Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB 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.

HOBBS OCD

JAN 09 2017

SUBMIT IN TRIPLICATE - Other instructions on page 2

RECEIVED

5. Lease Serial No.
NMNM112279

6. If Indian, Allottee or Tribe Name

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

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

8. Well Name and No.
FOX 30 FED COM 604H

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

9. API Well No.
30-025-43879-00-X1

3a. Address
1111 BAGBY SKY LOBBY2
HOUSTON, TX 77002

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

10. Field and Pool or Exploratory Area
WC025G09S253336D-UPPER WC

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 30 T25S R34E NESE 2190FSL 1013FEL
32.100262 N Lat, 103.503754 W Lon

11. County or Parish, State
LEA COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 recomplete 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.

EOG Resources requests an amendment to our approved APD for this well to reflect a change in casing, TVD, and well number.

Change casing to 4- string design as attached.

Change TVD TO: 12370' 3rd Bone Spring Sand Red Hills; Lower Bone Spring (51020)

Change well name/number to 604H

OCD Hobbs

SEE ATTACHED FOR CONDITIONS OF APPROVAL

OLD WELL Name FOX 30 Fed Com 704H

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

Electronic Submission #397109 verified by the BLM Well Information System
For EOG RESOURCES INC, sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 01/04/2018 (18ZS0036SE)

Name *(Printed/Typed)* STAN WAGNER — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 12/06/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 01/04/2018

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 ****

District I
1625 N French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax (505) 334-6170
District IV
1220 S St. Francis Dr., Sante Fe, NM 87505
Phone (505) 476-3460 Fax (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources
Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Sante Fe, NM 87505

FORM C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ **AMENDED REPORT**

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1]API Number	[2]Pool Code	[3]Pool Name
30-025-43879	~~97903~~ 51020	~~WC-025 G-08 S253235G~~ RED HILLS; Lower Bone Spring

[4]Property Code	[5]Property Name	[6]Well Number
39982	FOX 30 FED COM	#604H

[7]OGRID No.	[8]Operator Name	[9]Elevation
7377	EOG RESOURCES, INC.	3322'

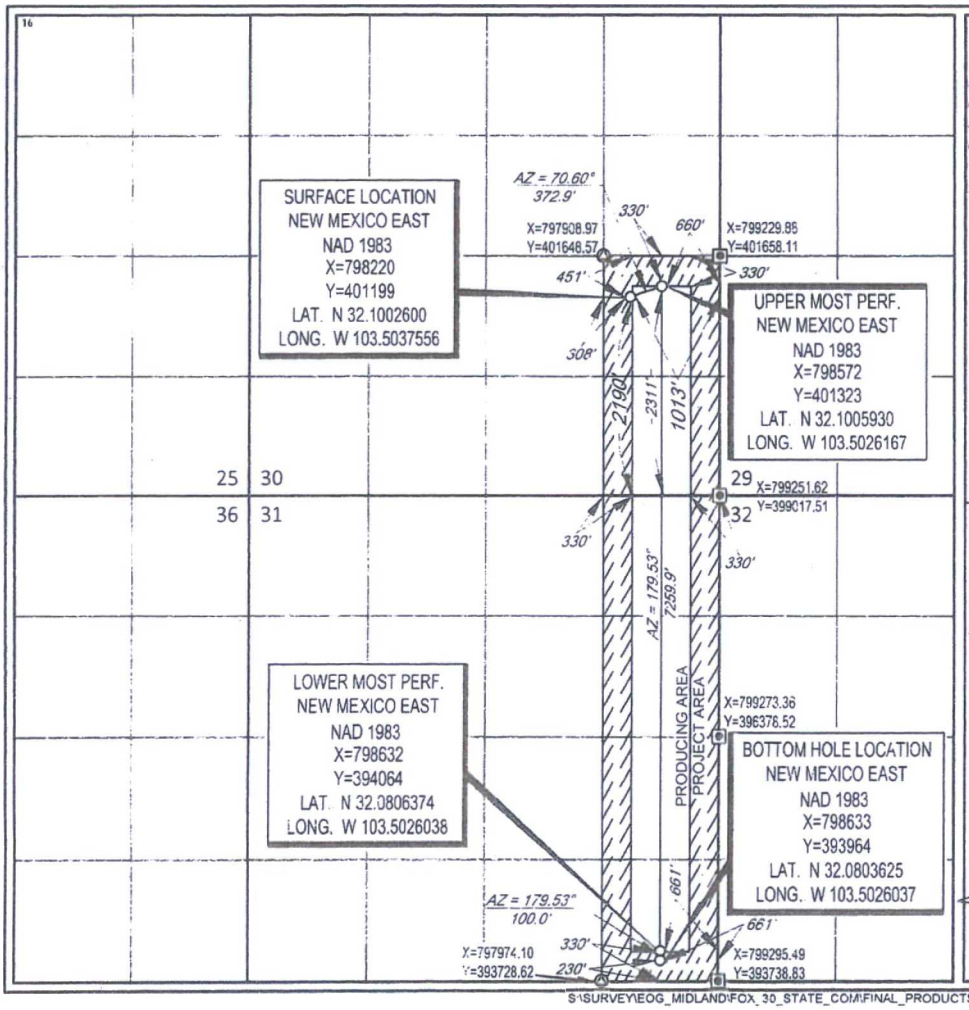
[10]Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	30	25-S	34-E	–	2190'	SOUTH	1013'	EAST	LEA

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	25-S	34-E	–	230'	SOUTH	661'	EAST	LEA

[12]Dedicated Acres	[13]Joint or Infill	[14]Consolidation Code	[15]Order No.
240.00			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17]OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 12/06/17

Stan Wagner
Printed Name

E-mail Address

[18]SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true to the best of my belief.

