

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

ATS-11-401
FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER


1a. Type of Work <input checked="" type="checkbox"/> DRILL ✓ <input type="checkbox"/> REENTER		5. Lease Serial No. NM 15303
1b. Type of Well <input checked="" type="checkbox"/> Oil Well ✓ <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator EOG Resources Inc. ✓		7. Unit or CA Agreement Name and No.
3a. Address P.O. Box 2267 Midland, Texas 79702	3b. Phone No. (include area code) 432-686-3689	8. Lease Name and Well No. Herd Bull 14 Federal 4H
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 270' FSL & 515' FWL, U/L M At proposed prod. zone 330' FNL & 330' FWL, U/L D		9. API Well No. 30-015-38995
14. Distance in miles and direction from nearest town or post office* +/- 5 Miles South East from Malaga, NM		10. Field and Pool, or Exploratory Pierce Crossing; BS, East ✓
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 270'	16. No. of Acres in lease 2560	11. Sec., T., R., M., or Blk. and Survey or Area Sec 14, T25S, R29E
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1795'	19. Proposed Depth 11909 MD - 7400 TVD	12. County or Parish Eddy
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3102' ✓	22. Approximate date work will start* 5/1/2011	13. State NM
17. Spacing Unit dedicated to this well 160		
20. BLM/BIA Bond No. on file NM 2308		
23. Estimated duration 30 days		

UNORTHODOX LOCATION

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

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

25. Signature 	Name (Printed/Typed) Stan Wagner	Date 2/22/11
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Title Regulatory Analyst		
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Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date APR 12 2011
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Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE
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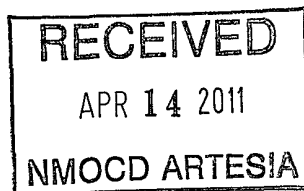
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

Carlsbad Controlled Water Basin



*(Instructions on page 2)
Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Permit Information:

Well Name: Herd Bull 14 Federal No. 4H

Location:

SL: 270' FSL & 515' FWL, Section 14, T-25-S, R-29-E, Eddy Co., N.M.

BHL: 330' FNL & 330' FWL, Section 14, T-25-S, R-29-E, Eddy Co., N.M.

Casing Program:

See COA

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
14.75"	0 - 700'	11.75"	42#	H40	STC	1.10	1.25	1.60
11.00"	0-3,200' 0-2,700'	8.625"	32#	J55	LTC	1.10	1.25	1.60
7.875"	0'-11,909'	5.5"	17#	N80	LTC	1.10	1.25	1.60

Cement Program: See COA

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Slurry Description
700'	325	14.8	1.32	Class C + 0.005 pps Static Free + 2% CaCl ₂ + 0.25 pps CelloFlake + 0.005 gps FP-6L (TOC @ surface) (AHS = 15.75" + 25% excess)
3,200'	475	12.7	2.01	Class C + 2% SMS + 0.8% R-3 + 0.25 pps CelloFlake + 0.005 pps Static Free (TOC @ surface) (AHS = 12.15" + 25% excess)
	200	14.8	1.32	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free (TOC @ 2,600') (AHS = 12.15" + 0% excess)
BH Plug 8300'-8100'	75	18.0	0.90	Class H + 0.005 lbs/sx Static Free + 5% Salt + 1.2% CD31 + 0.005 gps FP-6L (AHS = 8.00" + 0% excess)
KO Plug 600'	250	18.0	0.90	Class H + 0.005 lbs/sx Static Free + 5% Salt + 1.2% CD31 + 0.005 gps FP-6L (AHS = 8.50" + 0% excess)
11,909'	200	10.8	3.67	60:40:0 Class 'C' + 15.00 lb/sk BA-90 + 4.00% MPA-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free (TOC @ 2,700') (AHS = 8.85" + 25% excess)
	235	11.8	2.38	50:50:10 Class 'H' + 0.80% FL-52 + 0.45% ASA-301 + 0.40% SMS + 2.00% Salt + 3.00 lb/sx LCM-1 + 0.20% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free (TOC @ 5,200') (AHS = 8.85" + 25% excess)
	875	14.2	1.28	50:50:2 Class 'H' + 0.65% FL-52 + 0.20% CD-32 + 0.15% SMS + 2.00% Salt + 0.10% R-3 + 0.005 lb/sk Static Free (TOC @ 6,900') (AHS = 8.10" + 10% excess)

AHS = Average hole size (estimated)

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 700'	Fresh - Gel	8.6-8.8	28-34	N/c
700' – 3,200' 3160	Brine	10.0-10.2	28-34	N/c
3,320' – 8,300' Pilot hole	Cut Brine	8.4-9.0	28-34	N/c
KOP – TD Lateral	Cut Brine	9.0-9.5	28-34	N/c

