

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
OCD Hobbs

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

SUNDRY NOTICES AND REPORTS ON WELLS
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.
NM02965A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.
THOR 21 FED COM 707H

9. API Well No.
30-025-43684-00-X1

10. Field and Pool or Exploratory Area
WC025G09S263327G-UP WOLFCAMP

11. County or Parish, State
LEA COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator
EOG RESOURCES INCORPORATED
Contact: STAN WAGNER
E-Mail: stan_wagner@eogresources.com

3a. Address
MIDLAND, TX 79702

3b. Phone No. (include area code)
Ph: 432-686-3689

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 21 T26S R33E SWSE 370FSL 1639FEL

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 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 checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

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 recompleat 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.

EOG Resources requests an amendment to our approved APD for this well to reflect a change in casing design. Details attached.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #373157 verified by the BLM Well Information System
For EOG RESOURCES INCORPORATED, sent to the Hobbs
Committed to AFMSS for processing by CHARLES NIMMER on 04/18/2017 (17CN0044SE)**

Name (Printed/Typed) STAN WAGNER

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 04/18/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHARLES NIMMER

Title PETROLEUM ENGINEER

Date 04/18/2017

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 Hobbs

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 to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Ka

EOG RESOURCES, INC.
THOR 21 FED COM NO. 707H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	828'
Top of Salt	1,182'
Base of Salt / Top Anhydrite	4,721'
Base Anhydrite	4,954'
Lamar	4,954'
Bell Canyon	4,980'
Cherry Canyon	5,950'
Brushy Canyon	7,712'
Bone Spring Lime	9,200'
1 st Bone Spring Sand	10,070'
2 nd Bone Spring Lime	10,586'
2 nd Bone Spring Sand	10,664'
3 rd Bone Spring Carb	11,000'
3 rd Bone Spring Sand	11,770'
Wolfcamp	12,190'
TD	12,415'

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	5,950'	Oil
Brushy Canyon	7,712'	Oil
Bone Spring Lime	9,200'	Oil
1 st Bone Spring Sand	10,070'	Oil
2 nd Bone Spring Lime	10,586'	Oil
2 nd Bone Spring Sand	10,664'	Oil
3 rd Bone Spring Carb	11,000'	Oil
3 rd Bone Spring Sand	11,770'	Oil
Wolfcamp	12,190'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 10.75" casing at 850' and circulating cement back to surface.

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5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

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.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 1,033'	Fresh - Gel	8.6-8.8	28-34	N/c
1,033' - 11,100'	Brine	8.8-10.0	28-34	N/c
11,100' - 17,231' Lateral	Oil Base	10.0-14.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 11.5 ppg. In order to maintain hole stability, mud weights up to 14.0 ppg may be utilized.

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11. WELLHEAD:

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo FBD100 Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

OD	Weight	Wall Th.	Grade	API Drift	Connection
7 5/8 in.	29.70 lb/ft	0.375 in.	VM 110 HC	6.750 in.	VAM® SLIJ-II

PIPE PROPERTIES	
Nominal OD	7.625 in.
Nominal ID	6.875 in.
Nominal Cross Section Area	8.541 sqin.
Grade Type	High Collapse
Min. Yield Strength	110 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	125 ksi

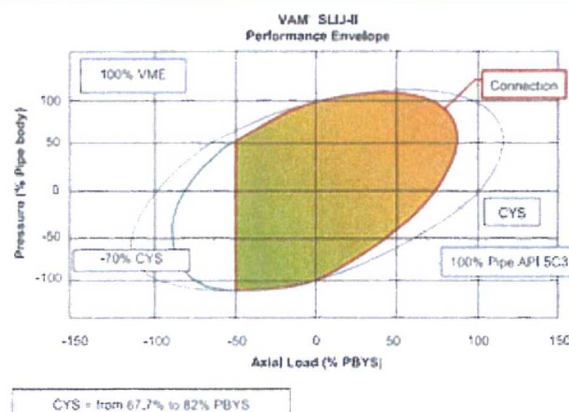
CONNECTION PROPERTIES	
Connection Type	Premium integral semi-flush
Connection OD (nom)	7.711 in.
Connection ID (nom)	6.820 in.
Make-up Loss	4.822 in.
Critical Cross Section	5.912 sqin.
Tension Efficiency	69.2 % of pipe
Compression Efficiency	48.5 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

CONNECTION PERFORMANCES	
Tensile Yield Strength	651 klb
Compression Resistance	455 klb
Internal Yield Pressure	9470 psi
Uniaxial Collapse Pressure	7890 psi
Max. Bending Capacity	TDB
Max Bending with Sealability	20 °/100 ft

FIELD TORQUE VALUES	
Min. Make-up torque	11300 ft.lb
Opti. Make-up torque	12600 ft.lb
Max. Make-up torque	13900 ft.lb

VAM® SLIJ-II is a semi-flush integral premium connection for all casing applications. It combines a near flush design with high performances in tension, compression and gas sealability.