12/12/2016
Date of Survey
Signature and Seal of Professional Surveyor

MICHAEL BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Certificate Number

S:\SURVEY\EOG_MIDLAND\FOX_30_STATE_COM\FINAL_PRODUCTS\LO_FOX30FEDCOM_704H_REV2.DWG 12/5/2017 11:06:12 AM tstewart

EOG RESOURCES, INC.
FOX 30 FED COM NO. 604H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	940'
Top of Salt	1,240'
Base of Salt / Top Anhydrite	4,950'
Base Anhydrite	5,200'
Lamar	5,200'
Bell Canyon	5,230'
Cherry Canyon	6,235'
Brushy Canyon	7,830'
Bone Spring Lime	9,330'
1st Bone Spring Sand	10,315'
2nd Bone Spring Shale	10,515'
2nd Bone Spring Sand	10,835'
3rd Bone Spring Carb	11,315'
3rd Bone Spring Sand	11,895'
TD	12,370'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,235'	Oil
Brushy Canyon	7,830'	Oil
1st Bone Spring Sand	10,315'	Oil
2nd Bone Spring Shale	10,515'	Oil
2nd Bone Spring Sand	10,835'	Oil
3rd Bone Spring Carb	11,315'	Oil
3rd Bone Spring Sand	11,895'	Oil
Wolfcamp	12,365'	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 965' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
17.5"	0 – ~~965'~~ 1002'	13.375"	54.5#	J55	~~LTC~~ STC	1.125	1.25	1.60
12.25"	0 – 4,100'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	4,100' – 5,100'	9.625"	40#	HCK55	LTC	1.125	1.25	1.60
8.75"	0 – 11,400'	7.625"	29.7#	HCP-110	FlushMax III	1.125	1.25	1.60
6.75"	0' – 10,900'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,900'-19,807'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60

Variance is requested to wave the centralizer requirements for the 7-5/8" FJ casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to wave any centralizer requirements for the 5-1/2" FJ casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
13-3/8" ~~965'~~ 1002'	600	13.5	1.73	9.13	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
9-5/8" 5,100'	1780	12.7	2.20	11.64	Lead: Class C + 0.15% C-20 + 11.63 pps Salt + 0.1% C-51 + 0.75% C-41P (TOC @ Surface)
	200	16.0	1.12	4.75	Tail: Class C + 0.13% C-20
7-5/8" 11,400'	340	11.5	2.72	15.70	Lead: Class C + 0.40% D013 + 0.20% D046 + 0.10% D065 + 0.20% D167 (TOC @ 4,600')
	210	16.0	1.12	4.74	Tail: Class H + 94.0 pps D909 + 0.25% D065 + 0.30% D167 + 0.02% D208 + 0.15% D800
5-1/2" 19,807'	950	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17 (TOC @ 10,900')

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 (10,000-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.

Variance is requested to use a 5,000 psi annular BOP with the 10,000 psi BOP stack.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 10,000/ 250 psig and the annular preventer to 5,000/ 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 10,000/ 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 – ~~965'~~ 1002'	Fresh - Gel	8.6-8.8	28-34	N/c
1002'~~965'~~ – 5,100'	Brine	10.0-10.2	28-34	N/c
5,100' – 11,400'	Oil Base	8.7-9.4	58-68	N/c - 6
11,400' – 19,807' 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.

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.

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_2S 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 181 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 9005 psig (based on 14.0 ppg MW). 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.

(A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. After WOC 8 hours or 500 psi compressive strength (whichever is greater), the Surface Rig will move off so the wellhead can be installed. A welder will cut the casing to the proper height and weld on the wellhead (both "A" and "B" sections). The weld will be tested to 1000 psi. All valves will be closed and a wellhead cap will be installed (diagram attached). 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.

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 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10,000 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 10,000 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.

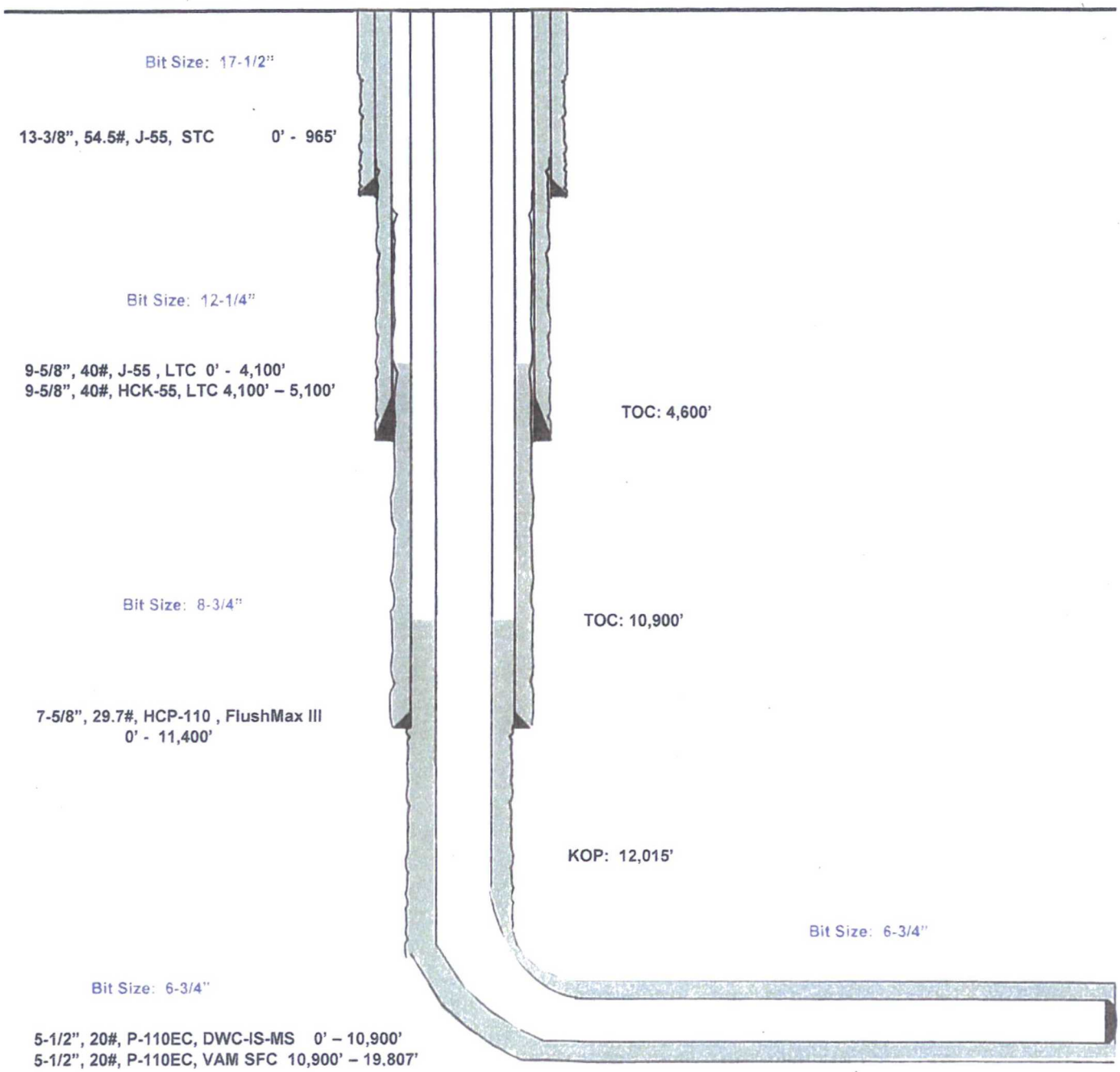
Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Fox 30 Fed Com #604H

