

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form C-101
August 1, 2011

Permit 274138

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702		2. OGRID Number 7377
		3. API Number 30-015-46440
4. Property Code 326327	5. Property Name HERRING 16 STATE COM	6. Well No. 601H

7. Surface Location

UL - Lot A	Section 17	Township 18S	Range 25E	Lot Idn	Feet From 794	N/S Line N	Feet From 517	E/W Line E	County Eddy
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8. Proposed Bottom Hole Location

UL - Lot A	Section 16	Township 18S	Range 25E	Lot Idn A	Feet From 510	N/S Line N	Feet From 100	E/W Line E	County Eddy
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9. Pool Information

Penasco Permo Penn Oil	98330
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 3578
16. Multiple N	17. Proposed Depth 13043	18. Formation Permo Penn	19. Contractor	20. Spud Date 12/2/2019
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	36	1300	480	0
Prod	8.75	5.5	20	7708	1137	0
Prod	8.5	5.5	20	13043	1138	7708

Casing/Cement Program: Additional Comments

EOG Resources requests the approval of an intermediate casing string contingency to be determined if losses are encountered in the vertical portion of our wellbore. Surface and production casing will remain the same. Production cement will be tied back 200' into previous casing string if the intermediate string is run.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	What ever is available

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

Signature:

Printed Name: Electronically filed by Kay Maddox

Title: Regulatory Agent

Email Address: kay_maddox@eogresources.com

Date: 11/6/2019

Phone: 432-686-3658

OIL CONSERVATION DIVISION

Approved By: Raymond Podany

Title: Geologist

Approved Date: 11/13/2019

Expiration Date: 11/13/2021

Conditions of Approval Attached

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Santa Fe, NM 87505

Form C-102
August 1, 2011

Permit 274138

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number 30-015-46440	2. Pool Code 98330	3. Pool Name Penasco Permo Penn Oil
4. Property Code 326327	5. Property Name HERRING 16 STATE COM	6. Well No. 601H
7. OGRID No. 7377	8. Operator Name EOG RESOURCES INC	9. Elevation 3578

10. Surface Location

UL - Lot A	Section 17	Township 18S	Range 25E	Lot Idn	Feet From 794	N/S Line N	Feet From 517	E/W Line E	County Eddy
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11. Bottom Hole Location If Different From Surface

UL - Lot A	Section 16	Township 18S	Range 25E	Lot Idn	Feet From 510	N/S Line N	Feet From 100	E/W Line E	County Eddy
12. Dedicated Acres 320.00	13. Joint or Infill	14. Consolidation Code	15. Order No.						

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

	OPERATOR CERTIFICATION <i>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(s) 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.</i> E-Signed By: Kay Maddox Title: Regulatory Agent Date: 11/6/2019 SURVEYOR CERTIFICATION <i>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 and correct to the best of my belief.</i> Surveyed By: Ramon Dominguez Date of Survey: 9/17/2019 Certificate Number: 24508
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GAS CAPTURE PLAN

Date: 11/13/2019

☒ Original

Operator & OGRID No.: [7377] EOG RESOURCES INC

☐ Amended - Reason for
Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
HERRING 16 STATE COM #601H	30-015-46440	A-17-18S-25E	0794N 0517E	500	None	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Lucid Artesia Company and will be connected to Lucid Artesia Company Low Pressure gathering system located in Eddy County, New Mexico. It will require 215' of pipeline to connect the facility to Low Pressure gathering system. EOG RESOURCES INC provides (periodically) to Lucid Artesia Company a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, EOG RESOURCES INC and Lucid Artesia Company have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Lucid Artesia Company Processing Plant located in Sec. 26, Twn. 18S, Rng. 25E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Lucid Artesia Company system at that time. Based on current information, it is EOG RESOURCES INC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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Form APD Comments

Permit 274138

PERMIT COMMENTS

Operator Name and Address: EOG RESOURCES INC [7377] P.O. Box 2267 Midland, TX 79702	API Number: 30-015-46440
	Well: HERRING 16 STATE COM #601H

Created By	Comment	Comment Date
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Form APD Conditions
Permit 274138

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: EOG RESOURCES INC [7377] P.O. Box 2267 Midland, TX 79702		API Number: 30-015-46440
		Well: HERRING 16 STATE COM #601H
OCD Reviewer	Condition	
rpodany	Will require a directional survey with the C-104	
rpodany	Cement is required to circulate on both surface and intermediate1 strings of casing	

Herring 16 State Com #601H Contingency

Location:

SL: 794' FNL 517' FEL, Unit A 17-18S-25E

BHL: 510' FNL 100' FEL, Unit A 16-18S-25E

EOG Resources requests the approval of an intermediate casing string contingency to be determined if losses are encountered in the vertical portion of our wellbore. Surface and production casing will remain the same. Production cement will be tied back 200' into previous casing string if the intermediate string is run.

Casing and cement designs are shown below:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
12.25"	0'-1,300'	9.625"	36#	J-55	LTC	1.125	1.25	1.80
8.75"	0'-6,550'	7.625"	29.7#	L-80	FLUSHMAX-III	1.125	1.25	1.60
8.5"	0'-13,043'	5.5"	20#	P-110	BTC	1.125	1.25	1.80

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Slurry Description
1250'	255	12.9	1.97	Lead: Class 'C' + 4%PF20(Bentonite Gel) + 2%PF1(Calcium Chloride) + 0.125#/skPF29(Celloflake) + 0.4#/skPF45 (Defoamer) 100% Excess (TOC @ Surface)
	210	14.8	1.34	Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)
6550'*	580	12.8	1.79	Lead: 35:65 Poz C + .02 gal/sk Anti Foam + 1% Extender + .13 lb/sk Lost Circulation (TOC @ Surface) (100% Excess)
	220	14.8	1.34	Tail: Class C + 0.13% Anti Foam
13,043'	1430	13	1.48	Lead: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) (TOC @ 200' into previous casing string) 35% Excess

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0-1,300'	Fresh Water	8.6-8.8	28-32	N/c
1,300'-13,043'	Cut Brine	8.8-9.6	34-40	Less than

**EOG RESOURCES, INC.
Herring 16 State Com 601H**

Hydrogen Sulfide Plan Summary

- A. All personnel shall receive proper H₂S training in accordance with Onshore Order III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:

- Well control equipment
 - a. Flare line 150' from wellhead to be ignited by flare gun.
 - b. Choke manifold with a remotely operated choke.
 - c. Mud/gas separator

- Protective equipment for essential personnel.

Breathing apparatus:

- a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- b. Work/Escapes packs — 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100 ft 5/8 inch OSHA approved rope
- d. 1-20# class ABC fire extinguisher

- H₂S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.

(Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
 - a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - c. Two wind socks will be placed in strategic locations, visible from all angles.

EOG RESOURCES, INC.
Herring 16 State Com 601H

- **Mud program:**
The mud program has been designed to minimize the volume of H₂S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H₂S bearing zones.
- **Metallurgy:**
All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- **Communication:**
Communication will be via cell phones and land lines where available.