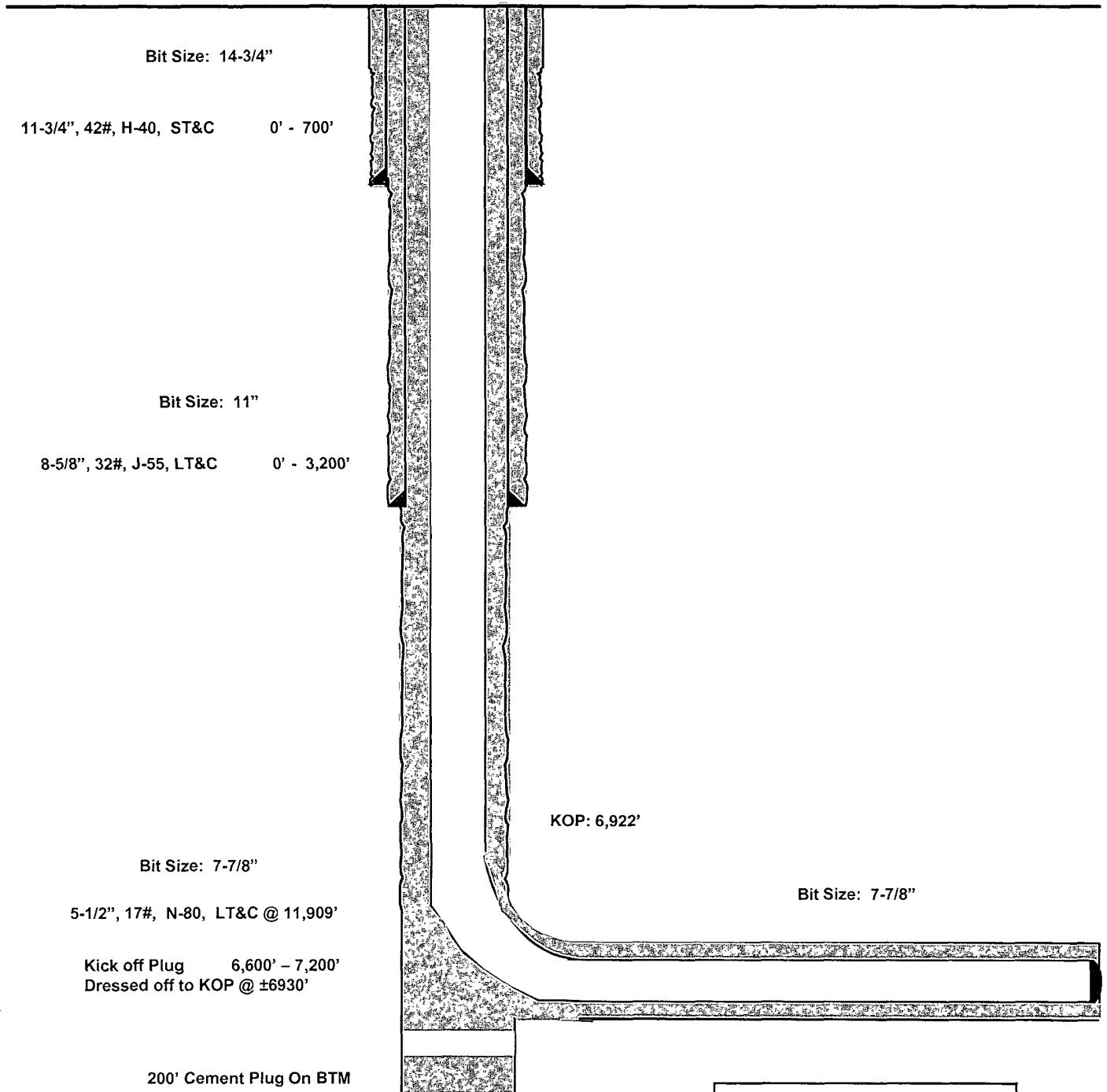
Herd Bull 14 Federal #4H
Eddy County, New Mexico

270' FSL
515' FWL
Section 14
T-25-S, R-29-E

Proposed Wellbore

API: 30-015-*****

KB: 3,121.8'
GL: 3,102.8'



Bit Size: 14-3/4"

11-3/4", 42#, H-40, ST&C 0' - 700'

Bit Size: 11"

8-5/8", 32#, J-55, LT&C 0' - 3,200'

KOP: 6,922'

Bit Size: 7-7/8"

5-1/2", 17#, N-80, LT&C @ 11,909'

Kick off Plug 6,600' - 7,200'
Dressed off to KOP @ ±6930'

Bit Size: 7-7/8"

200' Cement Plug On BTM

Pilot Hole
TD 8,300'

Lateral:
11,909' MD, 7400' TVD
BH Location: 330' FNL & 330' FWL
Section 14
T-25-S, R-29-E

**EOG RESOURCES, INC.
HERD 14 FEDERAL NO. 4H**

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	690'
Top of Salt	780'
Salado	1,380'
Base of Salt	3,010'
Lamar	3,210'
Bell Canyon	3,239'
Cherry Canyon	4,121'
Brushy Canyon	5,390'
Bone Spring Lime	7,000'
1 st Bone Spring Sand	7,920'
Pilot hole TD	8,300'

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

Upper Permian Sands	0- 690'	Fresh Water
Bell Canyon	3,239'	Oil
Cherry Canyon	4,121'	Oil
Bone Spring Lime	7,000'	Oil
1 st Bone Spring Sand	7,920'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 11.75" casing at 700' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
14.75"	0 - 700'	11.75"	42#	H40	STC	1.125	1.25	1.60
11.00"	0- 3,200'	8.625"	32#	J55	LTC	1.125	1.25	1.60
7.875"	0'-11,909'	5.5"	17#	N80	LTC	1.125	1.25	1.60

*2nd
CBA*

**EOG RESOURCES, INC.
HERD 14 FEDERAL NO. 4H**

Cementing Program: *See COA*

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Slurry Description
700'	325	14.8	1.32	Class C + 0.005 pps Static Free + 2% CaCl ₂ + 0.25 pps CelloFlake + 0.005 gps FP-6L (TOC @ surface) (AHS = 15.75" + 25% excess)
3,200'	475	12.7	2.01	Class C + 2% SMS + 0.8% R-3 + 0.25 pps CelloFlake + 0.005 pps Static Free (TOC @ surface) (AHS = 12.15" + 25% excess)
	200	14.8	1.32	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free (TOC @ 2,600') (AHS = 12.15" + 0% excess)
BH Plug 8300'-8100'	75	18.0	0.90	Class H + 0.005 lbs/sx Static Free + 5% Salt + 1.2% CD31 + 0.005 gps FP-6L (AHS = 8.00" + 0% excess)
KO Plug 600'	250	18.0	0.90	Class H + 0.005 lbs/sx Static Free + 5% Salt + 1.2% CD31 + 0.005 gps FP-6L (AHS = 8.50" + 0% excess)
11,909'	200	10.8	3.67	60:40:0 Class 'C' + 15.00 lb/sk BA-90 + 4.00% MPA-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free (TOC @ 2,700') (AHS = 8.85" + 25% excess)
	235	11.8	2.38	50:50:10 Class 'H' + 0.80% FL-52 + 0.45% ASA-301 + 0.40% SMS + 2.00% Salt + 3.00 lb/sx LCM-1 + 0.20% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free (TOC @ 5,200') (AHS = 8.85" + 25% excess)
	875	14.2	1.28	50:50:2 Class 'H' + 0.65% FL-52 + 0.20% CD-32 + 0.15% SMS + 2.00% Salt + 0.10% R-3 + 0.005 lb/sk Static Free (TOC @ 6,900') (AHS = 8.10" + 10% excess)

Cement volumes based on bit size + 25% excess.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

(SEE EXHIBIT #1)

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram-type (5000 psi WP) preventer and an annular preventer (5000-psi WP). Units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOP's and accessory equipment will be tested in accordance with Onshore Oil & Gas order No. 2. Prior to drilling out of the surface casing, the BOP's will be tested to 2000/250 psig. Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 2500/ 250 psig.

