

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 272516

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
4. Property Code 313191		3. API Number 30-025-46384
5. Property Name GEM 36 STATE COM		6. Well No. 104H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
C	36	25S	32E	C	247	N	1850	W	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
M	36	25S	32E	M	100	S	1036	W	Lea

9. Pool Information

JENNINGS;UPPER BONE SPRING SHALE	97838
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3398
16. Multiple N	17. Proposed Depth 14176	18. Formation Bone Spring	19. Contractor	20. Spud Date 11/27/2019
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	17.5	13.375	54.5	750	560	0
Int1	12.25	9.625	40	4000	480	0
Int1	12.25	9.625	40	4660	320	0
Prod	8.75	5.5	17	9526	470	0
Prod	8.5	5.5	17	14176	1300	4160

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	

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: 9/20/2019	OIL CONSERVATION DIVISION Approved By: Paul F Kautz Title: Geologist Approved Date: 9/23/2019 Expiration Date: 9/23/2021 Conditions of Approval Attached
Phone: 432-686-3658	

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

FORM C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025- 46384	² Pool Code 97838	³ Pool Name Jennings; Upper Bone Spring Shale
⁴ Property Code 313191	⁵ Property Name GEM 36 STATE COM	⁶ Well Number 104H
⁷ OGRID No. 7377	⁸ Operator Name EOG RESOURCES, INC.	⁹ Elevation 3398'

¹⁰Surface Location

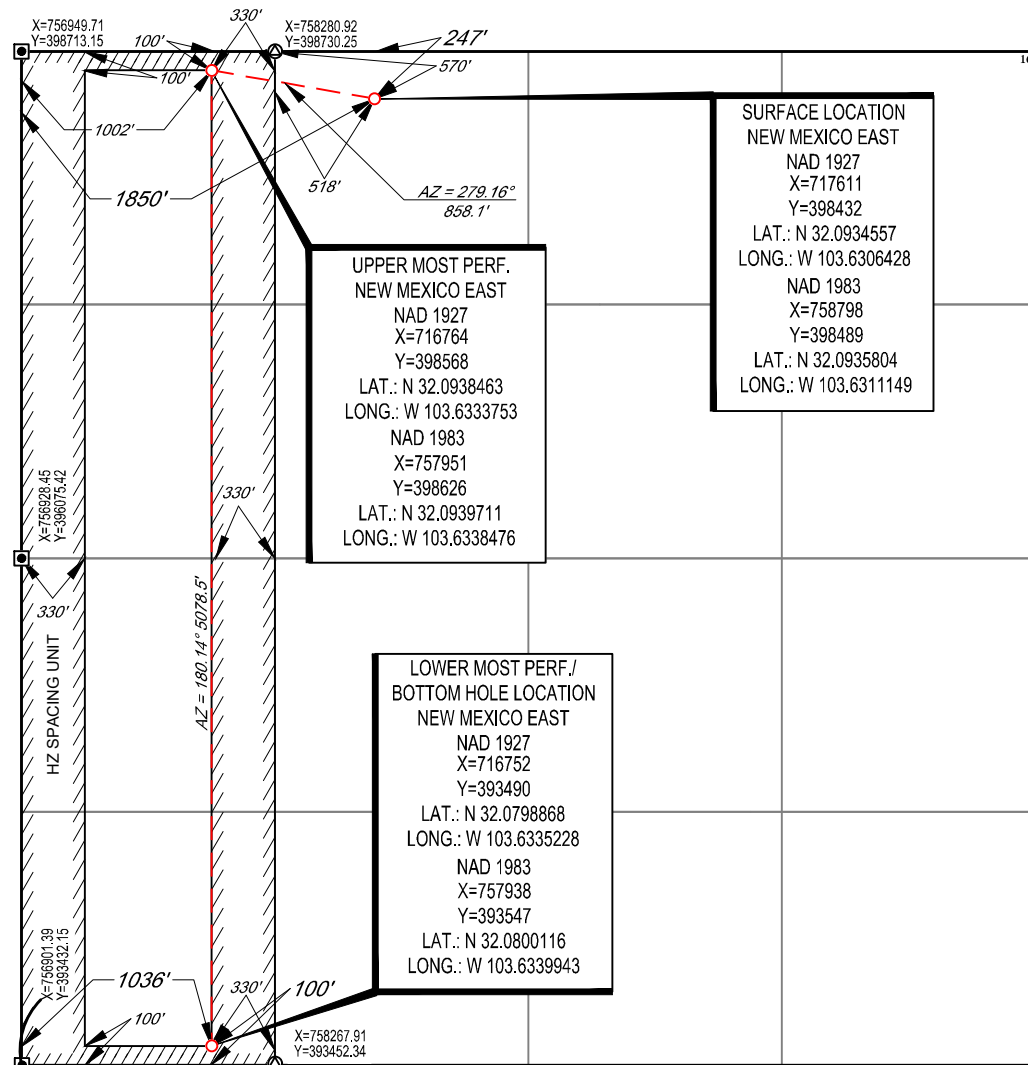
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	36	25-S	32-E	-	247'	NORTH	1850'	WEST	LEA

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	36	25-S	32-E	-	100'	SOUTH	1036'	WEST	LEA

¹² Dedicated Acres 160.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.



