



DRILLING PLAN
Partition 13 Fed NC 5H
HORIZONTAL FREN GLORIETA YESO WELL

1. Geological Name of Surface Formation with Estimated Depth:

| <u>Geological Name</u> | <u>Estimate Top</u> | <u>Anticipated Fresh Water, Oil or Gas</u> |
|------------------------|---------------------|--|
| Alluvium | Surface | There is no fresh water here |
| Anhydrite | 603' | |
| Salt | 730' | |
| Base Salt | 1787' | |
| Yates | 1983' | |
| Seven Rivers | 2284' | Oil |
| Queen | 2891' | Oil |
| Grayburg | 3329' | Oil |
| San Andres | 3665' | Oil |
| Glorieta | 5172' | Oil |
| Yeso | 5227' | Oil |
| Total Depth | Refer to APD | |

No other formations are expected to yield fresh water, oil or gas in measurable volumes. There is no groundwater in the immediate vicinity where we will be drilling. We will set 13-3/8" casing @ +/-720' in the Anhydrite above the salt and circulate cement to surface.

We will set 9-5/8" intermediate casing at +/-2,000' and circulate cement to surface. All intervals will be isolated by setting 7" x 5-1/2" casing to total depth and circulating cement from +/-4,700' to above the base of the 9-5/8" intermediate casing shoe.

2. Casing Program: (ALL CASING WILL BE NEW API APPROVED MATERIAL.)

(MW = 10 PPG IN DESIGN FACTOR CALCULATIONS.)

a. Design Safety Factors:

| Type | Hole Size | Depth Interval | OD CSG | Weight | Collar | Grade | Collapse Design Factor | Burst Design Factor | Tension Design Factor |
|--------------|-----------|----------------|---------|------------|------------|-------|------------------------|---------------------|-----------------------|
| Conductor | 24" | 0-90' | 20" | Contractor | Discretion | ----- | ----- | ----- | ----- |
| Surface | 17-1/2" | 0-720' | 13-3/8" | 48# | ST&C | J-55 | 1.125 | 1.00 | 1.80 |
| Intermediate | 12-1/4" | 0'-2000' | 9-5/8" | 36# | ST&C | J-55 | 1.125 | 1.00 | 1.80 |
| Production | 8-1/2" | 0'-4800' | 7" | 26# | LT&C | L-80 | 1.125 | 1.00 | 1.80 |
| | 8-1/2" | 4800'-TD' | 5-1/2" | 17# | LT&C | L-80 | 1.125 | 1.00 | 1.80 |

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b. Surface Casing Info

The proposed 13-3/8" casing setting depth is +/- 720' based on cross sections which show the estimated top of the rustler and top of salt. Drilling times will be plotted to find the hard section just above the salt. A mud logger will be on location to evaluate drill and cutting samples as long as circulation is maintained. If salt is penetrated, it will be obvious by the sudden increase in water salinity and surface casing will then be set above the top of salt. Our highly experienced drilling personnel has drilled many wells in this area and is able to easily identify the hard streak on the top of the salt.

c. Intermediate casing

We will run 9-5/8" intermediate casing to +/-2,000' and circulate cement to surface to get the Salt section behind pipe.

d. Production casing

We will run 7" x 5-1/2" production casing with a DV Tool at the bottom of the 7" (4700' +/-), then a crossover from 7" to 5-1/2" (4800' -TD). There will be no cement in the lateral, only from the stage tool and up hole into the intermediate casing with top of cement reaching approximately 1,500'.

Burnett proposes to run a multiple packer system on the 5-1/2" production casing which will cross over into the 7" casing string (no cement in the lateral). An isolation packer will be set at or a few feet inside the lease offset limit and no completion perforations or ports will be placed between this isolation packer and the cement stage tool.

3. Cementing Program

BLM to be notified prior to all cementing and tag operations in order to observe the operation if desired.

a. 13 3/8" Surface Casing:

- Cement to surface
- 20 bbls fresh water spacer at 8.4 lbm/gal.
- Lead: 330 sx ExtendaCem – CZ 0.1250 lbm Poly-E-Flake. Fluid weight 13.5 lbm/gal, slurry yield 1.745 ft³/sx, total mixing fluid 9.18 gal/sx.
- Tail: 340 sx HalCem 2% Calcium Chloride – flake, fluid weight 14.8 lbm/gal, slurry yield 1.347 ft³/sx, total mixing fluid 6.39 gal/sx.

If cement does not circulate to surface, BLM will be notified of same, and advised of the plan to bring the cement to surface so BLM may witness tagging and cementing. If surface pressures when circulating indicate cement is low in the annulus, temperature survey results will be reviewed with BLM representative to determine the remediation needed.

b. 9 5/8" Intermediate Casing:

- Cement to surface

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- Lead: 475 sx ExtendaCem – CZ 0.1250 lbm Poly-E-Flake, Fluid weight 13.5 lbm/gal, slurry yield 1.745 ft³/sx, total mixing fluid 9.2 gal/sx.
- Tail: 205 sx HalCem fluid weight 14.8 lbm/gal, slurry yield 1.326 ft³/sx, total mixing fluid 6.34 gal/sx.

c. 7" & 5 1/2" Production Casing:

- Displace mud from lateral with fresh water.
- Open DV Tool and pump the following cement. Lead: 255 sx EconoCem – C, 0.1250 lbm Poly-E-Flake, 0.25 lbm D-Air 5000, fluid weight 11.9 lbm/gal, slurry yield 2.464 ft³/sx, total mixing fluid 14.24 gal/sx.
- Tail: 170 sx Halcem, 0.50% LAP-1, 0.25 lbm D-Air 5000, 0.40% CFR-3, 0.10% HR-800, fluid weight 14.8 lbm/gal, slurry yield 1.33 ft³/sx, total mixing fluid 6.29 gal/sx.