Lea County, New Mexico
Proposed Wellbore
Revised 12/5/17
API: 30-025-43879

2190' FSL
1013' FEL
Section 30
T-25-S, R-34-E

KB: 3,347'
GL: 3,322'



Lateral: 19,807' MD, 12,370' TVD
Upper Most Perf:
2311' FSL & 660' FEL Sec. 30
Lower Most Perf:
330' FSL & 661' FEL Sec. 31
BH Location: 230' FSL & 661' FEL
Section 31
T-25-S, R-34-E

Lea County, NM (NAD 83 NME)

Fox 30 Fed Com #604H

Plan #0.1

eog resources

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

Azimuths to Grid North
True North: -0.44°
Magnetic North: 6.42°

Magnetic Field
Strength: 47824.0snT
Dip Angle: 59.95°
Date: 12/6/2017
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.42°
To convert a Magnetic Direction to a True Direction, Add 6.86° East
To convert a True Direction to a Grid Direction, Subtract 0.44°

WELL DETAILS: #604H

3322.0
KB = 25 @ 3347.0usft

Northing	Easting	Latitude	Longitude
401199.00	798220.00	32° 6' 0.931 N	103° 30' 13.525 W

SECTION DETAILS

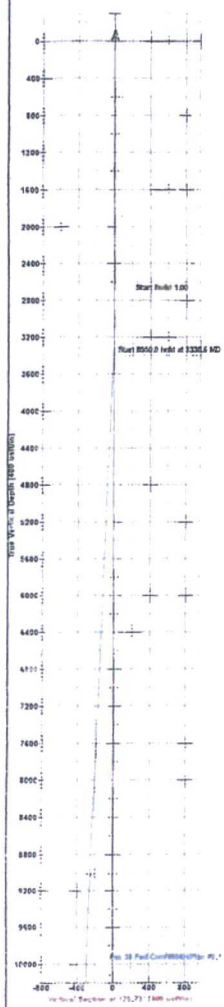
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3336.6	3.37	40.25	3336.4	7.5	6.4	1.00	40.25	-7.2	
4	11886.6	3.37	40.25	11871.7	390.7	330.7	0.00	0.00	-371.2	
5	12657.8	90.00	179.53	12370.0	-86.1	353.7	12.00	139.23	106.2	
6	19806.9	90.00	179.53	12370.0	-7235.0	413.0	0.00	0.00	7246.8	PBHL(fox30 #604)

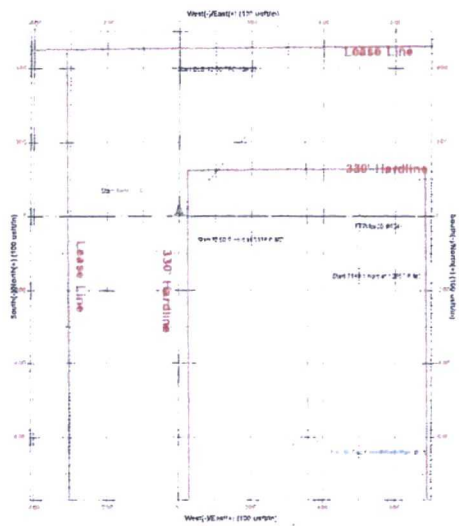
CASING DETAILS

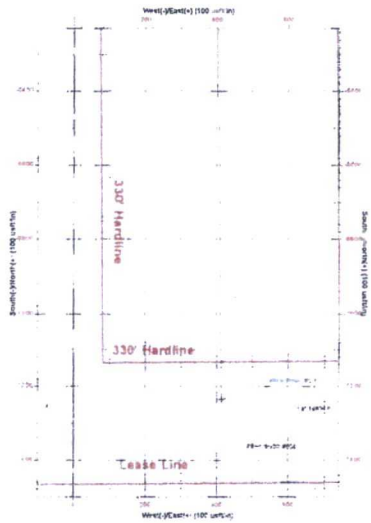
No casing data is available

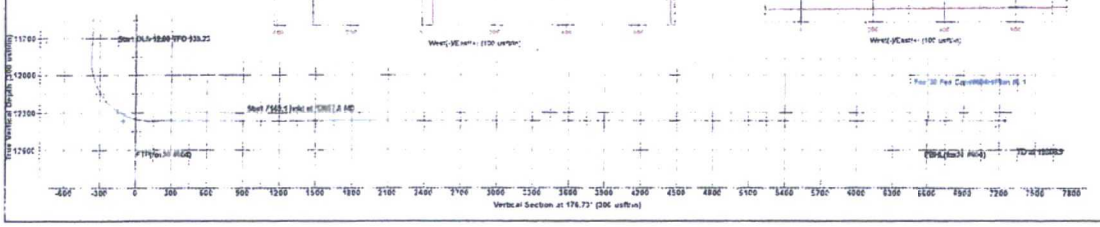
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

