

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010**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.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMNM121490
2. Name of Operator EOG RESOURCES, INC.		6. If Indian, Allottee or Tribe Name
3a. Address P.O. BOX 2267 MIDLAND, TX 79702		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 432-686-3689		8. Well Name and No. RATTLESNAKE 28 FED COM 703H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 28 T26S R33E NWNE 730FNL 2070FEL		9. API Well No. 30-025-42875
		10. Field and Pool, or Exploratory WC-029 G-09 S263327G
		11. County or Parish, and State LEA COUNTY, NM

## 12. CHECK 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"/> Fracture Treat	<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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall 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.

Detailed casing design attached. Anticipated spud date is 5/25/16.

14. I hereby certify that the foregoing is true and correct. <b>Electronic Submission #338900 verified by the BLM Well Information System For EOG RESOURCES, INC., sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 05/18/2016 ( )</b>	
Name (Printed/Typed) STAN WAGNER	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 05/11/2016

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By <i>Stan Wagner</i>	Title <i>Regulatory Analyst</i>	Date <i>5/24/2016</i>
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 <i>Carlsbad Field Office</i>

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.

**\*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\***



Relevant for

Rennick, Kenneth <krennick@blm.gov>

Rattlesnake 28 Fed Com No. 703H

**Sundry NOI - Casing Change - ~~Thor 21 Fed Com 703H & 704H~~**

Steve Munsell <Steve\_Munsell@eogresources.com>

Wed, Mar 30, 2016 at 9:27 AM

To: "Rennick, Kenneth" <krennick@blm.gov>, Stan Wagner <Stan\_Wagner@eogresources.com>

Cc: Bruce Coit <Bruce\_Coit@eogresources.com>

Kenneth,

We will resubmit and change the anticipated mud weight range to 10.0 to 11.5 ppg. Normally we drill these laterals with mud weights ranging from 9.5 to 11.5 ppg. Almost always we get it done with 10.5 ppg or less.

So the 11.5 ppg maximum anticipated MW keeps us below the 5000 psi shut in surface pressure scenario.

I'm very comfortable with this. All of our rigs are equipped with 10,000 psi BOPs and chokes. The only piece of equipment that is not rated for 10,000 psi is the annular BOP.

Also we have all rigs equipped with two sets of pipe rams and one set of blinds (single BOP, mud cross, dual BOP, annular).

Thanks for your help.

>>>Munsell

**From:** Rennick, Kenneth [mailto:krennick@blm.gov]

**Sent:** Wednesday, March 30, 2016 9:59 AM

**To:** Stan Wagner <Stan\_Wagner@eogresources.com>

**Cc:** Bruce Coit <Bruce\_Coit@eogresources.com>; Steve Munsell <Steve\_Munsell@eogresources.com>

**Subject:** Re: Sundry NOI - Casing Change - Thor 21 Fed Com 703H & 704H

\*\* External email. Use caution.\*\*

Hello Gentlemen,

[Quoted text hidden]

[Quoted text hidden]



**Rattlesnake 28 Fed Com 703H**  
**30-025-42875**  
**EOG Resources, Inc**  
**Surface Location: Sec. 28, T. 26S, R. 33E**  
**Conditions of Approval**

**See below for the changes in the conditions of approval due to the new casing design. All other original conditions of approval still apply.**

1. The **13 3/8 inch** surface casing shall be set at approximately **890 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 13 3/8 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.**

2. The minimum required fill of cement behind the **9 5/8 inch** intermediate casing 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. Additional cement may be required since excess was calculated to be 23%.**

Formation below the 9 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.

Variance is granted for centralizers in the production interval per the drilling program.

