

## Four Star Oil & Gas Company

### SB #26-D1

SHL: 1045' FNL & 1154' FEL of Section 10, T32N, R9W

BHL: 2360' FSL & 1645' FEL of Section 10, T32N, R9W

La Plata County, Colorado

GL Elevation: 6688'

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### Drilling Plan

All Lease and/or unit operations will be conducted in such a manner that full compliance is made with: 43 CFR part 3160, applicable BLM On-Shore Orders, COGCC rules and regulations, as well as the Southern Ute Tribal Conditions of Approval. The operator is fully responsible for the actions of its subcontractors. A copy of the APD and Conditions of Approval will be available to the field representatives to ensure compliance.

#### ESTIMATED FORMATION TOPS (KB) and NOTABLE ZONES:

Formation Name	Depth (TVD)	Rock Type	Comments
San Jose	0'	Sandstone / Siltstone	Brackish / Fresh Water
Naicomento	750'	Shale / Minor Sandstone	
Ojo Alamo	1695'	Sandstone / Siltstone	Brackish / Brine Water
Kirtland	2060'	Shale / Minor Sandstone	
Fruitland	2960'	Coal, Shale, Sandstone	Nat Gas, Brine water
Pictured Cliffs	3390'	Sandstone	Possible Lost Circ, Gas, Water
Proposed Total Depth	3540'		

**Possible Aquifers:** Surface to +/- 500'. Fresh water zones will be adequately protected by setting and cementing the surface casing.

**Oil Shale:** None expected.

**Oil:** None expected.

**Gas:** Gas is expected in the Fruitland Coal. All zones containing commercial quantities of oil or gas will be cased and cemented.

#### PRESSURE CONTROL

Maximum expected pressure is 2000 (0.433 pressure gradient) psi. The drilling contract has not yet been awarded, thus the exact BOP and Choke Manifold model to be used is not yet known. A typical 11" 3000 psi model is pictured in Exhibits A & B.

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A remote accumulator will be used, and the pressures, the capacities, and the remote & manual controls will be identified at the time of the BLM supervised BOP test.

BOP equipment, accumulator, choke manifold, and all accessories will meet or exceed BLM requirements as listed in Onshore Order #2 for the 3M systems. The pressure control equipment considerations include but will not be limited to:

1. Annular preventer.
2. Double ram with blind rams and pipe rams.
3. Drilling spool, or blowout prevent with 2 side outlets. The choke side shall be a 3" minimum diameter and the kill side shall be at least 2" diameter.
4. 2" minimum kill line.
5. 3" diameter choke line.
6. 2 kill line valves, one of which shall be a 2" minimum check valve.
7. 2 chokes.
8. Pressure gauge on choke manifold.
9. Upper Kelly cock valve with handle available.
10. Safety valve and subs to fit all drill string connections in use.
11. All BOPE connections subjected to well pressure shall be flanged, welded, or clamped.
12. Fill-up line above uppermost preventer.
13. Accumulator will have sufficient capacity to open the hydraulically-controlled choke line valve, close all rams plus the annular preventer, and retain a minimum of 200 psi above per charge on the closing manifold without the use of the closing pumps.
14. Accumulator fluid volume is to be maintained at manufacturer's recommendations and shall be double the usable fluid volume of the accumulator system capacity.
15. Accumulator system shall have 2 independent power sources to close the preventers. Nitrogen bottles (3 minimum) may be 1 of the independent power sources and, if so, shall maintain a charge equal to the manufacturer's specifications.

BOPs will be pressed tested after initial installation, any time a seal is broken, and following any related repairs. Additionally, the BOPs will be operationally checked every 24 hours and a BOPE pit level drill shall be conducted weekly for each drilling crew. All tests and pressure tests will be recorded on an IADC log.

Ram type preventers, annular preventer, choke manifold, and related pressure control equipment will be pressure tested to 2000 psi high and 250 psi low.

The casing strings will be pressure tested per BLM Onshore Order #2 for 30 minutes as follows:

- a. Surface casing tested to 1000 psi prior to drilling out the shoe.
- b. Production casing tested to 3850 psi (80% of the internal yield) prior to commencement of completion operations.

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### PROPOSED CASING PROGRAM

Casing Description	Hole Size	Casing OD	Weight lb/ft	Grade	Age	Connection	Top MD	Bottom MD
Surface	12 1/4"	9 5/8"	36	J-55	New	ST&C	0	500'
Production	8 3/4"	5 1/2"	15.5	J-55	New	LT&C	0	4129'

  

Casing Description	Casing OD	Footage	Collapse psi	Collapse Safety Factor	Burst psi	Burst Safety Factor	Tensile 1000 lb	Tensile Safety Factor
Surface	9 5/8"	500'	2020	8.2	3520	14.3	394	21.9
Production	5 1/2"	4129'	4040	2.3	4810	2.8	217	3.4

Collapse Safety Factor: Based on evacuated casing and 9.5 ppg annular hydrostatic at TVD.