**EOG RESOURCES, INC.
Herring 16 State Com 601H**

Emergency Assistance Telephone List

PUBLIC SAFETY: **911 or**

Eddy County Sheriff's Department (575) 887-7551

Fire Department:

Carlsbad (575) 885-3125

Artesia (575) 746-5050

Hospitals:

Carlsbad (575) 887-4121

Artesia (575) 748-3333

Hobbs (575) 392-1979

Dept. of Public Safety/Carlsbad (575) 748-9718

Highway Department (575) 885-3281

New Mexico Oil Conservation (575) 476-3440

U.S. Dept. of Labor (575) 887-1174

EOG Resources, Inc.

EOG / Artesia Office (575) 748-1471

Company Drilling Consultants:

Brent Patterson Cell (575) 365-7032

Drilling Engineer

Jeremiah Mullen Office (575) 748-4378

Cell (575) 703-5467

Safety

Brian Chandler (HSE Manager) Office (432) 686-3695

Cell (817) 239-0251

Intent ☐ As Drilled ☐

API #		
Operator Name:	Property Name:	Well Number

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude			NAD	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude			NAD	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude			NAD	

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018



EOG Resources - Artesia

Eddy County (NAD83)

Herring

Herring 16 State Com #601H

Lateral

Plan: Plan #1

Standard Planning Report

24 October, 2019



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Herring				
Site Position:		Northing:	637,893.000 usft	Latitude:	32° 45' 12.573 N
From:	Map	Easting:	489,916.000 usft	Longitude:	104° 30' 2.152 W
Position Uncertainty:	0.000 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.09 °

Well	Herring 16 State Com #601H					
Well Position	+N-S	0.000 usft	Northing:	637,893.000 usft	Latitude:	32° 45' 12.573 N
	+E-W	0.000 usft	Easting:	489,916.000 usft	Longitude:	104° 30' 2.152 W
Position Uncertainty		0.000 usft	Wellhead Elevation:		Ground Level:	3,578.000 usft

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/24/2019	7.17	60.37	47,907.57320750

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.000
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.000	0.000	0.000	89.663

Plan Survey Tool Program	Date	10/24/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.000	13,042.785 Plan #1 (Lateral)	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
0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	
6,750.000	0.00	0.000	6,750.000	0.000	0.000	0.00	0.00	0.00	0.00	
7,405.609	78.67	58.873	7,218.163	198.345	328.445	12.00	12.00	0.00	58.87	
7,414.400	78.67	58.873	7,219.889	202.800	335.823	0.00	0.00	0.00	0.00	
7,708.463	89.89	92.557	7,250.000	273.000	615.000	12.00	3.82	11.45	73.76	
13,042.785	89.89	92.557	7,260.000	35.000	5,944.000	0.00	0.00	0.00	0.00	[H16SC#601H]BHL