**EOG RESOURCES, INC.
HERD 14 FEDERAL NO. 4H**

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will not be installed prior to the setting and cementing of the intermediate casing string, but will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

The well will be drilled to TD with a combination of fresh water and brine water, with polymer sweeps. The applicable depths and properties of this system are as follows:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 700'	Fresh - Gel	8.6-8.8	28-34	N/c
700' – 3,200'	Brine	10.0-10.2	28-34	N/c
3,320' – 8,300' Pilot hole	Cut Brine	8.4-9.0	28-34	N/c
KOP – TD Lateral	Cut Brine	9.0-9.5	28-34	N/c

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

6. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) A mud logging unit will be continuously monitoring drill penetration rate and hydrocarbon shows from intermediate casing point to TD.
- (D) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

**EOG RESOURCES, INC.
HERD 14 FEDERAL NO. 4H**

8. LOGGING, TESTING AND CORING PROGRAM: *See COA*

Open-hole logging is anticipated in the 7-7/8" hole section. The anticipated logging suites scheduled for this hole section are listed below:

NGT-CNL-LDT w/ Pe	From TD to previous casing shoe. At casing pull GR – Neutron to surface.
HR Laterolog Array	From TD to previous casing shoe.
FMI	Possible in the production hole

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

The estimated bottom hole temperature (BHT) at TD is 145 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 3700 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. No major loss circulation zones have been reported in offsetting wells.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.



EOG Resources, Inc.

Eddy County

Herd Bull 14 Federal

#4H

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

28 January, 2011

PATHFINDER[®]
A Schlumberger Company



Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Eddy County	TVD Reference:	WELL @ 3121.80usft (Original Well Elev)
Site:	Herd Bull 14 Federal	MD Reference:	WELL @ 3121.80usft (Original Well Elev)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Herd Bull 14 Federal				
Site Position:	Northing:	408,809.500 usft	Latitude:	32° 7' 24.197 N	
From: Map	Easting:	615,085.300 usft	Longitude:	103° 57' 41.711 W	
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well:	#4H					
Well Position	+N/-S	0.00 usft	Northing:	408,809.500 usft	Latitude:	32° 7' 24.197 N
	+E/-W	0.00 usft	Easting:	615,085.300 usft	Longitude:	103° 57' 41.711 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,102.80 usft	

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF200510	01/27/11	(°) 7.79	(°) 60.06	(nT) 48,588

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	357.50

Survey Tool Program	Date	01/27/11		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0.00	11,908.65	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder
Pathfinder X & Y Planning Report



Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
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Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	3,121.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
100.00	0.00	0.00	100.00	3,021.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
200.00	0.00	0.00	200.00	2,921.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
300.00	0.00	0.00	300.00	2,821.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
400.00	0.00	0.00	400.00	2,721.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
500.00	0.00	0.00	500.00	2,621.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
600.00	0.00	0.00	600.00	2,521.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
700.00	0.00	0.00	700.00	2,421.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
800.00	0.00	0.00	800.00	2,321.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
900.00	0.00	0.00	900.00	2,221.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,000.00	0.00	0.00	1,000.00	2,121.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,100.00	0.00	0.00	1,100.00	2,021.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,200.00	0.00	0.00	1,200.00	1,921.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,300.00	0.00	0.00	1,300.00	1,821.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,400.00	0.00	0.00	1,400.00	1,721.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,500.00	0.00	0.00	1,500.00	1,621.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,600.00	0.00	0.00	1,600.00	1,521.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,700.00	0.00	0.00	1,700.00	1,421.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,800.00	0.00	0.00	1,800.00	1,321.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
1,900.00	0.00	0.00	1,900.00	1,221.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,000.00	0.00	0.00	2,000.00	1,121.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,100.00	0.00	0.00	2,100.00	1,021.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,200.00	0.00	0.00	2,200.00	921.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,300.00	0.00	0.00	2,300.00	821.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,400.00	0.00	0.00	2,400.00	721.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,500.00	0.00	0.00	2,500.00	621.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	
2,600.00	0.00	0.00	2,600.00	521.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30	



Pathfinder
Pathfinder X & Y Planning Report



Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Eddy County	TVD Reference:	WELL @ 3121.80usft (Original Well Elev)
Site:	Herd Bull 14 Federal	MD Reference:	WELL @ 3121.80usft (Original Well Elev)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (%)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V-Sec (usft)	DLeg (/100usft)	Northing (usft)	Easting (usft)
2,700.00	0.00	0.00	2,700.00	421.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30
2,800.00	0.00	0.00	2,800.00	321.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30
2,900.00	0.00	0.00	2,900.00	221.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,000.00	0.00	0.00	3,000.00	121.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,100.00	0.00	0.00	3,100.00	21.80	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,200.00	0.00	0.00	3,200.00	-78.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,300.00	0.00	0.00	3,300.00	-178.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,400.00	0.00	0.00	3,400.00	-278.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,500.00	0.00	0.00	3,500.00	-378.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,600.00	0.00	0.00	3,600.00	-478.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,700.00	0.00	0.00	3,700.00	-578.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,800.00	0.00	0.00	3,800.00	-678.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
3,900.00	0.00	0.00	3,900.00	-778.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,000.00	0.00	0.00	4,000.00	-878.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,100.00	0.00	0.00	4,100.00	-978.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,200.00	0.00	0.00	4,200.00	-1,078.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,300.00	0.00	0.00	4,300.00	-1,178.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,400.00	0.00	0.00	4,400.00	-1,278.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,500.00	0.00	0.00	4,500.00	-1,378.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,600.00	0.00	0.00	4,600.00	-1,478.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,700.00	0.00	0.00	4,700.00	-1,578.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,800.00	0.00	0.00	4,800.00	-1,678.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
4,900.00	0.00	0.00	4,900.00	-1,778.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,000.00	0.00	0.00	5,000.00	-1,878.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,100.00	0.00	0.00	5,100.00	-1,978.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,200.00	0.00	0.00	5,200.00	-2,078.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,300.00	0.00	0.00	5,300.00	-2,178.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30



