

DRILLING PLAN (CONFIDENTIAL)

Revised April 16, 2015 for:

**Shavetail Federal 28-44
NESE Sec 28, T1N-R103W,
BLM Lease # COC-065854**

Coachman Energy Operating, LLC. (Coachman) presents the following revised Drilling Plan for the Shavetail Federal 28-44 well located 380' FEL and 1381' FSL (Surface Hole Location) in the southeast quarter of Section 28, T1N, R103W. This well will be located on BLM managed lands and is authorized under lease COC-065854. The proposed well will be drilled to a TD of approximately 4,714 feet (MD).

In accordance with the requirements of Onshore Oil and Gas Order Number 1 (43 CFR 3162.3), the following detailed drilling plan is provided.

Geologic Prognosis

Estimated Formation Tops	Graded GL: 5590 ft	KB: 15 ft
Tops	MD (ft)	TVD (ft)
Mesaverde	300	300
Mancos Shale	2928	2924
Castlegate	3180	3175
Mancos B ss - sandstone	4466	4453
Base Mancos B	4578	4565

Estimated Depths and Names of Anticipated Oil and Gas Bearing Formations

Substance	Formation	Depth
Oil and/or gas	Castlegate	3175' TVD
Oil and/or gas	Mancos B	4453' TVD

Well Control Equipment

1. Coachman minimum specifications for pressure control are as follows:

Depth Range	Well Control Equipment
0-500' (surface interval)	None Anticipated
500' – TD	11", 3000 psi ram type preventers with one set of blind rams, one set of pipe rams and a 3000 psi annular type preventer with choke manifold and rotating head
No abnormal temperatures or H ₂ S gas are anticipated. No over-pressured intervals are expected.	

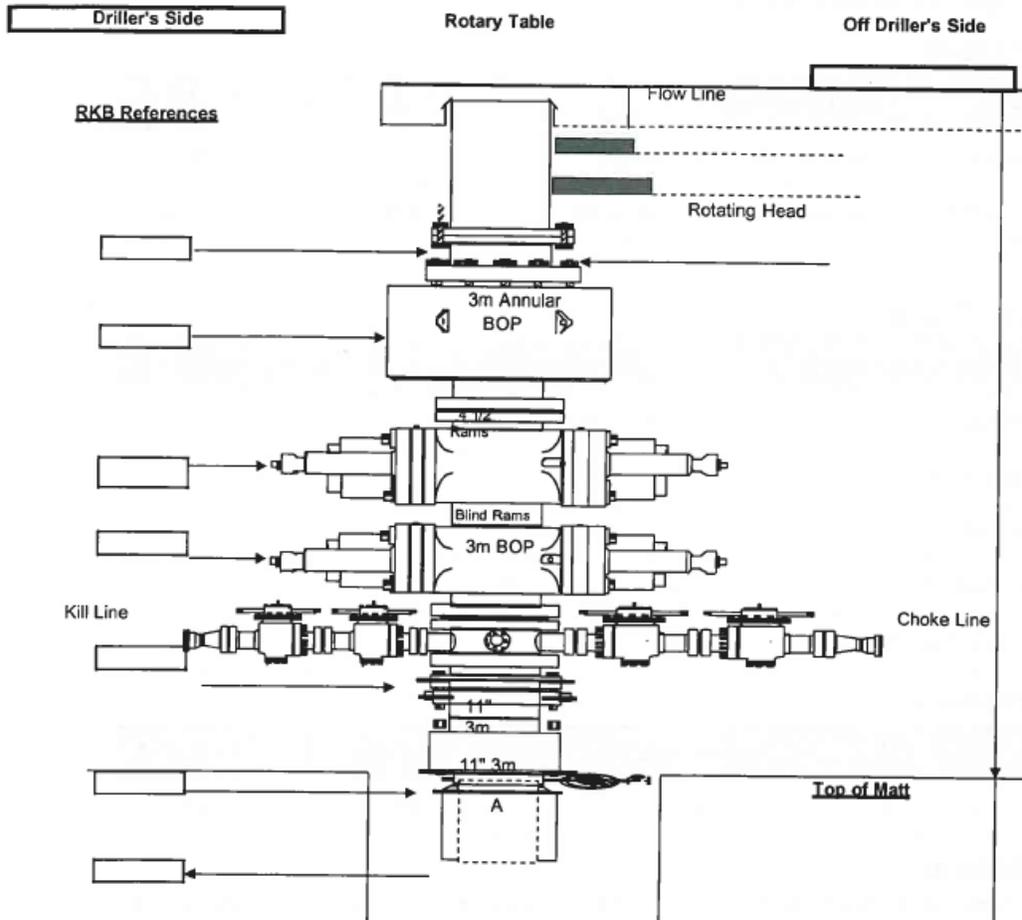
2. Coachman will comply with all requirements pertaining to well control as listed in Onshore Oil and Gas Order No. 2 as well as Colorado Oil and Gas Conservation Commission (COGCC) Rules and Regulations.