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.00
100.000	0.00	0.000	100.000	0.000	0.000	0.000	0.00	0.00	0.00
200.000	0.00	0.000	200.000	0.000	0.000	0.000	0.00	0.00	0.00
300.000	0.00	0.000	300.000	0.000	0.000	0.000	0.00	0.00	0.00
400.000	0.00	0.000	400.000	0.000	0.000	0.000	0.00	0.00	0.00
500.000	0.00	0.000	500.000	0.000	0.000	0.000	0.00	0.00	0.00
600.000	0.00	0.000	600.000	0.000	0.000	0.000	0.00	0.00	0.00
700.000	0.00	0.000	700.000	0.000	0.000	0.000	0.00	0.00	0.00
800.000	0.00	0.000	800.000	0.000	0.000	0.000	0.00	0.00	0.00
900.000	0.00	0.000	900.000	0.000	0.000	0.000	0.00	0.00	0.00
1,000.000	0.00	0.000	1,000.000	0.000	0.000	0.000	0.00	0.00	0.00
1,100.000	0.00	0.000	1,100.000	0.000	0.000	0.000	0.00	0.00	0.00
1,200.000	0.00	0.000	1,200.000	0.000	0.000	0.000	0.00	0.00	0.00
1,300.000	0.00	0.000	1,300.000	0.000	0.000	0.000	0.00	0.00	0.00
1,400.000	0.00	0.000	1,400.000	0.000	0.000	0.000	0.00	0.00	0.00
1,500.000	0.00	0.000	1,500.000	0.000	0.000	0.000	0.00	0.00	0.00
1,600.000	0.00	0.000	1,600.000	0.000	0.000	0.000	0.00	0.00	0.00
1,700.000	0.00	0.000	1,700.000	0.000	0.000	0.000	0.00	0.00	0.00
1,800.000	0.00	0.000	1,800.000	0.000	0.000	0.000	0.00	0.00	0.00
1,900.000	0.00	0.000	1,900.000	0.000	0.000	0.000	0.00	0.00	0.00
2,000.000	0.00	0.000	2,000.000	0.000	0.000	0.000	0.00	0.00	0.00
2,100.000	0.00	0.000	2,100.000	0.000	0.000	0.000	0.00	0.00	0.00
2,200.000	0.00	0.000	2,200.000	0.000	0.000	0.000	0.00	0.00	0.00
2,300.000	0.00	0.000	2,300.000	0.000	0.000	0.000	0.00	0.00	0.00
2,400.000	0.00	0.000	2,400.000	0.000	0.000	0.000	0.00	0.00	0.00
2,500.000	0.00	0.000	2,500.000	0.000	0.000	0.000	0.00	0.00	0.00
2,600.000	0.00	0.000	2,600.000	0.000	0.000	0.000	0.00	0.00	0.00
2,700.000	0.00	0.000	2,700.000	0.000	0.000	0.000	0.00	0.00	0.00
2,800.000	0.00	0.000	2,800.000	0.000	0.000	0.000	0.00	0.00	0.00
2,900.000	0.00	0.000	2,900.000	0.000	0.000	0.000	0.00	0.00	0.00
3,000.000	0.00	0.000	3,000.000	0.000	0.000	0.000	0.00	0.00	0.00
3,100.000	0.00	0.000	3,100.000	0.000	0.000	0.000	0.00	0.00	0.00
3,200.000	0.00	0.000	3,200.000	0.000	0.000	0.000	0.00	0.00	0.00
3,300.000	0.00	0.000	3,300.000	0.000	0.000	0.000	0.00	0.00	0.00
3,400.000	0.00	0.000	3,400.000	0.000	0.000	0.000	0.00	0.00	0.00
3,500.000	0.00	0.000	3,500.000	0.000	0.000	0.000	0.00	0.00	0.00
3,600.000	0.00	0.000	3,600.000	0.000	0.000	0.000	0.00	0.00	0.00
3,700.000	0.00	0.000	3,700.000	0.000	0.000	0.000	0.00	0.00	0.00
3,800.000	0.00	0.000	3,800.000	0.000	0.000	0.000	0.00	0.00	0.00
3,900.000	0.00	0.000	3,900.000	0.000	0.000	0.000	0.00	0.00	0.00
4,000.000	0.00	0.000	4,000.000	0.000	0.000	0.000	0.00	0.00	0.00
4,100.000	0.00	0.000	4,100.000	0.000	0.000	0.000	0.00	0.00	0.00
4,200.000	0.00	0.000	4,200.000	0.000	0.000	0.000	0.00	0.00	0.00
4,300.000	0.00	0.000	4,300.000	0.000	0.000	0.000	0.00	0.00	0.00
4,400.000	0.00	0.000	4,400.000	0.000	0.000	0.000	0.00	0.00	0.00
4,500.000	0.00	0.000	4,500.000	0.000	0.000	0.000	0.00	0.00	0.00
4,600.000	0.00	0.000	4,600.000	0.000	0.000	0.000	0.00	0.00	0.00
4,700.000	0.00	0.000	4,700.000	0.000	0.000	0.000	0.00	0.00	0.00
4,800.000	0.00	0.000	4,800.000	0.000	0.000	0.000	0.00	0.00	0.00
4,900.000	0.00	0.000	4,900.000	0.000	0.000	0.000	0.00	0.00	0.00
5,000.000	0.00	0.000	5,000.000	0.000	0.000	0.000	0.00	0.00	0.00
5,100.000	0.00	0.000	5,100.000	0.000	0.000	0.000	0.00	0.00	0.00
5,200.000	0.00	0.000	5,200.000	0.000	0.000	0.000	0.00	0.00	0.00
5,300.000	0.00	0.000	5,300.000	0.000	0.000	0.000	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
5,400.000	0.00	0.000	5,400.000	0.000	0.000	0.000	0.00	0.00	0.00
5,500.000	0.00	0.000	5,500.000	0.000	0.000	0.000	0.00	0.00	0.00
5,600.000	0.00	0.000	5,600.000	0.000	0.000	0.000	0.00	0.00	0.00
5,700.000	0.00	0.000	5,700.000	0.000	0.000	0.000	0.00	0.00	0.00
5,800.000	0.00	0.000	5,800.000	0.000	0.000	0.000	0.00	0.00	0.00
5,900.000	0.00	0.000	5,900.000	0.000	0.000	0.000	0.00	0.00	0.00
6,000.000	0.00	0.000	6,000.000	0.000	0.000	0.000	0.00	0.00	0.00
6,100.000	0.00	0.000	6,100.000	0.000	0.000	0.000	0.00	0.00	0.00
6,200.000	0.00	0.000	6,200.000	0.000	0.000	0.000	0.00	0.00	0.00
6,300.000	0.00	0.000	6,300.000	0.000	0.000	0.000	0.00	0.00	0.00
6,400.000	0.00	0.000	6,400.000	0.000	0.000	0.000	0.00	0.00	0.00
6,500.000	0.00	0.000	6,500.000	0.000	0.000	0.000	0.00	0.00	0.00
6,600.000	0.00	0.000	6,600.000	0.000	0.000	0.000	0.00	0.00	0.00
6,700.000	0.00	0.000	6,700.000	0.000	0.000	0.000	0.00	0.00	0.00
6,750.000	0.00	0.000	6,750.000	0.000	0.000	0.000	0.00	0.00	0.00
KOP 12°/100' BR									
6,775.000	3.00	58.873	6,774.988	0.338	0.560	0.562	12.00	12.00	0.00
6,800.000	6.00	58.873	6,799.908	1.352	2.239	2.247	12.00	12.00	0.00
6,825.000	9.00	58.873	6,824.692	3.039	5.032	5.050	12.00	12.00	0.00
6,850.000	12.00	58.873	6,849.270	5.394	8.932	8.963	12.00	12.00	0.00
6,875.000	15.00	58.873	6,873.577	8.410	13.927	13.976	12.00	12.00	0.00
6,900.000	18.00	58.873	6,897.544	12.080	20.004	20.075	12.00	12.00	0.00
6,925.000	21.00	58.873	6,921.108	16.394	27.147	27.243	12.00	12.00	0.00
6,950.000	24.00	58.873	6,944.202	21.339	35.336	35.461	12.00	12.00	0.00
6,975.000	27.00	58.873	6,966.764	26.902	44.548	44.705	12.00	12.00	0.00
7,000.000	30.00	58.873	6,988.732	33.068	54.758	54.952	12.00	12.00	0.00
7,025.000	33.00	58.873	7,010.046	39.820	65.938	66.172	12.00	12.00	0.00
7,050.000	36.00	58.873	7,030.646	47.139	78.058	78.335	12.00	12.00	0.00
7,075.000	39.00	58.873	7,050.478	55.005	91.085	91.407	12.00	12.00	0.00
7,100.000	42.00	58.873	7,069.486	63.397	104.982	105.353	12.00	12.00	0.00
7,125.000	45.00	58.873	7,087.618	72.292	119.711	120.135	12.00	12.00	0.00
7,150.000	48.00	58.873	7,104.825	81.666	135.233	135.711	12.00	12.00	0.00
7,175.000	51.00	58.873	7,121.060	91.492	151.504	152.040	12.00	12.00	0.00
7,200.000	54.00	58.873	7,136.277	101.744	168.480	169.076	12.00	12.00	0.00
7,225.000	57.00	58.873	7,150.435	112.393	186.115	186.774	12.00	12.00	0.00
7,250.000	60.00	58.873	7,163.496	123.411	204.360	205.083	12.00	12.00	0.00
7,275.000	63.00	58.873	7,175.424	134.767	223.165	223.954	12.00	12.00	0.00
7,300.000	66.00	58.873	7,186.185	146.430	242.478	243.336	12.00	12.00	0.00
7,325.000	69.00	58.873	7,195.751	158.369	262.248	263.176	12.00	12.00	0.00
7,350.000	72.00	58.873	7,204.096	170.550	282.418	283.418	12.00	12.00	0.00
7,375.000	75.00	58.873	7,211.195	182.940	302.935	304.007	12.00	12.00	0.00
7,400.000	78.00	58.873	7,217.031	195.505	323.742	324.888	12.00	12.00	0.00
7,405.609	78.67	58.873	7,218.163	198.345	328.445	329.607	12.01	12.01	0.00
7,414.400	78.67	58.873	7,219.889	202.800	335.823	337.012	0.00	0.00	0.00
7,425.000	79.03	60.117	7,221.939	208.079	344.784	346.003	12.00	3.38	11.74
7,450.000	79.90	63.039	7,226.511	219.776	366.397	367.685	12.00	3.46	11.69
7,475.000	80.79	65.945	7,230.706	230.387	388.638	389.988	12.00	3.56	11.62
7,500.000	81.70	68.836	7,234.512	239.885	411.445	412.851	12.00	3.65	11.56
7,525.000	82.64	71.713	7,237.920	248.242	434.756	436.210	12.00	3.74	11.51
7,550.000	83.59	74.579	7,240.919	255.437	458.507	460.003	12.00	3.81	11.46
7,575.000	84.56	77.434	7,243.501	261.448	482.633	484.164	12.00	3.87	11.42
7,600.000	85.54	80.279	7,245.660	266.261	507.067	508.626	12.00	3.93	11.38
7,625.000	86.53	83.117	7,247.389	269.862	531.743	533.323	12.00	3.97	11.35



