

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0137  
Expires: January 31, 2018

**SUNDRY NOTICES AND REPORT**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
NMNM01165  
6. Land, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		7. If Unit or CA/Agreement, Name and/or No.
2. Name of Operator MEWBOURNE OIL COMPANY Contact: JACKIE LATHAN E-Mail: jlathan@mewbourne.com		8. Well Name and No. DERRINGER 18 B3EH FEDERAL 2H
3a. Address P O BOX 5270 HOBBS, NM 88241	3b. Phone No. (include area code) Ph: 575-393-5905	9. API Well No. 30-015-43578-00-X1
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 18 T20S R29E Lot 2 1860FNL 330FWL		10. Field and Pool or Exploratory Area RUSSELL - <b>BSP6 52865</b>
		11. County or Parish, State <b>3RD SD.</b> EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input checked="" type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

MOC would like to change the 5 1/2" production casing to 7" production casing with a 4 1/2" liner. ✓

Please see attachment for casing specs and cementing details. ✓

Accepted for record - NMOC

**RP 2-8-17**

ARTESIA DISTRICT  
FEB 06 2017

14. I hereby certify that the foregoing is true and correct. Electronic Submission #364545 verified by the BLM Well Information System For MEWBOURNE OIL COMPANY, sent to the Carlsbad Committed to AFMSS for processing by TEUNGKU KRUENG on 01/26/2017 (17TMK0013SE)	
Name (Printed/Typed) ANDY TAYLOR	Title ENGINEER
Signature (Electronic Submission)	Date 01/23/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE APPROVED

Approved By <b>Teungku Muchlis Krueng</b>	Title <b>PETROLEUM ENGINEER</b>	Date <b>JAN 30 2017</b>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		
Office		

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make or cause to be made any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

(Instructions on page 2)

**\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\***

**Mewbourne Oil Company, Derringer 18 B3EH Fed 2H**  
**Sec 18, T20S, R29E**  
**SL: 1860' FNL & 330' FWL**  
**BHL: 1800' FNL & 330' FEL**

**1. Geologic Formations**

TVD of target	8990'	Pilot hole depth	NA
MD at TD:	13100'	Deepest expected fresh water:	60'

**Reef**

<b>Formation</b>	<b>Depth (TVD) from KB)</b>	<b>Water/Mineral Bearing/ Target Zone?</b>	<b>Hazards*</b>
Quaternary Alluvium	Surface	Water	
Rustler	225'	Water	
Top of Salt	510'	Salt	
Tansill	883'		
Yates	910'	Oil	
Seven Rivers	NP		
Capitan Reef	1092'	Water	
Delaware Group	3173'	Oil/Gas	
Bone Spring	5959'	Oil/Gas	
3 <sup>rd</sup> Bone Spring	8710'	Target Zone	
Wolfcamp		Will Not Penetrate	
Cisco			
Canyon			
Strawn			
Atoka			
Morrow			
Barnett Shale			
Woodford Shale			
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 Tension
	From	To							
26"	0'	250'	20"	94	J55	BTC	4.00	16.23	33.31
17.5"	0'	960'	13.375"	48	H40	STC	1.54	3.47	6.99
12.25"	0'	3100'	9.625"	36	J55	LTC	1.25	2.18	4.06
8.75"	0'	9190'	7"	26	P110	LTC	1.78	2.27	2.68
6.125"	8448'	13100'	4.5"	13.5	P110	LTC	2.28	2.65	5.38
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 ILL.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
Does casing meet API specifications? 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 intermediate 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.	Y
Is well located in SOPA but not in R-111-P?	Y
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	Y
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?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	Y
Is well located in critical Cave/Karst?	Y
If yes, are there three strings cemented to surface?	Y

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**3. Cementing Program**

Casing	# Sk	Wt. lb/ gal	Yld ft3/ sack	H <sub>2</sub> O gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	230	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	5	Tail: Class C + 0.005pps Static Free + 1% CaCl <sub>2</sub> + 0.25 pps CelloFlake + 0.005 gps FP-6L
Inter.	270	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	5	Tail: Class C + 0.005pps Static Free + 1% CaCl <sub>2</sub> + 0.25 pps CelloFlake + 0.005 gps FP-6L
2 <sup>nd</sup> Inter.	245	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	5	Tail: Class C + 0.005pps Static Free + 1% CaCl <sub>2</sub> + 0.25 pps CelloFlake + 0.005 gps FP-6L
	DV/ECP Tool 1100'					
	325	14.8	1.32	8	6	2 <sup>nd</sup> stage: Class C + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
Prod.	515	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
Liner	195	11.2	2.97	17	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
2 <sup>nd</sup> Intermediate	0'	25%
Production	1040'	25%
Liner	8448'	25%

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**4. Pressure Control Equipment**

Y	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	x	1250#
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	1500#
			Blind Ram	x	3000#
			Pipe Ram	x	
			Double Ram		
			Other *		
6-1/8"	13-5/8"	3M	Annular	x	1500#
			Blind Ram	x	3000#
			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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X	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.
N	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.
	Y /N Are anchors required by manufacturer?
N	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	250	FW Gel	8.6-8.8	28-34	N/C
250	960	Saturated Brine	10.0-10.2	29-34	N/C
960	3100	FW*	8.5-9.3	28-34	N/C
3100	13100	FW w/polymer	8.5-9.3	28-34	N/C

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

\*Aerated fluid w/fresh water will be used to drill 12 ¼" hole if circulation is lost. Water samples will be taken every 100' through the Capitan Reef formation.

