

OCD Hobbbs

ATS-15-199

Form 3160-3
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUL 01 2015

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM94115
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator EOG Resources, Inc <7377>		7. If Unit or CA Agreement, Name and No.
3a. Address P.O. Box 2267 Midland, TX 79702	3b. Phone No. (include area code) 432-686-3689	8. Lease Name and Well No. <315009> Bulldawg 33 Fed 602H
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 320' FNL & 880' FEL, NENE (A), Sec 33, 25S, 34E At proposed prod. zone 230' FNL & 1260' FEL, NENE (A), Sec 28		9. API Well No. 30-025- 42664
14. Distance in miles and direction from nearest town or post office* Approximately +/- 17 miles Southwest from Jal, New Mexico		10. Field and Pool, or Exploratory Hardin Tank; Bone Spring <96661>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 320' SL, 60' PP	16. No. of acres in lease 800	11. Sec., T. R. M. or Blk. and Survey or Area Section 33, T25S, R34E
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 880' frm 601H	19. Proposed Depth 17413' MD, 12350' TVD	12. County or Parish Lea
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3327' GL	22. Approximate date work will start* 05/01/2015	13. State NM
17. Spacing Unit dedicated to this well 160 ac.		
20. BLM/BIA Bond No. on file NM 2308		
23. Estimated duration 25 days		

24. Attachments

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature Stan Wagner	Name (Printed/Typed) Stan Wagner	Date 11/18/14
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Title
Regulatory Specialist

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date JUN 26 2015
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Title
FIELD MANAGEROffice
CARLSBAD FIELD OFFICE

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)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Kc
07/06/15Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

JUL 07 2015

Kc

**EOG RESOURCES, INC.
BULLDAWG 33 FED NO. 602H**

HOBBSOCD

JUL 01 2015

RECEIVED

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	815'
Top of Salt	1,169'
Base of Salt / Top Anhydrite	5,037'
Base Anhydrite	5,305'
Lamar	5,305'
Bell Canyon	5,340'
Cherry Canyon	6,310'
Brushy Canyon	7,915'
1 st Bone Spring Sand	10,240'
2 nd Bone Spring Lime	10,618'
2 nd Bone Spring Sand	11,005'
3 rd Bone Spring Carb	11,440'
3 rd Bone Spring Sand	12,005'
TD	12,350'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,310'	Oil
Brushy Canyon	7,915'	Oil
1 st Bone Spring Sand	10,240'	Oil
2 nd Bone Spring Lime	10,618'	Oil
2 nd Bone Spring Sand	11,005'	Oil
3 rd Bone Spring Carb	11,440'	Oil
3 rd Bone Spring Sand	12,005'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 13.375" casing at 840' 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
12.25"	0 - 840'	9.625"	40#	J55	STC	1.125	1.25	1.60
8.75"	0-11,400'	7"	26#	HCP110	LTC	1.125	1.25	1.60
6.125"	0'-17,413'	4.500"	13.5#	P110 or HCP110	BTC	1.125	1.25	1.60

EOG RESOURCES, INC.
BULLDAWG 33 FED NO. 602H

Cementing Program: *See COA*

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Mix Water Gal/sk	Slurry Description
9-5/8" 840'	350	13.5	1.73	9.13	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ surface)
	300	14.8	1.34	6.34	Tail: Class C + 0.005 pps Static Free + 2% CaCl ₂ + 0.25 pps CelloFlake + 0.005 gps FP-6L
7" 11,400' DV Tool w/ ECP @ 5,300'	250	10.8	3.68	21.42	Stage 1 Lead: Class C + 15.00 lbs/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/sx Static Free
	200	15.6	1.19	5.23	Stage 1 Tail: Class H + 1.0% FL-52 + 0.6% CD-32 + 0.5% SMS + 1.0% Salt + 0.3% R-3
	325	12.7	2.22	12.38	Stage 2 Lead: Class 'C' + 2.0% SMS + 10.0% Slat + 0.55% R-21 + 0.25 pps Celloflake + 0.005 pps Static Free (TOC @ Surface)
	150	14.8	1.35	6.33	Stage 2 Lead: Class 'C' + 2.0% SMS + 10.0% Slat + 0.55% R-21 + 0.25 pps Celloflake + 0.005 pps Static Free (TOC @ Surface)
4-1/2" 17,413'	550	14.2	1.30	5.80	50:50:2 Class H + 0.65% FL-52 + 0.70% CD-32 + 1.0% EC-1 + 0.40% SMS + 2.0% Salt + 0.05% R-3 + 0.005 pps Static Free + 0.005 gps FP-6L (TOC @ 10,900')

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

See COA — Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a double ram-type (10,000 psi WP) preventer and an annular preventer (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

See COA — *SM Required*
~~3000 psi BOPE is adequate for this application.~~ Due to the 3000 psi BOPE requirement no FIT tests are planned.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 2000/ 250 psig and the annular preventer to 2000/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

EOG RESOURCES, INC.
BULLDAWG 33 FED NO. 602H

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 3000/ 250 psig and the annular preventer to 3000/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

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

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

*See
COA*

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 840'	Fresh Water Gel	8.6-8.8	28-34	N/c
840' - 11,400'	Oil Base	8.7-9.4	58-68	N/c - 6
11,400' - 11,807'	Oil Base	8.7-9.4	58-68	N/c - 6
11,807' - 17,413' Lateral	Oil Base	9.0-9.5	58-68	N/c - 6

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

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

EOG RESOURCES, INC.
BULLDAWG 33 FED NO. 602H

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

Open-hole logs are not planned for this well.

*See
COA*

GR-CCL Will be run in cased hole during completions phase of operations.