¹⁷OPERATOR CERTIFICATION

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

Star L Harrell 9/19/19
Signature Date

Star L Harrell
Printed Name

star_harrell@eogresources.com
E-mail Address

¹⁸SURVEYOR CERTIFICATION

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

08/28/2019

Date of Survey
Signature and Seal of Professional Surveyor

Ramon A. Dominguez
NEW MEXICO
24508
PROFESSIONAL SURVEYOR
Certificate Number

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

GAS CAPTURE PLAN

Date: 9/23/2019

☒ 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, recomplete 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
GEM 36 STATE COM #104H	30-025-46384	C-36-25S-32E	0247N 1850W	30	None	CTB already connected to EOG low pressure gathering system. MMCF/D is +/- Gather: EOG Resources to Valor Compressor Station

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 EOG RESOURCES INC and will be connected to EOG RESOURCES INC Low Pressure gathering system located in Lea County, New Mexico. It will require 0' of pipeline to connect the facility to Low Pressure gathering system. EOG RESOURCES INC provides (periodically) to EOG RESOURCES INC 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 EOG RESOURCES INC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at EOG RESOURCES INC Processing Plant located in Sec. 13, Twn. 24S, Rng. 33E, Lea 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 EOG RESOURCES INC 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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Energy, Minerals and Natural Resources
Oil Conservation Division
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Form APD Comments

Permit 272516

PERMIT COMMENTS

Operator Name and Address: EOG RESOURCES INC [7377] P.O. Box 2267 Midland, TX 79702		API Number: 30-025-46384
		Well: GEM 36 STATE COM #104H

Created By	Comment	Comment Date
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Form APD Conditions

Permit 272516

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

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: EOG RESOURCES INC [7377] P.O. Box 2267 Midland, TX 79702	API Number: 30-025-46384
	Well: GEM 36 STATE COM #104H

OCD Reviewer	Condition
pkautz	Will require a directional survey with the C-104
pkautz	1) SURFACE & INTERMEDIATE CASING - Cement must circulate to surface -- 2) PRODUCTION CASING - Cement must tie back into intermediate casing --
pkautz	If cement does not circulate to surface, must run temperature survey or other log to determine top of cement
pkautz	Surface casing must be set 25' below top of Rustler Anhydrite in order to seal off protectable water
pkautz	1)- The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days 4)- Deviation / Directional Drill Survey are to be filed with or prior to C-104
pkautz	It is the operator's responsibility to monitor cancellation dates of approved APDs. APD's are good for 2 years and may be extended for one year. Only one 1 year extension will be granted if submitted by C-103 before expiration date. After expiration date or after a 1 year extension must submit new APD. If an APD expires and if site construction has occurred, site remediation is required.
pkautz	Stage Tool 1) Must notify OCD Hobbs Office prior to running Stage Tool at 5753703186 2) If using Stage Tool on Surface casing, Stage Tool must be set greater than 350' from surface and a minimum of 200 feet above surface shoe. 3) When using a Stage Tool on Intermediate or Production Casing Stage must be a minimum of 50 feet below previous casing shoe.