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
7,650.000	87.53	85.949	7,248.684	272.240	556.593	558.186	12.00	4.01	11.33
7,675.000	88.54	88.776	7,249.541	273.389	581.549	583.149	12.00	4.03	11.31
7,700.000	89.55	91.601	7,249.958	273.307	606.543	608.141	12.00	4.04	11.30
7,708.463	89.89	92.557	7,250.000	273.000	615.000	616.597	12.00	4.05	11.30
[H16SC#601H]UMP 7708' MD (7250' TVD)									
7,800.000	89.89	92.557	7,250.171	268.916	706.445	708.017	0.00	0.00	0.00
7,900.000	89.89	92.557	7,250.359	264.454	806.346	807.889	0.00	0.00	0.00
8,000.000	89.89	92.557	7,250.546	259.993	906.246	907.761	0.00	0.00	0.00
8,100.000	89.89	92.557	7,250.734	255.531	1,006.146	1,007.633	0.00	0.00	0.00
8,200.000	89.89	92.557	7,250.921	251.069	1,106.046	1,107.506	0.00	0.00	0.00
8,300.000	89.89	92.557	7,251.109	246.608	1,205.947	1,207.378	0.00	0.00	0.00
8,400.000	89.89	92.557	7,251.296	242.146	1,305.847	1,307.250	0.00	0.00	0.00
8,500.000	89.89	92.557	7,251.484	237.684	1,405.747	1,407.122	0.00	0.00	0.00
8,600.000	89.89	92.557	7,251.671	233.223	1,505.647	1,506.994	0.00	0.00	0.00
8,700.000	89.89	92.557	7,251.858	228.761	1,605.548	1,606.867	0.00	0.00	0.00
8,800.000	89.89	92.557	7,252.046	224.299	1,705.448	1,706.739	0.00	0.00	0.00
8,900.000	89.89	92.557	7,252.233	219.838	1,805.348	1,806.611	0.00	0.00	0.00
9,000.000	89.89	92.557	7,252.421	215.376	1,905.248	1,906.483	0.00	0.00	0.00
9,100.000	89.89	92.557	7,252.608	210.914	2,005.149	2,006.356	0.00	0.00	0.00
9,200.000	89.89	92.557	7,252.796	206.452	2,105.049	2,106.228	0.00	0.00	0.00
9,300.000	89.89	92.557	7,252.983	201.991	2,204.949	2,206.100	0.00	0.00	0.00
9,400.000	89.89	92.557	7,253.171	197.529	2,304.849	2,305.972	0.00	0.00	0.00
9,500.000	89.89	92.557	7,253.358	193.067	2,404.749	2,405.845	0.00	0.00	0.00
9,600.000	89.89	92.557	7,253.546	188.606	2,504.650	2,505.717	0.00	0.00	0.00
9,700.000	89.89	92.557	7,253.733	184.144	2,604.550	2,605.589	0.00	0.00	0.00
9,800.000	89.89	92.557	7,253.921	179.682	2,704.450	2,705.461	0.00	0.00	0.00
9,900.000	89.89	92.557	7,254.108	175.221	2,804.350	2,805.334	0.00	0.00	0.00
10,000.000	89.89	92.557	7,254.295	170.759	2,904.251	2,905.206	0.00	0.00	0.00
10,100.000	89.89	92.557	7,254.483	166.297	3,004.151	3,005.078	0.00	0.00	0.00
10,200.000	89.89	92.557	7,254.670	161.836	3,104.051	3,104.950	0.00	0.00	0.00
10,300.000	89.89	92.557	7,254.858	157.374	3,203.951	3,204.822	0.00	0.00	0.00
10,400.000	89.89	92.557	7,255.045	152.912	3,303.852	3,304.695	0.00	0.00	0.00
10,500.000	89.89	92.557	7,255.233	148.451	3,403.752	3,404.567	0.00	0.00	0.00
10,600.000	89.89	92.557	7,255.420	143.989	3,503.652	3,504.439	0.00	0.00	0.00
10,700.000	89.89	92.557	7,255.608	139.527	3,603.552	3,604.311	0.00	0.00	0.00
10,800.000	89.89	92.557	7,255.795	135.066	3,703.453	3,704.184	0.00	0.00	0.00
10,900.000	89.89	92.557	7,255.983	130.604	3,803.353	3,804.056	0.00	0.00	0.00
11,000.000	89.89	92.557	7,256.170	126.142	3,903.253	3,903.928	0.00	0.00	0.00
11,100.000	89.89	92.557	7,256.358	121.681	4,003.153	4,003.800	0.00	0.00	0.00
11,200.000	89.89	92.557	7,256.545	117.219	4,103.054	4,103.673	0.00	0.00	0.00
11,300.000	89.89	92.557	7,256.733	112.757	4,202.954	4,203.545	0.00	0.00	0.00
11,400.000	89.89	92.557	7,256.920	108.296	4,302.854	4,303.417	0.00	0.00	0.00
11,500.000	89.89	92.557	7,257.107	103.834	4,402.754	4,403.289	0.00	0.00	0.00
11,600.000	89.89	92.557	7,257.295	99.372	4,502.654	4,503.162	0.00	0.00	0.00
11,700.000	89.89	92.557	7,257.482	94.911	4,602.555	4,603.034	0.00	0.00	0.00
11,800.000	89.89	92.557	7,257.670	90.449	4,702.455	4,702.906	0.00	0.00	0.00
11,900.000	89.89	92.557	7,257.857	85.987	4,802.355	4,802.778	0.00	0.00	0.00
12,000.000	89.89	92.557	7,258.045	81.526	4,902.255	4,902.650	0.00	0.00	0.00
12,100.000	89.89	92.557	7,258.232	77.064	5,002.156	5,002.523	0.00	0.00	0.00
12,200.000	89.89	92.557	7,258.420	72.602	5,102.056	5,102.395	0.00	0.00	0.00
12,300.000	89.89	92.557	7,258.607	68.141	5,201.956	5,202.267	0.00	0.00	0.00
12,400.000	89.89	92.557	7,258.795	63.679	5,301.856	5,302.139	0.00	0.00	0.00
12,500.000	89.89	92.557	7,258.982	59.217	5,401.757	5,402.012	0.00	0.00	0.00
12,600.000	89.89	92.557	7,259.170	54.756	5,501.657	5,501.884	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
12,700.000	89.89	92.557	7,259.357	50.294	5,601.557	5,601.756	0.00	0.00	0.00
12,800.000	89.89	92.557	7,259.545	45.832	5,701.457	5,701.628	0.00	0.00	0.00
12,900.000	89.89	92.557	7,259.732	41.371	5,801.358	5,801.501	0.00	0.00	0.00
13,000.000	89.89	92.557	7,259.919	36.909	5,901.258	5,901.373	0.00	0.00	0.00
13,042.785	89.89	92.557	7,260.000	35.000	5,944.000	5,944.103	0.00	0.00	0.00
[H16SC#601H]BHL 13043' MD (7260' TVD)									