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

The estimated bottom-hole temperature (BHT) at TD is 180 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 5347 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.

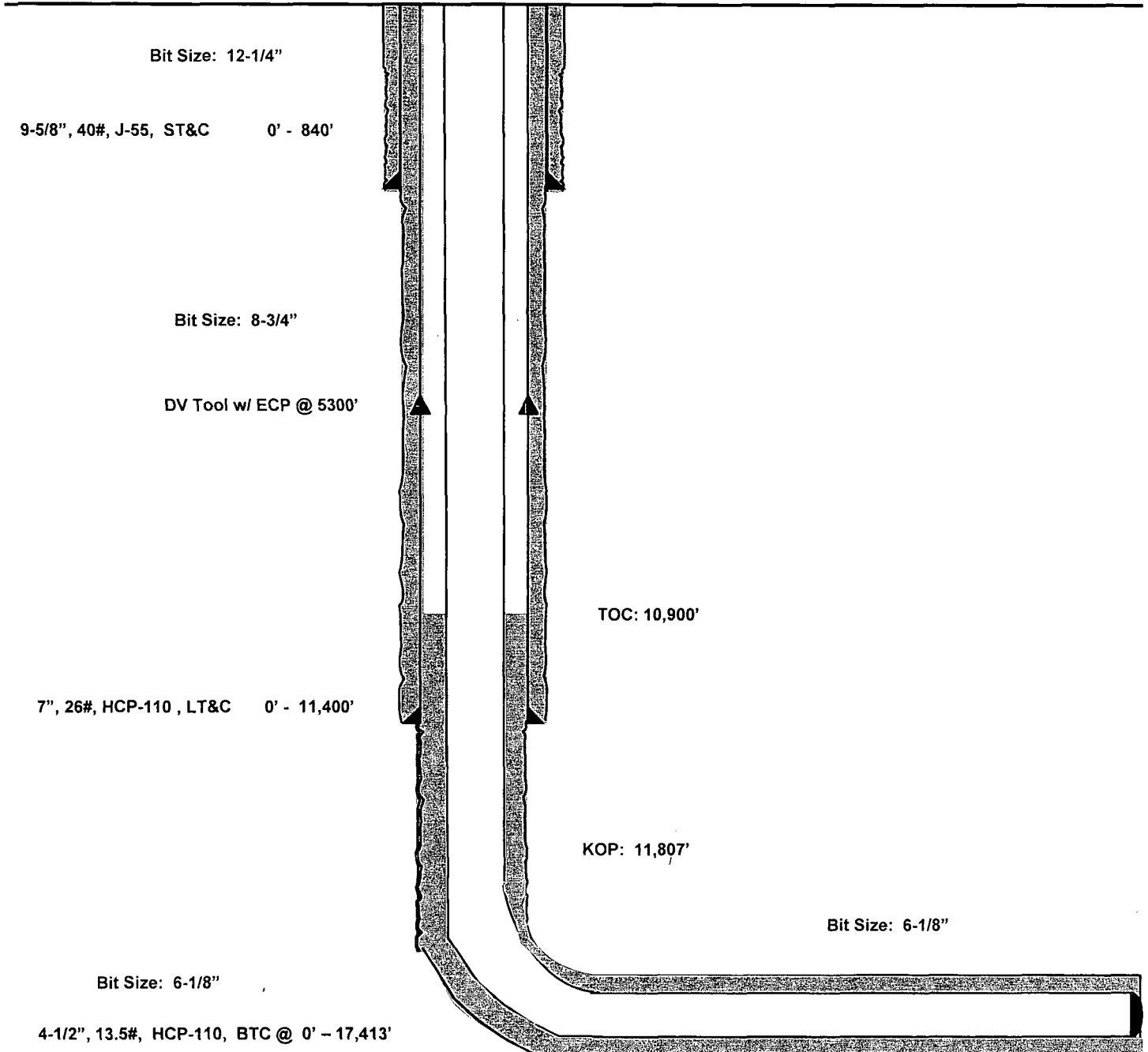
Bulldawg 33 Fed #602H

**Lea County, New Mexico
Proposed Wellbore**

**320' FNL
880' FEL
Section 33
T-25-S, R-34-E**

API: 30-025-

**KB: 3,357'
GL: 3,327'**



Lateral: 17,413' MD, 12,350' TVD
Upper Most Perf:
330' FSL & 1260' FEL
Lower Most Perf:
330' FNL & 1260' FEL
BH Location: 230' FNL & 1260' FEL
Section 28
T-25-S, R-34-E



Lea County, NM (NAD 27 NME)

Bulldawg 33 Fed #602H

H&P 328

Plan #1

PROJECT DETAILS: Lea County, NM (NAD 27 NME)

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

WELL DETAILS: #602H

Ground Level: 3327.0
KB = 24 @ 3351.0ush (H&P 328)
Northing 398717.00 Easting 767758.00 Latitude 32° 5' 35.657 N Longitude 103° 28' 7.397 W

Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.65°

Magnetic Field
Strength: 48207.8nT
Dip Angle: 60.00°
Date: 11/12/2014
Model: IGRF201014

To convert a Magnetic Direction to a Grid Direction, Add 6.65°
To convert a Magnetic Direction to a True Direction, Add 7.11° East
To convert a True Direction to a Grid Direction, Subtract 0.46°