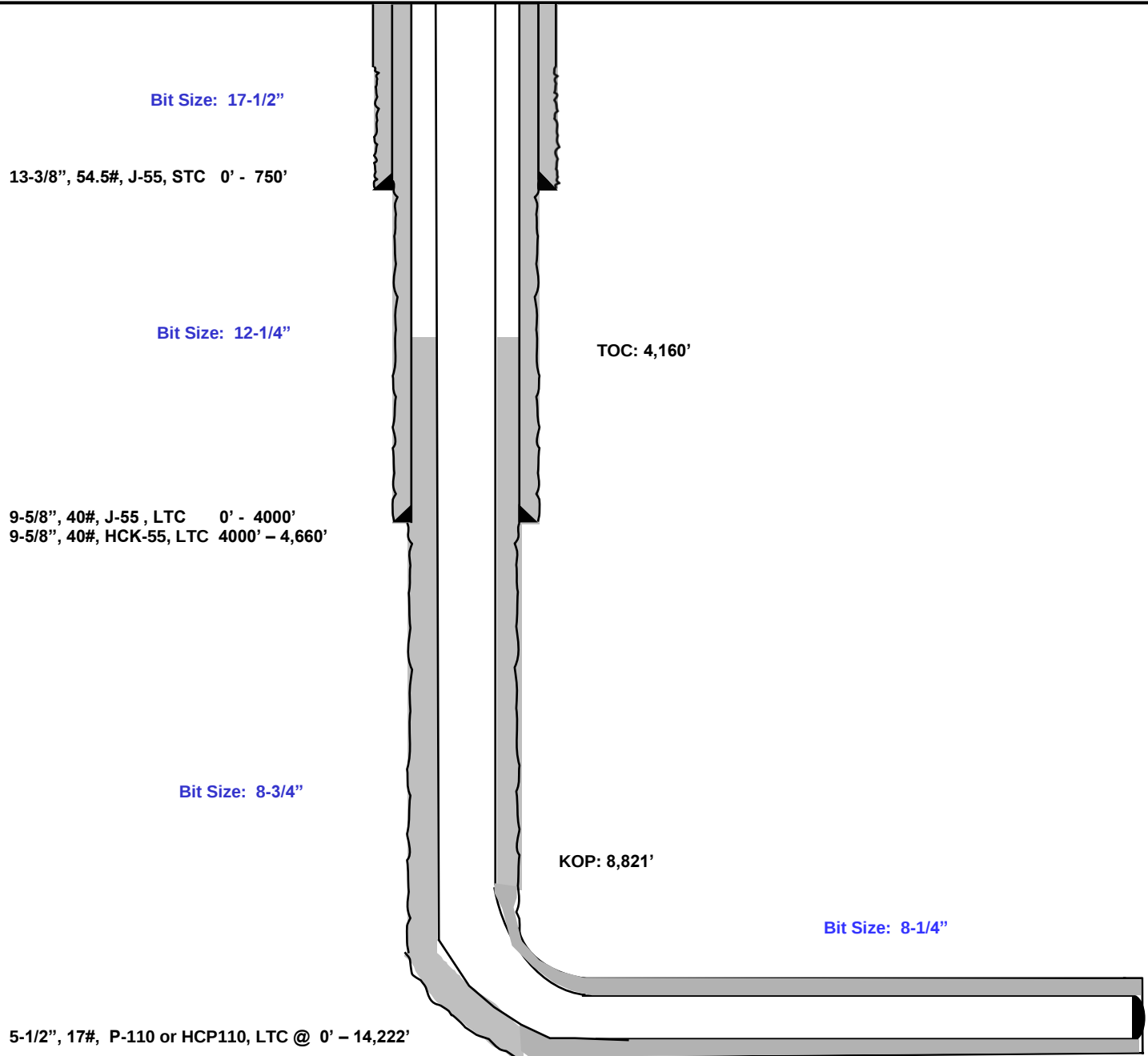
Gem 36 State Com #104H
Lea County, New Mexico

Proposed Wellbore

247' FNL
1850' FWL
Section 36
T-25-S, R-32-E

API: 30-025-*****

KB: 3,423'
GL: 3,398'



Lateral: 14,222' MD, 9,249' TVD
BH Location: 100' FSL & 1036' FWL
Section 36
T-25-S, R-32-E

EOG RESOURCES, INC.
GEM 36 STATE COM #104H

Permit Information:

Well Name: Gem 36 State Com #104H

Location:

SHL: 247' FNL & 1850' FWL, Section 36, T-25-S, R-32-E, Lea Co., N.M.

BHL: 100' FSL & 1036' FWL, Section 36, T-25-S, R-32-E, Lea Co., N.M.

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0' – 750'	13.375"	54.5#	J-55	STC	1.125	1.25	1.60
12.25"	0' – 4,000'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
12.25"	4000' – 4,660'	9.625"	40#	HCK-55	LTC	1.125	1.25	1.60
8.75"	0' – 9,571'	5.5"	17#	HCP-110	LTC	1.125	1.25	1.60
8.5"	9,571' – 14,222'	5.5"	17#	HCP-110	LTC	1.125	1.25	1.60

Cement Program:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Slurry Description
750'	400	13.5	1.73	Lead: Class C + 4.0% Bentonite + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	160	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
4,660'	480	9.0	3.5	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	320	14.4	1.20	Tail: Class C + 10% NaCl + 3% MagOx
14,222'	470	11.0	3.21	Lead: Class C + 3% CaCl ₂ + 3% Microbond (TOC @ 4,160')
	1,300	14.4	1.2	Tail: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' – 750'	Fresh - Gel	8.6-8.8	28-34	N/c
750' – 4,660'	Brine	10.0-10.2	28-34	N/c
4,660' – 8,821'	Cut Brine	8.4-9.0	28-34	N/c
8,821' – 14,222' Lateral	Oil Base	9.0-9.5	40-42	8-10