Pathfinder
Pathfinder X & Y Planning Report



Company: EOG Resources, Inc.
Project: Eddy County
Site: Herd Bull 14 Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3121.80usft (Original Well Elev)
MD Reference: WELL @ 3121.80usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (/100usft)	Northing (usft)	Easting (usft)
5,400.00	0.00	0.00	5,400.00	-2,278.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,500.00	0.00	0.00	5,500.00	-2,378.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,600.00	0.00	0.00	5,600.00	-2,478.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,700.00	0.00	0.00	5,700.00	-2,578.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,800.00	0.00	0.00	5,800.00	-2,678.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
5,900.00	0.00	0.00	5,900.00	-2,778.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,000.00	0.00	0.00	6,000.00	-2,878.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,100.00	0.00	0.00	6,100.00	-2,978.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,200.00	0.00	0.00	6,200.00	-3,078.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,300.00	0.00	0.00	6,300.00	-3,178.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,400.00	0.00	0.00	6,400.00	-3,278.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,500.00	0.00	0.00	6,500.00	-3,378.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,600.00	0.00	0.00	6,600.00	-3,478.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,700.00	0.00	0.00	6,700.00	-3,578.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,800.00	0.00	0.00	6,800.00	-3,678.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,900.00	0.00	0.00	6,900.00	-3,778.20	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,922.50	0.00	0.00	6,922.50	-3,800.70	0.00	0.00	0.00	0.00	408,809.50	615,085.30
6,925.00	0.30	357.50	6,925.00	-3,803.20	0.01	0.00	0.01	12.00	408,809.51	615,085.30
6,950.00	3.30	357.50	6,949.98	-3,828.18	0.79	-0.03	0.79	12.00	408,810.29	615,085.27
6,975.00	6.30	357.50	6,974.89	-3,853.09	2.88	-0.13	2.88	12.00	408,812.38	615,085.17
7,000.00	9.30	357.50	6,999.66	-3,877.86	6.27	-0.27	6.28	12.00	408,815.77	615,085.03
7,025.00	12.30	357.50	7,024.21	-3,902.41	10.95	-0.48	10.96	12.00	408,820.45	615,084.82
7,050.00	15.30	357.50	7,048.49	-3,926.69	16.91	-0.74	16.92	12.00	408,826.41	615,084.56
7,075.00	18.30	357.50	7,072.42	-3,950.62	24.12	-1.05	24.15	12.00	408,833.62	615,084.25
7,100.00	21.30	357.50	7,095.94	-3,974.14	32.58	-1.42	32.61	12.00	408,842.08	615,083.88
7,125.00	24.30	357.50	7,118.98	-3,997.18	42.26	-1.85	42.30	12.00	408,851.76	615,083.45
7,150.00	27.30	357.50	7,141.49	-4,019.69	53.13	-2.32	53.18	12.00	408,862.63	615,082.98



Pathfinder
Pathfinder X & Y Planning Report



Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Eddy County	TVD Reference:	WELL @ 3121.80usft (Original Well Elev)
Site:	Herd Bull 14 Federal	MD Reference:	WELL @ 3121.80usft (Original Well Elev)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)		
7,175.00	30.30	357.50	7,163.40	-4,041.60	65.16	-2.84	65.22	12.00	408,874.66	615,082.46		
7,200.00	33.30	357.50	7,184.64	-4,062.84	78.32	-3.42	78.39	12.00	408,887.82	615,081.88		
7,225.00	36.30	357.50	7,205.17	-4,083.37	92.57	-4.04	92.66	12.00	408,902.07	615,081.26		
7,250.00	39.30	357.50	7,224.92	-4,103.12	107.87	-4.71	107.98	12.00	408,917.37	615,080.59		
7,275.00	42.30	357.50	7,243.84	-4,122.04	124.19	-5.42	124.31	12.00	408,933.69	615,079.88		
7,300.00	45.30	357.50	7,261.89	-4,140.09	141.47	-6.18	141.61	12.00	408,950.97	615,079.12		
7,325.00	48.30	357.50	7,279.00	-4,157.20	159.68	-6.97	159.83	12.00	408,969.18	615,078.33		
7,350.00	51.30	357.50	7,295.14	-4,173.34	178.75	-7.80	178.92	12.00	408,988.25	615,077.50		
7,375.00	54.30	357.50	7,310.25	-4,188.45	198.64	-8.67	198.83	12.00	409,008.14	615,076.63		
7,400.00	57.30	357.50	7,324.30	-4,202.50	219.30	-9.57	219.51	12.00	409,028.80	615,075.73		
7,425.00	60.30	357.50	7,337.25	-4,215.45	240.66	-10.51	240.89	12.00	409,050.16	615,074.79		
7,450.00	63.30	357.50	7,349.07	-4,227.27	262.67	-11.47	262.92	12.00	409,072.17	615,073.83		
7,475.00	66.30	357.50	7,359.71	-4,237.91	285.26	-12.45	285.53	12.00	409,094.76	615,072.85		
7,500.00	69.29	357.50	7,369.16	-4,247.36	308.38	-13.46	308.68	12.00	409,117.88	615,071.84		
7,525.00	72.29	357.50	7,377.38	-4,255.58	331.97	-14.49	332.28	12.00	409,141.47	615,070.81		
7,550.00	75.29	357.50	7,384.36	-4,262.56	355.95	-15.54	356.29	12.00	409,165.45	615,069.76		
7,575.00	78.29	357.50	7,390.07	-4,268.27	380.26	-16.60	380.62	12.00	409,189.76	615,068.70		
7,600.00	81.29	357.50	7,394.50	-4,272.70	404.84	-17.68	405.22	12.00	409,214.34	615,067.62		
7,625.00	84.29	357.50	7,397.63	-4,275.83	429.61	-18.76	430.02	12.00	409,239.11	615,066.54		
7,650.00	87.29	357.50	7,399.47	-4,277.67	454.52	-19.84	454.95	12.00	409,264.02	615,065.46		
7,672.56	90.00	357.50	7,400.00	-4,278.20	477.05	-20.83	477.50	12.00	409,286.55	615,064.47		
7,700.00	90.00	357.50	7,400.00	-4,278.20	504.46	-22.03	504.94	0.00	409,313.96	615,063.27		
7,800.00	90.00	357.50	7,400.00	-4,278.20	604.37	-26.39	604.94	0.00	409,413.87	615,058.91		
7,900.00	90.00	357.50	7,400.00	-4,278.20	704.27	-30.75	704.94	0.00	409,513.77	615,054.55		
8,000.00	90.00	357.50	7,400.00	-4,278.20	804.18	-35.11	804.94	0.00	409,613.68	615,050.19		
8,100.00	90.00	357.50	7,400.00	-4,278.20	904.08	-39.47	904.94	0.00	409,713.58	615,045.83		
8,200.00	90.00	357.50	7,400.00	-4,278.20	1,003.99	-43.84	1,004.94	0.00	409,813.49	615,041.46		