SECTION DETAILS

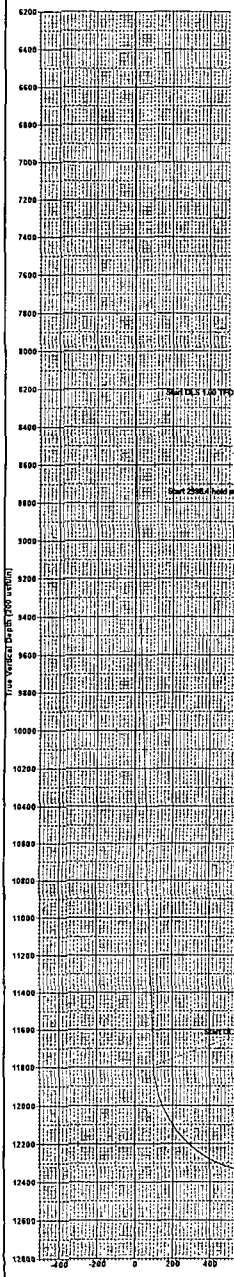
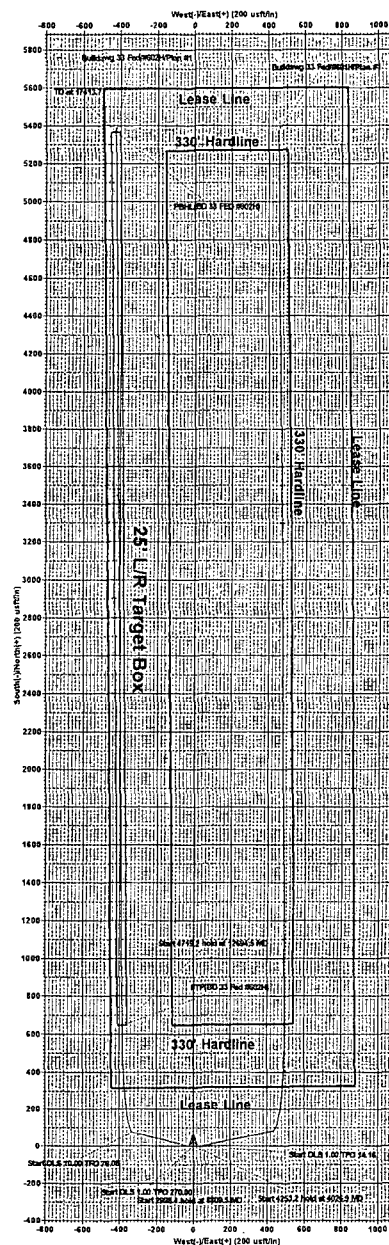
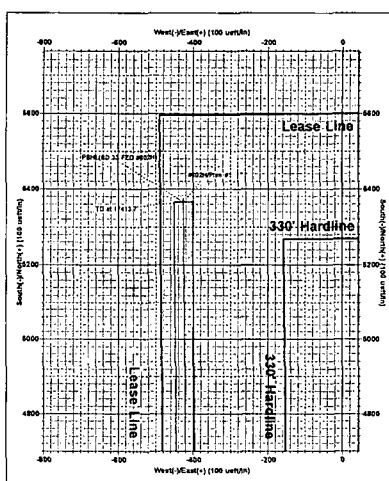
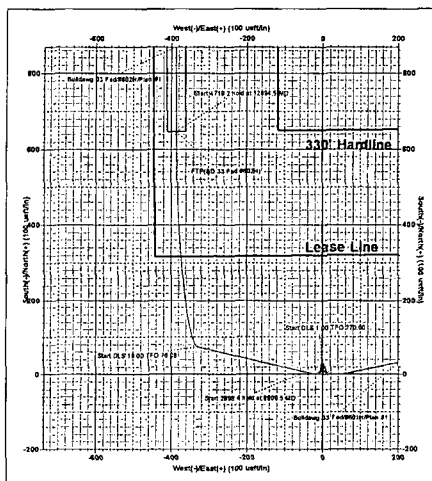
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Deg	TFace	VSecl	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	4000.0	0.00	0.00	4000.0	0.0	0.0	0.00	0.00	0.0		
3	4026.9	0.27	270.00	4026.8	0.0	-0.1	1.00	270.00	0.0		
4	9260.0	0.27	270.00	9260.0	0.0	-0.0	0.00	0.00	1.6		
5	8909.5	6.66	283.48	8909.6	6.0	-46.2	1.00	14.16	9.6		
6	11807.9	6.66	283.48	11792.9	73.7	-328.4	0.00	0.00	99.5		
7	12594.5	90.00	359.50	12350.0	646.0	-386.0	10.00	76.08	674.6	FTP(BD 33 Fed #602H)	
8	17413.7	90.00	359.50	12350.0	5385.0	-427.0	0.00	0.00	5382.0	PBH(BD 33 Fed #602H)	

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name
FTP(BD 33 Fed #602H)
PBH(BD 33 Fed #602H)
TVD
12350.0
5385.0
+N-S
-386.0
-427.0
Northing
398717.00
404082.00
Easting
767758.00
767331.00



Geog resources
12-01-2014 12:00 PM



EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Bulldawg 33 Fed

#602H

OH

Plan: Plan #1

Standard Planning Report

12 November, 2014



EOG Resources, Inc.

