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Farmington Field Office
Bureau of Land Management

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

5. Lease Serial No.
SF-078047

6. If Indian, Allottee or Tribe Name

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2.*

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

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Palluche HZMC 1H

2. Name of Operator
Hilcorp Energy Company

9. API Well No.
30-039-31138

3a. Address
382 Road 3100, Aztec NM 87410

3b. Phone No. (include area code)
505-599-3400

10. Field and Pool or Exploratory Area
Basin Mancos

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
Surface Unit B (NWNE), 1042' FNL & 2088' FEL, Sec. 35, T26N, R7W
Bottomhole Unit E (SWNW), 1769' FNL & 660' FWL, Sec. 34, T26N, R7W

11. Country or Parish, State
Rio Arriba , New Mexico

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other **Updated**
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	**Technical Plan**
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once Testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Hilcorp Energy Company received verbal approval 5/29/18 from Jack Savage to use two cement plugs instead of three plugs. Attached is the updated technical plan which reflects this change.

NMOCD
JUN 01 2018
DISTRICT III

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*
Kandis Roland Title **Operations/Regulatory Technician - Sr.**

Signature Kandis Roland Date **5/29/2018**

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Jack Savage Title PE Date 5/30/18

Conditions of approval, if any, are attached. Approval of this notice 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. Office FTO

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.

(Instruction on page 2)

NMOCD

Hilcorp Energy Company

Hilcorp Energy Company

Technical Plan

1. Location

PALLUCHE HZMC 1H
SHL: 1042' FNL, 2088' FEL -- T 26N, R 7W, Sec 35
BHL: 1769' FNL, 660' FWL -- T 26N, R 7W, Sec 34
GL: 6925'

2. Geological Markers

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

Formation	Depth (TVD)	Remarks
San Jose	Surface	
Nacimiento	1670'	
Ojo Alamo	2278'	Possible Water
Kirtland	2389'	
Fruitland	2608'	Possible Gas
Pictured Cliffs	2986'	
Huerfano Bentonite	3364'	
Chacra	3822'	
Massive Cliffhouse	4560'	
Menefee	4639'	
Point Lookout	5271'	Gas
Mancos	5975'	
Mancos Lateral Target	6682'	Oil/Gas
Greenhorn – Pilot Hole	7156'	
TD of Pilot Hole	7300'	

See attached directional plan for anticipated formation tops in measured depth.

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 2M standards.
- All equipment will have 3M pressure ratings.
- A rotating head will be rigged up on top of annular as seen in attached diagram.

Hilcorp Energy Company

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 /TVD
Intermediate	12-1/4"	9-5/8"	40.0#, P-110, BTC, New	0' – 6021 MD/ 6000 TVD
Production	8-3/4"	5-1/2"	20.0#, P-110, BTC, New	0 - 13950 MD / 6639 TVD

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. A toe initiation sliding sleeve will be installed at the toe of the production casing.

B) The proposed cement program is shown below:

Cement Program				
Interval	**Depth (TVD)**	**Volume**	**Slurry**	**Planned Cement Top**
Surface	340'	223 ft^3	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	Surface
Intermediate	6022'	1886 ft^3	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 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	Surface
Production	13950'	N/A	Lead Cmt: Halcem System 0.1% HR-5 1.953 ft^3/sk -- 10.39 gal/sk, 12.3 ppg Tail Cmt: Premium Cement 0.1% Halad (R) 344 1.147 ft^3/sk -- 4.98 gal/sk, 15.8 ppg	5000'

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 3rd joint to surface
Production	1 per joint in horizontal section of production interval 1 every 3rd joint in vertical section of production interval

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)**
Surface	Water / Gel System	8.3 - 9.2	NC	
Intermediate	LSND / Gel system	8.4 – 10	<6	
Pilot Hole	Oil Based Mud	9-11	6-8	70/30 – 75/25
Production	Oil Based Mud	10-12	6-8	70/30 – 75/25

Oil based mud will be an Invert Mud. Base fluid will be diesel. Brine fluid will be CaCl or KCl.

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 approved disposal site.