3. Coachman will comply with Onshore Oil and Gas Order No. 2 as well as COGCC regulations concerning the testing of blow out prevention (BOP) equipment to include the following:

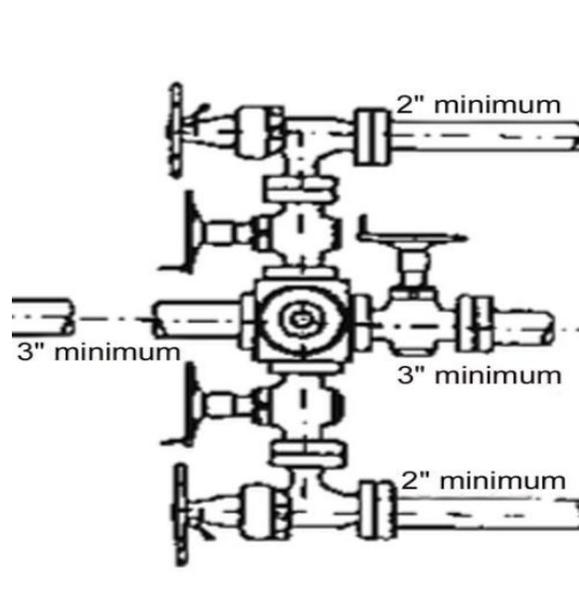
- a. Ram type preventers and associated equipment shall be tested to the approved stack working pressure if isolated by test plug or to 70% of internal yield pressure of casing if BOP stack is not isolated from casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10% in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.
- b. All BOP tests will be done by a tester and not by the rig pumps using clear water or an appropriate clear liquid for subfreezing temperatures. Annular type preventers shall be tested to 50% of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.
- c. As a minimum, the above test shall be performed:
 - i. A. when initially installed;
 - ii. Whenever any seal subject to test pressure is broken;
 - iii. Following related repairs;
 - iv. At 30-day intervals; and
 - v. Valves shall be tested from working pressure side during BOP tests with all down-stream valves open.
- d. When testing the kill line valve(s), the check valve shall be held open or the ball removed.
- e. Annular preventers shall be functionally operated at least weekly.
- f. Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.
- g. A BOPE pit level drill shall be conducted weekly for each drilling crew.
- h. Pressure tests shall apply to all related well control equipment.
- i. All of the above described tests and/or drills shall be recorded in the drilling log.

j. See Figure below for a typical BOP diagram.

3M BOP Stack Schematic



Choke Manifold:



Casing Program

Hole Size (in)	Casing/Tubing Size (in)	Wt. (#)	Grade	Connection	Interval Length (ft)	Setting Depth (ft)
12 ¼	8 5/8	24	J55	STC	0 -500'	500
7-7/8	4-1/2	11.60	I-80	LTC	0-4714'	4714

8 5/8", 24#, J55, STC	Collapse	Burst	Tensile	ID	Make-Up Torque
100%	1370 psi	2950 psi	244,000 lb	8.097"	Min – 1830
80%	1096 psi	2360 psi	195,200 lb	7.972" drift	Opt – 2440 Max - 3050

The surface casing string (8 5/8") will be centralized using bow spring centralizers. The bottom (3) joints of casing will be centralized, from that point up, one centralizer will be run on every other joint to surface, for a total (approx.) of 8 centralizers on this string.

