

## NM OIL CONSERVATION

ARTESIA DISTRICT

Form 3160-3  
(March 2012)

DEC 21 2015

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

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JAN 13 2016

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5. Lease Serial No.  
NM - 122622 (BHL)

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.  
Endurance 36 State Com 703H (38129)9. API Well No.  
30-025- 4302010. Field and Pool, or Exploratory  
WC-025 G-09 S263327G; Upper WC11. Sec., T. R. M. or Blk. and Survey or Area  
Sec 36, T26S, R33E12. County or Parish  
Lea13. State  
NM1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2. Name of Operator EOG Resources, Inc. (7377)

3a. Address P. O. Box 2267  
Midland, Texas 797023b. Phone No. (include area code)  
432-686-3684

4. Location of Well (Report location clearly and in accordance with any State requirements.)\*

At surface 850 FSL &amp; 330 FEL, SWNW (E), Sec 36, T26S, R33E (H)

At proposed prod. zone 230 FNL &amp; 330 FEL, NWNW (D), Sec 25, T26S, R33E (A)

14. Distance in miles and direction from nearest town or post office\*  
Approximately 27 +/- miles SW from Jal, NM15. Distance from proposed\* 230'  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)16. No. of acres in lease  
1640 Fed, 303.52 St,17. Spacing Unit dedicated to this well  
236.5018. Distance from proposed location\* 30' from 702H  
to nearest well, drilling, completed,  
applied for, on this lease, ft.19. Proposed Depth  
20,013 MD, 12,710 TVD20. BLM/BIA Bond No. on file  
NM 230821. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3334' GL22. Approximate date work will start\*  
01/01/201623. Estimated duration  
25 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. I, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature  
Renee JarrattName (Printed/Typed)  
Renee' JarrattDate  
06/24/2015

Regulatory Analyst

Approved by (Signature) Steve Caffey

Name (Printed/Typed)

Date DEC 16 2015

Title FIELD MANAGER

Office CARLSBAD FIELD OFFICE

Application approval 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.  
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

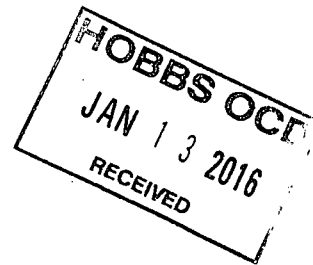
\*(Instructions on page 2)

Carlsbad Controlled Water Basin

K2  
01/19/16Approval Subject to General Requirements  
& Special Stipulations AttachedSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

JAN 14 2016

**EOG RESOURCES, INC.**  
**ENDURANCE 36 STATE COM NO. 703H**



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

Permian

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

Rustler	840'
Top of Salt	1,210'
Base of Salt / Top Anhydrite	5,056'
Base Anhydrite	5,300'
Lamar	5,300'
Bell Canyon	5,324'
Cherry Canyon	6,350'
Brushy Canyon	7,990'
Bone Spring Lime	9,480'
1 <sup>st</sup> Bone Spring Sand	10,275'
2 <sup>nd</sup> Bone Spring Lime	10,540'
2 <sup>nd</sup> Bone Spring Sand	10,974'
3 <sup>rd</sup> Bone Spring Carb	11,500'
3 <sup>rd</sup> Bone Spring Sand	12,100'
Wolfcamp	12,480'
TD	12,710'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,350'	Oil
Brushy Canyon	7,990'	Oil
1 <sup>st</sup> Bone Spring Sand	10,275'	Oil
2 <sup>nd</sup> Bone Spring Lime	10,540'	Oil
2 <sup>nd</sup> Bone Spring Sand	10,974'	Oil
3 <sup>rd</sup> Bone Spring Carb	11,500'	Oil
3 <sup>rd</sup> Bone Spring Sand	12,100'	Oil
Wolfcamp	12,480'	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 865' and circulating cement back to surface.