Design Targets

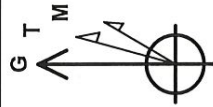
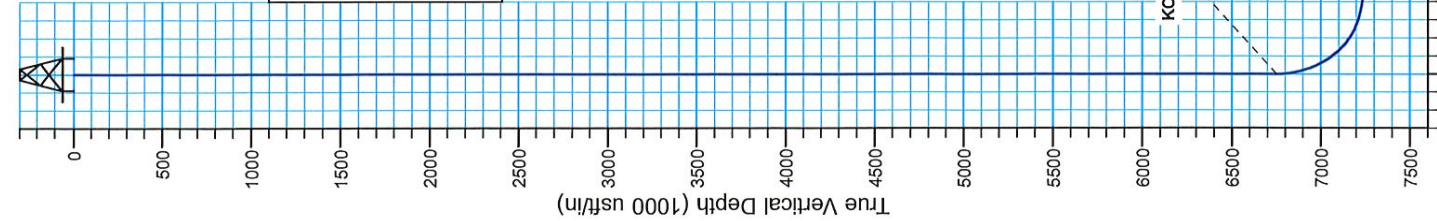
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[H16SC#601H]JUMP - plan hits target center - Point	0.00	360.000	7,250.000	273.000	615.000	638,166.000	490,531.000	32° 45' 15.284 N	104° 29' 54.955 W
[H16SC#601H]BHL - plan hits target center - Point	0.00	0.000	7,260.000	35.000	5,944.000	637,928.000	495,860.000	32° 45' 13.007 N	104° 28' 52.548 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,750.000	6,750.000	0.000	0.000	KOP 12°/100' BR
7,708.463	7,250.000	198.345	328.445	[H16SC#601H]JUMP 7708' MD (7250' TVD)
13,042.785	7,260.000	202.800	335.823	[H16SC#601H]BHL 13043' MD (7260' TVD)

Project: Eddy County (NAD83)
Site: Herring
Well: Herring 16 State Com #601H
Wellbore: Lateral
Design: Plan #1
Ground Elevation 3578.000
Northing 637893.000
Easting 489916.000
KB @ 3596.000usft (Planning Rig)

PROJECT DETAILS: Eddy County (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



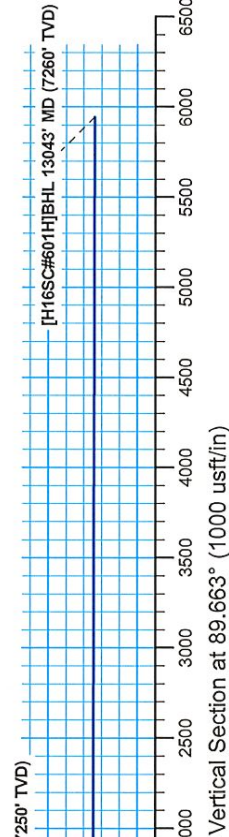
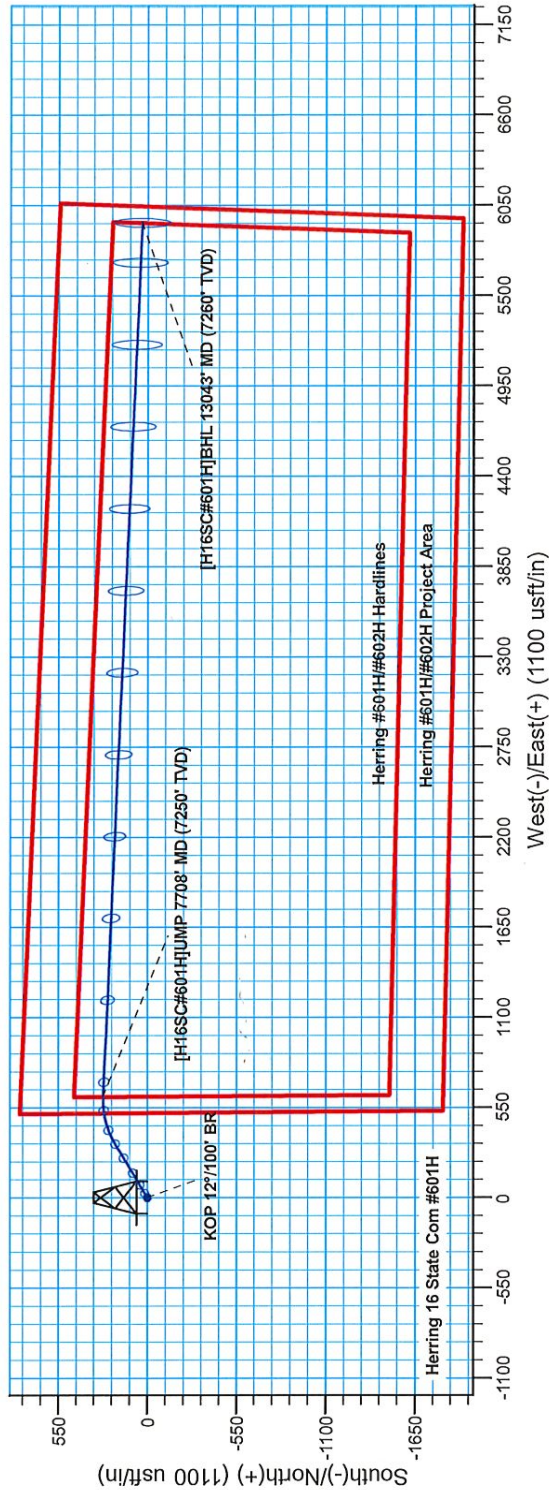
Azimuths to Grid North
True North: 0.09°
Magnetic North: 7.26°
Magnetic Field
Strength: 47907.6nT
Dip Angle: 60.37°
Date: 10/24/2019
Model: IGRF2015

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.000
2	6750.610	0.00	0.000	6750.000	0.000	0.000	0.00	0.00	0.000
3	7405.610	78.67	58.873	7218.163	198.345	328.445	12.00	58.87	329.607
4	7414.400	78.67	58.873	7219.889	202.800	335.823	0.00	0.00	337.012
5	7708.463	89.89	92.557	7250.000	273.000	615.000	12.00	73.76	616.597
6	13042.785	89.89	92.557	7260.000	35.000	5944.000	0.00	0.00	5944.103

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
[H16SC#601H]UMP - plan hits target center	7250.000	273.000	615.000	638166.000	490531.000
[H16SC#601H]BHL - plan hits target center	7260.000	35.000	5944.000	637928.000	495860.000





EOG Resources - Artesia

Eddy County (NAD83)

Herring

Herring 16 State Com #601H

Lateral

Plan: Plan #1

Standard Planning Report

24 October, 2019



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Herring				
Site Position:		Northing:	637,893.000 usft	Latitude:	32° 45' 12.573 N	
From:	Map	Easting:	489,916.000 usft	Longitude:	104° 30' 2.152 W	
Position Uncertainty:		0.000 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.09 °

Well	Herring 16 State Com #601H					
Well Position	+N/-S	0.000 usft	Northing:	637,893.000 usft	Latitude:	32° 45' 12.573 N
	+E/-W	0.000 usft	Easting:	489,916.000 usft	Longitude:	104° 30' 2.152 W
Position Uncertainty	0.000 usft	Wellhead Elevation:		Ground Level:	3,578.000 usft	

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/24/2019	7.17	60.37	47,907.57320750

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.000
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.000	0.000	0.000	89.663