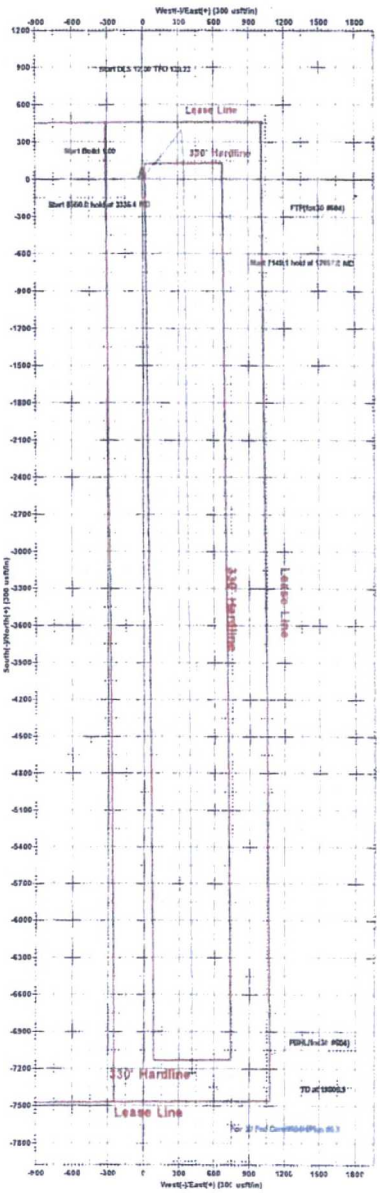
Name	TVD	+N/-S	+E/-W	Northing	Easting
FTP(fox30 #604)	12370.0	124.0	352.0	401323.00	798572.00
PBHL(fox30 #604)	12370.0	-7235.0	413.0	393964.00	798633.00

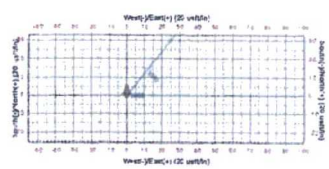


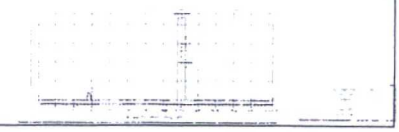












EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Fox 30 Fed Com
#604H

OH

Plan: Plan #0.1

Standard Planning Report

06 December, 2017

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Fox 30 Fed Com				
Site Position:		**Northing:**	401,193.00 usft	**Latitude:**	32° 6' 0.944 N
From:	Map	**Easting:**	797,271.00 usft	**Longitude:**	103° 30' 24.557 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.44 °

Well	#604H					
Well Position	**+N/-S**	6.0 usft	**Northing:**	401,199.00 usft	**Latitude:**	32° 6' 0.931 N
	+E/-W	949.0 usft	**Easting:**	798,220.00 usft	**Longitude:**	103° 30' 13.525 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,322.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/6/2017	6.86	59.95	47,824.01442987

Design Plan #0.1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	176.73	

Plan Survey Tool Program **Date** 12/6/2017

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,806.9	Plan #0.1 (OH)	MWD	
				MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,336.6	3.37	40.25	3,336.4	7.5	6.4	1.00	1.00	0.00	40.25	
11,886.6	3.37	40.25	11,871.7	390.7	330.7	0.00	0.00	0.00	0.00	
12,657.8	90.00	179.53	12,370.0	-86.1	353.7	12.00	11.23	18.06	139.23	
19,806.9	90.00	179.53	12,370.0	-7,235.0	413.0	0.00	0.00	0.00	0.00	PBHL(fox30 #604)