Replacement APD pages emailed to BLM 10-30-15

**EOG RESOURCES, INC.**  
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**4. CASING PROGRAM - NEW**

SEE COA

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 - <del>865'</del>	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0-4,000'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	4,000' - 5,100'	9.625"	40#	HCK55	LTC	1.125	1.25	1.60
8.75"	0'-20,013'	5.5"	17#	HCP-110	BTC	1.125	1.25	1.60

**Cementing Program:**

Depth	No. Sacks	Wt. ppg	Yld Ft <sup>3</sup> /ft	Mix Water Gal/sk	Slurry Description
13-3/8" <del>865'</del>	400	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)
900	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" 5,100'	1000	12.7	2.22	12.38	Lead: Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free (TOC @ surface)
	200	14.8	1.32	6.33	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
5-1/2" 20,013'	775	9.0	2.79	10.12	Lead: LiteCRETE + 0.10% D-065 + 0.20% D-046 + 0.40% D-167 + 0.20% D-198 + 0.04% D-208 + 2.0% D-174 (TOC @ 4,600')
	2100	14.4	1.28	5.69	Tail: Class H + 47.01 pps D-909 + 37.01 pps + 5.0% D-020 + 0.30% D-013 + 0.20% D-046 + 0.10% D-065 + 0.50% D-167 + 2.0% D-174

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.

**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.

**EOG RESOURCES, INC.**  
**ENDURANCE 36 STATE COM NO. 703H**

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 - <del>865'</del>	Fresh - Gel	8.6-8.8	28-34	N/c
<del>865'</del> - 5,100'	Oil Base	8.7-9.4	58-68	N/c - 6
5,100' - 12,117'	Oil Base	8.7-9.4	58-68	N/c - 6
12,117' - 20,013' Lateral	Oil Base	10.0-10.5	58-68	N/c - 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.

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**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:**

SEE COA

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:**

SEE  
COA

The estimated bottom-hole temperature (BHT) at TD is 183 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 5503 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. No major loss circulation zones have been reported in offsetting wells.

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

SEE  
COA

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.

- (A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. If the timing between rigs is such that EOG Resources would not be able to preset the surface, the Primary Rig will MIRU and drill the well in its entirety per the APD.

