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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

HOBBS OCD
AUG 21 2019
RECEIVED

5. Lease Serial No.
NMNM02965A

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.
MAGNOLIA 15 FED COM 744H

2. Name of Operator
EOG RESOURCES INCORPORATED

Contact: STAR HARRELL
E-Mail: Star_Harrell@eogresources.com

9. API Well No.
30-025-44402-00-X1

3a. Address
PO BOX 2267
MIDLAND, TX 79702

3b. Phone No. (include area code)
Ph: 432.848.9161

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

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*

Sec 15 T26S R33E NENE 771FNL 1268FEL
32.048611 N Lat, 103.555748 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 respectfully requests an amendment to our approved APD for this well to reflect changes in the BHL, Name, TD & HSU.

Carlsbad Field Office
OCD Hobbs

Change BHL to : 2540' FNL 1313? FEL SEC 22-26S-33E

Name change well number from 710H to 744H

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

The new HSU is 240 acres.

Attached please find the following supporting documentation: Amended C-102 Plat, Revised Permit Information & Revised Wellbore Diagram.

All Previous COAs Still Apply, Except For the Following:

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

Electronic Submission #476791 verified by the BLM Well Information System
For EOG RESOURCES INCORPORATED, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 08/07/2019 (19PP2772SE)

Name *(Printed/Typed)* BEN HOCHER — Title REGULATORY ASSOC.

Signature (Electronic Submission) — Date 08/06/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JERRY PORTER — Title PETROLEUM ENGINEER — Date 08/19/2019

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 ****

KZ REQUIRES NSL

Revisions to Operator-Submitted EC Data for Sundry Notice #476791

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM02965A	NMNM02965A
Agreement:		
Operator:	EOG RESOURCES INC P.O. BOX 2267 MIDLAND, TX 79702 Ph: 432-848-9161	EOG RESOURCES INCORPORATED PO BOX 2267 MIDLAND, TX 79702 Ph: 432.686.3689
Admin Contact:	STAR HARRELL SENIOR REGULATORY SPECIALIST E-Mail: Star_Harrell@eogresources.com Ph: 432-848-9161	STAR HARRELL SENIOR REGULATORY SPECIALIST E-Mail: Star_Harrell@eogresources.com Ph: 432.848.9161
Tech Contact:	BEN HOCHER ENGINEERING ASSOCIATE E-Mail: Ben_Hocher@eogresouces.com Ph: 432-686-2623	BEN HOCHER REGULATORY ASSOC. E-Mail: Ben_Hocher@eogresources.com Ph: 432-636-3600
Location: State: County:	 NM LEA	 NM LEA
Field/Pool:	SANDERSTANK; UPR WOLFCAMP	WC025G09S263327G-UP WOLFCAMP
Well/Facility:	MAGNOLIA 15 FED COM 744H Sec 15 T26S R33E NENE 771FNL 1268FEL 32.048609 N Lat, 103.555744 W Lon	MAGNOLIA 15 FED COM 744H Sec 15 T26S R33E NENE 771FNL 1268FEL 32.048611 N Lat, 103.555748 W Lon

Revised Permit Information 7/17/19:

Well Name: Magnolia 15 Fed Com #744H

Location:

SHL: 771' FNL & 1268' FEL, Section 15, T-26-S, R-33-E, Lea Co., N.M.
BHL: 2540' FNL & 1313' FEL, Section 22, T-26-S, R-33-E, Lea Co., N.M.

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
12.25"	0' – ~~855'~~ 1005'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' – 11,300'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,800'–11,300'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,300' – 20,504'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60

Variance is requested to waive 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 waive 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.

Variance is also requested to waive the annular clearance requirements for the 5-1/2" casing by 7-5/8" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422'' annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422'' between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422'' is acceptable for the curve and lateral portions of the production open hole section.

EOG Resources also requests approval to implement previously permitted 4 string designs, to be referred to as Design B.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/sk	Slurry Description
855' 9-5/8"	700	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	80	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 655')
11,300' 7-5/8"	460	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,700')
	1,000	12.7	2.30	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
20,504' 5-1/2"	780	14.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

EOG requests to pump a two stage cement job on the 7-5/8'' intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 1,000 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. The final cement top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

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.

Mud Program:

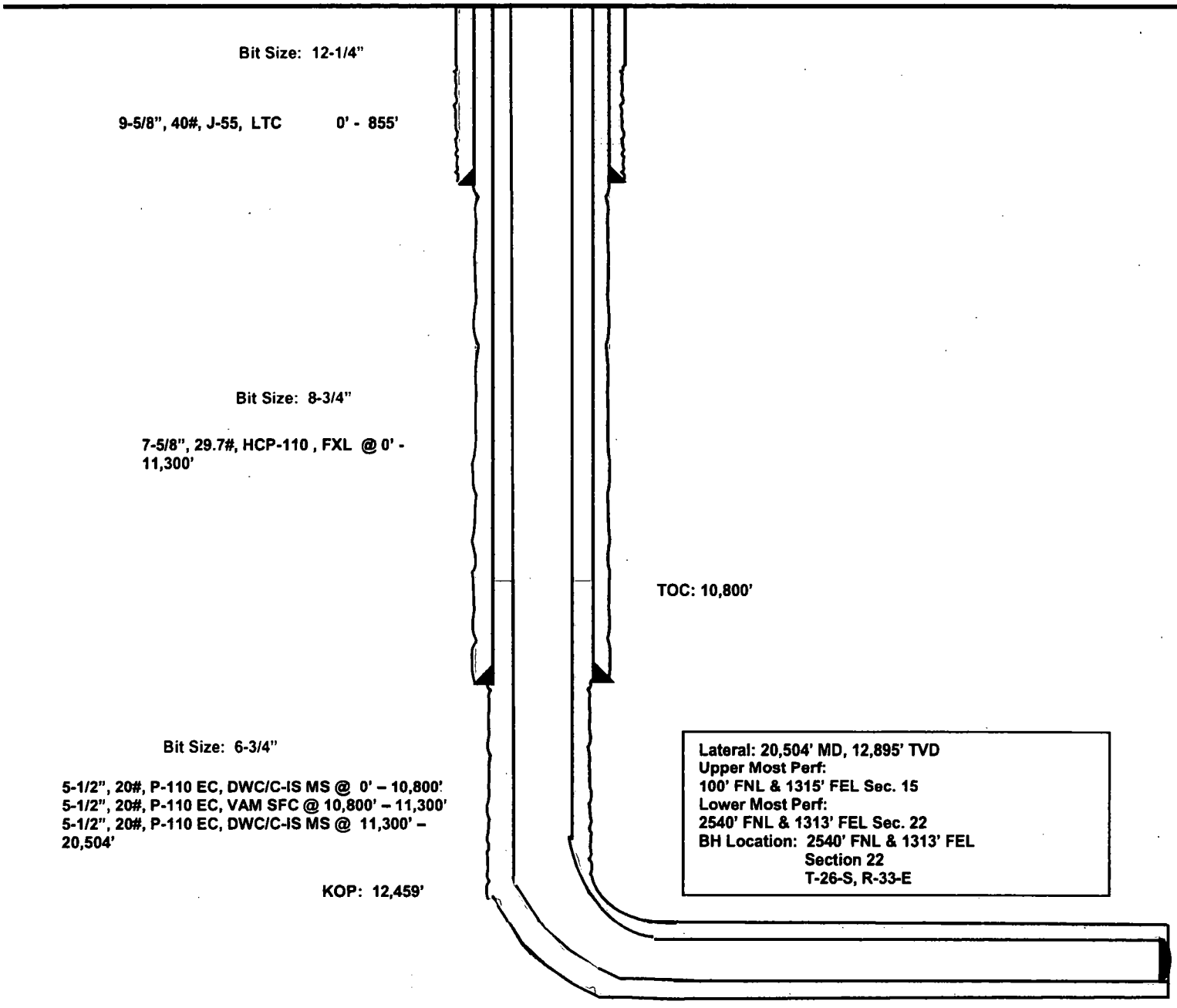
Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 855'	Fresh - Gel	8.6-8.8	28-34	N/c
855' – 11,300'	Brine	10.0-10.2	28-34	N/c
11,300' – 12,459'	Oil Base	8.7-9.4	58-68	N/c - 6
12,459' – 20,504' Lateral	Oil Base	10.0-14.0	58-68	3 - 6

771' FNL
1268' FEL
Section 15
T-26-S, R-33-E

Proposed Wellbore
Design A

API: 30-025-44402

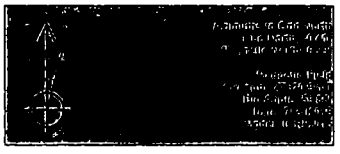
KB: 3,348'
GL: 3,323'



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



To convert a Magnetic Direction to a Grid Direction, Add 6.29°
To convert a Magnetic Direction to a True Direction, Add 6.71° East
To convert a True Direction to a Grid Direction, Subtract 0.41°

Lea County, NM (NAD 83 NME)

Magnolia 15 Fed Com #744H

Plan #0.1

WELL DETAILS: #744H

3323.0
KB = 25 @ 3348.0usft

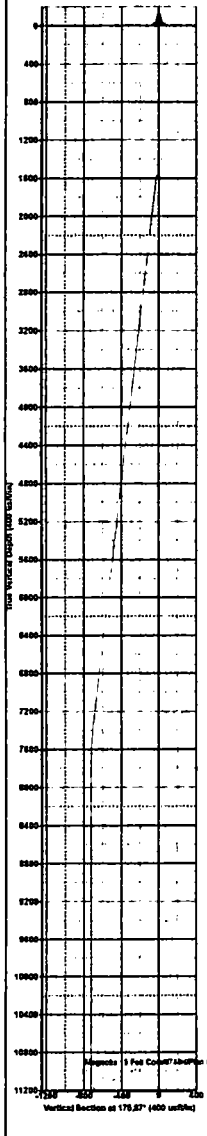
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	382290.00	762257.00	32° 2' 54.997 N	103° 33' 20.577 W	