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	1.00	40.25	3,100.0	0.7	0.6	-0.6	1.00	1.00	0.00
3,200.0	2.00	40.25	3,200.0	2.7	2.3	-2.5	1.00	1.00	0.00
3,300.0	3.00	40.25	3,299.9	6.0	5.1	-5.7	1.00	1.00	0.00
3,336.6	3.37	40.25	3,336.4	7.5	6.4	-7.2	1.00	1.00	0.00
3,400.0	3.37	40.25	3,399.7	10.4	8.8	-9.9	0.00	0.00	0.00
3,500.0	3.37	40.25	3,499.5	14.9	12.6	-14.1	0.00	0.00	0.00
3,600.0	3.37	40.25	3,599.4	19.3	16.4	-18.4	0.00	0.00	0.00
3,700.0	3.37	40.25	3,699.2	23.8	20.2	-22.6	0.00	0.00	0.00
3,800.0	3.37	40.25	3,799.0	28.3	24.0	-26.9	0.00	0.00	0.00
3,900.0	3.37	40.25	3,898.8	32.8	27.8	-31.2	0.00	0.00	0.00
4,000.0	3.37	40.25	3,998.7	37.3	31.5	-35.4	0.00	0.00	0.00
4,100.0	3.37	40.25	4,098.5	41.8	35.3	-39.7	0.00	0.00	0.00
4,200.0	3.37	40.25	4,198.3	46.2	39.1	-43.9	0.00	0.00	0.00
4,300.0	3.37	40.25	4,298.1	50.7	42.9	-48.2	0.00	0.00	0.00
4,400.0	3.37	40.25	4,398.0	55.2	46.7	-52.4	0.00	0.00	0.00
4,500.0	3.37	40.25	4,497.8	59.7	50.5	-56.7	0.00	0.00	0.00
4,600.0	3.37	40.25	4,597.6	64.2	54.3	-61.0	0.00	0.00	0.00
4,700.0	3.37	40.25	4,697.5	68.6	58.1	-65.2	0.00	0.00	0.00
4,800.0	3.37	40.25	4,797.3	73.1	61.9	-69.5	0.00	0.00	0.00
4,900.0	3.37	40.25	4,897.1	77.6	65.7	-73.7	0.00	0.00	0.00
5,000.0	3.37	40.25	4,996.9	82.1	69.5	-78.0	0.00	0.00	0.00
5,100.0	3.37	40.25	5,096.8	86.6	73.3	-82.2	0.00	0.00	0.00
5,200.0	3.37	40.25	5,196.6	91.0	77.1	-86.5	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	3.37	40.25	5,296.4	95.5	80.9	-90.8	0.00	0.00	0.00
5,400.0	3.37	40.25	5,396.2	100.0	84.6	-95.0	0.00	0.00	0.00
5,500.0	3.37	40.25	5,496.1	104.5	88.4	-99.3	0.00	0.00	0.00
5,600.0	3.37	40.25	5,595.9	109.0	92.2	-103.5	0.00	0.00	0.00
5,700.0	3.37	40.25	5,695.7	113.4	96.0	-107.8	0.00	0.00	0.00
5,800.0	3.37	40.25	5,795.6	117.9	99.8	-112.0	0.00	0.00	0.00
5,900.0	3.37	40.25	5,895.4	122.4	103.6	-116.3	0.00	0.00	0.00
6,000.0	3.37	40.25	5,995.2	126.9	107.4	-120.6	0.00	0.00	0.00
6,100.0	3.37	40.25	6,095.0	131.4	111.2	-124.8	0.00	0.00	0.00
6,200.0	3.37	40.25	6,194.9	135.9	115.0	-129.1	0.00	0.00	0.00
6,300.0	3.37	40.25	6,294.7	140.3	118.8	-133.3	0.00	0.00	0.00
6,400.0	3.37	40.25	6,394.5	144.8	122.6	-137.6	0.00	0.00	0.00
6,500.0	3.37	40.25	6,494.4	149.3	126.4	-141.9	0.00	0.00	0.00
6,600.0	3.37	40.25	6,594.2	153.8	130.2	-146.1	0.00	0.00	0.00
6,700.0	3.37	40.25	6,694.0	158.3	134.0	-150.4	0.00	0.00	0.00
6,800.0	3.37	40.25	6,793.8	162.7	137.7	-154.6	0.00	0.00	0.00
6,900.0	3.37	40.25	6,893.7	167.2	141.5	-158.9	0.00	0.00	0.00
7,000.0	3.37	40.25	6,993.5	171.7	145.3	-163.1	0.00	0.00	0.00
7,100.0	3.37	40.25	7,093.3	176.2	149.1	-167.4	0.00	0.00	0.00
7,200.0	3.37	40.25	7,193.1	180.7	152.9	-171.7	0.00	0.00	0.00
7,300.0	3.37	40.25	7,293.0	185.1	156.7	-175.9	0.00	0.00	0.00
7,400.0	3.37	40.25	7,392.8	189.6	160.5	-180.2	0.00	0.00	0.00
7,500.0	3.37	40.25	7,492.6	194.1	164.3	-184.4	0.00	0.00	0.00
7,600.0	3.37	40.25	7,592.5	198.6	168.1	-188.7	0.00	0.00	0.00
7,700.0	3.37	40.25	7,692.3	203.1	171.9	-192.9	0.00	0.00	0.00
7,800.0	3.37	40.25	7,792.1	207.5	175.7	-197.2	0.00	0.00	0.00
7,900.0	3.37	40.25	7,891.9	212.0	179.5	-201.5	0.00	0.00	0.00
8,000.0	3.37	40.25	7,991.8	216.5	183.3	-205.7	0.00	0.00	0.00
8,100.0	3.37	40.25	8,091.6	221.0	187.1	-210.0	0.00	0.00	0.00
8,200.0	3.37	40.25	8,191.4	225.5	190.8	-214.2	0.00	0.00	0.00
8,300.0	3.37	40.25	8,291.2	230.0	194.6	-218.5	0.00	0.00	0.00
8,400.0	3.37	40.25	8,391.1	234.4	198.4	-222.7	0.00	0.00	0.00
8,500.0	3.37	40.25	8,490.9	238.9	202.2	-227.0	0.00	0.00	0.00
8,600.0	3.37	40.25	8,590.7	243.4	206.0	-231.3	0.00	0.00	0.00
8,700.0	3.37	40.25	8,690.6	247.9	209.8	-235.5	0.00	0.00	0.00
8,800.0	3.37	40.25	8,790.4	252.4	213.6	-239.8	0.00	0.00	0.00
8,900.0	3.37	40.25	8,890.2	256.8	217.4	-244.0	0.00	0.00	0.00
9,000.0	3.37	40.25	8,990.0	261.3	221.2	-248.3	0.00	0.00	0.00
9,100.0	3.37	40.25	9,089.9	265.8	225.0	-252.5	0.00	0.00	0.00
9,200.0	3.37	40.25	9,189.7	270.3	228.8	-256.8	0.00	0.00	0.00
9,300.0	3.37	40.25	9,289.5	274.8	232.6	-261.1	0.00	0.00	0.00
9,400.0	3.37	40.25	9,389.3	279.2	236.4	-265.3	0.00	0.00	0.00
9,500.0	3.37	40.25	9,489.2	283.7	240.2	-269.6	0.00	0.00	0.00
9,600.0	3.37	40.25	9,589.0	288.2	243.9	-273.8	0.00	0.00	0.00
9,700.0	3.37	40.25	9,688.8	292.7	247.7	-278.1	0.00	0.00	0.00
9,800.0	3.37	40.25	9,788.7	297.2	251.5	-282.4	0.00	0.00	0.00
9,900.0	3.37	40.25	9,888.5	301.7	255.3	-286.6	0.00	0.00	0.00
10,000.0	3.37	40.25	9,988.3	306.1	259.1	-290.9	0.00	0.00	0.00
10,100.0	3.37	40.25	10,088.1	310.6	262.9	-295.1	0.00	0.00	0.00
10,200.0	3.37	40.25	10,188.0	315.1	266.7	-299.4	0.00	0.00	0.00