The above cement volumes may be revised pending the caliper measurement from the open hole logs. **Casing/cementing design is to bring cement inside the intermediate casing to approximately 1,500'.**

4. Pressure Control Equipment:

The blowout prevention equipment (BOPE) shown in the attached diagram will consist of a 3000 PSI Hydril Unit (annular) with hydraulic closing equipment. The equipment will comply with Onshore Order #2 and will be tested to 3,000 psi and maintained for at least ten (10) minutes. The 13 3/8" drilling head will be installed on the surface casing and in use continuously until total depth is reached. An independent testing company will be used for the testing. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 3000 PSI WP rating.

Burnett is requesting to keep the Mud/Gas Separator on location but only connect if/when needed.

5. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve with the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection and breathing equipment will be installed and in operation at a drilling depth of 1800' (which is more than 500' above top of Grayburg) and will remain until production casing is cemented.
- d. An H2S compliance package will be on all sites while drilling.

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6. Proposed Mud Circulation System (Closed Loop System)

| <u>Depth</u> | <u>Mud Wt</u> | <u>Vis</u> | <u>Fluid Loss</u> | <u>Type System</u> |
|-----------------|---------------|------------|-------------------|--------------------|
| 0' - 720' | 8.4 - 9.5 | | NC | Fresh Water |
| 720' - 2000' MD | 10.0 max | | NC | Brine Water |
| 2000' – TD MD | 10.0 max | | NC | Brine Water |

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Pason equipment will be used to monitor the mud system.

7. Logging, Coring and Testing program:

- a. No cores or DSTs are planned at this time.
- b. A mud logger will be on the well from 200' to TD.
- c. No open hole logs will be run.

8. Potential Hazards:

No abnormal pressures or temperatures are expected. Lost circulation is expected in the surface hole and not expected in the production hole. Water flows can occur periodically at various depths in the production hole. All personnel will be familiar with the safe operation of the equipment being used to drill this well. The maximum anticipated bottom hole pressure is 2386#. This is based upon the following formula of $.445 \times \text{BH ft.}$ estimate. The anticipated bottom hole temperature is 105°F. This is based upon logs of drilled wells surrounding this well.

There is known H2S in this area. In the event that it is necessary to follow the H2S plan, a remote choke will be installed as required in Onshore Order 6. Refer to the attached H2S plan for details.

9. Anticipated Start Date and Duration of Operation

Road and location construction will begin after BLM has approved the APD and has approved the start of the location work. Anticipated spud date will be as soon as the location building work has been completed and the drilling rig is available to move to the location. Move in operations and drilling is expected to take approximately 25 days. If production casing is run, an additional 90 days would be required to complete the well and install the necessary surface equipment (pumping unit, electricity, flowline and storage facility) in order to place the well on production.

Burnett Oil Co., Inc.

INTEGRITY
Directional Services

Burnett Oil Company, INC
Project: Eddy County, NM
Site: Sec. 24, T. 17 S., R. 31 E.
Well: Partition 13 FED NC 5H
Wellbore: Wellbore #1
Plan: Plan #3 (Partition 13 FED NC 5H Wellbore #1)

PROJECT DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

T G M Azimuths to Grid North
True North: -0.28
Magnetic North: 7.07
Magnetic Field
Strength: 48460.4anT
Dip Angle: 60.82
Date: 2/17/2017
Model: HDGM

WELL DETAILS: Partition 13 FED NC 5H
Ground Elevation: 3887.01
RKB Elevation: RKB @ 3907.01ft
Rig Name:

| Northing | Eastng | Latitude | Longitude |
|-------------|-------------|------------------|-------------------|
| 664806.1000 | 656840.9000 | 32° 49' 35.751 N | 103° 48' 21.920 W |

Section Details

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSecft |
|-----|----------|-------|--------|---------|---------|---------|-------|--------|---------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 4930.00 | 0.00 | 0.00 | 4930.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 5366.63 | 52.40 | 313.51 | 5306.27 | 128.15 | -134.97 | 12.00 | 313.51 | 136.35 |
| 4 | 5392.17 | 52.40 | 313.51 | 5323.85 | 142.07 | -149.64 | 0.00 | 0.00 | 151.17 |
| 5 | 5867.72 | 90.50 | 359.65 | 5480.00 | 543.27 | -300.38 | 12.00 | 59.20 | 561.03 |
| 6 | 10567.63 | 90.50 | 359.65 | 5438.99 | 5242.91 | -329.20 | 0.00 | 0.00 | 5253.24 |