Plan Survey Tool Program	Date	10/24/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.000	13,042.785 Plan #1 (Lateral)	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
0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	
6,750.000	0.00	0.000	6,750.000	0.000	0.000	0.00	0.00	0.00	0.00	
7,405.609	78.67	58.873	7,218.163	198.345	328.445	12.00	12.00	0.00	58.87	
7,414.400	78.67	58.873	7,219.889	202.800	335.823	0.00	0.00	0.00	0.00	
7,708.463	89.89	92.557	7,250.000	273.000	615.000	12.00	3.82	11.45	73.76	
13,042.785	89.89	92.557	7,260.000	35.000	5,944.000	0.00	0.00	0.00	0.00	[H16SC#601H]BHL



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Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.00
100.000	0.00	0.000	100.000	0.000	0.000	0.000	0.00	0.00	0.00
200.000	0.00	0.000	200.000	0.000	0.000	0.000	0.00	0.00	0.00
300.000	0.00	0.000	300.000	0.000	0.000	0.000	0.00	0.00	0.00
400.000	0.00	0.000	400.000	0.000	0.000	0.000	0.00	0.00	0.00
500.000	0.00	0.000	500.000	0.000	0.000	0.000	0.00	0.00	0.00
600.000	0.00	0.000	600.000	0.000	0.000	0.000	0.00	0.00	0.00
700.000	0.00	0.000	700.000	0.000	0.000	0.000	0.00	0.00	0.00
800.000	0.00	0.000	800.000	0.000	0.000	0.000	0.00	0.00	0.00
900.000	0.00	0.000	900.000	0.000	0.000	0.000	0.00	0.00	0.00
1,000.000	0.00	0.000	1,000.000	0.000	0.000	0.000	0.00	0.00	0.00
1,100.000	0.00	0.000	1,100.000	0.000	0.000	0.000	0.00	0.00	0.00
1,200.000	0.00	0.000	1,200.000	0.000	0.000	0.000	0.00	0.00	0.00
1,300.000	0.00	0.000	1,300.000	0.000	0.000	0.000	0.00	0.00	0.00
1,400.000	0.00	0.000	1,400.000	0.000	0.000	0.000	0.00	0.00	0.00
1,500.000	0.00	0.000	1,500.000	0.000	0.000	0.000	0.00	0.00	0.00
1,600.000	0.00	0.000	1,600.000	0.000	0.000	0.000	0.00	0.00	0.00
1,700.000	0.00	0.000	1,700.000	0.000	0.000	0.000	0.00	0.00	0.00
1,800.000	0.00	0.000	1,800.000	0.000	0.000	0.000	0.00	0.00	0.00
1,900.000	0.00	0.000	1,900.000	0.000	0.000	0.000	0.00	0.00	0.00
2,000.000	0.00	0.000	2,000.000	0.000	0.000	0.000	0.00	0.00	0.00
2,100.000	0.00	0.000	2,100.000	0.000	0.000	0.000	0.00	0.00	0.00
2,200.000	0.00	0.000	2,200.000	0.000	0.000	0.000	0.00	0.00	0.00
2,300.000	0.00	0.000	2,300.000	0.000	0.000	0.000	0.00	0.00	0.00
2,400.000	0.00	0.000	2,400.000	0.000	0.000	0.000	0.00	0.00	0.00
2,500.000	0.00	0.000	2,500.000	0.000	0.000	0.000	0.00	0.00	0.00
2,600.000	0.00	0.000	2,600.000	0.000	0.000	0.000	0.00	0.00	0.00
2,700.000	0.00	0.000	2,700.000	0.000	0.000	0.000	0.00	0.00	0.00
2,800.000	0.00	0.000	2,800.000	0.000	0.000	0.000	0.00	0.00	0.00
2,900.000	0.00	0.000	2,900.000	0.000	0.000	0.000	0.00	0.00	0.00
3,000.000	0.00	0.000	3,000.000	0.000	0.000	0.000	0.00	0.00	0.00
3,100.000	0.00	0.000	3,100.000	0.000	0.000	0.000	0.00	0.00	0.00
3,200.000	0.00	0.000	3,200.000	0.000	0.000	0.000	0.00	0.00	0.00
3,300.000	0.00	0.000	3,300.000	0.000	0.000	0.000	0.00	0.00	0.00
3,400.000	0.00	0.000	3,400.000	0.000	0.000	0.000	0.00	0.00	0.00
3,500.000	0.00	0.000	3,500.000	0.000	0.000	0.000	0.00	0.00	0.00
3,600.000	0.00	0.000	3,600.000	0.000	0.000	0.000	0.00	0.00	0.00
3,700.000	0.00	0.000	3,700.000	0.000	0.000	0.000	0.00	0.00	0.00
3,800.000	0.00	0.000	3,800.000	0.000	0.000	0.000	0.00	0.00	0.00
3,900.000	0.00	0.000	3,900.000	0.000	0.000	0.000	0.00	0.00	0.00
4,000.000	0.00	0.000	4,000.000	0.000	0.000	0.000	0.00	0.00	0.00
4,100.000	0.00	0.000	4,100.000	0.000	0.000	0.000	0.00	0.00	0.00
4,200.000	0.00	0.000	4,200.000	0.000	0.000	0.000	0.00	0.00	0.00
4,300.000	0.00	0.000	4,300.000	0.000	0.000	0.000	0.00	0.00	0.00
4,400.000	0.00	0.000	4,400.000	0.000	0.000	0.000	0.00	0.00	0.00
4,500.000	0.00	0.000	4,500.000	0.000	0.000	0.000	0.00	0.00	0.00
4,600.000	0.00	0.000	4,600.000	0.000	0.000	0.000	0.00	0.00	0.00
4,700.000	0.00	0.000	4,700.000	0.000	0.000	0.000	0.00	0.00	0.00
4,800.000	0.00	0.000	4,800.000	0.000	0.000	0.000	0.00	0.00	0.00
4,900.000	0.00	0.000	4,900.000	0.000	0.000	0.000	0.00	0.00	0.00
5,000.000	0.00	0.000	5,000.000	0.000	0.000	0.000	0.00	0.00	0.00
5,100.000	0.00	0.000	5,100.000	0.000	0.000	0.000	0.00	0.00	0.00
5,200.000	0.00	0.000	5,200.000	0.000	0.000	0.000	0.00	0.00	0.00
5,300.000	0.00	0.000	5,300.000	0.000	0.000	0.000	0.00	0.00	0.00