Planning Report

Database: EDM 5000.1 Single User Db
 Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Bulldawg 33 Fed
 Well: #602H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #602H
 TVD Reference: KB = 24 @ 3351.0usft (H&P 328)
 MD Reference: KB = 24 @ 3351.0usft (H&P 328)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD 27 NME)		
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	Bulldawg 33 Fed		
Site Position:	Map	Northing:	398,717.00 usft
From:		Easting:	767,787.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 35.655 N
		Longitude:	103° 28' 7.060 W
		Grid Convergence:	0.46 °

Well	#602H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	-29.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 5' 35.657 N
		Longitude:	103° 28' 7.397 W
		Ground Level:	3,327.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF201014	11/12/2014	7.11
			Dip Angle
			60.00
			Field Strength
			48,208

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			355.45

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,026.9	0.27	270.00	4,026.9	0.0	-0.1	1.00	1.00	-335.10	270.00	
8,280.0	0.27	270.00	8,280.0	0.0	-20.0	0.00	0.00	0.00	0.00	
8,809.5	5.56	283.49	8,808.6	6.0	-46.2	1.00	1.00	2.55	14.16	
11,807.9	5.56	283.49	11,792.9	73.7	-328.4	0.00	0.00	0.00	0.00	
12,694.5	90.00	359.50	12,350.0	646.0	-386.0	10.00	9.52	8.57	76.08	FTP(BD 33 Fed #602
17,413.7	90.00	359.50	12,350.0	5,365.0	-427.0	0.00	0.00	0.00	0.00	PBHL(BD 33 FED #61



EOG Resources, Inc.

Planning Report

Database: EDM 5000.1 Single User Db
 Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Bulldawg 33 Fed
 Well: #602H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #602H
 TVD Reference: KB = 24 @ 3351.0usft (H&P 328)
 MD Reference: KB = 24 @ 3351.0usft (H&P 328)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,026.9	0.27	270.00	4,026.9	0.0	-0.1	0.0	1.00	1.00	0.00
4,100.0	0.27	270.00	4,100.0	0.0	-0.4	0.0	0.00	0.00	0.00
4,200.0	0.27	270.00	4,200.0	0.0	-0.9	0.1	0.00	0.00	0.00
4,300.0	0.27	270.00	4,300.0	0.0	-1.3	0.1	0.00	0.00	0.00
4,400.0	0.27	270.00	4,400.0	0.0	-1.8	0.1	0.00	0.00	0.00
4,500.0	0.27	270.00	4,500.0	0.0	-2.3	0.2	0.00	0.00	0.00
4,600.0	0.27	270.00	4,600.0	0.0	-2.7	0.2	0.00	0.00	0.00
4,700.0	0.27	270.00	4,700.0	0.0	-3.2	0.3	0.00	0.00	0.00
4,800.0	0.27	270.00	4,800.0	0.0	-3.7	0.3	0.00	0.00	0.00
4,900.0	0.27	270.00	4,900.0	0.0	-4.2	0.3	0.00	0.00	0.00
5,000.0	0.27	270.00	5,000.0	0.0	-4.6	0.4	0.00	0.00	0.00
5,100.0	0.27	270.00	5,100.0	0.0	-5.1	0.4	0.00	0.00	0.00
5,200.0	0.27	270.00	5,200.0	0.0	-5.6	0.4	0.00	0.00	0.00



EOG Resources, Inc.