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

<b>Logging, Coring and Testing.</b>	
X	Will run GR/CNL from KOP 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

<b>Additional logs planned</b>	<b>Interval</b>
X GR	KOP(8448') to TD
Density	
CBL	
Mud log	
PEX	

**7. Drilling Conditions**

<b>Condition</b>	<b>Specify what type and where?</b>
BH Pressure at deepest TVD	4675 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H <sub>2</sub> S) monitors will be installed prior to drilling out the surface shoe. If H <sub>2</sub> S 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.	
	H <sub>2</sub> S is present
	H <sub>2</sub> S Plan attached

**8. 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

Capitan Reef Section: 4 casing strings, production cement to cover casing 50 feet above Capitan Reef top. High  
Cave Karst: two casing strings, both to circulate cement to surface.

20 Segment	surface csg in a #/ft	26 Grade	inch hole. Coupling	Joint	Design Factors		SURFACE		
"A"	94.00	J 55	BUTT	39.77	Collapse	Burst	Length	Weight	
"B"					3.03	3.62	375	35,250	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,313				Tail Cmt	does not	circ to sfc.	Totals:	375	35,250
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
26	1.5053	430	756	698	8	8.80	341	2M	2.50

13 3/8 Segment	casing inside the #/ft	20 Grade	Coupling	Joint	Design Factors		INTERMEDIATE		
"A"	48.00	H 40	ST&C	6.10	Collapse	Burst	Length	Weight	
"B"					1.32	1.21	1,100	52,800	
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:		1,100	52,800
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		375	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	470	840	925	-9	10.20	776	2M	1.56

9 5/8 Segment	casing inside the #/ft	13 3/8 Grade	Coupling	Joint	Design Factors		INTERMEDIATE		
"A"	36.00	J 55	LT&C	4.27	Collapse	Burst	Length	Weight	
"B"					1.42	0.81	2,950	106,200	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,177							0	0	
The cement volume(s) are intended to achieve a top of					0	Totals:	2,950	106,200	
					ft from surface or a		1100	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	look	0	1013		9.30	2365	3M	0.81
Setting Depths for D V Tool(s): 1100							sum of sx	Σ CuFt	Σ%excess
% excess cmt by stage: 32							770	1216	20

Burst Frac Gradient(s) for Segment(s): A, B, C, D =

1.19, b, c, d All > 0.70, OK.

Tail cmt

7	casing inside the			9 5/8	Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	26.00	P 110	LT&C	2.96	1.52	2.29	8,448	219,648	
"B"	26.00	P 110	BUTT	5.47	1.27	2.29	742	19,292	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,859						Totals:	9,190	238,940	
B Segment Design Factors would be:				58.93	1.43	if it were a vertical wellbore.			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg <sup>o</sup>	Severity <sup>o</sup>	MEOC	
		9190	8990	8990	8448	89	12	9190	
The cement volume(s) are intended to achieve a top of				1040	ft from surface or a		1910	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.1503	915	2736	1266	116	9.30	2365	3M	0.55

Class 'H' tail cmt yld > 1.20

Capitan Reef est top XXXX.

Tail cmt

4 1/2 Segment	Liner w/top @ #/ft	8448 Grade	Coupling	Joint	Design Factors		LINER		
"A"	13.50	p 110	LT&C	2.78	Collapse 2.13	Burst 2.86	Length 742	Weight 10,017	
"B"	13.50	p 110	LT&C	6.40	2.46	2.86	3,910	52,785	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,859						Totals: 4,652 62,802			
A Segment Design Factors would be:				3.19	2.46	if it were a vertical wellbore.			
No Pilot Hole Planned			MTD 13100	Max VTD 8990	Csg VD 8990	Curve KOP 8448	Dogleg° 89	Severity° 12	MEOC 9,190
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		9190	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Min Dist		
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	Hole-Cplg		
6 1/8	0.0942	195	579	449	29	9.30	0.56		

Class 'H' tail cmt yld > 1.20

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mewbourne Oil Co.
LEASE NO.:	NMNM01165
WELL NAME & NO.:	2H-Derringer 18 B3EH Federal
SURFACE HOLE FOOTAGE:	1860'/N & 330'/W
BOTTOM HOLE FOOTAGE:	1800'/N & 330'/E
LOCATION:	Section 18, T.20 S., R.29 E., NMPM
COUNTY:	Eddy County, New Mexico

### I. DRILLING

#### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the Yates formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

## **B. CASING**

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

### **Wait on cement (WOC) for Water Basin:**

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least **8 hours**. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. **DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

### **High Cave/Karst**

**Possible water flows in the Artesia Group and Salado.**

**Possibility of lost circulation in the Artesia Group, Rustler, Capitan Reef, and Delaware.**

1. The **20 inch** surface casing shall be set at approximately **375 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to 8% - Additional cement shall be required.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **13-3/8 inch 1<sup>st</sup>** intermediate casing, which shall be set at base of the **Yates** formation at approximately **1100** feet, is:
- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Excess calculates to -9% - Additional cement shall be required.**
3. The minimum required fill of cement behind the **9-5/8 inch 2<sup>nd</sup>** intermediate casing, which shall be set at approximately **2950** feet, is:

Operator has proposed **DV tool at depth of 1100'**, but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

- ☒ Cement circulate to surface as proposed. Operator shall provide method of verification. **Excess calculates to 4% - Additional cement shall be required.**

**Centralizers required through the curve and a minimum of one every other joint.**

4. The minimum required fill of cement behind the 7 inch production casing is:
  - ☒ Cement as proposed by operator. Operator shall provide method of verification.
5. The minimum required fill of cement behind the 4-1/2 inch production liner is:
  - ☒ Cement should tie-back to the top of the liner. Operator shall provide method of verification.
6. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

#### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. **A variance is granted for the use of a diverter on the 20" surface casing.**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
- a. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
- b. The results of the test shall be reported to the appropriate BLM office.
- c. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**TMAK 01302017**