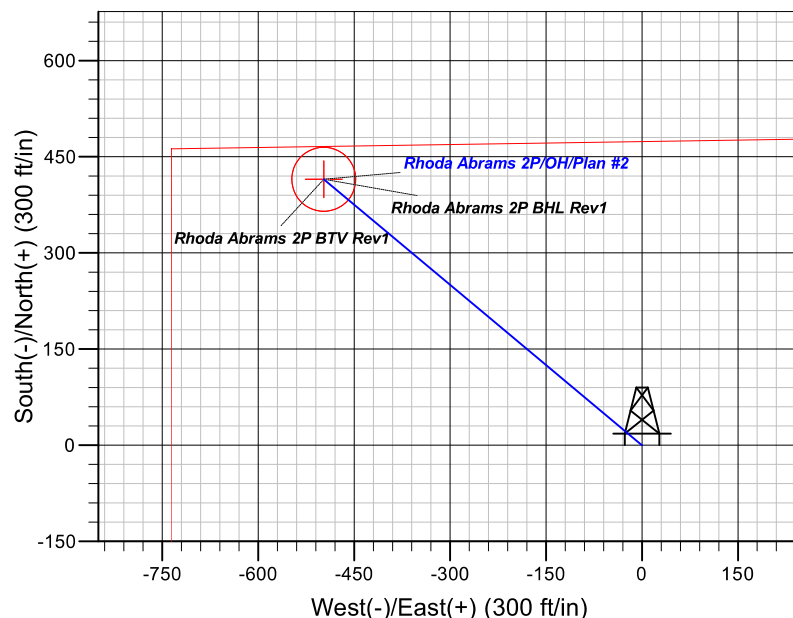
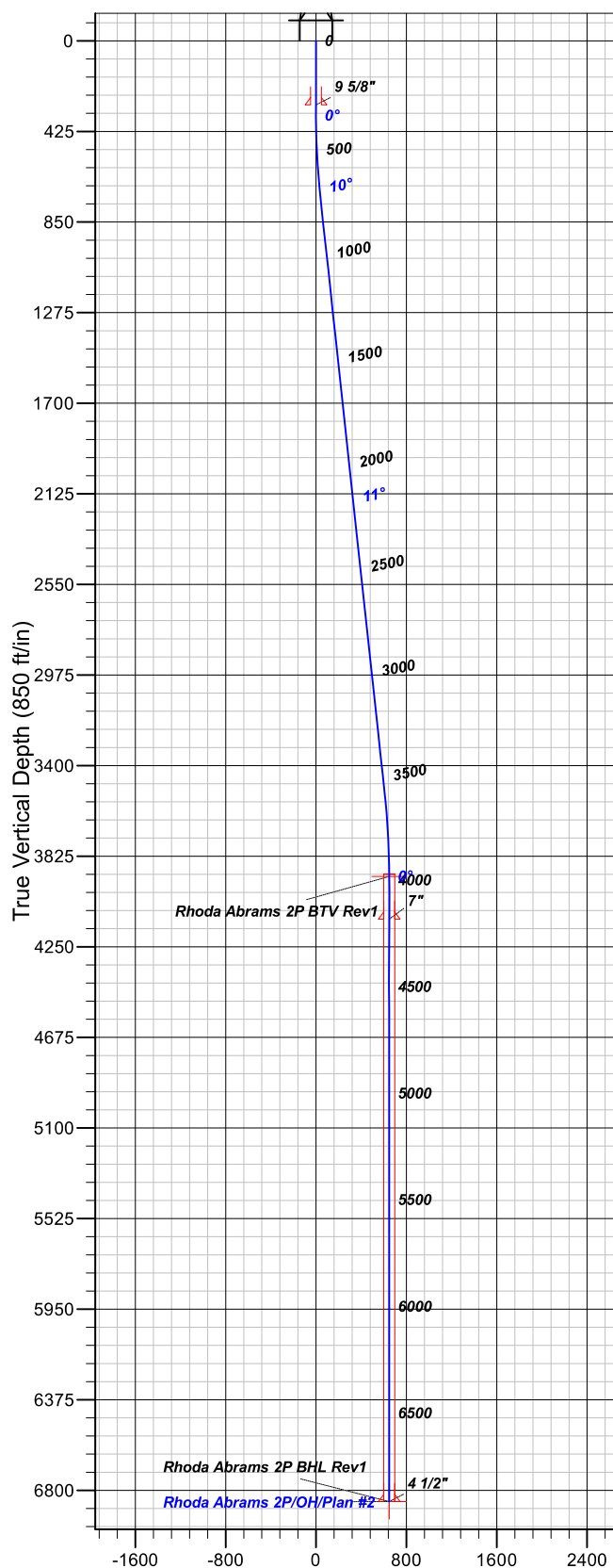
GL 5673' & RKB 17' @ 5690.00ft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	2124454.10	448099.68	36.8383110	-108.0106900	