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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)
5,400.000	0.00	0.000	5,400.000	0.000	0.000	0.000	0.00	0.00	0.00
5,500.000	0.00	0.000	5,500.000	0.000	0.000	0.000	0.00	0.00	0.00
5,600.000	0.00	0.000	5,600.000	0.000	0.000	0.000	0.00	0.00	0.00
5,700.000	0.00	0.000	5,700.000	0.000	0.000	0.000	0.00	0.00	0.00
5,800.000	0.00	0.000	5,800.000	0.000	0.000	0.000	0.00	0.00	0.00
5,900.000	0.00	0.000	5,900.000	0.000	0.000	0.000	0.00	0.00	0.00
6,000.000	0.00	0.000	6,000.000	0.000	0.000	0.000	0.00	0.00	0.00
6,100.000	0.00	0.000	6,100.000	0.000	0.000	0.000	0.00	0.00	0.00
6,200.000	0.00	0.000	6,200.000	0.000	0.000	0.000	0.00	0.00	0.00
6,300.000	0.00	0.000	6,300.000	0.000	0.000	0.000	0.00	0.00	0.00
6,400.000	0.00	0.000	6,400.000	0.000	0.000	0.000	0.00	0.00	0.00
6,500.000	0.00	0.000	6,500.000	0.000	0.000	0.000	0.00	0.00	0.00
6,600.000	0.00	0.000	6,600.000	0.000	0.000	0.000	0.00	0.00	0.00
6,700.000	0.00	0.000	6,700.000	0.000	0.000	0.000	0.00	0.00	0.00
6,750.000	0.00	0.000	6,750.000	0.000	0.000	0.000	0.00	0.00	0.00
KOP 12°/100' BR									
6,775.000	3.00	58.873	6,774.988	0.338	0.560	0.562	12.00	12.00	0.00
6,800.000	6.00	58.873	6,799.908	1.352	2.239	2.247	12.00	12.00	0.00
6,825.000	9.00	58.873	6,824.692	3.039	5.032	5.050	12.00	12.00	0.00
6,850.000	12.00	58.873	6,849.270	5.394	8.932	8.963	12.00	12.00	0.00
6,875.000	15.00	58.873	6,873.577	8.410	13.927	13.976	12.00	12.00	0.00
6,900.000	18.00	58.873	6,897.544	12.080	20.004	20.075	12.00	12.00	0.00
6,925.000	21.00	58.873	6,921.108	16.394	27.147	27.243	12.00	12.00	0.00
6,950.000	24.00	58.873	6,944.202	21.339	35.336	35.461	12.00	12.00	0.00
6,975.000	27.00	58.873	6,966.764	26.902	44.548	44.705	12.00	12.00	0.00
7,000.000	30.00	58.873	6,988.732	33.068	54.758	54.952	12.00	12.00	0.00
7,025.000	33.00	58.873	7,010.046	39.820	65.938	66.172	12.00	12.00	0.00
7,050.000	36.00	58.873	7,030.646	47.139	78.058	78.335	12.00	12.00	0.00
7,075.000	39.00	58.873	7,050.478	55.005	91.085	91.407	12.00	12.00	0.00
7,100.000	42.00	58.873	7,069.486	63.397	104.982	105.353	12.00	12.00	0.00
7,125.000	45.00	58.873	7,087.618	72.292	119.711	120.135	12.00	12.00	0.00
7,150.000	48.00	58.873	7,104.825	81.666	135.233	135.711	12.00	12.00	0.00
7,175.000	51.00	58.873	7,121.060	91.492	151.504	152.040	12.00	12.00	0.00
7,200.000	54.00	58.873	7,136.277	101.744	168.480	169.076	12.00	12.00	0.00
7,225.000	57.00	58.873	7,150.435	112.393	186.115	186.774	12.00	12.00	0.00
7,250.000	60.00	58.873	7,163.496	123.411	204.360	205.083	12.00	12.00	0.00
7,275.000	63.00	58.873	7,175.424	134.767	223.165	223.954	12.00	12.00	0.00
7,300.000	66.00	58.873	7,186.185	146.430	242.478	243.336	12.00	12.00	0.00
7,325.000	69.00	58.873	7,195.751	158.369	262.248	263.176	12.00	12.00	0.00
7,350.000	72.00	58.873	7,204.096	170.550	282.418	283.418	12.00	12.00	0.00
7,375.000	75.00	58.873	7,211.195	182.940	302.935	304.007	12.00	12.00	0.00
7,400.000	78.00	58.873	7,217.031	195.505	323.742	324.888	12.00	12.00	0.00
7,405.609	78.67	58.873	7,218.163	198.345	328.445	329.607	12.01	12.01	0.00
7,414.400	78.67	58.873	7,219.889	202.800	335.823	337.012	0.00	0.00	0.00
7,425.000	79.03	60.117	7,221.939	208.079	344.784	346.003	12.00	3.38	11.74
7,450.000	79.90	63.039	7,226.511	219.776	366.397	367.685	12.00	3.46	11.69
7,475.000	80.79	65.945	7,230.706	230.387	388.638	389.988	12.00	3.56	11.62
7,500.000	81.70	68.836	7,234.512	239.885	411.445	412.851	12.00	3.65	11.56
7,525.000	82.64	71.713	7,237.920	248.242	434.756	436.210	12.00	3.74	11.51
7,550.000	83.59	74.579	7,240.919	255.437	458.507	460.003	12.00	3.81	11.46
7,575.000	84.56	77.434	7,243.501	261.448	482.633	484.164	12.00	3.87	11.42
7,600.000	85.54	80.279	7,245.660	266.261	507.067	508.626	12.00	3.93	11.38
7,625.000	86.53	83.117	7,247.389	269.862	531.743	533.323	12.00	3.97	11.35