Burst Safety Factor: Based on evacuated annulus and 9.5 ppg internal hydrostatic at TVD.

Tensile Safety Factor: Based on hanging air weight of casing in vertical hole at measured depth.

**Surface and production casings are to be cemented to surface.**

### CASING CEMENT

The cement programs are designed to meet the BLM Onshore Order #2 and COGCC requirements. The WOC periods will be sufficient to allow the cement compressive strength at the casing show to have reached 500 psi prior to drill out of the shoe.

**Surface Casing:** will be cemented to surface.

Cement and properties: Mix and pump 237 sacks (326 cu ft) Type III cement with CaCl<sub>2</sub>, cellophane, and a fluid loss additive. Slurry density is to be 14.6 ppg, 1.38 cu ft/sk yield. Volume will include 100% excess. Cement is to be displaced using a top plug.

Two centralizers will be run on the shoe joint, one centralizer each on the next two joints, and then one centralizer on every third joint thereafter.

If cement is not circulated to surface, a CBL or temperature survey will be run to determine the TOC and remedial cementing will be conducted to circulate cement to surface.

The surface casing will be pressure tested to 1000 psi prior to drilling out of the shoe.

**Production Casing:** will be cemented to surface.

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Lead cement and properties: Mix and pump 580 sacks (1175 cu ft) Premium Lite FM cement with CaCl<sub>2</sub>, cellophane, asphaltite, gel, and sodium metasilicate. Slurry density is to be 12.3 ppg, 2.03 cu ft/sk yield. Volume will include 65% excess.

Tail cement and properties: Mix and pump 322 sacks (443 cu ft) Type III cement with CaCl<sub>2</sub>, cellophane, and a fluid loss additive. Slurry density is to be 14.6 ppg, 1.38 cu ft/sk yield. Volume will include 35% excess. TOC calculated to be at 3000'.

Two centralizers will be run on the shoe joint, one centralizer each on the next three joints, and then one centralizer on every third joint into the surface casing.

A CBL log will be run in the production casing prior to commencement of completion operations to determine TOC.

Cement specifications may vary slightly due to cement and cement contractor availability.

### MUD PROGRAM

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Depth	Type	Mud Weight (ppg)	Funnel Viscosity (sec/q)	API Filtrate (cc/30 min)	pH
0' - 500'	Water/Spud Mud	8.4 - 9.0	27 - 35	NC	8.0 - 9.0
500' - 4129'	MILGEL/LSND	8.5 - 9.5	50 - 65	4.0 - 6.0	8.0 - 9.0

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The viscosity, mud weight, and other physical and chemical characteristics of the drilling mud will be varied as required to keep the hole clean, circulate drill cuttings, prevent caving, prevent lost circulation, and maximize penetration rate.

Sufficient mud and materials will be kept on site to maintain mud properties and meet loss circulation or mud weight requirements at all times.

Mud design may change depending on well conditions, and mud properties will be determined by the Chevron representative and the mud engineer.

### CORING, TESTING, & LOGGING

No cores, drill stem tests, or open hole logs will be run. If cement is not circulated to surface, a CBL or temperature survey will be run to determine the TOC.

No mud logging will be conducted.

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Inclination surveys will be run in 250' intervals and at the base of the surface hole prior to setting surface casing. A Gyro Multishot will be run at KOP below the surface casing and directional surveys will be taken every 100' to surface. Directional MWD surveys will be taken every 200' from the KOP to TD.

### ANTICIPATED PRESSURES AND TEMPERATURES

Expected bottom hole pressure:	1533 psi
Anticipated abnormal pressure:	None
Anticipated abnormal temperatures:	None
Anticipated hazardous gas (H2S):	None

If any foregoing conditions are unexpectedly encountered, suitable steps will be taken to mitigate according to accepted industry best practices.

### OTHER INFORMATION

The anticipated spud date is October 20, 2015. The spud date will be dependent on the weather conditions, road conditions, and the regulatory agency-supplied Conditions of Approval.

The dirt work for road and well pad construction will commence upon approval of the APD and will be dependent on weather conditions. This well is to be drilled on an existing pad used by the Chevron SB #21 well head and surface equipment. Chevron will shut-in the producing well while drilling operations are conducted. Temporary barriers will be placed around the wellheads and equipment to protect them from contact or damage.

The drilling operation is expected to take 7 days. The drilling rig and associated equipment will be removed and preparations will be made for the completion of the well.

The well will be drilled utilizing closed loop and solids control handling equipment. The closed loop and solids control equipment will be set and utilized as per BLM and Southern Ute specifications and Conditions of Approval. The closed loop and solids control equipment set-up and operation are outlined in the 13 point surface use plan.

Completion operations will start about two weeks after the finish of drilling operations. A completion rig will be moved in for the completion phase. The completion phase is expected to take 9 days. The completion phase will include perforating, fracture stimulation, and well testing.

Some event/situations may arise that could potentially change the starting date or project duration that are out of Chevron's control. If such events/situations arise, the proper officials will be promptly notified.