4 ½ ”, 11.6#, N-80, or I-80 grade LTC	Collapse	Burst	Tensile	ID	Make-Up Torque Ft-lbs.
100%	6,350 psi	7,780 psi	267,000 lbs.	4.00”	Min – 1640
80%	5,080 psi	6,224 psi	213,600 lbs.	3.875” drift	Opt – 2190 Max - 2740

The production casing 4 ½” will be centralized using bow spring centralizers and solid body “turbolators” to provide casing standoff and uniform cement sheath as follows: Every joint for first 3 joints, then every other third joint to approx. 2000’ and every fifth joint from 2000 ft to surface, for a total of (approx.) 32 centralizers on this string.

Cementing Program

- 1) Surface Cement: 12-1/4” hole x 8-5/8” casing, 0-500 feet; Cement to surface, 100% excess.
Lead slurry: 102 sxs Control Set “C” plus additives, Yield = 2.85 ft³/sx, Weight =11.5 ppg.
Tail Slurry: 143 sxs Class G Cement plus additives. Yield= 1.15 ft³/sx, Weight= 15.6 ppg.

- 2) Production Cement: 7-7/8” hole x 4-1/2” casing, 0-4714 feet (or TD); Cement to 500’ minimum, 35% excess.
Lead Slurry: 300 sxs Class G VARICEM Cement plus additives, Yield=2.715 ft³/sx, Weight= 11.5 ppg, coverage 500-3000’.
Tail Slurry: 450 sxs Class G HALCEM Cement plus additives, Yield = 1.191 ft³/sx, Weight= 15.6 ppg. Coverage 3000’ to TD.

A water quality analysis will be performed on the mix water used in cementing to ensure adequate cement properties. This analysis can be submitted to the BLM, if requested.

Mud Program

Interval	Mud Description	Weight	Viscosity	Water Loss
Surface to 500’	Freshwater, Gel / PHPA sweeps	8.34	NC	NC
500’ to TD	Low Solids ND PHPA system	8.4-8.6	6-10	10(or less)

A closed loop mud system is planned to be used during the drilling below surface casing (500’ to TD). The closed loop system shall consist of steel tanks to hold the mud while the cuttings are routed to the designated lined reserve pit on location.

The minimum quantity of mud to be kept on location will be 400 bbls. Plus the volume of mud in the hole. If the selected rig mud tanks will provide for storage of 500 bbls. we will increase the number accordingly. A minimum of 200 sacks of Barite will be stored on location (below SCP) should the weight of the mud need to be increased during drilling. Both electrical and mechanical fluid monitoring will be used to monitor the drilling fluid in the wellbore. Each tank volume, flow rate, as well as total hole and surface volumes will be monitored on a continuous basis using a mud monitoring (PVT) system.

Logging Program

Type Log Suite	Interval Top	Interval Bottom
Resistivity	Base of surface casing	TD
Density-Neutron	1000	TD
Gamma Ray	Surface	TD
Sonic (Dipole)	Base of surface casing	TD
Formation Micro Imager	2000	TD
Cement Bond Log (Cased hole)	0	PBTD

Coring Program

Core No.	Formation	Est. Depth	Core Length (ft)
1	Mancos B – Core Optional	4460	115

Water Source

The freshwater required for the drilling operation will be trucked in from the nearest local water source.

Additional Information

- 1) Normal pressures are expected
- 2) Maximum expected bottom hole pressure: 1200 psi
- 3) Maximum expected bottom hole temperature: 110 deg F
- 4) H₂S is not expected.
- 5) The well will be directionally drilled. Please see Directional vertical section plan as well as the side view along with the trajectory for deviation program. Maximum angle is 6° (+/-) with an Azimuth of 270°, KOP will be at 2000 ft.
- 6) Bottomhole Target Radius will be 50' radius.
- 7) This document to be attached to COGCC Form 2 and BLM Form 3160-3.

Figure 1. Federal 28-44: View of center stake looking south to north.

Figure 2. Federal 28-44: View of center stake looking north to south.

Operator Certification Statement

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Coachman Energy Operating LLC. and its contractors and subcontractors in conformity with this APD package and the terms and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application, with bond coverage being provided under BLM bond no. COB000239. This statement is subject to the provisions of 18 U.S.C. § 1001 for the filing of a false statement.

Executed this ___th day of April, 2015

Neyeska G. Mut, Manager / Agent
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