Azimuths to True North  
 Magnetic North: 8.38°

Magnetic Field  
 Strength: 49040.0nT  
 Dip Angle: 63.12°  
 Date: 12/3/2025  
 Model: HDGM2025



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
643.00	644.16	OJO ALAMO
762.00	765.21	KIRTLAND
1663.00	1684.65	FRUITLAND
2132.00	2163.25	PICTURED_CLIFFS
2248.00	2281.63	LEWIS
3180.00	3232.71	CHACRA
3699.00	3761.13	CLIFF HOUSE
3920.00	3982.63	MENEFEE
4435.00	4497.63	POINT_LOOKOUT
4809.00	4871.63	MANCOS
5701.00	5763.63	GALLUP
6108.00	6170.63	JUANA LOPEZ
6438.00	6500.63	GREENHORN
6492.00	6554.63	GRANEROS
6548.00	6610.63	TWO_WELLS
6620.00	6682.63	PAUGATE
6663.00	6725.63	CUBERO
6709.00	6771.63	ENCINAL_CANYON
6802.00	6864.63	BURRO_CANYON

## Plan: Plan #2

16:54, December 08 2025  
 Created By: Janie Collins

PROJECT DETAILS: San Juan, NM NAD27

Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: New Mexico West 3003

System Datum: Mean Sea Level

## CASING DETAILS

TVD	MD	Name
300.00	300.00	9 5/8"
4120.00	4182.63	7"
6852.00	6914.63	4 1/2"

## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.000	350.00	0.00	0.00	0.00	0.00	0.00
733.20	11.50	309.837	730.63	24.54	-29.42	3.00	309.84	38.31
3599.44	11.50	309.837	3539.37	390.48	-468.05	0.00	0.00	609.55
3982.63	0.00	0.000	3920.00	415.02	-497.47	3.00	180.00	647.86
6914.63	0.00	0.000	6852.00	415.02	-497.47	0.00	0.00	647.86

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rhoda Abrams 2P BTV Rev1	3920.00	415.02	-497.47	2124870.05	447602.98	36.8394510	-108.0123900
Rhoda Abrams 2P BHL Rev1	6852.00	415.02	-497.47	2124870.05	447602.98	36.8394510	-108.0123900

Vertical Section at 309.837° (1600 ft/in)



# Hilcorp Energy - San Juan Basin

San Juan, NM NAD27  
Rhoda Abrams 2P Pad  
Rhoda Abrams 2P

OH

Plan: Plan #2

## Standard Planning Report

08 December, 2025



[www.scientificdrilling.com](http://www.scientificdrilling.com)





# Scientific Drilling Planning Report



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Rhoda Abrams 2P
<b>Company:</b>	Hilcorp Energy - San Juan Basin	<b>TVD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Project:</b>	San Juan, NM NAD27	<b>MD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Site:</b>	Rhoda Abrams 2P Pad	<b>North Reference:</b>	True
<b>Well:</b>	Rhoda Abrams 2P	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

<b>Project</b>	San Juan, NM NAD27		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico West 3003		

<b>Site</b>	Rhoda Abrams 2P Pad			
<b>Site Position:</b>		<b>Northing:</b>	2,124,454.10 usft	<b>Latitude:</b> 36.8383110
<b>From:</b>	Lat/Long	<b>Easting:</b>	448,099.68 usft	<b>Longitude:</b> -108.0106900
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -0.11 °

<b>Well</b>	Rhoda Abrams 2P			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	2,124,454.10 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	448,099.68 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 5,673.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2025	12/3/2025	8.38	63.12	49,040.00000000

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	309.837

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.000	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
733.20	11.50	309.837	730.63	24.54	-29.42	3.00	3.00	0.00	309.84	
3,599.44	11.50	309.837	3,539.37	390.48	-468.05	0.00	0.00	0.00	0.00	
3,982.63	0.00	0.000	3,920.00	415.02	-497.47	3.00	-3.00	0.00	180.00	Rhoda Abrams 2P BT
6,914.63	0.00	0.000	6,852.00	415.02	-497.47	0.00	0.00	0.00	0.00	Rhoda Abrams 2P BH