VAM® SLIJ-II has been validated according to the most stringent tests protocols, and has an excellent performance history in the world's most prolific HPHT wells.



Do you need help on this product? - Remember no one knows VAM® like VAM

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Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

Other Connection Data Sheets are available at www.vamservices.com

Vallourec Group



TECHNICAL SPECIFICATIONS

These specifications are furnished for general information only and are not intended for design purposes. This information is preliminary and may change subject to a final design by VAM-USA Engineering. This is not a controlled document.

DWC/C-IS MS
standard

Casing

5.500" O.D.

20.00 lb./ft.

VST P-110EC

VST P-110EC
125,000
135,000

Material

Grade
Minimum Yield Strength (psi.)
Minimum Ultimate Strength (psi.)



Pipe Dimensions

5.500 Nominal Pipe Body OD (in.)
4.778 Nominal Pipe Body ID (in.)
0.361 Nominal Wall Thickness (in.)
20.00 Nominal Weight (lbs./ft.)
19.83 Plain End Weight (lbs./ft.)
5.828 Nominal Pipe Body Area (sq. in.)

VAM-USA
4424 W. Sam Houston Pkwy, Suite 150
Houston, TX 77041
Phone: (713) 479-3200
Fax: (713) 479-3234
E-mail: VAMUSAsales@na.vallourec.com

Pipe Body Performance Properties

729,000 Minimum Pipe Body Yield Strength (lbs.)
12,090 Minimum Collapse Pressure (psi.)
14,360 Minimum Internal Yield Pressure (psi.)
13,100 Hydrostatic Test Pressure (psi.)

Connection Dimensions

6.115 Connection OD (in.)
4.778 Connection ID (in.)
4.653 Connection Drift Diameter (in.)
4.13 Make-up Loss (in.)
5.828 Critical Area (sq. in.)
100.0 Joint Efficiency (%)

Connection Performance Properties

729,000 (1) Joint Strength (lbs.)
26,040 (2) Reference String Length (ft.) 1.4 Design Factor
728,000 (3) API Joint Strength (lbs.)
729,000 Compression Rating (lbs.)
12,090 API Collapse Pressure Rating (psi.)
14,360 (4) API Internal Pressure Resistance (psi.)
104.2 Maximum Uniaxial Bend Rating (degrees/100 ft.)

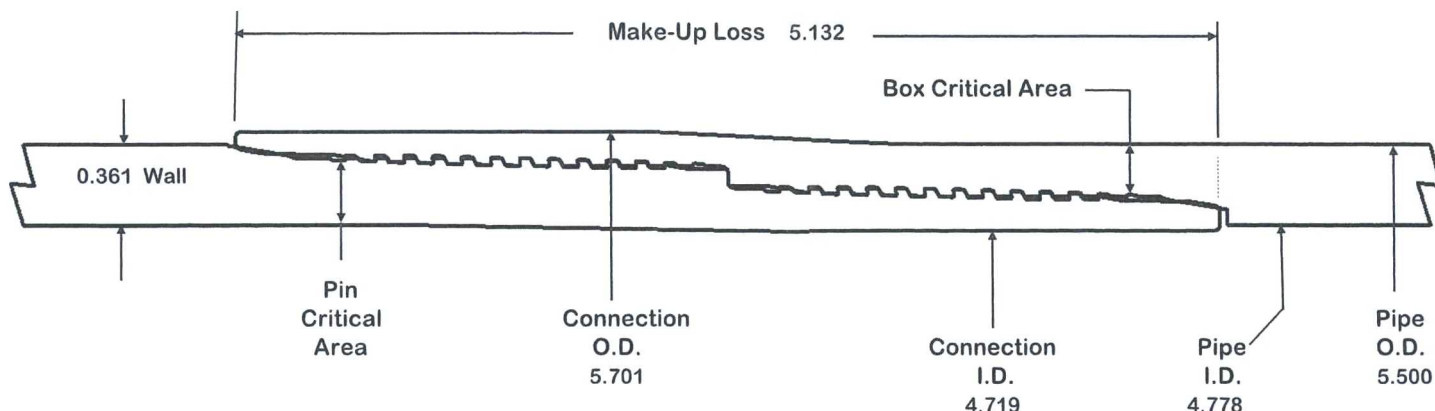
Approximated Field End Torque Values

16,600 (5) Minimum Final Torque (ft.-lbs.)
19,100 (5) Maximum Final Torque (ft.-lbs.)
21,600 (6) Connection Yield Torque (ft.-lbs.)