EOG RESOURCES, INC.
GEM 36 STATE COM #104H

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.
GEM 36 STATE COM #104H

- **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.
GEM 36 STATE COM #104H**

Emergency Assistance Telephone List

PUBLIC SAFETY: **911 or**

Lea County Sheriff's Department	(575) 396-3611
Rod Coffman	
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 / Midland	Office (432) 686-3600
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Company Drilling Consultants:

David Dominique	Cell (985) 518-5839
Mike Vann	Cell (817) 980-5507

Drilling Engineer

Steve Munsell	Office (432) 686-3609
	Cell (432) 894-1256

Drilling Manager

Aj Dach	Office (432) 686-3751
	Cell (817) 480-1167

Drilling Superintendent

Domingo Lopez	Office (432) 686-3702
	Cell (432) 215-9452

H&P Drilling

H&P Drilling	Office (432) 563-5757
H&P 651 Drilling Rig	Rig (903) 509-7131

Tool Pusher:

Johnathan Craig	Cell (817) 760-6374
Brad Garrett	

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



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Gem 36 State Com

#104H

OH

Plan: Plan #0.1

Standard Planning Report

16 September, 2019

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #104H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3423.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3423.0usft
Site:	Gem 36 State Com	North Reference:	Grid
Well:	#104H	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		Gem 36 State Com			
Site Position:		Northing:	393,686.00 usft	Latitude:	32° 4' 49.331 N
From:	Map	Easting:	759,213.00 usft	Longitude:	103° 37' 47.552 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 °

Well	#104H					
Well Position	+N/-S	4,803.0 usft	Northing:	398,489.00 usft	Latitude:	32° 5' 36.886 N
	+E/-W	-415.0 usft	Easting:	758,798.00 usft	Longitude:	103° 37' 52.012 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,398.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/16/2019	6.73	59.90	47,623.75129229

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	189.87

Plan Survey Tool Program	Date	9/16/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	14,222.2 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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,332.6	6.65	282.45	1,331.8	4.2	-18.8	2.00	2.00	0.00	282.45	
8,488.1	6.65	282.45	8,439.2	182.8	-828.2	0.00	0.00	0.00	0.00	
8,820.7	0.00	0.00	8,771.0	187.0	-847.0	2.00	-2.00	0.00	180.00	KOP (Gem 36 State C
9,570.7	90.00	180.15	9,248.5	-290.5	-848.2	12.00	12.00	-23.98	180.15	
14,222.2	90.00	180.15	9,248.5	-4,942.0	-860.0	0.00	0.00	0.00	0.00	PBHL (Gem 36 State