# Scientific Drilling Planning Report



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Rhoda Abrams 2P
<b>Company:</b>	Hilcorp Energy - San Juan Basin	<b>TVD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Project:</b>	San Juan, NM NAD27	<b>MD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Site:</b>	Rhoda Abrams 2P Pad	<b>North Reference:</b>	True
<b>Well:</b>	Rhoda Abrams 2P	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.000	350.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	1.50	309.837	399.99	0.42	-0.50	0.65	3.00	3.00	0.00
500.00	4.50	309.837	499.85	3.77	-4.52	5.89	3.00	3.00	0.00
600.00	7.50	309.837	599.29	10.47	-12.55	16.34	3.00	3.00	0.00
700.00	10.50	309.837	698.04	20.49	-24.56	31.98	3.00	3.00	0.00
733.20	11.50	309.837	730.63	24.54	-29.42	38.31	3.00	3.00	0.00
800.00	11.50	309.837	796.09	33.07	-39.64	51.63	0.00	0.00	0.00
900.00	11.50	309.837	894.09	45.84	-54.95	71.56	0.00	0.00	0.00
1,000.00	11.50	309.837	992.08	58.61	-70.25	91.49	0.00	0.00	0.00
1,100.00	11.50	309.837	1,090.08	71.37	-85.55	111.42	0.00	0.00	0.00
1,200.00	11.50	309.837	1,188.07	84.14	-100.86	131.35	0.00	0.00	0.00
1,300.00	11.50	309.837	1,286.06	96.91	-116.16	151.28	0.00	0.00	0.00
1,400.00	11.50	309.837	1,384.06	109.68	-131.46	171.21	0.00	0.00	0.00
1,500.00	11.50	309.837	1,482.05	122.44	-146.77	191.14	0.00	0.00	0.00
1,600.00	11.50	309.837	1,580.05	135.21	-162.07	211.06	0.00	0.00	0.00
1,700.00	11.50	309.837	1,678.04	147.98	-177.37	230.99	0.00	0.00	0.00
1,800.00	11.50	309.837	1,776.03	160.74	-192.68	250.92	0.00	0.00	0.00
1,900.00	11.50	309.837	1,874.03	173.51	-207.98	270.85	0.00	0.00	0.00
2,000.00	11.50	309.837	1,972.02	186.28	-223.28	290.78	0.00	0.00	0.00
2,100.00	11.50	309.837	2,070.01	199.05	-238.59	310.71	0.00	0.00	0.00
2,200.00	11.50	309.837	2,168.01	211.81	-253.89	330.64	0.00	0.00	0.00
2,300.00	11.50	309.837	2,266.00	224.58	-269.19	350.57	0.00	0.00	0.00
2,400.00	11.50	309.837	2,364.00	237.35	-284.50	370.50	0.00	0.00	0.00
2,500.00	11.50	309.837	2,461.99	250.11	-299.80	390.43	0.00	0.00	0.00
2,600.00	11.50	309.837	2,559.98	262.88	-315.10	410.36	0.00	0.00	0.00
2,700.00	11.50	309.837	2,657.98	275.65	-330.41	430.29	0.00	0.00	0.00
2,800.00	11.50	309.837	2,755.97	288.42	-345.71	450.22	0.00	0.00	0.00
2,900.00	11.50	309.837	2,853.97	301.18	-361.01	470.15	0.00	0.00	0.00
3,000.00	11.50	309.837	2,951.96	313.95	-376.32	490.08	0.00	0.00	0.00
3,100.00	11.50	309.837	3,049.95	326.72	-391.62	510.01	0.00	0.00	0.00
3,200.00	11.50	309.837	3,147.95	339.48	-406.92	529.94	0.00	0.00	0.00
3,300.00	11.50	309.837	3,245.94	352.25	-422.23	549.87	0.00	0.00	0.00
3,400.00	11.50	309.837	3,343.94	365.02	-437.53	569.80	0.00	0.00	0.00
3,500.00	11.50	309.837	3,441.93	377.78	-452.83	589.73	0.00	0.00	0.00
3,599.44	11.50	309.837	3,539.37	390.48	-468.05	609.55	0.00	0.00	0.00
3,600.00	11.48	309.837	3,539.92	390.55	-468.14	609.66	3.00	-3.00	0.00
3,700.00	8.48	309.837	3,638.40	401.65	-481.44	626.98	3.00	-3.00	0.00
3,800.00	5.48	309.837	3,737.65	409.43	-490.77	639.13	3.00	-3.00	0.00
3,900.00	2.48	309.837	3,837.40	413.88	-496.10	646.07	3.00	-3.00	0.00
3,982.63	0.00	0.000	3,920.00	415.02	-497.47	647.86	3.00	-3.00	0.00
4,000.00	0.00	0.000	3,937.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,100.00	0.00	0.000	4,037.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,200.00	0.00	0.000	4,137.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,300.00	0.00	0.000	4,237.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,400.00	0.00	0.000	4,337.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,500.00	0.00	0.000	4,437.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,600.00	0.00	0.000	4,537.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,700.00	0.00	0.000	4,637.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,800.00	0.00	0.000	4,737.37	415.02	-497.47	647.86	0.00	0.00	0.00
4,900.00	0.00	0.000	4,837.37	415.02	-497.47	647.86	0.00	0.00	0.00