Planning Report

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 Site: Bulldawg 33 Fed
 Well: #602H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #602H
 TVD Reference: KB = 24 @ 3351.0usft (H&P 328)
 MD Reference: KB = 24 @ 3351.0usft (H&P 328)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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	0.27	270.00	5,300.0	0.0	-6.0	0.5	0.00	0.00	0.00
5,400.0	0.27	270.00	5,400.0	0.0	-6.5	0.5	0.00	0.00	0.00
5,500.0	0.27	270.00	5,500.0	0.0	-7.0	0.6	0.00	0.00	0.00
5,600.0	0.27	270.00	5,600.0	0.0	-7.4	0.6	0.00	0.00	0.00
5,700.0	0.27	270.00	5,700.0	0.0	-7.9	0.6	0.00	0.00	0.00
5,800.0	0.27	270.00	5,800.0	0.0	-8.4	0.7	0.00	0.00	0.00
5,900.0	0.27	270.00	5,900.0	0.0	-8.8	0.7	0.00	0.00	0.00
6,000.0	0.27	270.00	6,000.0	0.0	-9.3	0.7	0.00	0.00	0.00
6,100.0	0.27	270.00	6,100.0	0.0	-9.8	0.8	0.00	0.00	0.00
6,200.0	0.27	270.00	6,200.0	0.0	-10.2	0.8	0.00	0.00	0.00
6,300.0	0.27	270.00	6,300.0	0.0	-10.7	0.9	0.00	0.00	0.00
6,400.0	0.27	270.00	6,400.0	0.0	-11.2	0.9	0.00	0.00	0.00
6,500.0	0.27	270.00	6,500.0	0.0	-11.7	0.9	0.00	0.00	0.00
6,600.0	0.27	270.00	6,600.0	0.0	-12.1	1.0	0.00	0.00	0.00
6,700.0	0.27	270.00	6,700.0	0.0	-12.6	1.0	0.00	0.00	0.00
6,800.0	0.27	270.00	6,800.0	0.0	-13.1	1.0	0.00	0.00	0.00
6,900.0	0.27	270.00	6,900.0	0.0	-13.5	1.1	0.00	0.00	0.00
7,000.0	0.27	270.00	7,000.0	0.0	-14.0	1.1	0.00	0.00	0.00
7,100.0	0.27	270.00	7,100.0	0.0	-14.5	1.1	0.00	0.00	0.00
7,200.0	0.27	270.00	7,200.0	0.0	-14.9	1.2	0.00	0.00	0.00
7,300.0	0.27	270.00	7,300.0	0.0	-15.4	1.2	0.00	0.00	0.00
7,400.0	0.27	270.00	7,400.0	0.0	-15.9	1.3	0.00	0.00	0.00
7,500.0	0.27	270.00	7,500.0	0.0	-16.3	1.3	0.00	0.00	0.00
7,600.0	0.27	270.00	7,600.0	0.0	-16.8	1.3	0.00	0.00	0.00
7,700.0	0.27	270.00	7,700.0	0.0	-17.3	1.4	0.00	0.00	0.00
7,800.0	0.27	270.00	7,800.0	0.0	-17.7	1.4	0.00	0.00	0.00
7,900.0	0.27	270.00	7,900.0	0.0	-18.2	1.4	0.00	0.00	0.00
8,000.0	0.27	270.00	8,000.0	0.0	-18.7	1.5	0.00	0.00	0.00
8,100.0	0.27	270.00	8,100.0	0.0	-19.2	1.5	0.00	0.00	0.00
8,200.0	0.27	270.00	8,200.0	0.0	-19.6	1.6	0.00	0.00	0.00
8,280.0	0.27	270.00	8,280.0	0.0	-20.0	1.6	0.00	0.00	0.00
8,300.0	0.46	276.03	8,300.0	0.0	-20.1	1.6	1.00	0.98	30.23
8,400.0	1.46	281.59	8,399.9	0.3	-21.8	2.0	1.00	1.00	5.55
8,500.0	2.46	282.63	8,499.9	1.0	-25.1	3.0	1.00	1.00	1.05
8,600.0	3.46	283.08	8,599.7	2.2	-30.2	4.6	1.00	1.00	0.44
8,700.0	4.46	283.32	8,699.5	3.8	-36.9	6.7	1.00	1.00	0.24
8,809.5	5.56	283.49	8,808.6	6.0	-46.2	9.6	1.00	1.00	0.15
8,900.0	5.56	283.49	8,898.7	8.0	-54.7	12.3	0.00	0.00	0.00
9,000.0	5.56	283.49	8,998.2	10.3	-64.1	15.3	0.00	0.00	0.00
9,100.0	5.56	283.49	9,097.7	12.5	-73.5	18.3	0.00	0.00	0.00
9,200.0	5.56	283.49	9,197.2	14.8	-82.9	21.3	0.00	0.00	0.00
9,300.0	5.56	283.49	9,296.8	17.1	-92.4	24.3	0.00	0.00	0.00
9,400.0	5.56	283.49	9,396.3	19.3	-101.8	27.3	0.00	0.00	0.00
9,500.0	5.56	283.49	9,495.8	21.6	-111.2	30.3	0.00	0.00	0.00
9,600.0	5.56	283.49	9,595.4	23.8	-120.6	33.3	0.00	0.00	0.00
9,700.0	5.56	283.49	9,694.9	26.1	-130.0	36.3	0.00	0.00	0.00
9,800.0	5.56	283.49	9,794.4	28.3	-139.4	39.3	0.00	0.00	0.00
9,900.0	5.56	283.49	9,894.0	30.6	-148.8	42.3	0.00	0.00	0.00
10,000.0	5.56	283.49	9,993.5	32.9	-158.3	45.3	0.00	0.00	0.00
10,100.0	5.56	283.49	10,093.0	35.1	-167.7	48.3	0.00	0.00	0.00
10,200.0	5.56	283.49	10,192.6	37.4	-177.1	51.3	0.00	0.00	0.00
10,300.0	5.56	283.49	10,292.1	39.6	-186.5	54.3	0.00	0.00	0.00
10,400.0	5.56	283.49	10,391.6	41.9	-195.9	57.3	0.00	0.00	0.00
10,500.0	5.56	283.49	10,491.1	44.1	-205.3	60.3	0.00	0.00	0.00