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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)
7,650.000	87.53	85.949	7,248.684	272.240	556.593	558.186	12.00	4.01	11.33
7,675.000	88.54	88.776	7,249.541	273.389	581.549	583.149	12.00	4.03	11.31
7,700.000	89.55	91.601	7,249.958	273.307	606.543	608.141	12.00	4.04	11.30
7,708.463	89.89	92.557	7,250.000	273.000	615.000	616.597	12.00	4.05	11.30
[H16SC#601H]UMP 7708' MD (7250' TVD)									
7,800.000	89.89	92.557	7,250.171	268.916	706.445	708.017	0.00	0.00	0.00
7,900.000	89.89	92.557	7,250.359	264.454	806.346	807.889	0.00	0.00	0.00
8,000.000	89.89	92.557	7,250.546	259.993	906.246	907.761	0.00	0.00	0.00
8,100.000	89.89	92.557	7,250.734	255.531	1,006.146	1,007.633	0.00	0.00	0.00
8,200.000	89.89	92.557	7,250.921	251.069	1,106.046	1,107.506	0.00	0.00	0.00
8,300.000	89.89	92.557	7,251.109	246.608	1,205.947	1,207.378	0.00	0.00	0.00
8,400.000	89.89	92.557	7,251.296	242.146	1,305.847	1,307.250	0.00	0.00	0.00
8,500.000	89.89	92.557	7,251.484	237.684	1,405.747	1,407.122	0.00	0.00	0.00
8,600.000	89.89	92.557	7,251.671	233.223	1,505.647	1,506.994	0.00	0.00	0.00
8,700.000	89.89	92.557	7,251.858	228.761	1,605.548	1,606.867	0.00	0.00	0.00
8,800.000	89.89	92.557	7,252.046	224.299	1,705.448	1,706.739	0.00	0.00	0.00
8,900.000	89.89	92.557	7,252.233	219.838	1,805.348	1,806.611	0.00	0.00	0.00
9,000.000	89.89	92.557	7,252.421	215.376	1,905.248	1,906.483	0.00	0.00	0.00
9,100.000	89.89	92.557	7,252.608	210.914	2,005.149	2,006.356	0.00	0.00	0.00
9,200.000	89.89	92.557	7,252.796	206.452	2,105.049	2,106.228	0.00	0.00	0.00
9,300.000	89.89	92.557	7,252.983	201.991	2,204.949	2,206.100	0.00	0.00	0.00
9,400.000	89.89	92.557	7,253.171	197.529	2,304.849	2,305.972	0.00	0.00	0.00
9,500.000	89.89	92.557	7,253.358	193.067	2,404.749	2,405.845	0.00	0.00	0.00
9,600.000	89.89	92.557	7,253.546	188.606	2,504.650	2,505.717	0.00	0.00	0.00
9,700.000	89.89	92.557	7,253.733	184.144	2,604.550	2,605.589	0.00	0.00	0.00
9,800.000	89.89	92.557	7,253.921	179.682	2,704.450	2,705.461	0.00	0.00	0.00
9,900.000	89.89	92.557	7,254.108	175.221	2,804.350	2,805.334	0.00	0.00	0.00
10,000.000	89.89	92.557	7,254.295	170.759	2,904.251	2,905.206	0.00	0.00	0.00
10,100.000	89.89	92.557	7,254.483	166.297	3,004.151	3,005.078	0.00	0.00	0.00
10,200.000	89.89	92.557	7,254.670	161.836	3,104.051	3,104.950	0.00	0.00	0.00
10,300.000	89.89	92.557	7,254.858	157.374	3,203.951	3,204.822	0.00	0.00	0.00
10,400.000	89.89	92.557	7,255.045	152.912	3,303.852	3,304.695	0.00	0.00	0.00
10,500.000	89.89	92.557	7,255.233	148.451	3,403.752	3,404.567	0.00	0.00	0.00
10,600.000	89.89	92.557	7,255.420	143.989	3,503.652	3,504.439	0.00	0.00	0.00
10,700.000	89.89	92.557	7,255.608	139.527	3,603.552	3,604.311	0.00	0.00	0.00
10,800.000	89.89	92.557	7,255.795	135.066	3,703.453	3,704.184	0.00	0.00	0.00
10,900.000	89.89	92.557	7,255.983	130.604	3,803.353	3,804.056	0.00	0.00	0.00
11,000.000	89.89	92.557	7,256.170	126.142	3,903.253	3,903.928	0.00	0.00	0.00
11,100.000	89.89	92.557	7,256.358	121.681	4,003.153	4,003.800	0.00	0.00	0.00
11,200.000	89.89	92.557	7,256.545	117.219	4,103.054	4,103.673	0.00	0.00	0.00
11,300.000	89.89	92.557	7,256.733	112.757	4,202.954	4,203.545	0.00	0.00	0.00
11,400.000	89.89	92.557	7,256.920	108.296	4,302.854	4,303.417	0.00	0.00	0.00
11,500.000	89.89	92.557	7,257.107	103.834	4,402.754	4,403.289	0.00	0.00	0.00
11,600.000	89.89	92.557	7,257.295	99.372	4,502.654	4,503.162	0.00	0.00	0.00
11,700.000	89.89	92.557	7,257.482	94.911	4,602.555	4,603.034	0.00	0.00	0.00
11,800.000	89.89	92.557	7,257.670	90.449	4,702.455	4,702.906	0.00	0.00	0.00
11,900.000	89.89	92.557	7,257.857	85.987	4,802.355	4,802.778	0.00	0.00	0.00
12,000.000	89.89	92.557	7,258.045	81.526	4,902.255	4,902.650	0.00	0.00	0.00
12,100.000	89.89	92.557	7,258.232	77.064	5,002.156	5,002.523	0.00	0.00	0.00
12,200.000	89.89	92.557	7,258.420	72.602	5,102.056	5,102.395	0.00	0.00	0.00
12,300.000	89.89	92.557	7,258.607	68.141	5,201.956	5,202.267	0.00	0.00	0.00
12,400.000	89.89	92.557	7,258.795	63.679	5,301.856	5,302.139	0.00	0.00	0.00
12,500.000	89.89	92.557	7,258.982	59.217	5,401.757	5,402.012	0.00	0.00	0.00
12,600.000	89.89	92.557	7,259.170	54.756	5,501.657	5,501.884	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Herring 16 State Com #601H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3596.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3596.000usft (Planning Rig)
Site:	Herring	North Reference:	Grid
Well:	Herring 16 State Com #601H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #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)
12,700.000	89.89	92.557	7,259.357	50.294	5,601.557	5,601.756	0.00	0.00	0.00
12,800.000	89.89	92.557	7,259.545	45.832	5,701.457	5,701.628	0.00	0.00	0.00
12,900.000	89.89	92.557	7,259.732	41.371	5,801.358	5,801.501	0.00	0.00	0.00
13,000.000	89.89	92.557	7,259.919	36.909	5,901.258	5,901.373	0.00	0.00	0.00
13,042.785	89.89	92.557	7,260.000	35.000	5,944.000	5,944.103	0.00	0.00	0.00
[H16SC#601H]BHL 13043' MD (7260' TVD)									

Design Targets

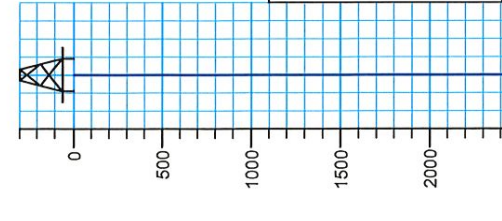
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[H16SC#601H]JUMP - plan hits target center - Point	0.00	360.000	7,250.000	273.000	615.000	638,166.000	490,531.000	32° 45' 15.284 N	104° 29' 54.955 W
[H16SC#601H]BHL - plan hits target center - Point	0.00	0.000	7,260.000	35.000	5,944.000	637,928.000	495,860.000	32° 45' 13.007 N	104° 28' 52.548 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,750.000	6,750.000	0.000	0.000	KOP 12°/100' BR
7,708.463	7,250.000	198.345	328.445	[H16SC#601H]JUMP 7708' MD (7250' TVD)
13,042.785	7,260.000	202.800	335.823	[H16SC#601H]BHL 13043' MD (7260' TVD)

Project: Eddy County (NAD83)
Site: Herring
Well: Herring 16 State Com #601H
Wellbore: Lateral
Design: Plan #1
Ground Elevation 3578.000
Northing 637893.000
Easting 489916.000
KB @ 3596.000usft (Planning Rig)

PROJECT DETAILS: Eddy County (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.000
2	6750.610	0.00	0.000	6750.000	0.000	0.000	0.00	0.00	0.000
3	7405.610	78.67	58.873	7218.163	198.345	328.445	12.00	58.87	329.607
4	7414.400	78.67	58.873	7219.889	202.800	335.823	0.00	0.00	337.012
5	7708.463	89.89	92.557	7250.000	273.000	615.000	12.00	73.76	616.597
6	13042.785	89.89	92.557	7260.000	35.000	5944.000	0.00	0.00	5944.103

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
[H16SC#601H]JUMP - plan hits target center	7250.000	273.000	615.000	638166.000	490531.000
[H16SC#601H]BHL - plan hits target center	7260.000	35.000	5944.000	637928.000	495860.000