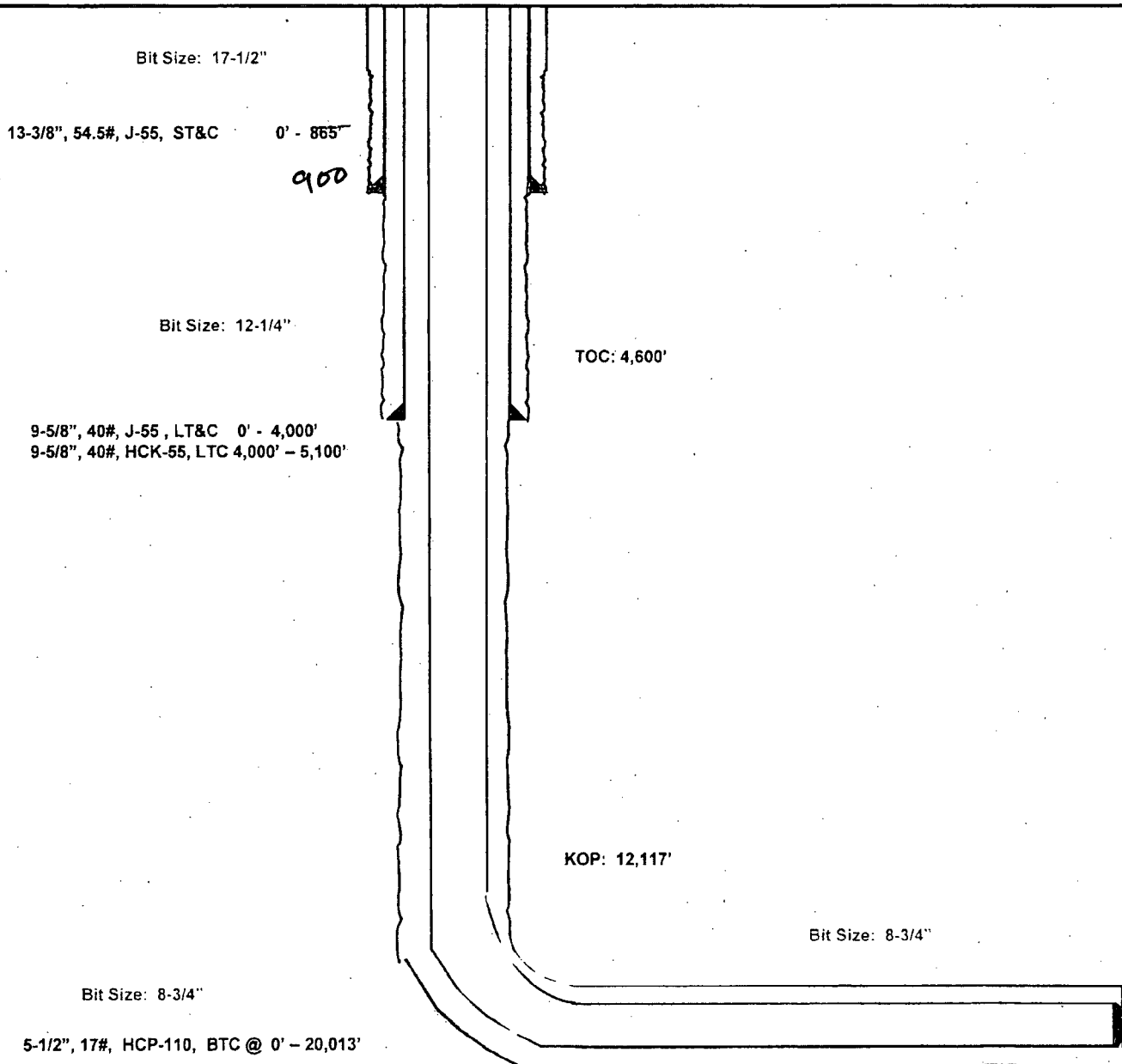
Endurance 36 State Com #703H

Lea County, New Mexico  
Proposed Wellbore

850' FSL  
330' FEL  
Section 36  
T-26-S, R-33-E

API: 30-025-

KB: 3,364'  
GL: 3,334'



Lateral: 20,013' MD, 12,710' TVD  
Upper Most Perf:  
330' FSL & 330' FEL Sec. 36  
Lower Most Perf:  
330' FNL & 330' FWL Sec. 25  
BH Location: 230' FNL & 330' FEL  
Section 25  
T-26-S, R-33-E



Lea County, NM (NAD 27 NME)

Endurance 36 State Com #703H

Plan #1

PROJECT DETAILS: Lea County, NM (NAD 27 NME)

Geodetic System: US State Plane 1927 (Exact solution)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1858  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level



Azimuths to Grid North  
True North: -0.43°  
Magnetic North: 6.70°  
Magnetic Field  
Strength: 48017.5 nT  
Dip Angle: 59.89°  
Date: 6/18/2015  
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.70°  
To convert a Magnetic Direction to a True Direction, Add 7.13° East  
To convert a True Direction to a Grid Direction, Subtract 0.43°