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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,600.0	5.56	283.49	10,590.7	46.4	-214.7	63.3	0.00	0.00	0.00
10,700.0	5.56	283.49	10,690.2	48.7	-224.1	66.3	0.00	0.00	0.00
10,800.0	5.56	283.49	10,789.7	50.9	-233.6	69.3	0.00	0.00	0.00
10,900.0	5.56	283.49	10,889.3	53.2	-243.0	72.3	0.00	0.00	0.00
11,000.0	5.56	283.49	10,988.8	55.4	-252.4	75.3	0.00	0.00	0.00
11,100.0	5.56	283.49	11,088.3	57.7	-261.8	78.3	0.00	0.00	0.00
11,200.0	5.56	283.49	11,187.9	60.0	-271.2	81.3	0.00	0.00	0.00
11,300.0	5.56	283.49	11,287.4	62.2	-280.6	84.3	0.00	0.00	0.00
11,400.0	5.56	283.49	11,386.9	64.5	-290.0	87.3	0.00	0.00	0.00
11,500.0	5.56	283.49	11,486.4	66.7	-299.5	90.3	0.00	0.00	0.00
11,600.0	5.56	283.49	11,586.0	69.0	-308.9	93.3	0.00	0.00	0.00
11,700.0	5.56	283.49	11,685.5	71.2	-318.3	96.3	0.00	0.00	0.00
11,807.9	5.56	283.49	11,792.9	73.7	-328.4	99.5	0.00	0.00	0.00
11,850.0	7.73	315.45	11,834.7	76.2	-332.4	102.3	10.00	5.17	75.97
11,900.0	11.83	332.73	11,884.0	83.1	-337.1	109.6	10.00	8.20	34.54
11,950.0	16.43	340.84	11,932.5	94.4	-341.8	121.2	10.00	9.20	16.23
12,000.0	21.21	345.43	11,979.8	109.8	-346.4	137.0	10.00	9.56	9.18
12,050.0	26.07	348.38	12,025.6	129.4	-350.9	156.8	10.00	9.72	5.90
12,100.0	30.98	350.46	12,069.5	152.8	-355.2	180.5	10.00	9.80	4.15
12,150.0	35.90	352.01	12,111.2	180.0	-359.4	208.0	10.00	9.85	3.11
12,200.0	40.84	353.23	12,150.4	210.8	-363.4	239.0	10.00	9.88	2.45
12,250.0	45.80	354.24	12,186.8	244.9	-367.1	273.3	10.00	9.91	2.00
12,300.0	50.76	355.08	12,220.0	282.0	-370.6	310.6	10.00	9.92	1.69
12,350.0	55.72	355.81	12,249.9	322.0	-373.7	350.6	10.00	9.93	1.47
12,400.0	60.69	356.47	12,276.3	364.4	-376.6	393.1	10.00	9.94	1.30
12,450.0	65.66	357.06	12,298.8	408.9	-379.1	437.7	10.00	9.94	1.18
12,500.0	70.64	357.60	12,317.4	455.2	-381.3	484.0	10.00	9.95	1.09
12,550.0	75.61	358.11	12,332.0	503.0	-383.1	531.8	10.00	9.95	1.03
12,600.0	80.59	358.61	12,342.3	551.9	-384.5	580.7	10.00	9.95	0.98
12,650.0	85.57	359.08	12,348.3	601.5	-385.5	630.2	10.00	9.96	0.95
12,694.5	90.00	359.50	12,350.0	646.0	-386.0	674.6	10.00	9.96	0.94
FTP(BD 33 Fed #602H)									
12,700.0	90.00	359.50	12,350.0	651.5	-386.0	680.1	0.00	0.00	0.00
12,800.0	90.00	359.50	12,350.0	751.5	-386.9	779.8	0.00	0.00	0.00
12,900.0	90.00	359.50	12,350.0	851.5	-387.8	879.6	0.00	0.00	0.00
13,000.0	90.00	359.50	12,350.0	951.5	-388.7	979.3	0.00	0.00	0.00
13,100.0	90.00	359.50	12,350.0	1,051.5	-389.5	1,079.1	0.00	0.00	0.00
13,200.0	90.00	359.50	12,350.0	1,151.5	-390.4	1,178.8	0.00	0.00	0.00
13,300.0	90.00	359.50	12,350.0	1,251.5	-391.3	1,278.6	0.00	0.00	0.00
13,400.0	90.00	359.50	12,350.0	1,351.5	-392.1	1,378.3	0.00	0.00	0.00
13,500.0	90.00	359.50	12,350.0	1,451.5	-393.0	1,478.1	0.00	0.00	0.00
13,600.0	90.00	359.50	12,350.0	1,551.4	-393.9	1,577.8	0.00	0.00	0.00
13,700.0	90.00	359.50	12,350.0	1,651.4	-394.7	1,677.6	0.00	0.00	0.00
13,800.0	90.00	359.50	12,350.0	1,751.4	-395.6	1,777.3	0.00	0.00	0.00
13,900.0	90.00	359.50	12,350.0	1,851.4	-396.5	1,877.1	0.00	0.00	0.00
14,000.0	90.00	359.50	12,350.0	1,951.4	-397.3	1,976.8	0.00	0.00	0.00
14,100.0	90.00	359.50	12,350.0	2,051.4	-398.2	2,076.6	0.00	0.00	0.00
14,200.0	90.00	359.50	12,350.0	2,151.4	-399.1	2,176.3	0.00	0.00	0.00
14,300.0	90.00	359.50	12,350.0	2,251.4	-399.9	2,276.1	0.00	0.00	0.00
14,400.0	90.00	359.50	12,350.0	2,351.4	-400.8	2,375.8	0.00	0.00	0.00
14,500.0	90.00	359.50	12,350.0	2,451.4	-401.7	2,475.6	0.00	0.00	0.00
14,600.0	90.00	359.50	12,350.0	2,551.4	-402.6	2,575.3	0.00	0.00	0.00
14,700.0	90.00	359.50	12,350.0	2,651.4	-403.4	2,675.1	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)
14,800.0	90.00	359.50	12,350.0	2,751.4	-404.3	2,774.8	0.00	0.00	0.00
14,900.0	90.00	359.50	12,350.0	2,851.4	-405.2	2,874.6	0.00	0.00	0.00
15,000.0	90.00	359.50	12,350.0	2,951.4	-406.0	2,974.3	0.00	0.00	0.00
15,100.0	90.00	359.50	12,350.0	3,051.4	-406.9	3,074.1	0.00	0.00	0.00
15,200.0	90.00	359.50	12,350.0	3,151.4	-407.8	3,173.8	0.00	0.00	0.00
15,300.0	90.00	359.50	12,350.0	3,251.4	-408.6	3,273.6	0.00	0.00	0.00
15,400.0	90.00	359.50	12,350.0	3,351.4	-409.5	3,373.3	0.00	0.00	0.00
15,500.0	90.00	359.50	12,350.0	3,451.4	-410.4	3,473.1	0.00	0.00	0.00
15,600.0	90.00	359.50	12,350.0	3,551.4	-411.2	3,572.8	0.00	0.00	0.00
15,700.0	90.00	359.50	12,350.0	3,651.4	-412.1	3,672.6	0.00	0.00	0.00
15,800.0	90.00	359.50	12,350.0	3,751.4	-413.0	3,772.3	0.00	0.00	0.00
15,900.0	90.00	359.50	12,350.0	3,851.4	-413.8	3,872.1	0.00	0.00	0.00
16,000.0	90.00	359.50	12,350.0	3,951.4	-414.7	3,971.8	0.00	0.00	0.00
16,100.0	90.00	359.50	12,350.0	4,051.4	-415.6	4,071.6	0.00	0.00	0.00
16,200.0	90.00	359.50	12,350.0	4,151.4	-416.5	4,171.3	0.00	0.00	0.00
16,300.0	90.00	359.50	12,350.0	4,251.3	-417.3	4,271.1	0.00	0.00	0.00
16,400.0	90.00	359.50	12,350.0	4,351.3	-418.2	4,370.8	0.00	0.00	0.00
16,500.0	90.00	359.50	12,350.0	4,451.3	-419.1	4,470.6	0.00	0.00	0.00
16,600.0	90.00	359.50	12,350.0	4,551.3	-419.9	4,570.3	0.00	0.00	0.00
16,700.0	90.00	359.50	12,350.0	4,651.3	-420.8	4,670.1	0.00	0.00	0.00
16,800.0	90.00	359.50	12,350.0	4,751.3	-421.7	4,769.8	0.00	0.00	0.00
16,900.0	90.00	359.50	12,350.0	4,851.3	-422.5	4,869.6	0.00	0.00	0.00
17,000.0	90.00	359.50	12,350.0	4,951.3	-423.4	4,969.3	0.00	0.00	0.00
17,100.0	90.00	359.50	12,350.0	5,051.3	-424.3	5,069.1	0.00	0.00	0.00
17,200.0	90.00	359.50	12,350.0	5,151.3	-425.1	5,168.8	0.00	0.00	0.00
17,300.0	90.00	359.50	12,350.0	5,251.3	-426.0	5,268.6	0.00	0.00	0.00
17,400.0	90.00	359.50	12,350.0	5,351.3	-426.9	5,368.3	0.00	0.00	0.00
17,413.7	90.00	359.50	12,350.0	5,365.0	-427.0	5,382.0	0.00	0.00	0.00