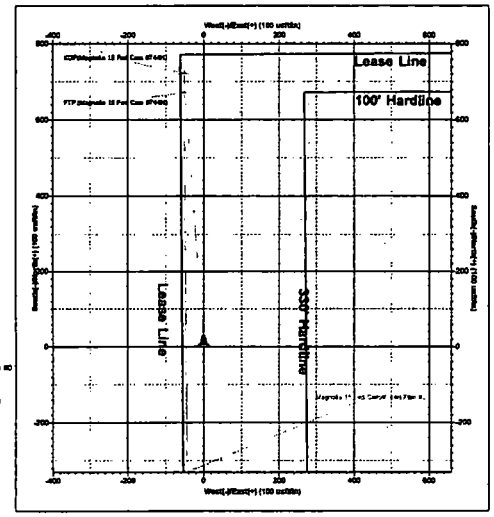
SECTION DETAILS

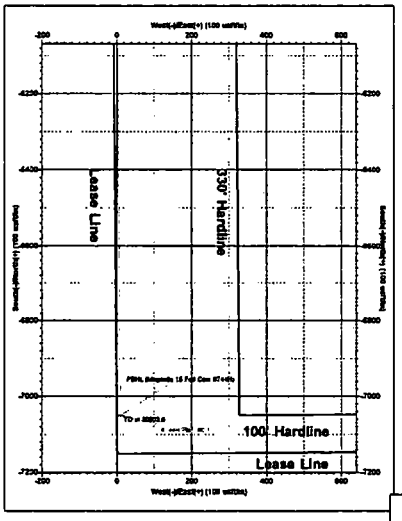
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
1632.6	6.66	355.87	1632.0	19.3	-1.4	2.00	355.87	-19.3	
7436.6	6.66	355.87	7396.0	701.7	-50.6	0.00	0.00	-701.8	
7769.3	0.00	0.00	7728.0	721.0	-52.0	2.00	180.00	-721.1	
12458.8	0.00	0.00	12417.5	721.0	-52.0	0.00	0.00	-721.1	KOP(Magnolia 15 Fed Com #744H)
13208.8	90.00	179.55	12895.0	243.6	-48.3	12.00	179.55	-243.6	
20503.6	90.00	179.55	12895.0	-7051.0	9.0	0.00	0.00	7051.0	PBHL (Magnolia 15 Fed Com #744H)

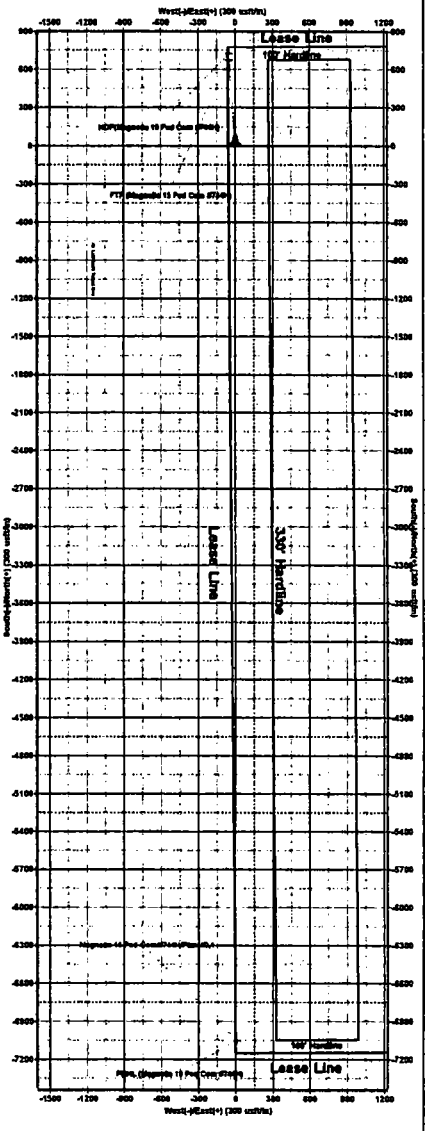
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

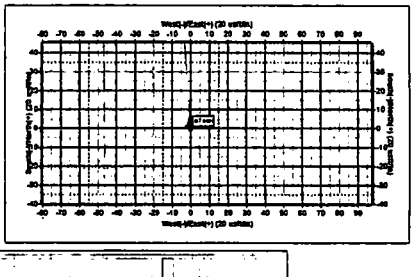
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
KOP(Magnolia 15 Fed Com #744H)	12417.5	721.0	-52.0	383011.00	762205.00	Point
FTP (Magnolia 15 Fed Com #744H)	12895.0	671.0	-52.0	382961.00	762205.00	Point
PBHL (Magnolia 15 Fed Com #744H)	12895.0	-7051.0	9.0	375239.00	762266.00	Point

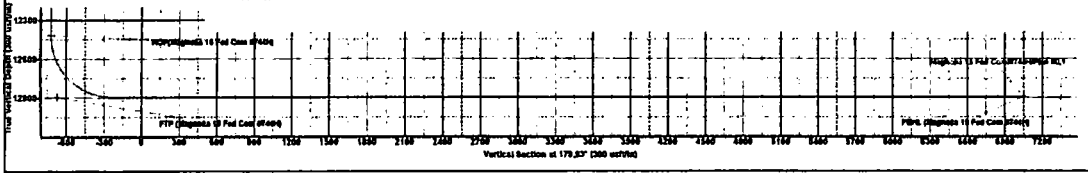


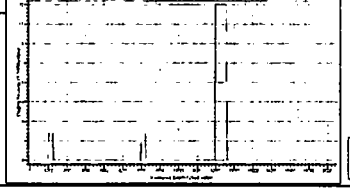












eog resources

EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Magnolia 15 Fed Com
#744H

OH

Plan: Plan #0.1

Standard Planning Report

23 July, 2019

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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	Magnolia 15 Fed Com				
Site Position:		**Northing:**	381,905.00 usft	**Latitude:**	32° 2' 51.321 N
From:	Map	**Easting:**	780,373.00 usft	**Longitude:**	103° 33' 42.598 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.41 °