6. Abnormal Pressures & Hazards

- No over-pressured intervals expected.
- Estimated Reservoir Pressure = 2360 psi. (Based on a pore pressure gradient of 0.35 psi/ft from layer pressure tests of Mancos formation in offset well)
- There is some offset Fruitland Coal and Picture Cliffs production within the area which could result in these respective formations being under pressured. Well is located outside of Mesa Verde production intervals; no losses expected within the Lewis or Mesa Verde formations.
- No hydrogen sulfide gas is expected based on nearby well production.

7. Pilot Hole

- Pilot Hole will be drilled through Mancos Section from intermediate casing at 6022' to planned TD of 7300'.
- Whole core, sidewall cores, and Openhole logs are planned in the pilot hole section.
- After coring and Openhole logging have been completed, 2 cement plugs with viscous gel spacers will be pumped and the top of cement will be at ~6000'. Will utilize cement plugs to kick off and begin drilling production interval.
- Plug 1 will be from TD to ~6600'. The second plug will be from 6600- 6000'.

8. Testing, Logging, Coring

- Mud Logs: Mud loggers will be rigged up from KOP to production hole TD.
- MWD: Directional tools from KOP to production hole TD.
- LWD: Gamma Ray will be utilized in production hole for well placement.
- Core: Whole Core and Sidewall Cores planned in Pilot Hole section of well
- Logs: Triple Combo, Dipole Sonic, and image log planned in the Pilot Hole Section of well
- 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.

9. Directional Plan

The planned wellbore directional plan and plot is attached.

The planned directional plan is built off geological targets from offset wells. The production hole will be landed and drilled within target formation horizontally utilizing LWD equipment to help steer the wellbore. On site adjustments will be made to the directional plan as formation and hole indicates.

10. Completion

a) Pressure Test

- Pressure test 5-1/2" production casing to allowable frac pressure. Hold test for 30 minutes. Cycle pressure to activate toe sleeve

b) Stimulation

- Stimulate with approximately 11,250,000 pounds of proppant in 210,000 bbls of water; the number of stages and amount of proppant will be adjusted based on real-time pumping conditions during the stimulation
- Stages will be perforated using wireline and isolated using frac plugs
- Plugs will be drilled out and stimulation fluid will be flowed back

c) Running Tubing

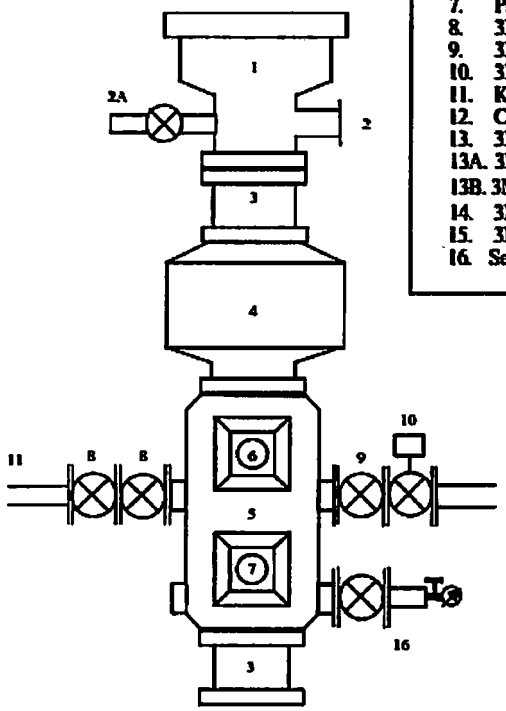
- Production tubing will be run and landed at the top of the horizontal section of the well

