



**Bevo 4-36M**

SE/NW- Section 36-T12N-R63W  
Weld County, Colorado

**DEEPEN DRILLING PLAN**

**1. ACTUAL & ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS & ANTICIPATED WATER, OIL, GAS OR MINERAL FORMATIONS:**

<b>Formation</b>	<b>MD (ft.)</b>	<b>Hydrocarbon/Water Bearing Zones</b>	
Sussex	3398		As drilled.
Shannon	4323		As drilled.
Sharon Springs	7253		As drilled.
Niobrara	7315	Oil	As drilled.
B-Chalk	7379		As drilled.
Codell	7590		As drilled.
Carlisle	7610		As drilled.
Greenhorn	7738		As drilled.
"X" Bentonite	7946		As drilled.
Dakota 'J'	8170	Oil	As drilled.
Skull Creek	8251		As drilled.
Dakota SS	8377		As drilled.
Morrison	8549		As drilled.
Original TD (Base of 7")	8707		As drilled.
Entrada SS	8780	Water	Proposed Re-entry
Lyons SS	9400	Water	Proposed Re-entry
TD (Base of Lyons SS)	9800		Proposed Re-entry

All shows of fresh water and minerals will be adequately protected and reported.  
Gas detection to be operational prior to drilling the Frontier.

## **2. PRESSURE CONTROL EQUIPMENT:**

All well control equipment shall be in accordance with Onshore Order #2 for 3M systems.

Well control equipment will be rigged up after setting surface casing.

The minimum specifications for pressure control equipment that will be provided are included on the attached schematic diagram showing size and pressure ratings.

3000# BOP with 4-1/2" Pipe Rams  
3000# BOP with Blind Rams  
3000# Annular

Auxiliary equipment to be used:

- Upper kelly cock with handle available.
- Stabbing Valve

The choke manifold will include appropriate valves and adjustable chokes. The kill line will have one check valve.

Ram type preventers will be pressure tested to full working pressure (utilizing a tester and test plug) at:

- Initial installation
- Whenever any seal subject to test pressure is broken
- following related repairs
- 30 day intervals

The annular preventer will be pressure tested to 50 percent of the rated working pressure.

All pressure tests shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

Annular preventers shall be functionally operated at least weekly.

Pipe and blind rams shall be activated each trip.

A BOPE pit level drill will be conducted weekly for each drilling crew.

All tests and drills will be recorded in the drilling log.

The accumulator will have sufficient capacity to open the HCR valve, close all rams plus the annular preventer, and retain 200 psi above pre-charge pressure without the use of closing unit pumps. The system will have two independent power sources to close the preventers in accordance with 3M system requirements outlined in Onshore Order #2.

Remote controls shall be readily accessible to the driller. Master controls shall be at the accumulator.

**3. CASING & CEMENTING PROGRAM:**

A. The casing program currently in place is as follows:

Section	Measured Depth (ft)	Hole Size (")	Size (")	Grade	Weight	Thread	Condition
Surface	0-1528	13 ½	9 5/8	J-55	36.0	STC	New
Production	0-8707	8 ¾	7	HC P-110	23.0	LTC	New

Size (")	Grade	Weight (lbs./ft.)	Thread	Collapse (psi)	Burst (psi)	Pressure Gradient Collapse (psi/ft.)	Pressure Gradient Burst (psi/ft.)
9 5/8	J-55	36.0	STC	2020	3520	0.47	0.50
7	HC P-110	23.0	LTC	5650	8720	0.50	0.50

B. The cementing program on both the surface & 7" intermediate casing strings was as follows:

**Surface String:** Cemented with 900 sx of Type III Cement + 1% CaCl<sub>2</sub> + 0.25 #/sx Cellophane flakes @ 14.5 ppg, 1.41 ft<sup>3</sup>/sx.

Circulated 85 bbls to surface.

**Production String:** **1<sup>st</sup> Stage (6301' to 8,707')**: 287 sx of 50:50 Poz/Class G with 3% gel (Bentonite), 0.1% Sodium Metasilicate, 0.4% FI-52 and 20% Silica Flour. 13.5 ppg, 1.71 ft<sup>3</sup>/sx, 8.3 gall/sx water. TOC per CBL ran on 06-05-2010 at 6,590'.

**2<sup>nd</sup> Stage (Surface to 6301')**: 840 sx of Premium Lite with 3% gel, 0.25 #/sx Cellophane Flakes and 0.4% FL-52. Pumped at 12.5 ppg, 1.8 ft<sup>3</sup>/sx and 10.38 gall/sx of water.

Circulated 23 bbls of cement to surface.

**C. The re-entry casing program will be as follows.**

Section	Measured Depth (ft)	Hole Size (")	Size (")	Grade	Weight	Thread	Condition
Re-entry	8,707 to TD	6-1/8	4-1/2	HC P-110	11.6	LT&C	New

Size (")	Grade	Weight (lbs./ft.)	Thread	Collapse (psi)	Burst (psi)	Pressure Gradient Collapse (psi/ft.)	Pressure Gradient Burst (psi/ft.)
4-1/2"	HC P-110	11.6	LTC	7580	10690	0.77	1.09

**D. The cementing program will be as follows;**

100 sx of 50:50 Poz/Class G with 3% gel (Bentonite), 0.1% Sodium Metasilicate, 0.4% FI-52 and 20% Silica Flour. 13.5 ppg, 1.71 ft<sup>3</sup>/sx, 8.3 gall/sx water.

Cement volumes based on 6-1/8" x 4-1/2" hole from 9,800' to planned 4-1/2" liner top at 8,200' with 10% excess.

**4. DRILLING FLUIDS PROGRAM:**

Interval	Type	Weight (ppg)	Viscosity	Ph	Water Loss (cc)	Remarks
Re-Entry Interval	Sepialite / Starch Mud	8.8-9.6	28-38	8-10	LT 5.0	Polymer & Soltex System

Sufficient quantities of mud material will be maintained on site or be readily accessible for the purpose of assuring well control. SPR will be recorded on daily drilling report after mudding up. Electronic/mechanical mud monitoring equipment will be utilized and will include a pit volume totalizer (PVT), stroke counter, and flow sensor as a minimum.

**5. EVALUATION PROGRAM:**

**OH Logs:** Resistivity, Porosity, GR & Caliper TD to Base of 7" Casing

**Cores:** None planned

**DST's:** None planned

The proposed Evaluation Program may change at the discretion of the well site geologist based upon availability or hole conditions.

**6. ABNORMAL CONDITIONS:**

No anticipated abnormal pressures or temperatures expected to be encountered. No hydrogen sulfide expected.

Anticipated

**7. OTHER INFORMATION:**

This well is being re-entered for the purpose of converting to a salt water disposal well. Both the Entrada & Lyons Sands will be tested for water quality and injectivity. As a result, no stimulation or frac treatment has been formulated for this well. The drill site, as approved, will be of sufficient size to accommodate any monitoring activities.

A completion rig will be used to perforate and swab test for water samples and injection testing operations.

The anticipated starting date and duration of the operation will be as follows:

Starting Date: Upon Approval  
Duration: Drilling is estimated at seven (7) days  
Completion Testing is estimated at fourteen (14) days