- (1) Joint Strength is the minimum pipe body yield strength multiplied by the connection critical area.
- (2) Reference String Length is the joint strength divided by both the weight in air and the design factor.
- (3) API Joint Strength is for reference only. It is calculated from Formulas 42 and 43 in the API Bulletin 5C3.
- (4) API Internal Pressure Resistance is calculated from Formulas 31, 32, and 35 in the API Bulletin 5C3.
- (5) Torque values are approximated and may be affected by field conditions.
- (6) Connection yield torque is not to be exceeded.

Connection specifications within the control of VAM-USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades are obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

VAM® SFC



O.D.
5.500

WEIGHT
20.00

WALL
0.361

GRADE
VST P110EC

DRIFT
4.653

PIPE BODY PROPERTIES

Material Grade	VST P110EC
Min. Yield Strength	125 ksi
Min. Tensile Strength	135 ksi
Outside Diameter	5.500 in
Inside Diameter	4.778 in
Nominal Area	5.828 sq.in.
Yield Strength	729 kips
Ultimate Strength	787 kips
Min Internal Yield	14,360 psi
*High Collapse	12,090 psi

CONNECTION PROPERTIES

Connection OD	5.701 in
Connection ID	4.719 in
Make-up Loss	5.132 in
Box Critical Area	4.083 sq.in.
%PB Section Area	70.1%
Pin Critical Area	4.123 sq.in.
%PB Section Area	70.7%
Yield Strength	510 kips
Parting Load	551 kips
Min Internal Yield	14,360 psi
*High Collapse	12,090 psi
Wk Compression	357 kips
Max Pure Bending	20 °/100 ft

Contact: tech.support@vam-usa.com
 Ref. Drawing: SI-PD 100414 Rev.B
 Date: 14-Jun-16
 Time: 2:31 PM

TORQUE DATA ft-lb

min	opt	max
8,700	9,700	10,700



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PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG Resources Inc
LEASE NO.:	NM02965A
WELL NAME & NO.:	707H-Thor 21 Fed Com
SURFACE HOLE FOOTAGE:	370'/S & 1639'/E
BOTTOM HOLE FOOTAGE	230'/N & 1360'/E
LOCATION:	Section 21, T. 26 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

I. DRILLING

Communitization Agreement

1. **This well will require a single Communitization Agreement separate from the other Thor wells, and have separate facilities. The agreement must be in placed prior to first production.**
2. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
3. If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
4. In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting,

flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leaks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

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)

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** 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. Option – Setting surface casing with Surface Rig
 - a. Notify the BLM when removing the Surface Rig.
 - b. Notify the BLM when moving in the Primary Drilling Rig. Rig to be moved in within 60 days of notification that Surface Rig has left the location. Failure to notify or have rig on location within 60 days will result in an Incident of Non-Compliance.
 - c. Once the Primary Drilling Rig is on location, it shall not be removed from over the hole without prior approval unless the production casing has been run and cemented or the well has been properly plugged. If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.
 - d. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as H&P Flex Rig is rigged up on well. CIT for the surface casing shall be performed and results recorded on subsequent sundry – pressure to be 1200 psi.
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 or are Non-API. 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.).

The initial wellhead installed on the well will remain on the well with spools used as needed.

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.**

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

Risks:

Medium Cave/ Karst Occurrence

Possibility of Water Flows in the Castile and in the Salado

Possibility of Lost Circulation in the Rustler, in the Red Beds and in the Delaware

Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The 10 3/4 inch surface casing shall be set at approximately 1033 feet **(in a competent bed below the Magenta Dolomite, which is a Member of the Rustler,**

and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface.

- 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.

Formation below the 10 3/4 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the 7 5/8 inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

- **If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.**
- **Intermediate casing must be kept 1/3 fluid filled to prevent collapse of casing.**

Formation below the 7 5/8 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

3. The minimum required fill of cement behind the 5 1/2 inch production casing is:

☒ Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification.

4. 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 53.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. 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.**
 - c. 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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- d. The results of the test shall be reported to the appropriate BLM office.
- e. 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.**
- f. 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.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **3rd Bone Spring Sandstone** if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **3rd Bone Spring Sandstone** and **Wolfcamp** formation, and shall be used until production casing is run and cemented.

Proposed mud weight may not be adequate for drilling through 3rd Bone Spring Sandstone and Wolfcamp.

E. DRILL STEM TEST

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

F. 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.

CLN 04182017