Pathfinder
Pathfinder X & Y Planning Report



Company: EOG Resources, Inc.
Project: Eddy County
Site: Herd Bull 14 Federal
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #4H
WELL @ 3121.80usft (Original Well Elev)
WELL @ 3121.80usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D/Leg (°/100usft)	Northing (usft)	Easting (usft)
8,300.00	90.00	357.50	7,400.00	-4,278.20	1,103.89	-48.20	1,104.94	0.00	409,913.39	615,037.10
8,400.00	90.00	357.50	7,400.00	-4,278.20	1,203.80	-52.56	1,204.94	0.00	410,013.30	615,032.74
8,500.00	90.00	357.50	7,400.00	-4,278.20	1,303.70	-56.92	1,304.94	0.00	410,113.20	615,028.38
8,600.00	90.00	357.50	7,400.00	-4,278.20	1,403.61	-61.28	1,404.94	0.00	410,213.11	615,024.02
8,700.00	90.00	357.50	7,400.00	-4,278.20	1,503.51	-65.64	1,504.94	0.00	410,313.01	615,019.66
8,800.00	90.00	357.50	7,400.00	-4,278.20	1,603.42	-70.01	1,604.94	0.00	410,412.92	615,015.29
8,900.00	90.00	357.50	7,400.00	-4,278.20	1,703.32	-74.37	1,704.94	0.00	410,512.82	615,010.93
9,000.00	90.00	357.50	7,400.00	-4,278.20	1,803.23	-78.73	1,804.94	0.00	410,612.73	615,006.57
9,100.00	90.00	357.50	7,400.00	-4,278.20	1,903.13	-83.09	1,904.94	0.00	410,712.63	615,002.21
9,200.00	90.00	357.50	7,400.00	-4,278.20	2,003.04	-87.45	2,004.94	0.00	410,812.54	614,997.85
9,300.00	90.00	357.50	7,400.00	-4,278.20	2,102.94	-91.82	2,104.94	0.00	410,912.44	614,993.48
9,400.00	90.00	357.50	7,400.00	-4,278.20	2,202.85	-96.18	2,204.94	0.00	411,012.35	614,989.12
9,500.00	90.00	357.50	7,400.00	-4,278.20	2,302.75	-100.54	2,304.94	0.00	411,112.25	614,984.76
9,600.00	90.00	357.50	7,400.00	-4,278.20	2,402.66	-104.90	2,404.94	0.00	411,212.16	614,980.40
9,700.00	90.00	357.50	7,400.00	-4,278.20	2,502.56	-109.26	2,504.94	0.00	411,312.06	614,976.04
9,800.00	90.00	357.50	7,400.00	-4,278.20	2,602.47	-113.63	2,604.94	0.00	411,411.97	614,971.67
9,900.00	90.00	357.50	7,400.00	-4,278.20	2,702.37	-117.99	2,704.94	0.00	411,511.87	614,967.31
10,000.00	90.00	357.50	7,400.00	-4,278.20	2,802.28	-122.35	2,804.94	0.00	411,611.78	614,962.95
10,100.00	90.00	357.50	7,400.00	-4,278.20	2,902.18	-126.71	2,904.94	0.00	411,711.68	614,958.59
10,200.00	90.00	357.50	7,400.00	-4,278.20	3,002.08	-131.07	3,004.94	0.00	411,811.58	614,954.23
10,300.00	90.00	357.50	7,400.00	-4,278.20	3,101.99	-135.44	3,104.94	0.00	411,911.49	614,949.86
10,400.00	90.00	357.50	7,400.00	-4,278.20	3,201.89	-139.80	3,204.94	0.00	412,011.39	614,945.50
10,500.00	90.00	357.50	7,400.00	-4,278.20	3,301.80	-144.16	3,304.94	0.00	412,111.30	614,941.14
10,600.00	90.00	357.50	7,400.00	-4,278.20	3,401.70	-148.52	3,404.94	0.00	412,211.20	614,936.78
10,700.00	90.00	357.50	7,400.00	-4,278.20	3,501.61	-152.88	3,504.94	0.00	412,311.11	614,932.42
10,800.00	90.00	357.50	7,400.00	-4,278.20	3,601.51	-157.25	3,604.94	0.00	412,411.01	614,928.05
10,900.00	90.00	357.50	7,400.00	-4,278.20	3,701.42	-161.61	3,704.94	0.00	412,510.92	614,923.69



Pathfinder
Pathfinder X & Y Planning Report



Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Eddy County	TVD Reference:	WELL @ 3121.80usft (Original Well Elev)
Site:	Herd Bull 14 Federal	MD Reference:	WELL @ 3121.80usft (Original Well Elev)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)	
11,000.00	90.00	357.50	7,400.00	-4,278.20	3,801.32	-165.97	3,804.94	0.00	412,610.82	614,919.33	
11,100.00	90.00	357.50	7,400.00	-4,278.20	3,901.23	-170.33	3,904.94	0.00	412,710.73	614,914.97	
11,200.00	90.00	357.50	7,400.00	-4,278.20	4,001.13	-174.69	4,004.94	0.00	412,810.63	614,910.61	
11,300.00	90.00	357.50	7,400.00	-4,278.20	4,101.04	-179.06	4,104.94	0.00	412,910.54	614,906.24	
11,400.00	90.00	357.50	7,400.00	-4,278.20	4,200.94	-183.42	4,204.94	0.00	413,010.44	614,901.88	
11,500.00	90.00	357.50	7,400.00	-4,278.20	4,300.85	-187.78	4,304.94	0.00	413,110.35	614,897.52	
11,600.00	90.00	357.50	7,400.00	-4,278.20	4,400.75	-192.14	4,404.94	0.00	413,210.25	614,893.16	
11,700.00	90.00	357.50	7,400.00	-4,278.20	4,500.66	-196.50	4,504.94	0.00	413,310.16	614,888.80	
11,800.00	90.00	357.50	7,400.00	-4,278.20	4,600.56	-200.86	4,604.94	0.00	413,410.06	614,884.44	
11,908.65	90.00	357.50	7,400.00	-4,278.20	4,709.11	-205.60	4,713.59	0.00	413,518.61	614,879.70	

