

Burlington Resources Oil & Gas Company LP, a subsidiary of ConocoPhillips proposes to drill and complete the referenced horizontal well targeting a coal seam with in the Fruitland formation.

### Drilling Plan

#### 1. Location

**Note: All depths in the directional drilling program are referenced to an estimated RKB datum at 15' above GL.**

Southern Ute 701H

SHL: 211' FNL, 1,404' FEL -- T 32N, R 07W, Sec 22

BHL: 1,930' FSL, 710' FEL -- T 32N, R 07W, Sec 14

GL: 6,295'

RKB: 6,310'

#### 2. Geological Markers

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

Formation Tops		
Formation	(TVD)	Remarks
San Jose	Surface	Water (fresh/useable)
Nacimiento	595'	Water (fresh/useable)
Ojo Alamo	1,770'	Water (fresh/useable)
Kirtland	2,449'	None
Fruitland	2,629'	Gas, Coal, Water
Blue Mesa (Coal)	2,793'	Gas, Coal, Water
Blue Canyon Coal)	2,829'	Gas, Coal, Water
Big Blue (Coal)	2,889'	Gas, Coal, Water

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

#### 3. Pressure Control Equipment

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

- BOPE will be nipped up on top of wellhead after surface casing is set and cemented.
- Pressure control configuration will be designed to meet the minimum 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.

#### 4. Casing & Cement Program

A) The proposed casing program is outlined below:

Proposed Casing				
Casing	Hole Size	Casing Size	Weight/Grade	Set Depth TVD/MD
Surface	12-1/4"	9-5/8"	32.3#, H-40, STC, New	500' TVD/MD
Intermediate	8-3/4"	7"	23.0#, L-80, LTC, New	2,931' TVD / 4,287' MD
Production Liner (pre-perforated)	6-1/4"	4-1/2"	11.6#, N-80/L-80, BTC, New	2,889' TVD / 8,421' MD

The production liner will be landed back into the intermediate casing string at a minimum of 100' overlap inside the 7" by means of liner hanger with a pack-off element. Production liner will be pre-perforated and left in open hole.

If the 6-1/4" hole is not drilled to total MD, the production liner setting depth and length will be adjusted accordingly.

The 7" casing string will be set across setback boundary line and within drill block.

B) The proposed cement program is shown below:

Cement Program				Planned Cement Top
Interval	Depth (MD)	Volume	Slurry	
Surface	500'	253 ft <sup>3</sup>	Lead Cmt: Type III Cmt 0.25% FL-52, 0.25 pps celloflake 1.25 ft <sup>3</sup> /sk -- 5.75 gal/sk 15.2 ppg	Surface
Intermediate	4,287'	951 ft <sup>3</sup>	Lead Cmt: Premium Lite 3% CaCl, 0.25 pps celloflake, 5 ppm LCM-1, 0.4% FL-52, 8% Bentonite, 0.4% SMS 2.13 ft <sup>3</sup> /sk -- 11.29 gal/sk 12.1 ppg  Tail Cmt: Type III 1% CaCl, 0.25 pps celloflake, 0.2% FL-52 1.38 ft <sup>3</sup> /sk -- 6.64 gal/sk 14.6 ppg	Surface
Production	8,422'	N/A	N/A – Open hole with pre-perforated liner.	N/A

Slurry additives may be adjusted as needed to accommodate required pump and compressive test times. For the intermediate hole section a 2-stage cement job may be performed if hole conditions indicate during operations. If needed the stage tool will be placed at an approximate depth near the Fruitland coal top at 2,629' TVD. Cement will be circulated to surface on the Surface CSG and Intermediate CSG sections to protect water bearing zones.

C) The proposed centralizer program is shown below:

<b>Centralizer Program</b>	
<b>Interval</b>	<b>Centralizers</b>
Surface	1 per joint on bottom 3 joints
Intermediate	10' above shoe jnt w/ collar clamp On top of 2 <sup>nd</sup> , 4 <sup>th</sup> , 6 <sup>th</sup> , 8 <sup>th</sup> , 10 <sup>th</sup> jnts 1 every 4 <sup>th</sup> jnt (at min) to Ojo Alamo 1 Turbolizer at base of Ojo Alamo 1 every joint thru Ojo Alamo 1 Turbolizer will be placed mid way into Ojo Alamo 1 every 4 <sup>th</sup> jnt from top of Ojo Alamo up to surface shoe 1 inside surface casing
Production	N/A

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:

<b>Mud Program</b>							
<b>Interval</b>	<b>Mud Type</b>	<b>Weight (ppg)</b>	<b>Fluid Loss (cc)</b>	<b>pH Range</b>	<b>Max Chlorides (mg/L)</b>	<b>Gel Strength Pv/Yp</b>	<b>Viscosity (s/qt)</b>
Surface	Air / Water Gel System	Air 8.3 - 9.2	NC	7-9.5	1000	9/1	28
Intermediate	LSND / Gel System	8.4 – 9.5	6 – 16	7-9.5	1000	6-22/2-15	28-60
Production	LSND Brine (if needed)*	8.5 – 10.5	4 – 14	7-9.5	1000 400,000 (if cacl added for weight)	6-22/2-15	28-60

\*In the Production hole, CaCl Brine will be utilized only if a weighting agent is needed to raise MW (for either well control or wellbore stability purposes).

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

B) The well will be drilled with a closed loop system and cuttings will be hauled off to an approved disposal site

## 6. Estimated Pressures & Hazards

- Estimated Reservoir Pressure Range: 1,200 psi – 1500 psi
- Maximum Anticipated Surface Pressure: 1,300 psi
- Water flows may be possible in the intermediate section; any water flows will be mitigated with increased MW as needed.
- Loss circulation may be possible in the coals; losses will be mitigated with LCM added to the mud system as needed.
- No hydrogen sulfide gas is expected based off nearby well production.

## 7. Logging

- Mud Logs: Mud loggers will be rigged up and sampling every 30' from the Fruitland coal top (2,629' TVD) to intermediate and production hole TD.
- MWD: Directional tools from the surface CSG shoe to production hole TD.
- LWD: Gamma Ray utilized in production hole for well placement. Logging While Drilling (Gamma) tools to be utilized while drilling the production section from the intermediate CSG shoe (4287' MD) to the production hole section TD (8,421' MD) to assist operations to stay in the desired coal seam through the length of the production lateral.
- Logs: No planned open hole logs (other than the previously identified LWD logs) will be ran
- Cased Hole Logs: The 7" intermediate CSG will be cemented from the CSG shoe to surface to protect water bearing zones. If cement is not circulated to surface on the intermediate cement job, a Temp Survey or Cement Bond Log will be ran to verify TOC.
- No coring or testing operations are planned

## 8. Directional Plan

The planned wellbore directional plan and plot are 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.

**Figure 1: BOPE & Choke Manifold Schematic**