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #104H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3423.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3423.0usft
Site:	Gem 36 State Com	North Reference:	Grid
Well:	#104H	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	2.00	282.45	1,100.0	0.4	-1.7	-0.1	2.00	2.00	0.00
1,200.0	4.00	282.45	1,199.8	1.5	-6.8	-0.3	2.00	2.00	0.00
1,300.0	6.00	282.45	1,299.5	3.4	-15.3	-0.7	2.00	2.00	0.00
1,332.6	6.65	282.45	1,331.8	4.2	-18.8	-0.9	2.00	2.00	0.00
1,400.0	6.65	282.45	1,398.8	5.8	-26.5	-1.2	0.00	0.00	0.00
1,500.0	6.65	282.45	1,498.1	8.3	-37.8	-1.7	0.00	0.00	0.00
1,600.0	6.65	282.45	1,597.5	10.8	-49.1	-2.3	0.00	0.00	0.00
1,700.0	6.65	282.45	1,696.8	13.3	-60.4	-2.8	0.00	0.00	0.00
1,800.0	6.65	282.45	1,796.1	15.8	-71.7	-3.3	0.00	0.00	0.00
1,900.0	6.65	282.45	1,895.4	18.3	-83.0	-3.8	0.00	0.00	0.00
2,000.0	6.65	282.45	1,994.8	20.8	-94.3	-4.3	0.00	0.00	0.00
2,100.0	6.65	282.45	2,094.1	23.3	-105.6	-4.9	0.00	0.00	0.00
2,200.0	6.65	282.45	2,193.4	25.8	-116.9	-5.4	0.00	0.00	0.00
2,300.0	6.65	282.45	2,292.7	28.3	-128.3	-5.9	0.00	0.00	0.00
2,400.0	6.65	282.45	2,392.1	30.8	-139.6	-6.4	0.00	0.00	0.00
2,500.0	6.65	282.45	2,491.4	33.3	-150.9	-7.0	0.00	0.00	0.00
2,600.0	6.65	282.45	2,590.7	35.8	-162.2	-7.5	0.00	0.00	0.00
2,700.0	6.65	282.45	2,690.0	38.3	-173.5	-8.0	0.00	0.00	0.00
2,800.0	6.65	282.45	2,789.4	40.8	-184.8	-8.5	0.00	0.00	0.00
2,900.0	6.65	282.45	2,888.7	43.3	-196.1	-9.0	0.00	0.00	0.00
3,000.0	6.65	282.45	2,988.0	45.8	-207.4	-9.6	0.00	0.00	0.00
3,100.0	6.65	282.45	3,087.4	48.3	-218.7	-10.1	0.00	0.00	0.00
3,200.0	6.65	282.45	3,186.7	50.8	-230.0	-10.6	0.00	0.00	0.00
3,300.0	6.65	282.45	3,286.0	53.3	-241.4	-11.1	0.00	0.00	0.00
3,400.0	6.65	282.45	3,385.3	55.8	-252.7	-11.6	0.00	0.00	0.00
3,500.0	6.65	282.45	3,484.7	58.3	-264.0	-12.2	0.00	0.00	0.00
3,600.0	6.65	282.45	3,584.0	60.8	-275.3	-12.7	0.00	0.00	0.00
3,700.0	6.65	282.45	3,683.3	63.3	-286.6	-13.2	0.00	0.00	0.00
3,800.0	6.65	282.45	3,782.6	65.8	-297.9	-13.7	0.00	0.00	0.00
3,900.0	6.65	282.45	3,882.0	68.3	-309.2	-14.2	0.00	0.00	0.00
4,000.0	6.65	282.45	3,981.3	70.8	-320.5	-14.8	0.00	0.00	0.00
4,100.0	6.65	282.45	4,080.6	73.3	-331.8	-15.3	0.00	0.00	0.00
4,200.0	6.65	282.45	4,180.0	75.8	-343.2	-15.8	0.00	0.00	0.00
4,300.0	6.65	282.45	4,279.3	78.3	-354.5	-16.3	0.00	0.00	0.00
4,400.0	6.65	282.45	4,378.6	80.8	-365.8	-16.9	0.00	0.00	0.00
4,500.0	6.65	282.45	4,477.9	83.3	-377.1	-17.4	0.00	0.00	0.00
4,600.0	6.65	282.45	4,577.3	85.8	-388.4	-17.9	0.00	0.00	0.00
4,700.0	6.65	282.45	4,676.6	88.2	-399.7	-18.4	0.00	0.00	0.00
4,800.0	6.65	282.45	4,775.9	90.7	-411.0	-18.9	0.00	0.00	0.00
4,900.0	6.65	282.45	4,875.2	93.2	-422.3	-19.5	0.00	0.00	0.00
5,000.0	6.65	282.45	4,974.6	95.7	-433.6	-20.0	0.00	0.00	0.00
5,100.0	6.65	282.45	5,073.9	98.2	-445.0	-20.5	0.00	0.00	0.00
5,200.0	6.65	282.45	5,173.2	100.7	-456.3	-21.0	0.00	0.00	0.00