Well	#744H					
Well Position	**+N/-S**	385.0 usft	**Northing:**	382,290.00 usft	**Latitude:**	32° 2' 54.997 N
	+E/-W	1,884.0 usft	**Easting:**	782,257.00 usft	**Longitude:**	103° 33' 20.677 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,323.0 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	7/23/2019	6.71	59.88	47,620.94453412

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	179.93	

Plan Survey Tool Program **Date** 7/23/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	20,503.6	Plan #0.1 (OH)	MWD	
				OWSG 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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,532.8	6.66	355.87	1,532.0	19.3	-1.4	2.00	2.00	0.00	355.87	
7,436.5	6.66	355.87	7,396.0	701.7	-50.6	0.00	0.00	0.00	0.00	
7,769.3	0.00	0.00	7,728.0	721.0	-52.0	2.00	-2.00	0.00	180.00	
12,458.8	0.00	0.00	12,417.5	721.0	-52.0	0.00	0.00	0.00	0.00	KOP(Magnolia 15 Fed
13,208.8	90.00	179.55	12,895.0	243.6	-48.3	12.00	12.00	23.94	179.55	
20,503.6	90.00	179.55	12,895.0	-7,051.0	9.0	0.00	0.00	0.00	0.00	PBHL (Magnolia 15 F