WELL DETAILS: #703H

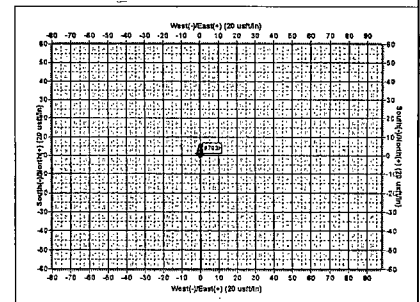
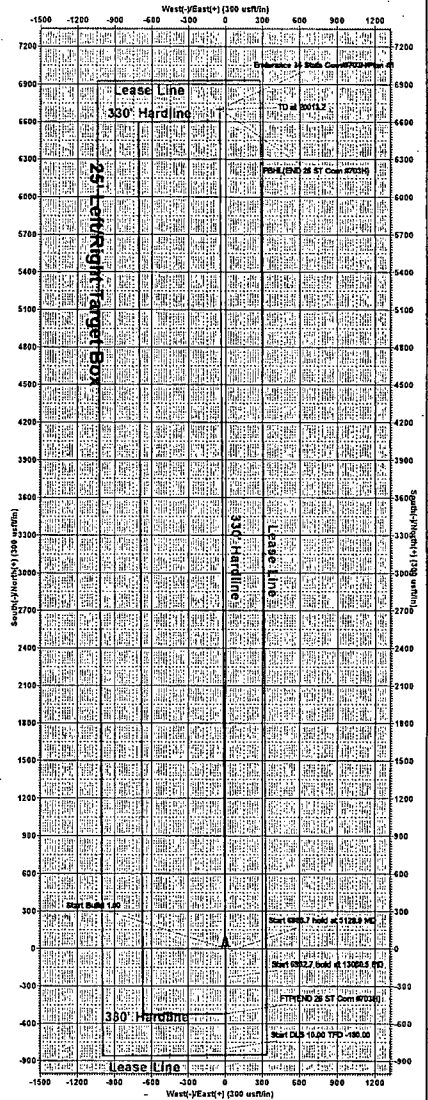
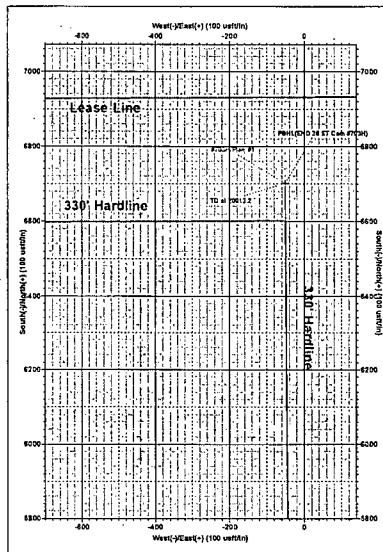
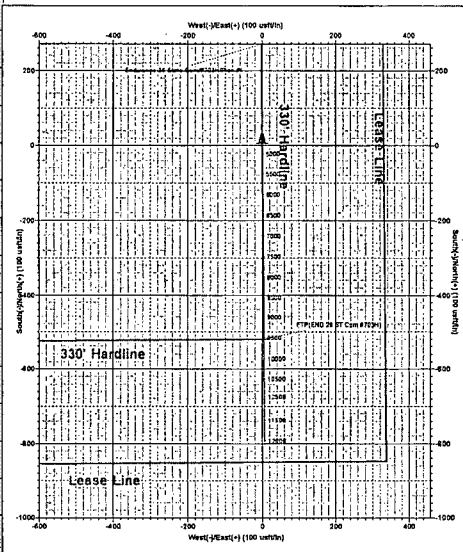
	+N-S	+E-W	Northing	Eastings	Longitude	Slot
Ground Level:			3334.0			
KB = 25 @ 3359.0 nT						
355580.00	0.0	0.0	752702.00	32° 0' 8.908 N	103° 31' 5.311 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4500.0	0.00	0.00	4500.0	0.0	0.0	0.00	0.00	0.0	
3	5128.9	6.29	179.56	5127.6	-34.5	0.3	1.00	179.56	-34.5	
4	12117.6	6.29	179.56	12074.3	-800.0	6.1	0.00	0.00	-800.0	
5	13080.5	90.00	359.56	12710.0	-230.5	1.8	10.00	-180.00	-230.5	
6	20013.2	90.00	359.56	12710.0	6702.0	-51.0	0.00	0.00	6702.2	PBHL(END 26 ST Com #703H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Eastings	Shape
FTP(END 26 ST Com #703H)	12710.0	-623.0	4.0	365060.00	762706.00	Point
PBHL(END 26 ST Com #703H)	12710.0	6702.0	-51.0	372282.00	762651.00	Point



Lea County, NM (NAD 27 NME)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1858  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level