

**Mewbourne Oil Company, Pronghorn 15 B3BO Fed Com #1H**  
**Sec 15, T23S, R34E**  
**SL: 185' FNL & 1,700' FEL, Sec 15**  
**BHL: 330' FSL & 2,150' FEL, Sec 15**

**1. Geologic Formations**

TVD of target	11,277'	Pilot hole depth	NA
MD at TD:	15,865'	Deepest expected fresh water:	325'

**Basin**

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	1,690'	Water	
Top of Salt	2,905'		
Castile	2,979'		
Base of Salt	4,690'		
Delaware (Lamar)	4,932'	Oil/Gas	
Bell Canyon	5,067'	Oil/Gas	
Cherry Canyon	5,920'	Oil/Gas	
Manzanita Marker	6,020'		
Brushy Canyon	7,151'	Oil/Gas	
Bone Spring	8,475'	Oil/Gas	
1 <sup>st</sup> Bone Spring Sand	9,630'	Oil/Gas	
2 <sup>nd</sup> Bone Spring Sand	10,087'	Oil/Gas	
3 <sup>rd</sup> Bone Spring Sand	10,975'	Target Zone	
Abo			
Wolfcamp		Will Not Penetrate	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

\*H<sub>2</sub>S, water flows, loss of circulation, abnormal pressures, etc.

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**2. Casing Program**

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
	From	To								
17.5"	0'	1,315'	13.375"	48	H40	STC	1.13	2.53	3.83	8.56
17.5"	1,315'	1,715'	13.375"	54.5	J55	STC	1.28	3.09	24.58	40.78
12.25"	0'	3,450'	9.625"	36	J55	LTC	1.13	1.96	2.51	4.54
12.25"	3,450'	4,390'	9.625"	40	J55	LTC	1.13	1.73	9.26	16.75
12.25"	4,390'	4,857'	9.625"	40	N80	LTC	1.22	2.28	39.72	49.37
8.75"	0'	11,557'	7"	26	P110	LTC	1.33	1.70	2.17	2.76
6.125"	10,806'	15,865'	4.5"	13.5	P110	LTC	1.40	1.63	5.55	6.93
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

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**3. Cementing Program**

Casing	# Sks	Wt. lb/gal	Yld ft <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	1,000	12.5	2.12	11	10	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride + 0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	8	Tail: Class C + 0.005 pps Static Free + 1% CaCl <sub>2</sub> + 0.25 pps Cello Flake + 0.005 gps FP-6L
Inter.	800	12.5	2.12	11	10	Lead: Class C (35:65:4) + 5% Sodium Chloride + 5#/sk LCM + 0.25 lb/sk Cello Flake
	200	14.8	1.34	6.3	8	Tail: Class C + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
Prod.	400	12.5	2.12	11	9	Lead: Class C (60:40:0) + 15.0 lb/sk BA-90 + 4.0% MPS-5 + 3.0% SMS + 5.0% A-10 + 1.0% BA-10A + 0.8% ASA-301 + 2.9% R-21 + 8.0 lb/sk LCM-1 + 0.005 lb/sk Static Free
	400	15.6	1.18	5.2	10	Tail: Class H + 0.65% FL-52 + 0.1% R-3 + 0.005 lb/sk Static Free
Liner	200	11.2	2.97	17	16	Class C (60:40:0) + 4% MPA5 + 1.2% BA10A + 10#/sk BA90 + 5% A10 + 0.65% ASA301 + 1.5%SMS + 1.2% R21

A copy of cement test will be available on location at time of cement job providing pump times & compressive strengths.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4,650'	25%
Liner	10,800'	25%

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**4. Pressure Control Equipment**

Variance: None
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BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	X	1,500#
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	X	2,500#  5,000#
			Blind Ram	X	
			Pipe Ram	X	
			Double Ram		
			Other*		
6-1/8"	13-5/8"	3M	Annular	X	2,500#  5,000#
			Blind Ram	X	
			Pipe Ram	X	
			Double Ram		
			Other*		

\*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

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<b>X</b>	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
<b>Y</b>	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
<b>N</b>	Are anchors required by manufacturer?
<b>N</b>	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. <ul style="list-style-type: none"> <li>• Provide description here</li> </ul> See attached schematic.

**5. Mud Program**

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,715'	FW Gel	8.6-8.8	28-34	N/C
1,715'	4,860'	Saturated Brine	10.0	28-34	N/C
4,860'	10,800'	Cut Brine	8.6-9.5	28-34	N/C
10,800	15,865'	FW w/ Polymer	8.6-9.5	30-40	<20cc

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	Visual Monitoring
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**6. Logging and Testing Procedures**

Logging, Coring and Testing.	
<b>X</b>	Will run GR/CNL from KOP (10,806') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
<b>X</b> Gamma Ray	10,806' (KOP) to TD
Density	
CBL	
Mud log	
PEX	

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**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	4,885 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. **Lost circulation material/sweeps/mud scavengers in surface hole.**

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
	H2S is present
<b>X</b>	H2S Plan attached

**8. Water & Waste Volumes**

Fresh Water Required: 31,700 bbl

Waste Water: 31,700 bbl

Waste Solids: 1,650 bbl

**9. Other facets of operation**

Is this a walking operation? If yes, describe.

Will be pre-setting casing? If yes, describe.

Attachments

Directional Plan

Other, describe