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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	2.00	355.87	1,300.0	1.7	-0.1	-1.7	2.00	2.00	0.00
1,400.0	4.00	355.87	1,399.8	7.0	-0.5	-7.0	2.00	2.00	0.00
1,500.0	6.00	355.87	1,499.5	15.7	-1.1	-15.7	2.00	2.00	0.00
1,532.8	6.66	355.87	1,532.0	19.3	-1.4	-19.3	2.00	2.00	0.00
1,600.0	6.66	355.87	1,598.8	27.0	-1.9	-27.0	0.00	0.00	0.00
1,700.0	6.66	355.87	1,698.1	38.6	-2.8	-38.6	0.00	0.00	0.00
1,800.0	6.66	355.87	1,797.5	50.1	-3.6	-50.2	0.00	0.00	0.00
1,900.0	6.66	355.87	1,896.8	61.7	-4.5	-61.7	0.00	0.00	0.00
2,000.0	6.66	355.87	1,996.1	73.3	-5.3	-73.3	0.00	0.00	0.00
2,100.0	6.66	355.87	2,095.4	84.8	-6.1	-84.8	0.00	0.00	0.00
2,200.0	6.66	355.87	2,194.8	96.4	-7.0	-96.4	0.00	0.00	0.00
2,300.0	6.66	355.87	2,294.1	107.9	-7.8	-108.0	0.00	0.00	0.00
2,400.0	6.66	355.87	2,393.4	119.5	-8.6	-119.5	0.00	0.00	0.00
2,500.0	6.66	355.87	2,492.7	131.1	-9.5	-131.1	0.00	0.00	0.00
2,600.0	6.66	355.87	2,592.1	142.6	-10.3	-142.6	0.00	0.00	0.00
2,700.0	6.66	355.87	2,691.4	154.2	-11.1	-154.2	0.00	0.00	0.00
2,800.0	6.66	355.87	2,790.7	165.8	-12.0	-165.8	0.00	0.00	0.00
2,900.0	6.66	355.87	2,890.0	177.3	-12.8	-177.3	0.00	0.00	0.00
3,000.0	6.66	355.87	2,989.4	188.9	-13.6	-188.9	0.00	0.00	0.00
3,100.0	6.66	355.87	3,088.7	200.4	-14.5	-200.4	0.00	0.00	0.00
3,200.0	6.66	355.87	3,188.0	212.0	-15.3	-212.0	0.00	0.00	0.00
3,300.0	6.66	355.87	3,287.3	223.6	-16.1	-223.6	0.00	0.00	0.00
3,400.0	6.66	355.87	3,386.7	235.1	-17.0	-235.1	0.00	0.00	0.00
3,500.0	6.66	355.87	3,486.0	246.7	-17.8	-246.7	0.00	0.00	0.00
3,600.0	6.66	355.87	3,585.3	258.2	-18.6	-258.3	0.00	0.00	0.00
3,700.0	6.66	355.87	3,684.6	269.8	-19.5	-269.8	0.00	0.00	0.00
3,800.0	6.66	355.87	3,784.0	281.4	-20.3	-281.4	0.00	0.00	0.00
3,900.0	6.66	355.87	3,883.3	292.9	-21.1	-292.9	0.00	0.00	0.00
4,000.0	6.66	355.87	3,982.6	304.5	-22.0	-304.5	0.00	0.00	0.00
4,100.0	6.66	355.87	4,082.0	316.0	-22.8	-316.1	0.00	0.00	0.00
4,200.0	6.66	355.87	4,181.3	327.6	-23.6	-327.6	0.00	0.00	0.00
4,300.0	6.66	355.87	4,280.6	339.2	-24.5	-339.2	0.00	0.00	0.00
4,400.0	6.66	355.87	4,379.9	350.7	-25.3	-350.7	0.00	0.00	0.00
4,500.0	6.66	355.87	4,479.3	362.3	-26.1	-362.3	0.00	0.00	0.00
4,600.0	6.66	355.87	4,578.6	373.8	-27.0	-373.9	0.00	0.00	0.00
4,700.0	6.66	355.87	4,677.9	385.4	-27.8	-385.4	0.00	0.00	0.00
4,800.0	6.66	355.87	4,777.2	397.0	-28.6	-397.0	0.00	0.00	0.00
4,900.0	6.66	355.87	4,876.6	408.5	-29.5	-408.6	0.00	0.00	0.00
5,000.0	6.66	355.87	4,975.9	420.1	-30.3	-420.1	0.00	0.00	0.00
5,100.0	6.66	355.87	5,075.2	431.6	-31.1	-431.7	0.00	0.00	0.00
5,200.0	6.66	355.87	5,174.5	443.2	-32.0	-443.2	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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	6.66	355.87	5,273.9	454.8	-32.8	-454.8	0.00	0.00	0.00
5,400.0	6.66	355.87	5,373.2	466.3	-33.6	-466.4	0.00	0.00	0.00
5,500.0	6.66	355.87	5,472.5	477.9	-34.5	-477.9	0.00	0.00	0.00
5,600.0	6.66	355.87	5,571.8	489.4	-35.3	-489.5	0.00	0.00	0.00
5,700.0	6.66	355.87	5,671.2	501.0	-36.1	-501.0	0.00	0.00	0.00
5,800.0	6.66	355.87	5,770.5	512.6	-37.0	-512.6	0.00	0.00	0.00
5,900.0	6.66	355.87	5,869.8	524.1	-37.8	-524.2	0.00	0.00	0.00
6,000.0	6.66	355.87	5,969.1	535.7	-38.6	-535.7	0.00	0.00	0.00
6,100.0	6.66	355.87	6,068.5	547.2	-39.5	-547.3	0.00	0.00	0.00
6,200.0	6.66	355.87	6,167.8	558.8	-40.3	-558.9	0.00	0.00	0.00
6,300.0	6.66	355.87	6,267.1	570.4	-41.1	-570.4	0.00	0.00	0.00
6,400.0	6.66	355.87	6,366.4	581.9	-42.0	-582.0	0.00	0.00	0.00
6,500.0	6.66	355.87	6,465.8	593.5	-42.8	-593.5	0.00	0.00	0.00
6,600.0	6.66	355.87	6,565.1	605.0	-43.6	-605.1	0.00	0.00	0.00
6,700.0	6.66	355.87	6,664.4	616.6	-44.5	-616.7	0.00	0.00	0.00
6,800.0	6.66	355.87	6,763.8	628.2	-45.3	-628.2	0.00	0.00	0.00
6,900.0	6.66	355.87	6,863.1	639.7	-46.1	-639.8	0.00	0.00	0.00
7,000.0	6.66	355.87	6,962.4	651.3	-47.0	-651.3	0.00	0.00	0.00
7,100.0	6.66	355.87	7,061.7	662.8	-47.8	-662.9	0.00	0.00	0.00
7,200.0	6.66	355.87	7,161.1	674.4	-48.6	-674.5	0.00	0.00	0.00
7,300.0	6.66	355.87	7,260.4	686.0	-49.5	-686.0	0.00	0.00	0.00
7,400.0	6.66	355.87	7,359.7	697.5	-50.3	-697.6	0.00	0.00	0.00
7,436.5	6.66	355.87	7,396.0	701.7	-50.6	-701.8	0.00	0.00	0.00
7,500.0	5.39	355.87	7,459.1	708.4	-51.1	-708.5	2.00	-2.00	0.00
7,600.0	3.39	355.87	7,558.8	716.0	-51.6	-716.1	2.00	-2.00	0.00
7,700.0	1.39	355.87	7,658.7	720.2	-51.9	-720.2	2.00	-2.00	0.00
7,769.3	0.00	0.00	7,728.0	721.0	-52.0	-721.1	2.00	-2.00	0.00
7,800.0	0.00	0.00	7,758.7	721.0	-52.0	-721.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,858.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,958.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,100.0	0.00	0.00	8,058.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,158.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,258.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,400.0	0.00	0.00	8,358.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,500.0	0.00	0.00	8,458.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,600.0	0.00	0.00	8,558.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,658.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,758.7	721.0	-52.0	-721.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,858.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,000.0	0.00	0.00	8,958.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,100.0	0.00	0.00	9,058.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,200.0	0.00	0.00	9,158.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,300.0	0.00	0.00	9,258.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,400.0	0.00	0.00	9,358.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,500.0	0.00	0.00	9,458.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,600.0	0.00	0.00	9,558.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,700.0	0.00	0.00	9,658.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,800.0	0.00	0.00	9,758.7	721.0	-52.0	-721.1	0.00	0.00	0.00