# Scientific Drilling Planning Report



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Rhoda Abrams 2P
<b>Company:</b>	Hilcorp Energy - San Juan Basin	<b>TVD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Project:</b>	San Juan, NM NAD27	<b>MD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Site:</b>	Rhoda Abrams 2P Pad	<b>North Reference:</b>	True
<b>Well:</b>	Rhoda Abrams 2P	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,000.00	0.00	0.000	4,937.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,100.00	0.00	0.000	5,037.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,200.00	0.00	0.000	5,137.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,300.00	0.00	0.000	5,237.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,400.00	0.00	0.000	5,337.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,500.00	0.00	0.000	5,437.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,600.00	0.00	0.000	5,537.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,700.00	0.00	0.000	5,637.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,800.00	0.00	0.000	5,737.37	415.02	-497.47	647.86	0.00	0.00	0.00	
5,900.00	0.00	0.000	5,837.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,000.00	0.00	0.000	5,937.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,100.00	0.00	0.000	6,037.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,200.00	0.00	0.000	6,137.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,300.00	0.00	0.000	6,237.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,400.00	0.00	0.000	6,337.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,500.00	0.00	0.000	6,437.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,600.00	0.00	0.000	6,537.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,700.00	0.00	0.000	6,637.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,800.00	0.00	0.000	6,737.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,900.00	0.00	0.000	6,837.37	415.02	-497.47	647.86	0.00	0.00	0.00	
6,914.63	0.00	0.000	6,852.00	415.02	-497.47	647.86	0.00	0.00	0.00	

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Rhoda Abrams 2P BTV I	0.00	0.000	3,920.00	415.02	-497.47	2,124,870.05	447,602.98	36.8394510	-108.0123900
- plan hits target center									
- Point									
Rhoda Abrams 2P BHL I	0.00	0.000	6,852.00	415.02	-497.47	2,124,870.05	447,602.98	36.8394510	-108.0123900
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
300.00	300.00	9 5/8"	9.62	12.25	
4,182.63	4,120.00	7"	7.00	8.75	
6,914.63	6,852.00	4 1/2"	4.50	6.25	



# Scientific Drilling

## Planning Report



<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well Rhoda Abrams 2P
<b>Company:</b>	Hilcorp Energy - San Juan Basin	<b>TVD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Project:</b>	San Juan, NM NAD27	<b>MD Reference:</b>	GL 5673' & RKB 17' @ 5690.00ft
<b>Site:</b>	Rhoda Abrams 2P Pad	<b>North Reference:</b>	True
<b>Well:</b>	Rhoda Abrams 2P	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
644.16	643.00	OJO_ALAMO		0.00	0.000	
765.21	762.00	KIRTLAND		0.00	0.000	
1,684.65	1,663.00	FRUITLAND		0.00	0.000	
2,163.25	2,132.00	PICTURED_CLIFFS		0.00	0.000	
2,281.63	2,248.00	LEWIS		0.00	0.000	
3,232.71	3,180.00	CHACRA		0.00	0.000	
3,761.13	3,699.00	CLIFF HOUSE		0.00	0.000	
3,982.63	3,920.00	MENEFEE		0.00	0.000	
4,497.63	4,435.00	POINT_LOOKOUT		0.00	0.000	
4,871.63	4,809.00	MANCOS		0.00	0.000	
5,763.63	5,701.00	GALLUP		0.00	0.000	
6,170.63	6,108.00	JUANA_LOPEZ		0.00	0.000	
6,500.63	6,438.00	GREENHORN		0.00	0.000	
6,554.63	6,492.00	GRANEROS		0.00	0.000	
6,610.63	6,548.00	TWO_WELLS		0.00	0.000	
6,682.63	6,620.00	PAUGATE		0.00	0.000	
6,725.63	6,663.00	CUBERO		0.00	0.000	
6,771.63	6,709.00	ENCINAL_CANYON		0.00	0.000	
6,864.63	6,802.00	BURRO CANYON		0.00	0.000	