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County
 Site: Herd Bull 14 Federal
 Well: #4H
 Wellbore: OH
 Plan: Plan #1 (#4H/OH)



Azimuths to Grid North
 True North: -0.20°
 Magnetic North: 7.59°

Magnetic Field
 Strength: 48588.1snT
 Dip Angle: 60.06°
 Date: 01/27/2011
 Model: IGRF200510



A Schlumberger Company

WELL DETAILS: #4H

Ground Elevation: 3102.80
 RKB Elevation: WELL @ 3121.80usft (Original Well Elev)
 Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	408809.500	615085.300	32° 7' 24.197 N	103° 57' 41.711 W	

PROJECT DETAILS: Eddy County
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level
 Local North: Grid

SECTION DETAILS

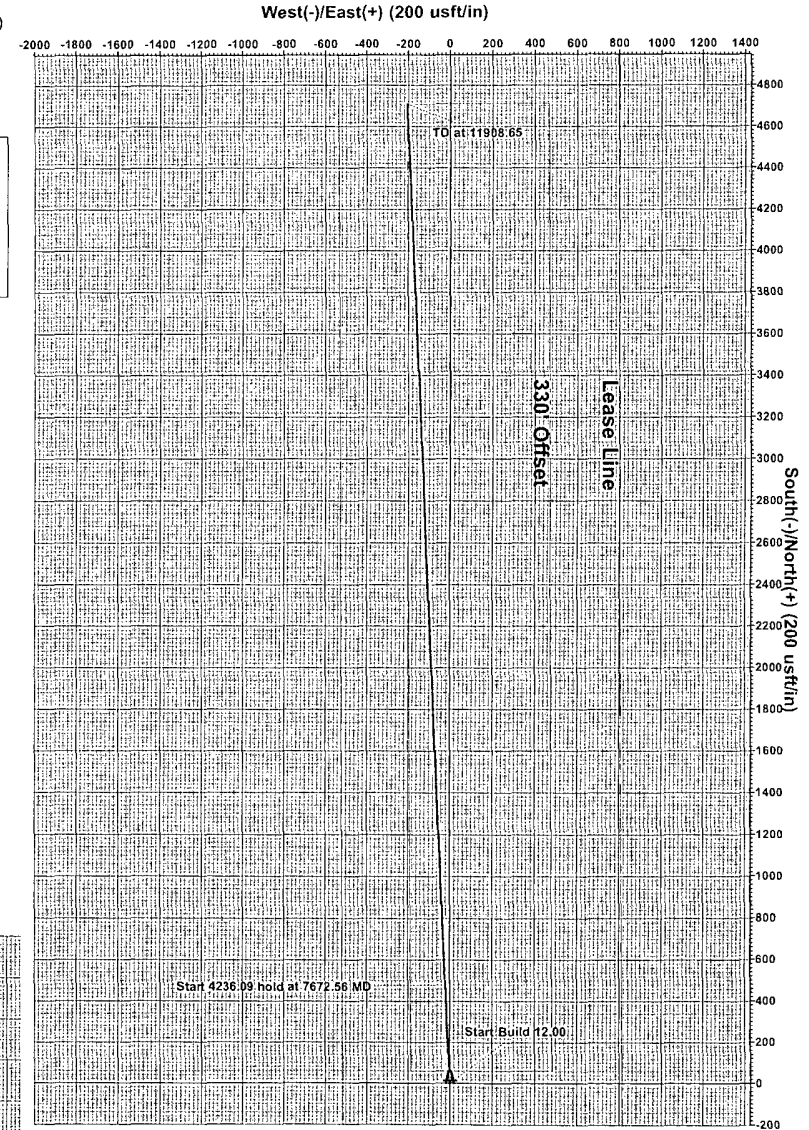
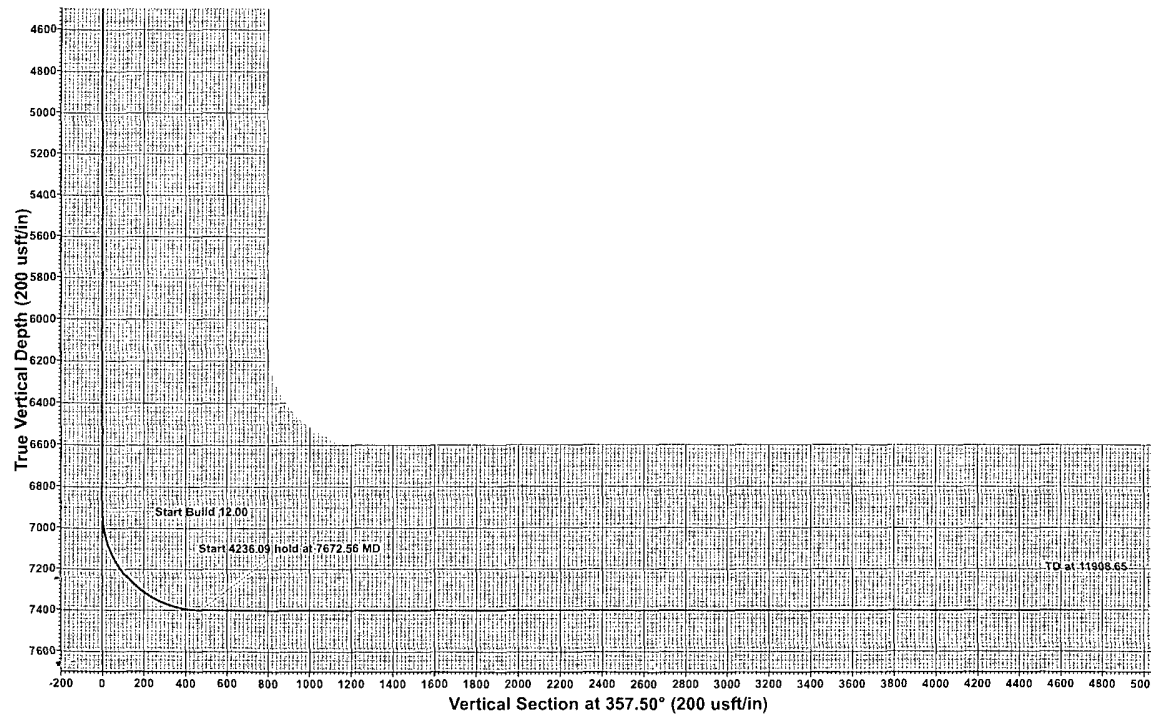
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6922.50	0.00	0.00	6922.50	0.00	0.00	0.00	0.00	0.00	
7672.56	90.00	357.50	7400.00	477.05	-20.83	12.00	357.50	477.50	
11908.65	90.00	357.50	7400.00	4709.11	-205.60	0.00	0.00	4713.59	PBHL (HB4H)