9,900.0	0.00	0.00	9,858.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,000.0	0.00	0.00	9,958.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,100.0	0.00	0.00	10,058.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,200.0	0.00	0.00	10,158.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,300.0	0.00	0.00	10,258.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,400.0	0.00	0.00	10,358.7	721.0	-52.0	-721.1	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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)
10,500.0	0.00	0.00	10,458.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,600.0	0.00	0.00	10,558.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,700.0	0.00	0.00	10,658.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,800.0	0.00	0.00	10,758.7	721.0	-52.0	-721.1	0.00	0.00	0.00
10,900.0	0.00	0.00	10,858.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,000.0	0.00	0.00	10,958.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,100.0	0.00	0.00	11,058.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,200.0	0.00	0.00	11,158.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,300.0	0.00	0.00	11,258.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,400.0	0.00	0.00	11,358.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,500.0	0.00	0.00	11,458.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,600.0	0.00	0.00	11,558.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,700.0	0.00	0.00	11,658.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,800.0	0.00	0.00	11,758.7	721.0	-52.0	-721.1	0.00	0.00	0.00
11,900.0	0.00	0.00	11,858.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,000.0	0.00	0.00	11,958.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,100.0	0.00	0.00	12,058.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,200.0	0.00	0.00	12,158.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,300.0	0.00	0.00	12,258.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,400.0	0.00	0.00	12,358.7	721.0	-52.0	-721.1	0.00	0.00	0.00
12,458.8	0.00	0.00	12,417.5	721.0	-52.0	-721.1	0.00	0.00	0.00
KOP(Magnolia 15 Fed Com #744H)									
12,475.0	1.95	179.55	12,433.7	720.7	-52.0	-720.8	12.00	12.00	0.00
12,500.0	4.95	179.55	12,458.7	719.2	-52.0	-719.3	12.00	12.00	0.00
12,525.0	7.95	179.55	12,483.5	716.4	-52.0	-716.5	12.00	12.00	0.00
12,550.0	10.95	179.55	12,508.2	712.3	-51.9	-712.4	12.00	12.00	0.00
12,575.0	13.95	179.55	12,532.6	706.9	-51.9	-707.0	12.00	12.00	0.00
12,600.0	16.95	179.55	12,556.7	700.3	-51.8	-700.3	12.00	12.00	0.00
12,625.0	19.95	179.55	12,580.4	692.4	-51.8	-692.4	12.00	12.00	0.00
12,650.0	22.95	179.55	12,603.6	683.2	-51.7	-683.3	12.00	12.00	0.00
12,675.0	25.95	179.55	12,626.4	672.9	-51.6	-672.9	12.00	12.00	0.00
12,700.0	28.95	179.55	12,648.6	661.4	-51.5	-661.4	12.00	12.00	0.00
12,725.0	31.95	179.55	12,670.1	648.7	-51.4	-648.8	12.00	12.00	0.00
12,750.0	34.95	179.55	12,691.0	634.9	-51.3	-635.0	12.00	12.00	0.00
12,775.0	37.95	179.55	12,711.1	620.1	-51.2	-620.1	12.00	12.00	0.00
12,800.0	40.95	179.55	12,730.4	604.2	-51.1	-604.2	12.00	12.00	0.00
12,825.0	43.95	179.55	12,748.9	587.3	-51.0	-587.4	12.00	12.00	0.00
12,850.0	46.95	179.55	12,766.4	569.5	-50.8	-569.6	12.00	12.00	0.00
12,859.4	48.07	179.55	12,772.7	562.6	-50.8	-562.7	12.00	12.00	0.00
FTP (Magnolia 15 Fed Com #744H)									
12,875.0	49.95	179.55	12,783.0	550.8	-50.7	-550.9	12.00	12.00	0.00
12,900.0	52.95	179.55	12,798.5	531.2	-50.5	-531.3	12.00	12.00	0.00
12,925.0	55.95	179.55	12,813.1	510.9	-50.4	-511.0	12.00	12.00	0.00
12,950.0	58.95	179.55	12,826.5	489.8	-50.2	-489.9	12.00	12.00	0.00
12,975.0	61.95	179.55	12,838.9	468.1	-50.0	-468.2	12.00	12.00	0.00
13,000.0	64.95	179.55	12,850.0	445.7	-49.8	-445.8	12.00	12.00	0.00
13,025.0	67.95	179.55	12,860.0	422.8	-49.7	-422.9	12.00	12.00	0.00
13,050.0	70.95	179.55	12,868.8	399.4	-49.5	-399.5	12.00	12.00	0.00
13,075.0	73.95	179.55	12,876.3	375.6	-49.3	-375.6	12.00	12.00	0.00
13,100.0	76.95	179.55	12,882.6	351.4	-49.1	-351.5	12.00	12.00	0.00
13,125.0	79.95	179.55	12,887.6	326.9	-48.9	-327.0	12.00	12.00	0.00
13,150.0	82.95	179.55	12,891.4	302.2	-48.7	-302.2	12.00	12.00	0.00
13,175.0	85.95	179.55	12,893.8	277.3	-48.5	-277.4	12.00	12.00	0.00
13,200.0	88.95	179.55	12,894.9	252.3	-48.3	-252.4	12.00	12.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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)
13,208.8	90.00	179.55	12,895.0	243.6	-48.3	-243.6	12.00	12.00	0.00
13,300.0	90.00	179.55	12,895.0	152.3	-47.5	-152.4	0.00	0.00	0.00
13,400.0	90.00	179.55	12,895.0	52.3	-46.8	-52.4	0.00	0.00	0.00
