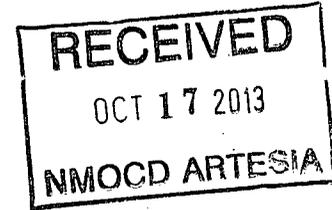




**BURNETT OIL CO., INC.**



**DRILLING PLAN  
Burnett 36 SWD 1  
SWD WELL**

30-01541733

**1. Geological Name of Surface Formation with Estimated Depth:**

<u>Geological Name</u>	<u>Estimate Top</u>
a. Quaternary	Surface
b. Rustler	690'
c. Yates	2100'
d. Queen	3300'
e. Grayburg	3750'
f. San Andres	4250'
g. Bone Springs	7800'
h. Wolfcamp	8400'
i. Pennsylvanian	9800'

No interval expected of producing fresh water at any point in the well. We will set 13 3/8" casing @ approx. +/- 500' in the Rustler, above the salt and circulate cement to surface.

Any salt and/or hydrocarbons bearing intervals will be protected by setting 9 5/8" casing to 4500' and circulating cement back to surface. All other zones above TD will be cased with 7" casing and cement circulated to surface.

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

**(MW = 10 PPG IN DESIGN FACTOR CALCULATIONS.)**

Design Safety Factor Minimums:

<u>Type</u>	<u>Hole Size</u>	<u>Interval</u>	<u>OD Csg</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>	<u>Joint String</u>
Conductor	24"	0'-40'	20"	Contractor Discretion			---	---	---	
Surface	17 1/2"	0' - 500'	13 3/8"	48#	ST & C	H40	1.125	1.00	2.00	1.80
Intermediate	12 1/4"	0' - 4500'	9 5/8"	36.00# & 40.00#	ST & C	J55	1.125	1.00	2.00	1.80
Production	8-3/4"	0' - 9700'	7"	26.00#	LT & C	N80	*1.125	1.00	2.00	1.80

# DRILLING PLAN

## SWD WELL

### a. Surface Casing Info

The proposed casing setting depth is 500' 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. 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.

### 3. Cementing Program

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

#### a. 17 1/2" Surface (0-500') Cement to surface

- Pump 20 bbl Fresh Water. Lead with 210 sx EconoCem-HLTRRC, 12.9 ppg, 1.81 CF/sx Yield.
- Tail with 240 sxs HalCem-C + 2% CaCl.-Flake, 14.8 ppg, 1.35 CF/sx yield. TOC Surface. Excess cement 100%.

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

#### b. 9 5/8" Intermediate Casing (0-4500')

- Pump 20 bbl WG-19 Gel Spacer (40lbm/Mgal). Lead with 1,035 sxs EconoCem HLC cement, 12.9 ppg, 1.77 CF/sx Yield.
- Tail with 200 sxs HalCem-C System cement w/1% Calcium Chloride-Flake, 14.8 ppg, 1.34 CF/sx yield. TOC Surface. Excess cement 50%.

#### c. 7" Production Casing (0-9700')

- Pump 20 bbl Fresh Water then pump 500 gallons (11.9 bbls) Super Flush 102, followed by 500 gallons of Fresh Water. Lead with 540 sx EconoCem HLH Cement. 12.6 ppg, 1.90 CF/sx Yield.
- Tail with 625 sxs VersaCem H + 0.4% LAP-1, 0.3% CFR-3, Kol-Seal (3 lbm/sx), Poly-E-Flake (0.125 lbm/sx) and D-AIR 5000 (0.25 lbm/sx). 14.2 ppg, Yield 1.28 CF/sx. , TOC Surface. 35% excess cement.

The above cement volumes may be revised pending the caliper measurement from the open hole logs. **Casing/cementing design is to bring cement to the surface.**

### 4. Pressure Control Equipment:

## DRILLING PLAN SWD WELL

The blowout prevention equipment (BOPE) will consist of a 2,000 PSI and a 5,000 PSI Hydril Unit (annular) with hydraulic closing equipment and Rams (on 5,000 PSI BOP). The surface casing will have an Annular (2,000 PSI) and the Intermediate and Production casings will have both Annular and Double Rams (5,000 PSI). The equipment will comply with Onshore Order #2 and will be tested to 50% of rated working pressure (RWP), and maintained for at least ten (10) minutes. The 10-3/4" 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 5,000 PSI WP rating.

Below are notes regarding the BOPE:

- a. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
- b. Wear ring will be properly installed in head.
- c. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 5,000 psi working pressure.
- d. All fittings will be flanged.
- e. A full bore safety valve tested to a minimum 5,000 psi WP with proper thread connections will be available on the rotary rig floor at all times.
- f. All choke lines will be anchored to prevent movement.
- g. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
- h. Will maintain a Kelly cock attached to the Kelly.
- i. Hand wheels and wrenches will be properly installed and tested for safe operation.
- j. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
- k. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

### 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 on the rig floor at all times.
- c. Hydrogen Sulfide detection and breathing equipment will be installed and in operation at drilling depth of 1800' (which is more than 500' above top of Grayburg) until 7" casing is cemented.
- d. An H2S compliance package will be on all sites while drilling.

### 6. Proposed Mud Circulation System

<u>Depth</u>	<u>Mud Wt</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>	<u>Max Volume</u>
0' – 500'	8.6 - 9.5	34	N.C.	Fresh Water	
500' – 4500'	10.6	30	N.C.	Saturated Water	

## DRILLING PLAN SWD WELL

4500' - 9700'      9.2      28      12 to log      Cut Brine

**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. Drill stem tests not anticipated.
- b. The open hole electrical logging program will be:
  1. Logging expected to be Dual Laterolog-Micro Laterolog, Dual Spaced Neutron, Spectral Density log, Spectral Gamma Ray and Caliper and CSNG will be run from TD to 9 5/8 casing shoe and GR from 9 5/8' to 13 3/8' shoe.
  2. No coring program is anticipated.
  3. Zones considered for injection will be perforated and acidized.

### **8. Potential Hazards:**

No abnormal pressures or temperatures are expected. 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 4317#. This is based upon the following formula of .445 x BH ft. estimate. The anticipated bottom hole temperature is 140°F. This is based upon logs of drilled wells surrounding this well

There is known H<sub>2</sub>S in this area. The attached H<sub>2</sub>S plan will be implemented when drilling below the Grayburg. The Mud/Gas Separator will be connected for the Intermediate and Production Casing and a remote choke will be installed. Refer to the attached H<sub>2</sub>S plan for details.

### **9. Anticipated Start Date and Duration of Operation**

Road and location construction will begin after the APD has been approved. 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 and drilling is expected to take approximately 15 days. When production casing is run, an additional 60 days would be required to complete the well and install the necessary surface equipment to place the well on injection.