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #104H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3423.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3423.0usft
Site:	Gem 36 State Com	North Reference:	Grid
Well:	#104H	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	6.65	282.45	5,272.5	103.2	-467.6	-21.5	0.00	0.00	0.00
5,400.0	6.65	282.45	5,371.9	105.7	-478.9	-22.1	0.00	0.00	0.00
5,500.0	6.65	282.45	5,471.2	108.2	-490.2	-22.6	0.00	0.00	0.00
5,600.0	6.65	282.45	5,570.5	110.7	-501.5	-23.1	0.00	0.00	0.00
5,700.0	6.65	282.45	5,669.9	113.2	-512.8	-23.6	0.00	0.00	0.00
5,800.0	6.65	282.45	5,769.2	115.7	-524.1	-24.1	0.00	0.00	0.00
5,900.0	6.65	282.45	5,868.5	118.2	-535.4	-24.7	0.00	0.00	0.00
6,000.0	6.65	282.45	5,967.8	120.7	-546.7	-25.2	0.00	0.00	0.00
6,100.0	6.65	282.45	6,067.2	123.2	-558.1	-25.7	0.00	0.00	0.00
6,200.0	6.65	282.45	6,166.5	125.7	-569.4	-26.2	0.00	0.00	0.00
6,300.0	6.65	282.45	6,265.8	128.2	-580.7	-26.8	0.00	0.00	0.00
6,400.0	6.65	282.45	6,365.1	130.7	-592.0	-27.3	0.00	0.00	0.00
6,500.0	6.65	282.45	6,464.5	133.2	-603.3	-27.8	0.00	0.00	0.00
6,600.0	6.65	282.45	6,563.8	135.7	-614.6	-28.3	0.00	0.00	0.00
6,700.0	6.65	282.45	6,663.1	138.2	-625.9	-28.8	0.00	0.00	0.00
6,800.0	6.65	282.45	6,762.5	140.7	-637.2	-29.4	0.00	0.00	0.00
6,900.0	6.65	282.45	6,861.8	143.2	-648.5	-29.9	0.00	0.00	0.00
7,000.0	6.65	282.45	6,961.1	145.7	-659.9	-30.4	0.00	0.00	0.00
7,100.0	6.65	282.45	7,060.4	148.2	-671.2	-30.9	0.00	0.00	0.00
7,200.0	6.65	282.45	7,159.8	150.7	-682.5	-31.4	0.00	0.00	0.00
7,300.0	6.65	282.45	7,259.1	153.2	-693.8	-32.0	0.00	0.00	0.00
7,400.0	6.65	282.45	7,358.4	155.7	-705.1	-32.5	0.00	0.00	0.00
7,500.0	6.65	282.45	7,457.7	158.2	-716.4	-33.0	0.00	0.00	0.00
7,600.0	6.65	282.45	7,557.1	160.7	-727.7	-33.5	0.00	0.00	0.00
7,700.0	6.65	282.45	7,656.4	163.2	-739.0	-34.0	0.00	0.00	0.00
7,800.0	6.65	282.45	7,755.7	165.7	-750.3	-34.6	0.00	0.00	0.00
7,900.0	6.65	282.45	7,855.0	168.2	-761.7	-35.1	0.00	0.00	0.00
8,000.0	6.65	282.45	7,954.4	170.7	-773.0	-35.6	0.00	0.00	0.00
8,100.0	6.65	282.45	8,053.7	173.2	-784.3	-36.1	0.00	0.00	0.00
8,200.0	6.65	282.45	8,153.0	175.6	-795.6	-36.7	0.00	0.00	0.00
8,300.0	6.65	282.45	8,252.4	178.1	-806.9	-37.2	0.00	0.00	0.00
8,400.0	6.65	282.45	8,351.7	180.6	-818.2	-37.7	0.00	0.00	0.00
8,488.1	6.65	282.45	8,439.2	182.8	-828.2	-38.2	0.00	0.00	0.00
8,500.0	6.41	282.45	8,451.0	183.1	-829.5	-38.2	2.00	-2.00	0.00
8,600.0	4.41	282.45	8,550.6	185.2	-838.7	-38.6	2.00	-2.00	0.00
8,700.0	2.41	282.45	8,650.4	186.5	-844.5	-38.9	2.00	-2.00	0.00
8,800.0	0.41	282.45	8,750.3	187.0	-846.9	-39.0	2.00	-2.00	0.00
8,820.7	0.00	0.00	8,771.0	187.0	-847.0	-39.0	2.00	-2.00	0.00
KOP (Gem 36 State Com #104H)									
8,825.0	0.52	180.15	8,775.3	187.0	-847.0	-39.0	12.00	12.00	0.00
8,850.0	3.52	180.15	8,800.3	186.1	-847.0	-38.1	12.00	12.00	0.00
8,875.0	6.52	180.15	8,825.2	183.9	-847.0	-36.0	12.00	12.00	0.00
8,900.0	9.52	180.15	8,850.0	180.4	-847.0	-32.5	12.00	12.00	0.00
8,925.0	12.52	180.15	8,874.5	175.6	-847.0	-27.8	12.00	12.00	0.00
8,950.0	15.52	180.15	8,898.8	169.6	-847.0	-21.9	12.00	12.00	0.00
8,975.0	18.52	180.15	8,922.7	162.3	-847.1	-14.6	12.00	12.00	0.00
9,000.0	21.52	180.15	8,946.2	153.7	-847.1	-6.2	12.00	12.00	0.00
9,025.0	24.52	180.15	8,969.2	143.9	-847.1	3.4	12.00	12.00	0.00
9,050.0	27.52	180.15	8,991.6	133.0	-847.1	14.2	12.00	12.00	0.00
9,075.0	30.52	180.15	9,013.5	120.8	-847.2	26.2	12.00	12.00	0.00
9,100.0	33.52	180.15	9,034.7	107.6	-847.2	39.2	12.00	12.00	0.00
9,125.0	36.52	180.15	9,055.1	93.2	-847.2	53.4	12.00	12.00	0.00
9,150.0	39.52	180.15	9,074.8	77.8	-847.3	68.6	12.00	12.00	0.00