13,500.0	90.00	179.55	12,895.0	-47.7	-46.0	47.6	0.00	0.00	0.00
13,600.0	90.00	179.55	12,895.0	-147.7	-45.2	147.6	0.00	0.00	0.00
13,700.0	90.00	179.55	12,895.0	-247.7	-44.4	247.6	0.00	0.00	0.00
13,800.0	90.00	179.55	12,895.0	-347.6	-43.6	347.6	0.00	0.00	0.00
13,900.0	90.00	179.55	12,895.0	-447.6	-42.8	447.6	0.00	0.00	0.00
14,000.0	90.00	179.55	12,895.0	-547.6	-42.0	547.6	0.00	0.00	0.00
14,100.0	90.00	179.55	12,895.0	-647.6	-41.3	647.6	0.00	0.00	0.00
14,200.0	90.00	179.55	12,895.0	-747.6	-40.5	747.6	0.00	0.00	0.00
14,300.0	90.00	179.55	12,895.0	-847.6	-39.7	847.6	0.00	0.00	0.00
14,400.0	90.00	179.55	12,895.0	-947.6	-38.9	947.6	0.00	0.00	0.00
14,500.0	90.00	179.55	12,895.0	-1,047.6	-38.1	1,047.6	0.00	0.00	0.00
14,600.0	90.00	179.55	12,895.0	-1,147.6	-37.3	1,147.6	0.00	0.00	0.00
14,700.0	90.00	179.55	12,895.0	-1,247.6	-36.5	1,247.6	0.00	0.00	0.00
14,800.0	90.00	179.55	12,895.0	-1,347.6	-35.8	1,347.6	0.00	0.00	0.00
14,900.0	90.00	179.55	12,895.0	-1,447.6	-35.0	1,447.6	0.00	0.00	0.00
15,000.0	90.00	179.55	12,895.0	-1,547.6	-34.2	1,547.6	0.00	0.00	0.00
15,100.0	90.00	179.55	12,895.0	-1,647.6	-33.4	1,647.6	0.00	0.00	0.00
15,200.0	90.00	179.55	12,895.0	-1,747.6	-32.6	1,747.6	0.00	0.00	0.00
15,300.0	90.00	179.55	12,895.0	-1,847.6	-31.8	1,847.6	0.00	0.00	0.00
15,400.0	90.00	179.55	12,895.0	-1,947.6	-31.1	1,947.6	0.00	0.00	0.00
15,500.0	90.00	179.55	12,895.0	-2,047.6	-30.3	2,047.6	0.00	0.00	0.00
15,600.0	90.00	179.55	12,895.0	-2,147.6	-29.5	2,147.6	0.00	0.00	0.00
15,700.0	90.00	179.55	12,895.0	-2,247.6	-28.7	2,247.6	0.00	0.00	0.00
15,800.0	90.00	179.55	12,895.0	-2,347.6	-27.9	2,347.5	0.00	0.00	0.00
15,900.0	90.00	179.55	12,895.0	-2,447.6	-27.1	2,447.5	0.00	0.00	0.00
16,000.0	90.00	179.55	12,895.0	-2,547.6	-26.3	2,547.5	0.00	0.00	0.00
16,100.0	90.00	179.55	12,895.0	-2,647.6	-25.6	2,647.5	0.00	0.00	0.00
16,200.0	90.00	179.55	12,895.0	-2,747.6	-24.8	2,747.5	0.00	0.00	0.00
16,300.0	90.00	179.55	12,895.0	-2,847.6	-24.0	2,847.5	0.00	0.00	0.00
16,400.0	90.00	179.55	12,895.0	-2,947.6	-23.2	2,947.5	0.00	0.00	0.00
16,500.0	90.00	179.55	12,895.0	-3,047.6	-22.4	3,047.5	0.00	0.00	0.00
16,600.0	90.00	179.55	12,895.0	-3,147.6	-21.6	3,147.5	0.00	0.00	0.00
16,700.0	90.00	179.55	12,895.0	-3,247.6	-20.9	3,247.5	0.00	0.00	0.00
16,800.0	90.00	179.55	12,895.0	-3,347.6	-20.1	3,347.5	0.00	0.00	0.00
16,900.0	90.00	179.55	12,895.0	-3,447.6	-19.3	3,447.5	0.00	0.00	0.00
17,000.0	90.00	179.55	12,895.0	-3,547.5	-18.5	3,547.5	0.00	0.00	0.00
17,100.0	90.00	179.55	12,895.0	-3,647.5	-17.7	3,647.5	0.00	0.00	0.00
17,200.0	90.00	179.55	12,895.0	-3,747.5	-16.9	3,747.5	0.00	0.00	0.00
17,300.0	90.00	179.55	12,895.0	-3,847.5	-16.1	3,847.5	0.00	0.00	0.00
17,400.0	90.00	179.55	12,895.0	-3,947.5	-15.4	3,947.5	0.00	0.00	0.00
17,500.0	90.00	179.55	12,895.0	-4,047.5	-14.6	4,047.5	0.00	0.00	0.00
17,600.0	90.00	179.55	12,895.0	-4,147.5	-13.8	4,147.5	0.00	0.00	0.00
17,700.0	90.00	179.55	12,895.0	-4,247.5	-13.0	4,247.5	0.00	0.00	0.00
17,800.0	90.00	179.55	12,895.0	-4,347.5	-12.2	4,347.5	0.00	0.00	0.00
17,900.0	90.00	179.55	12,895.0	-4,447.5	-11.4	4,447.5	0.00	0.00	0.00
18,000.0	90.00	179.55	12,895.0	-4,547.5	-10.6	4,547.5	0.00	0.00	0.00
18,100.0	90.00	179.55	12,895.0	-4,647.5	-9.9	4,647.5	0.00	0.00	0.00
18,200.0	90.00	179.55	12,895.0	-4,747.5	-9.1	4,747.5	0.00	0.00	0.00
18,300.0	90.00	179.55	12,895.0	-4,847.5	-8.3	4,847.5	0.00	0.00	0.00
18,400.0	90.00	179.55	12,895.0	-4,947.5	-7.5	4,947.5	0.00	0.00	0.00
18,500.0	90.00	179.55	12,895.0	-5,047.5	-6.7	5,047.5	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #744H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25 @ 3348.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25 @ 3348.0usft
Site:	Magnolia 15 Fed Com	**North Reference:**	Grid
Well:	#744H	**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)
18,600.0	90.00	179.55	12,895.0	-5,147.5	-5.9	5,147.5	0.00	0.00	0.00
18,700.0	90.00	179.55	12,895.0	-5,247.5	-5.2	5,247.5	0.00	0.00	0.00
18,800.0	90.00	179.55	12,895.0	-5,347.5	-4.4	5,347.5	0.00	0.00	0.00
18,900.0	90.00	179.55	12,895.0	-5,447.5	-3.6	5,447.5	0.00	0.00	0.00
19,000.0	90.00	179.55	12,895.0	-5,547.5	-2.8	5,547.5	0.00	0.00	0.00
19,100.0	90.00	179.55	12,895.0	-5,647.5	-2.0	5,647.5	0.00	0.00	0.00
19,200.0	90.00	179.55	12,895.0	-5,747.5	-1.2	5,747.5	0.00	0.00	0.00
19,300.0	90.00	179.55	12,895.0	-5,847.5	-0.4	5,847.5	0.00	0.00	0.00
19,400.0	90.00	179.55	12,895.0	-5,947.5	0.3	5,947.5	0.00	0.00	0.00
19,500.0	90.00	179.55	12,895.0	-6,047.5	1.1	6,047.5	0.00	0.00	0.00
19,600.0	90.00	179.55	12,895.0	-6,147.5	1.9	6,147.5	0.00	0.00	0.00
19,700.0	90.00	179.55	12,895.0	-6,247.5	2.7	6,247.5	0.00	0.00	0.00
19,800.0	90.00	179.55	12,895.0	-6,347.5	3.5	6,347.5	0.00	0.00	0.00
19,900.0	90.00	179.55	12,895.0	-6,447.5	4.3	6,447.5	0.00	0.00	0.00
20,000.0	90.00	179.55	12,895.0	-6,547.5	5.0	6,547.5	0.00	0.00	0.00
20,100.0	90.00	179.55	12,895.0	-6,647.5	5.8	6,647.5	0.00	0.00	0.00
20,200.0	90.00	179.55	12,895.0	-6,747.5	6.6	6,747.5	0.00	0.00	0.00
20,300.0	90.00	179.55	12,895.0	-6,847.4	7.4	6,847.5	0.00	0.00	0.00
20,400.0	90.00	179.55	12,895.0	-6,947.4	8.2	6,947.4	0.00	0.00	0.00
20,503.6	90.00	179.55	12,895.0	-7,051.0	9.0	7,051.0	0.00	0.00	0.00
PBHL (Magnolia 15 Fed Com #744H)									