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. **Additional cement may be required since excess was calculated to be 9%.**

KGR 05242016

**EOG RESOURCES, INC.**  
**RATTLESNAKE 28 FED COM NO. 703H**

**1. GEOLOGIC NAME OF SURFACE FORMATION:**

Permian

**2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:**

Rustler	790'
Top of Salt	1,140'
Base of Salt / Top Anhydrite	4,690'
Base Anhydrite	4,928'
Lamar	4,928'
Bell Canyon	4,953'
Cherry Canyon	6,050'
Brushy Canyon	7,580'
Bone Spring Lime	9,120'
1 <sup>st</sup> Bone Spring Sand	10,060'
2 <sup>nd</sup> Bone Spring Lime	10,490'
2 <sup>nd</sup> Bone Spring Sand	10,675'
3 <sup>rd</sup> Bone Spring Carb	11,000'
3 <sup>rd</sup> Bone Spring Sand	11,750'
Wolfcamp	12,173'
TD	12,400'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,050'	Oil
Brushy Canyon	7,580'	Oil
1 <sup>st</sup> Bone Spring Sand	10,060'	Oil
2 <sup>nd</sup> Bone Spring Lime	10,490'	Oil
2 <sup>nd</sup> Bone Spring Sand	11,675'	Oil
3 <sup>rd</sup> Bone Spring Carb	11,000'	Oil
3 <sup>rd</sup> Bone Spring Sand	11,750'	Oil
Wolfcamp	12,173'	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 13.375" casing at 890' and circulating cement back to surface.



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**RATTLESNAKE 28 FED COM NO. 703H**

**4. CASING PROGRAM - NEW**

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF <sub>min</sub> Collapse	DF <sub>min</sub> Burst	DF <sub>min</sub> Tension
17.5"	0 - 890'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0 - 10,500'	9.625"	53.5#	HCP-110	LTC	1.125	1.25	1.60
8.5"	0'-19,726'	5.5"	20#	<del>ECP-110</del>	VAM Top HT	1.125	1.25	1.60

HCP

**Cementing Program:**

SEE COA

Depth	No. Sacks	Wt. ppg	Yld Ft <sup>3</sup> /ft	Mix Water Gal/sk	Slurry Description
13-3/8" 890	350	13.5	1.73	9.13	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl <sub>2</sub> + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	300	14.8	1.34	6.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
9-5/8" 10,500'	1100	9.0	2.50	9.06	Class C + 0.6% ASM-3 + 0.15% CDF-4P + 0.6% LTR + 0.5% SCA-6 + 0.13 pps LCL-11 + 0.13 pps LDP-c-0215
	625	12.5	1.71	9.06	Class C + 0.6% LTR + 0.5% SCA-6 + 0.6% ASM-3 + 0.15% CDF-4P + 0.13% LCL-11 + 0.13% LCF-7
	250	15.6	1.19	5.20	Class H + 0.2% ASM-3 + 0.3% SCA-6 + 0.65% LTR + 0.3% SPC-2
5-1/2" 19,726'	1925	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

Low Cement  
See COA

**EOG RESOURCES, INC.**  
**RATTLESNAKE 28 FED COM NO. 703H**

**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 5000/ 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 5000/ 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 - 890'	Fresh - Gel	8.6-8.8	28-34	N/c
890' - 10,500'	Brine	8.8-10.0	28-34	N/c
10,500' - 19,726' Lateral	Oil Base	10.0-11.5	58-68	3 - 6

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

**EOG RESOURCES, INC.**  
**RATTLESNAKE 28 FED COM NO. 703H**

**7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:**

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H<sub>2</sub>S monitoring and detection equipment will be utilized from surface casing point to TD.

**8. LOGGING, TESTING AND CORING PROGRAM:**

Open-hole logs are not planned for this well.

GR-CCL Will be run in cased hole during completions phase of operations.

**9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:**

The estimated bottom-hole temperature (BHT) at TD is 182 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7415 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from 7,300' to Intermediate casing point.