PBHL(BD 33 FED #602H)

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									
PBHL(BD 33 FED #602H)	90.00	359.50	12,350.0	5,365.0	-427.0	404,082.00	767,331.00	32° 6' 28.780 N	103° 28' 11.861 W
- plan hits target center									
- Rectangle (sides W50.0 H0.0 D4,719.2)									
FTP(BD 33 Fed #602H)	0.00	0.00	12,350.0	646.0	-386.0	399,363.00	767,372.00	32° 5' 42.080 N	103° 28' 11.823 W
- plan hits target center									
- Point									

Exhibit 1

EOG Resources

5M BOPE

Rig Floor

1. 13 5/8" Rotating Head
2. NOV 13 5/8" 5,000 PSI WP GK Annular Preventor
3. 13 5/8" Cameron Type "U" 10,000 PSI WP Ram Preventors
4. 2 1/16" - 10,000 PSI WP Check Valve
5. 10,000 PSI WP - 1502 Union to kill line
6. 2 1/16" - 10,000 PSI WP Manual Valves
7. 13 5/8" 3,000 PSI WP x 13 5/8" 5,000 PSI WP Spacer Spool
8. 4 1/16" 10,000 PSI WP HCR Valve
9. 4 1/16" 10,000 PSI WP Manual Valve
10. 6" OD x 3" ID 10,000 PSI WP Steel Armoured Flex Choke Line
11. DSA - 13 5/8" 10,000 PSI WP x 13 5/8" 5,000 PSI WP
12. Mud Cross - 13 5/8" 10,000 PSI WP
13. Blind Rams
14. Pipe Rams
15. 13 5/8" Cameron Type "U" 10,000 PSI WP Pipe Rams
16. Flow Line
17. 2" Fill Line