10,300.0	3.37	40.25	10,287.8	319.6	270.5	-303.6	0.00	0.00	0.00
10,400.0	3.37	40.25	10,387.6	324.1	274.3	-307.9	0.00	0.00	0.00
10,500.0	3.37	40.25	10,487.5	328.5	278.1	-312.2	0.00	0.00	0.00
10,600.0	3.37	40.25	10,587.3	333.0	281.9	-316.4	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,700.0	3.37	40.25	10,687.1	337.5	285.7	-320.7	0.00	0.00	0.00
10,800.0	3.37	40.25	10,786.9	342.0	289.5	-324.9	0.00	0.00	0.00
10,900.0	3.37	40.25	10,886.8	346.5	293.3	-329.2	0.00	0.00	0.00
11,000.0	3.37	40.25	10,986.6	350.9	297.0	-333.4	0.00	0.00	0.00
11,100.0	3.37	40.25	11,086.4	355.4	300.8	-337.7	0.00	0.00	0.00
11,200.0	3.37	40.25	11,186.2	359.9	304.6	-342.0	0.00	0.00	0.00
11,300.0	3.37	40.25	11,286.1	364.4	308.4	-346.2	0.00	0.00	0.00
11,400.0	3.37	40.25	11,385.9	368.9	312.2	-350.5	0.00	0.00	0.00
11,500.0	3.37	40.25	11,485.7	373.3	316.0	-354.7	0.00	0.00	0.00
11,600.0	3.37	40.25	11,585.6	377.8	319.8	-359.0	0.00	0.00	0.00
11,700.0	3.37	40.25	11,685.4	382.3	323.6	-363.2	0.00	0.00	0.00
11,800.0	3.37	40.25	11,785.2	386.8	327.4	-367.5	0.00	0.00	0.00
11,886.6	3.37	40.25	11,871.7	390.7	330.7	-371.2	0.00	0.00	0.00
11,900.0	2.39	66.31	11,885.0	391.1	331.2	-371.6	12.00	-7.28	194.50
11,925.0	3.01	132.67	11,910.0	390.8	332.1	-371.3	12.00	2.48	265.45
11,950.0	5.51	156.11	11,935.0	389.3	333.1	-369.7	12.00	10.01	93.73
11,975.0	8.35	164.37	11,959.8	386.5	334.1	-366.8	12.00	11.35	33.07
12,000.0	11.27	168.43	11,984.4	382.3	335.1	-362.6	12.00	11.68	16.21
12,025.0	14.23	170.82	12,008.8	376.9	336.0	-357.1	12.00	11.81	9.58
12,050.0	17.19	172.40	12,032.8	370.2	337.0	-350.4	12.00	11.88	6.33
12,075.0	20.17	173.53	12,056.5	362.2	338.0	-342.4	12.00	11.91	4.51
12,100.0	23.16	174.38	12,079.8	353.1	339.0	-333.2	12.00	11.93	3.39
12,125.0	26.14	175.04	12,102.5	342.7	339.9	-322.8	12.00	11.95	2.65
12,150.0	29.13	175.58	12,124.6	331.1	340.9	-311.2	12.00	11.96	2.14
12,175.0	32.13	176.02	12,146.1	318.4	341.8	-298.4	12.00	11.97	1.78
12,200.0	35.12	176.40	12,166.9	304.6	342.7	-284.6	12.00	11.97	1.50
12,225.0	38.11	176.72	12,187.0	289.7	343.6	-269.7	12.00	11.98	1.30
12,250.0	41.11	177.01	12,206.3	273.8	344.5	-253.7	12.00	11.98	1.13
12,275.0	44.10	177.26	12,224.7	256.9	345.3	-236.8	12.00	11.98	1.00
12,300.0	47.10	177.48	12,242.2	239.1	346.1	-219.0	12.00	11.98	0.90
12,325.0	50.09	177.69	12,258.7	220.3	346.9	-200.2	12.00	11.98	0.82
12,350.0	53.09	177.87	12,274.2	200.8	347.7	-180.6	12.00	11.99	0.75
12,375.0	56.09	178.05	12,288.7	180.4	348.4	-160.3	12.00	11.99	0.69
12,400.0	59.08	178.21	12,302.1	159.3	349.1	-139.2	12.00	11.99	0.65
12,425.0	62.08	178.36	12,314.4	137.6	349.8	-117.4	12.00	11.99	0.61
12,450.0	65.08	178.50	12,325.5	115.2	350.4	-95.0	12.00	11.99	0.57
12,475.0	68.08	178.64	12,335.4	92.2	350.9	-72.1	12.00	11.99	0.55
12,500.0	71.07	178.77	12,344.2	68.8	351.5	-48.7	12.00	11.99	0.52
12,525.0	74.07	178.90	12,351.7	45.0	352.0	-24.9	12.00	11.99	0.51
12,550.0	77.07	179.02	12,357.9	20.8	352.4	-0.7	12.00	11.99	0.49
12,575.0	80.07	179.14	12,362.8	-3.7	352.8	23.8	12.00	11.99	0.48
12,600.0	83.06	179.26	12,366.5	-28.4	353.1	48.5	12.00	11.99	0.47
12,625.0	86.06	179.37	12,368.9	-53.3	353.4	73.4	12.00	11.99	0.46
12,650.0	89.06	179.49	12,369.9	-78.3	353.7	98.3	12.00	11.99	0.46
12,657.8	90.00	179.53	12,370.0	-86.1	353.7	106.2	12.00	11.99	0.46
12,700.0	90.00	179.53	12,370.0	-128.3	354.1	148.3	0.00	0.00	0.00
12,800.0	90.00	179.53	12,370.0	-228.3	354.9	248.1	0.00	0.00	0.00
12,900.0	90.00	179.53	12,370.0	-328.3	355.7	348.0	0.00	0.00	0.00
13,000.0	90.00	179.53	12,370.0	-428.3	356.6	447.9	0.00	0.00	0.00
13,100.0	90.00	179.53	12,370.0	-528.3	357.4	547.8	0.00	0.00	0.00
13,200.0	90.00	179.53	12,370.0	-628.3	358.2	647.7	0.00	0.00	0.00
13,300.0	90.00	179.53	12,370.0	-728.3	359.1	747.6	0.00	0.00	0.00
13,400.0	90.00	179.53	12,370.0	-828.3	359.9	847.4	0.00	0.00	0.00
13,500.0	90.00	179.53	12,370.0	-928.3	360.7	947.3	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,600.0	90.00	179.53	12,370.0	-1,028.3	361.6	1,047.2	0.00	0.00	0.00
13,700.0	90.00	179.53	12,370.0	-1,128.3	362.4	1,147.1	0.00	0.00	0.00
13,800.0	90.00	179.53	12,370.0	-1,228.3	363.2	1,247.0	0.00	0.00	0.00
13,900.0	90.00	179.53	12,370.0	-1,328.3	364.0	1,346.8	0.00	0.00	0.00
14,000.0	90.00	179.53	12,370.0	-1,428.3	364.9	1,446.7	0.00	0.00	0.00
14,100.0	90.00	179.53	12,370.0	-1,528.2	365.7	1,546.6	0.00	0.00	0.00
14,200.0	90.00	179.53	12,370.0	-1,628.2	366.5	1,646.5	0.00	0.00	0.00
14,300.0	90.00	179.53	12,370.0	-1,728.2	367.4	1,746.4	0.00	0.00	0.00
14,400.0	90.00	179.53	12,370.0	-1,828.2	368.2	1,846.2	0.00	0.00	0.00