**10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:**

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

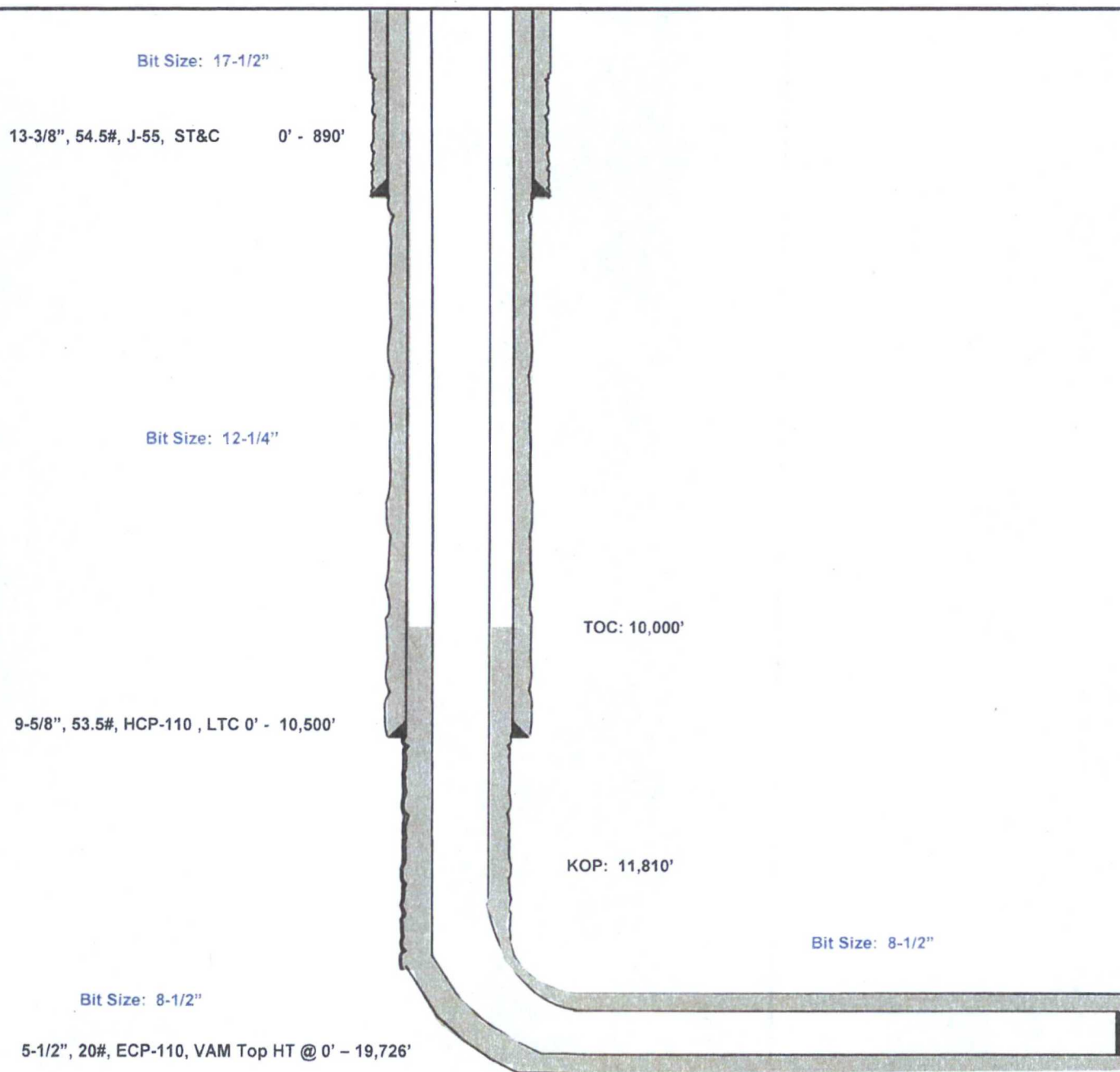


Rattlesnake 28 Fed Com #703H

730' FNL  
2070' FEL  
Section 28  
T-26-S, R-33-E

Lea County, New Mexico  
Proposed Wellbore  
Revised 5/11/16  
API: 30-025-42875

KB: 3,276'  
GL: 3,246'



Lateral: 19,726' MD, 12,400' TVD  
Upper Most Perf:  
330' FNL & 1766' FEL Sec. 28  
Lower Most Perf:  
330' FSL & 1766' FEL Sec. 33  
BH Location: 230' FSL & 1766' FEL  
Section 33  
T-26-S, R-33-E