LEGEND

- Plan #1

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (HB4H)	7400.00	4709.10	-205.80	413518.600	614879.500	Point



Plan: Plan #1 (#4H/OH)

Created By: Nate Bingham Date: 10:04, January 28 2011

Checked: _____ Date: _____

EOG RESOURCES, INC.
HERD BULL 14 FEDERAL 4H

ATTACHMENT TO EXHIBIT #1

1. Wear ring to be properly installed in head.
2. Blow out preventer and all fittings must be in good condition, 5000 psi W.P. minimum. Exhibit #1.
3. All fittings to be flanged
4. Safety valve must be available on rig floor at all times with proper connections, valve to be full bore 5000 psi W.P. minimum.
5. All choke and fill lines to be securely anchored especially ends of choke lines.
6. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
7. Kelly cock on kelly.
8. Extension wrenches and hand wheels to be properly installed.
9. Blow out preventer control to be located as close to driller's position as feasible.
10. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation, and meet all API specifications.

EXHIBIT 1

EOG Resources
Herd 14 Federal No. 4H

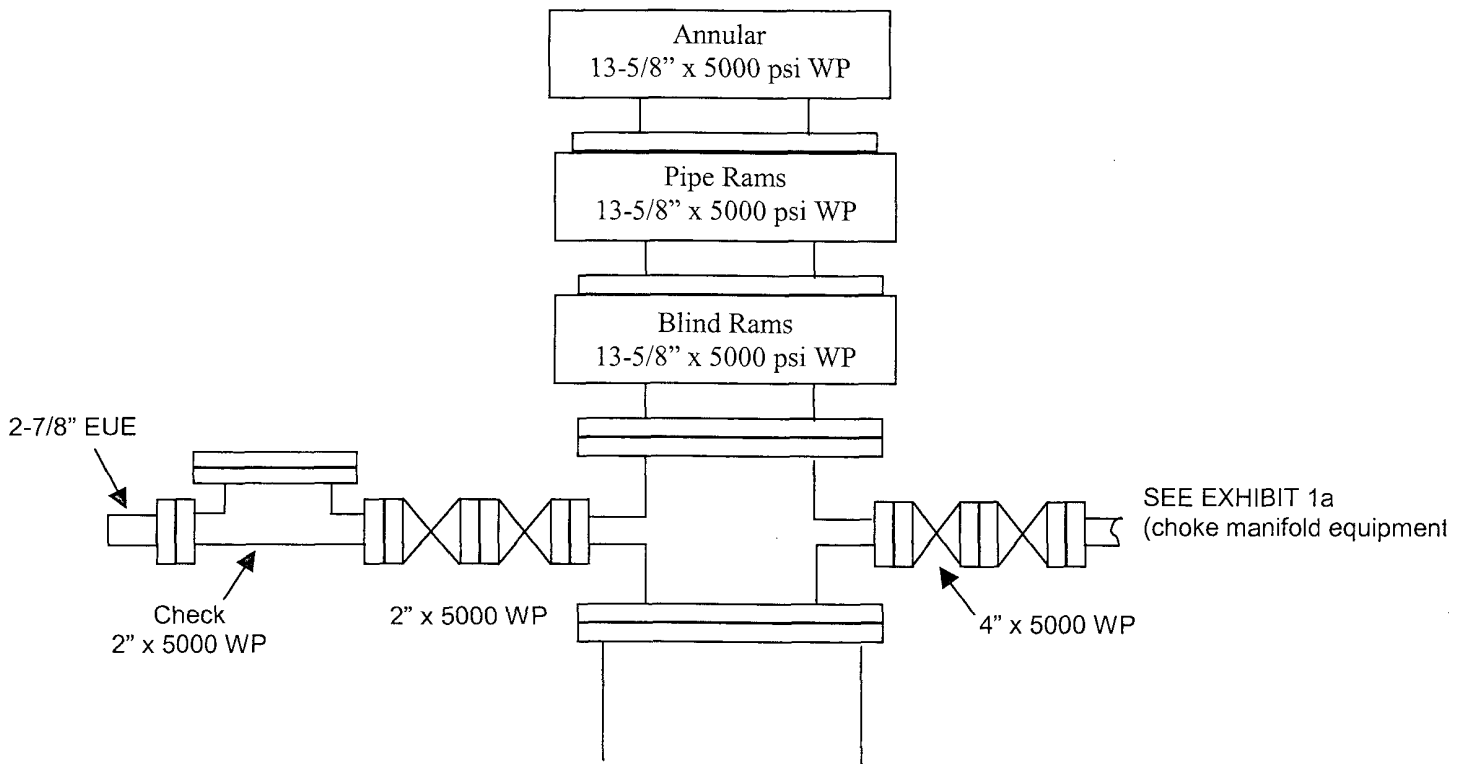
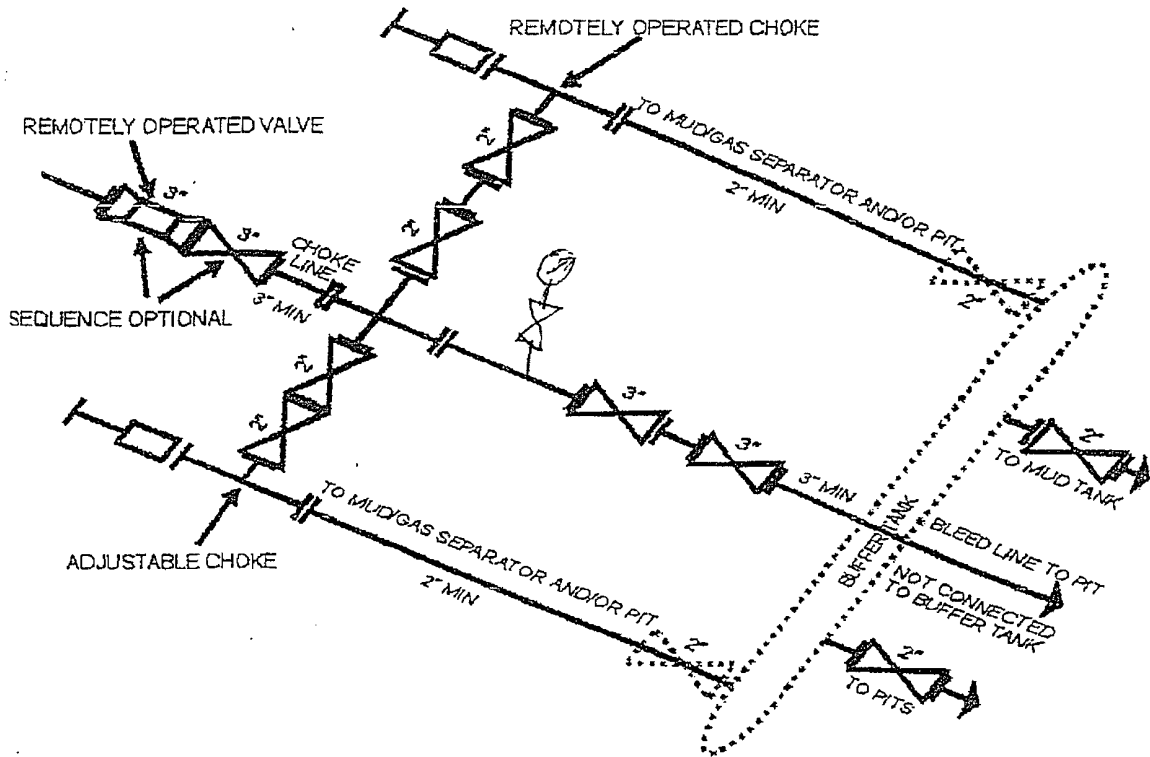