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #104H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3423.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3423.0usft
Site:	Gem 36 State Com	North Reference:	Grid
Well:	#104H	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)
9,175.0	42.52	180.15	9,093.7	61.4	-847.3	84.7	12.00	12.00	0.00
9,200.0	45.52	180.15	9,111.7	44.1	-847.4	101.9	12.00	12.00	0.00
9,225.0	48.52	180.15	9,128.7	25.8	-847.4	119.9	12.00	12.00	0.00
FTP (Gem 36 State Com #104H)									
9,250.0	51.52	180.15	9,144.8	6.6	-847.5	138.8	12.00	12.00	0.00
9,275.0	54.52	180.15	9,159.8	-13.3	-847.5	158.4	12.00	12.00	0.00
9,300.0	57.52	180.15	9,173.8	-34.1	-847.6	178.9	12.00	12.00	0.00
9,325.0	60.52	180.15	9,186.7	-55.5	-847.6	200.0	12.00	12.00	0.00
9,350.0	63.52	180.15	9,198.4	-77.6	-847.7	221.8	12.00	12.00	0.00
9,375.0	66.52	180.15	9,208.9	-100.2	-847.7	244.1	12.00	12.00	0.00
9,400.0	69.52	180.15	9,218.3	-123.4	-847.8	266.9	12.00	12.00	0.00
9,425.0	72.52	180.15	9,226.4	-147.1	-847.8	290.2	12.00	12.00	0.00
9,450.0	75.52	180.15	9,233.3	-171.1	-847.9	313.9	12.00	12.00	0.00
9,475.0	78.52	180.15	9,238.9	-195.4	-848.0	337.9	12.00	12.00	0.00
9,500.0	81.52	180.15	9,243.2	-220.1	-848.0	362.2	12.00	12.00	0.00
9,525.0	84.52	180.15	9,246.3	-244.9	-848.1	386.6	12.00	12.00	0.00
9,550.0	87.52	180.15	9,248.0	-269.8	-848.2	411.2	12.00	12.00	0.00
9,570.7	90.00	180.15	9,248.5	-290.5	-848.2	431.6	12.00	12.00	0.00
9,600.0	90.00	180.15	9,248.5	-319.8	-848.3	460.5	0.00	0.00	0.00
9,700.0	90.00	180.15	9,248.5	-419.8	-848.5	559.1	0.00	0.00	0.00
9,800.0	90.00	180.15	9,248.5	-519.8	-848.8	657.6	0.00	0.00	0.00
9,900.0	90.00	180.15	9,248.5	-619.8	-849.0	756.2	0.00	0.00	0.00
10,000.0	90.00	180.15	9,248.5	-719.8	-849.3	854.8	0.00	0.00	0.00
10,100.0	90.00	180.15	9,248.5	-819.8	-849.6	953.3	0.00	0.00	0.00
10,200.0	90.00	180.15	9,248.5	-919.8	-849.8	1,051.9	0.00	0.00	0.00
10,300.0	90.00	180.15	9,248.5	-1,019.8	-850.1	1,150.4	0.00	0.00	0.00
10,400.0	90.00	180.15	9,248.5	-1,119.8	-850.3	1,249.0	0.00	0.00	0.00
10,500.0	90.00	180.15	9,248.5	-1,219.8	-850.6	1,347.6	0.00	0.00	0.00
10,600.0	90.00	180.15	9,248.5	-1,319.8	-850.8	1,446.1	0.00	0.00	0.00
10,700.0	90.00	180.15	9,248.5	-1,419.8	-851.1	1,544.7	0.00	0.00	0.00
10,800.0	90.00	180.15	9,248.5	-1,519.8	-851.3	1,643.3	0.00	0.00	0.00
10,900.0	90.00	180.15	9,248.5	-1,619.8	-851.6	1,741.8	0.00	0.00	0.00
11,000.0	90.00	180.15	9,248.5	-1,719.8	-851.8	1,840.4	0.00	0.00	0.00
11,100.0	90.00	180.15	9,248.5	-1,819.8	-852.1	1,938.9	0.00	0.00	0.00
11,200.0	90.00	180.15	9,248.5	-1,919.8	-852.3	2,037.5	0.00	0.00	0.00
11,300.0	90.00	180.15	9,248.5	-2,019.8	-852.6	2,136.1	0.00	0.00	0.00
11,400.0	90.00	180.15	9,248.5	-2,119.8	-852.8	2,234.6	0.00	0.00	0.00
11,500.0	90.00	180.15	9,248.5	-2,219.8	-853.1	2,333.2	0.00	0.00	0.00
11,600.0	90.00	180.15	9,248.5	-2,319.8	-853.4	2,431.8	0.00	0.00	0.00
11,700.0	90.00	180.15	9,248.5	-2,419.8	-853.6	2,530.3	0.00	0.00	0.00
11,800.0	90.00	180.15	9,248.5	-2,519.8	-853.9	2,628.9	0.00	0.00	0.00
11,900.0	90.00	180.15	9,248.5	-2,619.8	-854.1	2,727.4	0.00	0.00	0.00
12,000.0	90.00	180.15	9,248.5	-2,719.8	-854.4	2,826.0	0.00	0.00	0.00
12,100.0	90.00	180.15	9,248.5	-2,819.8	-854.6	2,924.6	0.00	0.00	0.00
12,200.0	90.00	180.15	9,248.5	-2,919.8	-854.9	3,023.1	0.00	0.00	0.00
12,300.0	90.00	180.15	9,248.5	-3,019.8	-855.1	3,121.7	0.00	0.00	0.00
12,400.0	90.00	180.15	9,248.5	-3,119.8	-855.4	3,220.3	0.00	0.00	0.00
12,500.0	90.00	180.15	9,248.5	-3,219.8	-855.6	3,318.8	0.00	0.00	0.00
12,600.0	90.00	180.15	9,248.5	-3,319.8	-855.9	3,417.4	0.00	0.00	0.00
12,700.0	90.00	180.15	9,248.5	-3,419.8	-856.1	3,515.9	0.00	0.00	0.00
12,800.0	90.00	180.15	9,248.5	-3,519.8	-856.4	3,614.5	0.00	0.00	0.00
12,900.0	90.00	180.15	9,248.5	-3,619.8	-856.6	3,713.1	0.00	0.00	0.00
13,000.0	90.00	180.15	9,248.5	-3,719.8	-856.9	3,811.6	0.00	0.00	0.00
13,100.0	90.00	180.15	9,248.5	-3,819.8	-857.2	3,910.2	0.00	0.00	0.00