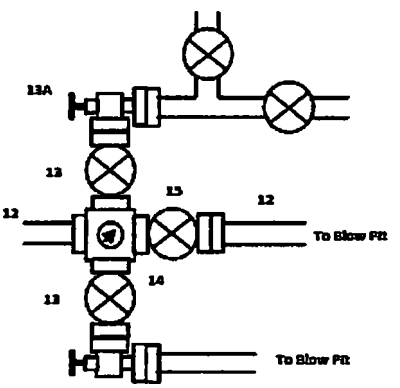
BOPE & Choke Manifold Schematic

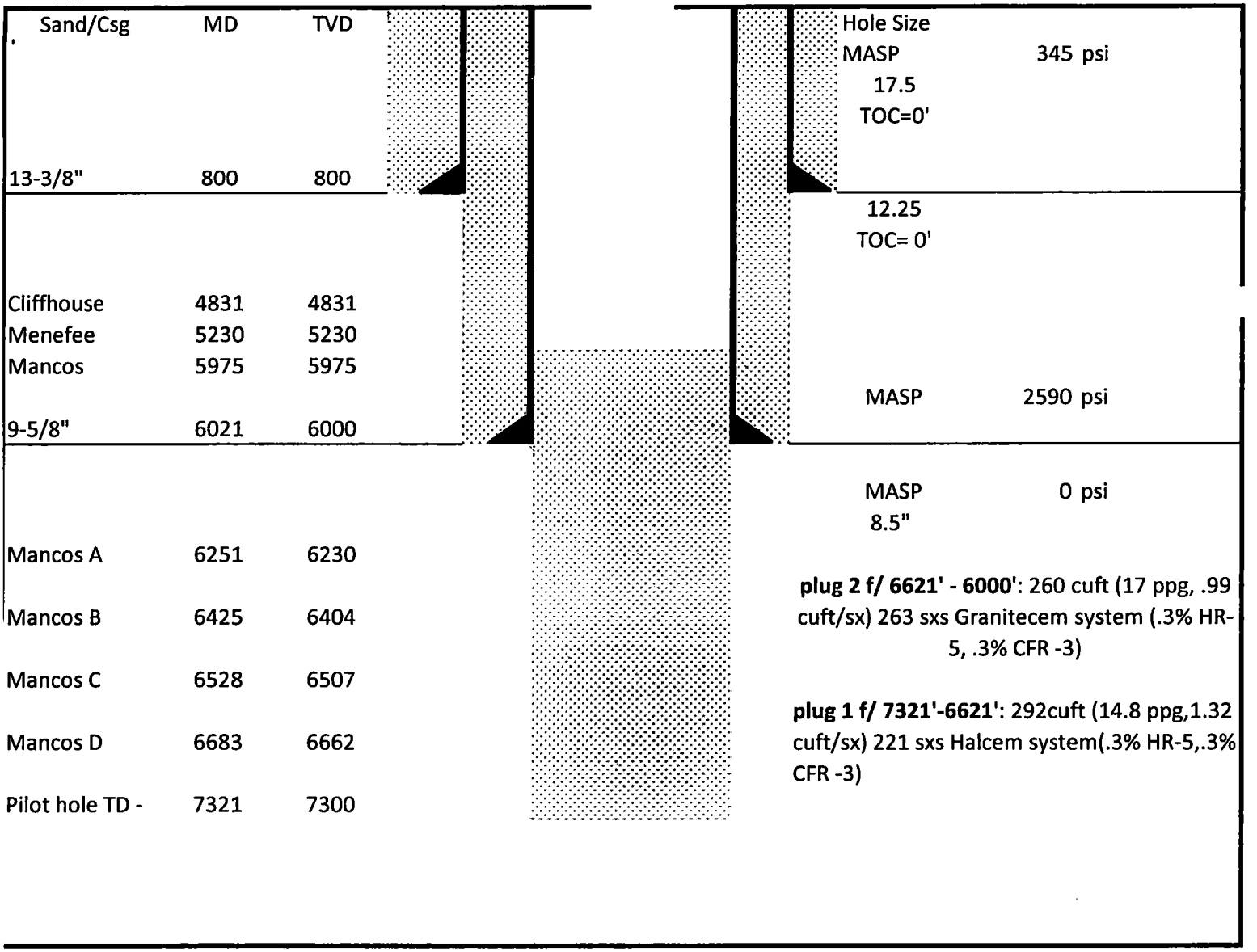
Palluche HZMC 1H

Hilcorp Energy Company

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







	Size	Wt	Depth	Grade	Cxn	Design Factors	Collapse	Burst	Tension
Surface	13.375	54.5	400	J55	BTC	Rating	1130	2740	514000
						SF	5.72	13.46	4.22
Int	9.625	40.0	6021	P110	BTC	Rating	3470.00	7910.00	988000.00
						SF	1.17	2.66	2.90

					Displacement BPF	
Csg	$/ft	ID	Drift	Capacity (bpf)	Closed end	Open end
Surface	41.55	12.615	12.46	0.1546	0.1738	0.0192
Int	33	8.835	8.679	0.0758	0.0900	0.0142