EXHIBIT 1a
EOG Resources, Inc.

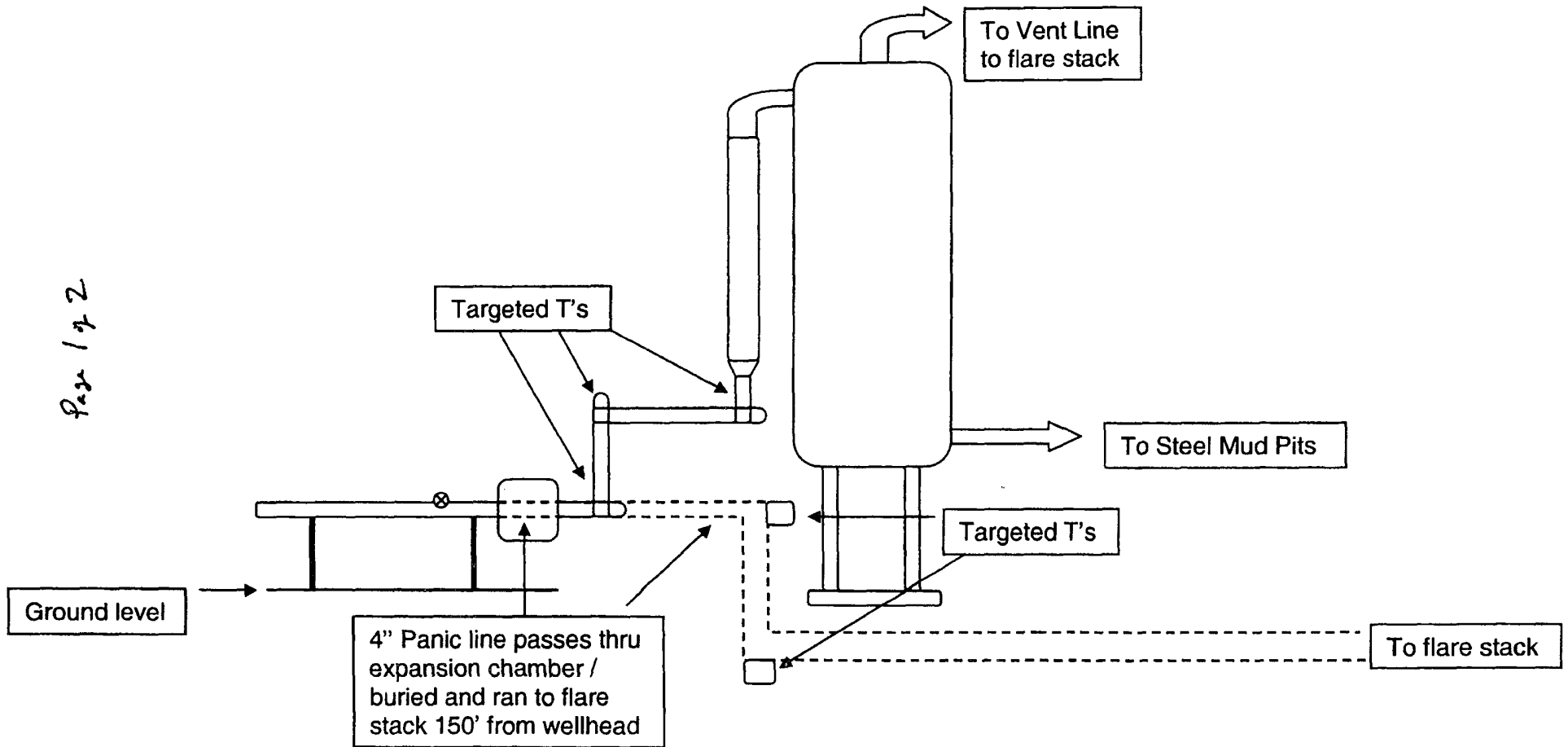


5M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

Although not required for any of the choke manifold systems, buffer tanks are sometimes installed downstream of the choke assemblies for the purpose of manifolding the bleed lines together. When buffer tanks are employed, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. Though not shown on 2M, 3M, 10M, OR 15M drawings, it would also be applicable to those situations.

[54 FR 39528, Sept 27, 1989]

Profile View of Piping from Choke Manifold to the Mud Gas Separator



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Aerial View of the Piping from the Choke Manifold to the Mud Gas Separator