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #104H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3423.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3423.0usft
Site:	Gem 36 State Com	North Reference:	Grid
Well:	#104H	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)	
13,200.0	90.00	180.15	9,248.5	-3,919.8	-857.4	4,008.8	0.00	0.00	0.00	
13,300.0	90.00	180.15	9,248.5	-4,019.8	-857.7	4,107.3	0.00	0.00	0.00	
13,400.0	90.00	180.15	9,248.5	-4,119.8	-857.9	4,205.9	0.00	0.00	0.00	
13,500.0	90.00	180.15	9,248.5	-4,219.8	-858.2	4,304.4	0.00	0.00	0.00	
13,600.0	90.00	180.15	9,248.5	-4,319.8	-858.4	4,403.0	0.00	0.00	0.00	
13,700.0	90.00	180.15	9,248.5	-4,419.8	-858.7	4,501.6	0.00	0.00	0.00	
13,800.0	90.00	180.15	9,248.5	-4,519.8	-858.9	4,600.1	0.00	0.00	0.00	
13,900.0	90.00	180.15	9,248.5	-4,619.8	-859.2	4,698.7	0.00	0.00	0.00	
14,000.0	90.00	180.15	9,248.5	-4,719.8	-859.4	4,797.3	0.00	0.00	0.00	
14,100.0	90.00	180.15	9,248.5	-4,819.8	-859.7	4,895.8	0.00	0.00	0.00	
14,200.0	90.00	180.15	9,248.5	-4,919.8	-859.9	4,994.4	0.00	0.00	0.00	
14,222.2	90.00	180.15	9,248.5	-4,942.0	-860.0	5,016.3	0.00	0.00	0.00	
PBHL (Gem 36 State Com #104H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
KOP (Gem 36 State Cor - plan hits target center - Point	0.00	0.00	8,771.0	187.0	-847.0	398,676.00	757,951.00	32° 5' 38.791 N	103° 38' 1.844 W	
FTP (Gem 36 State Cor - plan misses target center by 163.5usft at 9225.0usft MD (9128.7 TVD, 25.8 N, -847.4 E) - Point	0.00	0.00	9,248.5	137.0	-847.0	398,626.00	757,951.00	32° 5' 38.296 N	103° 38' 1.847 W	
PBHL (Gem 36 State Co - plan hits target center - Point	0.00	0.00	9,248.5	-4,942.0	-860.0	393,547.00	757,938.00	32° 4' 48.037 N	103° 38' 2.381 W	