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
KOP(Magnolia 15 Fed C - plan hits target center - Point	0.00	0.00	12,417.5	721.0	-52.0	383,011.00	782,205.00	32° 3' 2.135 N	103° 33' 21.221 W
PBHL (Magnolia 15 Fed - plan hits target center - Point	0.00	0.00	12,895.0	-7,051.0	9.0	375,239.00	782,266.00	32° 1' 45.224 N	103° 33' 21.163 W
FTP (Magnolia 15 Fed C - plan misses target center by 163.4usft at 12859.4usft MD (12772.7 TVD, 562.6 N, -50.8 E) - Point	0.00	0.00	12,895.0	671.0	-52.0	382,961.00	782,205.00	32° 3' 1.641 N	103° 33' 21.225 W

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**EOG RESOURCES INCORPORATED**
LEASE NO.:	**NMNM02965A**
WELL NAME & NO.:	**MAGNOLIA 15 FED COM 744H**
SURFACE HOLE FOOTAGE:	**771' FNL & 1268' FEL**
BOTTOM HOLE FOOTAGE	**2540' FNL & 1313' FEL**
LOCATION:	**Section 15, T. 26 S., R 33 E., NMPM**
COUNTY:	**LEA County, New Mexico**

COA

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
Other	☐ Fluid Filled	☑ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

All Previous COAs Still Apply Except for the Following:

A. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1005** feet (a minimum of **25 feet (Lea County)** 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 **7-5/8** 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 or potash.**

   ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus. Operator must include final fluid top verified by Echo-meter and the volume of displacement fluid above the cement slurry in the annulus. Submit results to the BLM.

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

   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

B. 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. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. 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 is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

   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.

C. SPECIAL REQUIREMENT (S)

Communitization Agreement

- 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.
- 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.
- 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.

JJP08192019

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)

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

☒ 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: 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. 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.

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 not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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. The results of the test shall be reported to the appropriate BLM office.

f. 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.

g. 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.

h. 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.