14,500.0	90.00	179.53	12,370.0	-1,928.2	369.0	1,946.1	0.00	0.00	0.00
14,600.0	90.00	179.53	12,370.0	-2,028.2	369.8	2,046.0	0.00	0.00	0.00
14,700.0	90.00	179.53	12,370.0	-2,128.2	370.7	2,145.9	0.00	0.00	0.00
14,800.0	90.00	179.53	12,370.0	-2,228.2	371.5	2,245.8	0.00	0.00	0.00
14,900.0	90.00	179.53	12,370.0	-2,328.2	372.3	2,345.7	0.00	0.00	0.00
15,000.0	90.00	179.53	12,370.0	-2,428.2	373.2	2,445.5	0.00	0.00	0.00
15,100.0	90.00	179.53	12,370.0	-2,528.2	374.0	2,545.4	0.00	0.00	0.00
15,200.0	90.00	179.53	12,370.0	-2,628.2	374.8	2,645.3	0.00	0.00	0.00
15,300.0	90.00	179.53	12,370.0	-2,728.2	375.6	2,745.2	0.00	0.00	0.00
15,400.0	90.00	179.53	12,370.0	-2,828.2	376.5	2,845.1	0.00	0.00	0.00
15,500.0	90.00	179.53	12,370.0	-2,928.2	377.3	2,944.9	0.00	0.00	0.00
15,600.0	90.00	179.53	12,370.0	-3,028.2	378.1	3,044.8	0.00	0.00	0.00
15,700.0	90.00	179.53	12,370.0	-3,128.2	379.0	3,144.7	0.00	0.00	0.00
15,800.0	90.00	179.53	12,370.0	-3,228.2	379.8	3,244.6	0.00	0.00	0.00
15,900.0	90.00	179.53	12,370.0	-3,328.2	380.6	3,344.5	0.00	0.00	0.00
16,000.0	90.00	179.53	12,370.0	-3,428.2	381.4	3,444.4	0.00	0.00	0.00
16,100.0	90.00	179.53	12,370.0	-3,528.2	382.3	3,544.2	0.00	0.00	0.00
16,200.0	90.00	179.53	12,370.0	-3,628.2	383.1	3,644.1	0.00	0.00	0.00
16,300.0	90.00	179.53	12,370.0	-3,728.2	383.9	3,744.0	0.00	0.00	0.00
16,400.0	90.00	179.53	12,370.0	-3,828.2	384.8	3,843.9	0.00	0.00	0.00
16,500.0	90.00	179.53	12,370.0	-3,928.2	385.6	3,943.8	0.00	0.00	0.00
16,600.0	90.00	179.53	12,370.0	-4,028.2	386.4	4,043.6	0.00	0.00	0.00
16,700.0	90.00	179.53	12,370.0	-4,128.2	387.2	4,143.5	0.00	0.00	0.00
16,800.0	90.00	179.53	12,370.0	-4,228.2	388.1	4,243.4	0.00	0.00	0.00
16,900.0	90.00	179.53	12,370.0	-4,328.2	388.9	4,343.3	0.00	0.00	0.00
17,000.0	90.00	179.53	12,370.0	-4,428.1	389.7	4,443.2	0.00	0.00	0.00
17,100.0	90.00	179.53	12,370.0	-4,528.1	390.6	4,543.0	0.00	0.00	0.00
17,200.0	90.00	179.53	12,370.0	-4,628.1	391.4	4,642.9	0.00	0.00	0.00
17,300.0	90.00	179.53	12,370.0	-4,728.1	392.2	4,742.8	0.00	0.00	0.00
17,400.0	90.00	179.53	12,370.0	-4,828.1	393.0	4,842.7	0.00	0.00	0.00
17,500.0	90.00	179.53	12,370.0	-4,928.1	393.9	4,942.6	0.00	0.00	0.00
17,600.0	90.00	179.53	12,370.0	-5,028.1	394.7	5,042.5	0.00	0.00	0.00
17,700.0	90.00	179.53	12,370.0	-5,128.1	395.5	5,142.3	0.00	0.00	0.00
17,800.0	90.00	179.53	12,370.0	-5,228.1	396.4	5,242.2	0.00	0.00	0.00
17,900.0	90.00	179.53	12,370.0	-5,328.1	397.2	5,342.1	0.00	0.00	0.00
18,000.0	90.00	179.53	12,370.0	-5,428.1	398.0	5,442.0	0.00	0.00	0.00
18,100.0	90.00	179.53	12,370.0	-5,528.1	398.9	5,541.9	0.00	0.00	0.00
18,200.0	90.00	179.53	12,370.0	-5,628.1	399.7	5,641.7	0.00	0.00	0.00
18,300.0	90.00	179.53	12,370.0	-5,728.1	400.5	5,741.6	0.00	0.00	0.00
18,400.0	90.00	179.53	12,370.0	-5,828.1	401.3	5,841.5	0.00	0.00	0.00
18,500.0	90.00	179.53	12,370.0	-5,928.1	402.2	5,941.4	0.00	0.00	0.00
18,600.0	90.00	179.53	12,370.0	-6,028.1	403.0	6,041.3	0.00	0.00	0.00
18,700.0	90.00	179.53	12,370.0	-6,128.1	403.8	6,141.1	0.00	0.00	0.00
18,800.0	90.00	179.53	12,370.0	-6,228.1	404.7	6,241.0	0.00	0.00	0.00
18,900.0	90.00	179.53	12,370.0	-6,328.1	405.5	6,340.9	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #604H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3347.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3347.0usft
Site:	Fox 30 Fed Com	**North Reference:**	Grid
Well:	#604H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,000.0	90.00	179.53	12,370.0	-6,428.1	406.3	6,440.8	0.00	0.00	0.00
19,100.0	90.00	179.53	12,370.0	-6,528.1	407.1	6,540.7	0.00	0.00	0.00
19,200.0	90.00	179.53	12,370.0	-6,628.1	408.0	6,640.6	0.00	0.00	0.00
19,300.0	90.00	179.53	12,370.0	-6,728.1	408.8	6,740.4	0.00	0.00	0.00
19,400.0	90.00	179.53	12,370.0	-6,828.1	409.6	6,840.3	0.00	0.00	0.00
19,500.0	90.00	179.53	12,370.0	-6,928.1	410.5	6,940.2	0.00	0.00	0.00
19,600.0	90.00	179.53	12,370.0	-7,028.1	411.3	7,040.1	0.00	0.00	0.00
19,700.0	90.00	179.53	12,370.0	-7,128.1	412.1	7,140.0	0.00	0.00	0.00
19,806.9	90.00	179.53	12,370.0	-7,235.0	413.0	7,246.8	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP(fox30 #604)	0.00	0.00	12,370.0	124.0	352.0	401,323.00	798,572.00	32° 6' 2.131 N	103° 30' 9.422 W
- plan misses target center by 44.2usft at 12459.6usft MD (12329.5 TVD, 106.4 N, 350.6 E)									
- Point									
PBHL(fox30 #604)	0.00	0.00	12,370.0	-7,235.0	413.0	393,964.00	798,633.00	32° 4' 49.308 N	103° 30' 9.372 W
- plan hits target center									
- Point									

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**EOG RESOURCES INC**
LEASE NO.:	**NMNM112279**
WELL NAME & NO.:	**FOX 30 FED COM 604H**
SURFACE HOLE FOOTAGE:	**2190' FSL & 1013' FEL**
BOTTOM HOLE FOOTAGE	**230' FSL & 661' FEL, Sec. 31**
LOCATION:	**Section 30, T. 25 S., R 34 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

COA

All pervious COAs still apply expect the following.:

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1002** feet (a minimum of 25 feet into the Rustler Anhydrite and 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 will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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 **9-5/8** inch **1st** intermediate casing is:Cement to surface. If cement does not circulate see B.1.a, c-d above.

Operator shall fill 1/3rd of the 2nd intermediate casing with fluid to maintained collapse safety factor. ~~Alterante~~ Alternate Brust Safety Factor is also good.

3. The minimum required fill of cement behind the **7-5/8** inch **2nd** intermediate casing is: Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Variance was approved for annular spacing for 5.5 x 7.625 inch casing.

4. The minimum required fill of cement behind the **5-1/2** inch production liner is:
   - Cement should tie-back 200' into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi.

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.).

GENERAL 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. 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.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. 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 are located, this does not include the dog house or stairway area.

3. 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.

A. CASING

1. 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.

2. Wait on cement (WOC) for Potash Areas: 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 for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. 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. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. 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.

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

6. **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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.**

7. 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.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. 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.

3. 5M or higher 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. **If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
    e. **Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.**

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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

    c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

    d. 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.

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. 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 Wolfcamp formation 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.

C. DRILLING MUD

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

D. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 010418

Stevens, Zota <zstevens@blm.gov>

FW: Request for annular variance - Fox 30

1 message

Stan Wagner <Stan_Wagner@eogresources.com> Thu, Jan 4, 2018 at 2:01 PM
To: "Stevens, Zota" <zstevens@blm.gov>

Zota,

EOG Resources requests an annular variance (minimum clearance) for the 5.5 X 7.625" annular for the Fox 30 Fed Com 602H and 604H .

Thanks,

Stan Wagner

EOG Resources – Midland

432-686-3689

253430I APD FOX 30 FED COM 604 30015 NMNM112279 EOG RESORUCES INC 12-55 397109 01042018 ZS

KFC

13 3/8	surface csg in a		17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	54.50	J 55		ST&C	9.41	2.47	1.01	1,002	54,609
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,474			Tail Cmt	does not	circ to sfc.		Totals:	1,002	54,609

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	800	1306	750	74	8.80	1580	2M	1.56

9 5/8	casing inside the		13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	J 55		LT&C	2.55	1.18	0.71	4,100	164,000
"B"	40.00	HCK 55		LT&C	15.75	1.57	0.71	1,000	40,000
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	5,100	204,000
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		1002	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	1980	4140	1666	149	10.20	3055	5M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.96, 0.77, c, d
All > 0.70, OK.

7 5/8	casing inside the		9 5/8	A Buoyant		Design Factors		INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	29.70	HCP 110		LT&C	1.91	0.96	0.84	11,400	338,580
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	333						Totals:	11,400	338,580
The cement volume(s) are intended to achieve a top of					4800	ft from surface or a		300	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1005	550	1160	677	71	9.40	6275	10M	0.56

MASP is within 10% of 5000psig, need exrta equip?

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.67, b, c, d <0.70 a Problem!!

ALT. COLLAPSE SF= .96*1.5=1.44 ALT. BURST IS GOOD.

Tail cmt

5 1/2	casing inside the		7 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	20.00	P 110		BUTT	2.95	1.53	1.6	10,900	218,000
"B"	20.00	P 110		BUTT	4.62	1.25	1.6	8,907	178,140
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,398						Totals:	19,807	396,140
Segment Design Factors would be:					17.35	1.34	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
19807	12370	12370	11887	90	12	12658

The cement volume(s) are intended to achieve a top of 11200 ft from surface or a 200 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	950	1197	726	65	14.00			0.52

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?