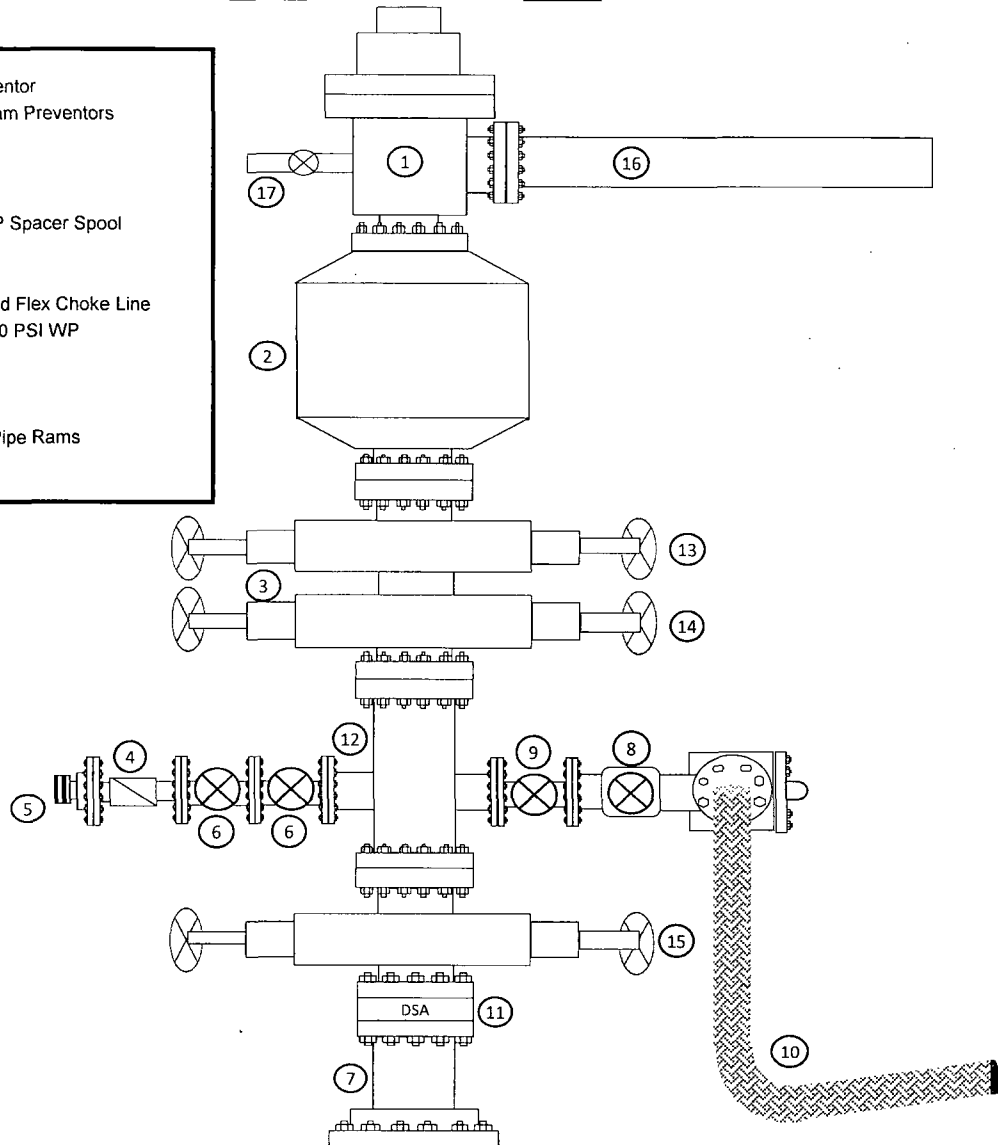
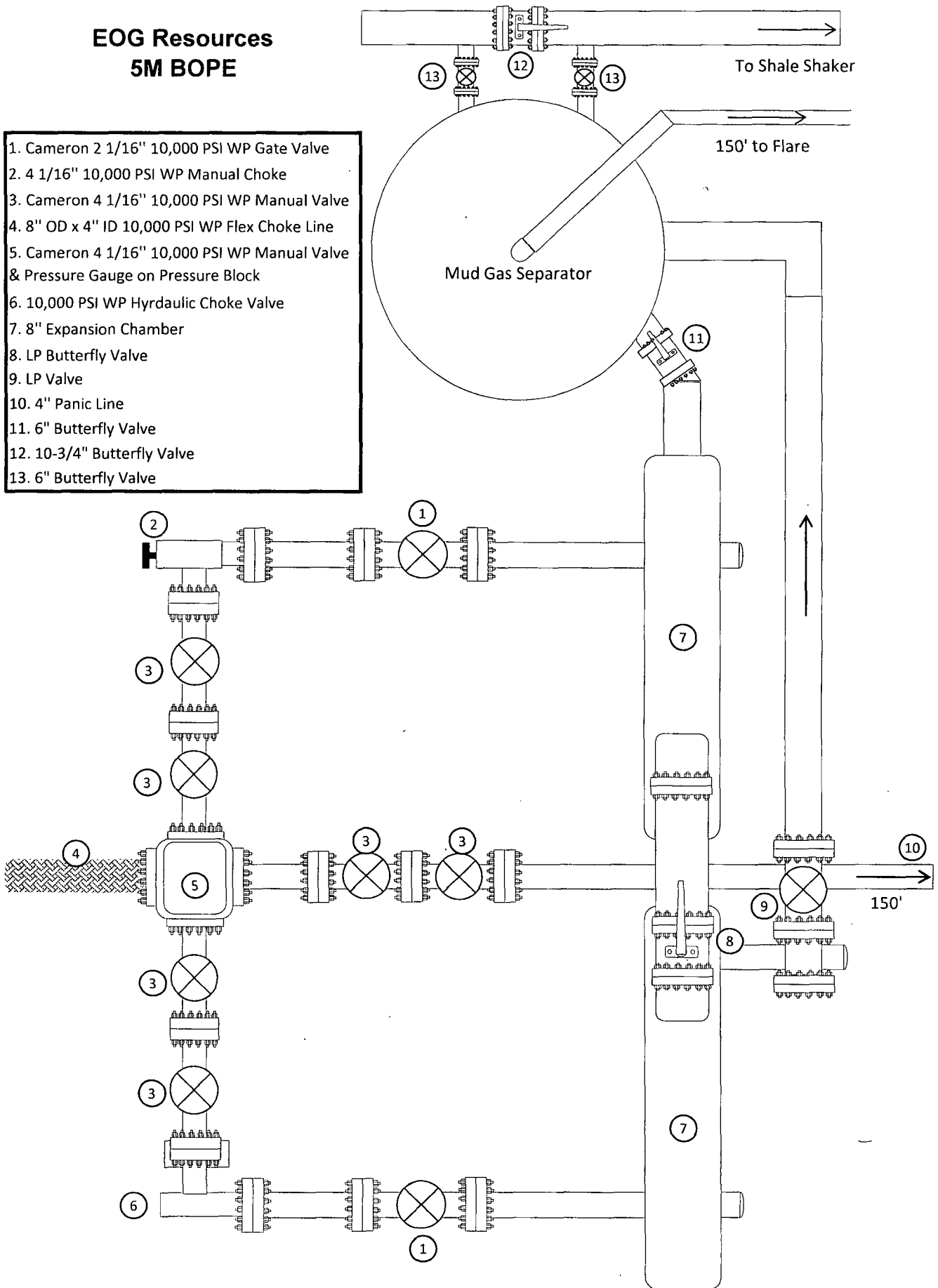


Exhibit 1a

EOG Resources 5M BOPE

1. Cameron 2 1/16" 10,000 PSI WP Gate Valve
2. 4 1/16" 10,000 PSI WP Manual Choke
3. Cameron 4 1/16" 10,000 PSI WP Manual Valve
4. 8" OD x 4" ID 10,000 PSI WP Flex Choke Line
5. Cameron 4 1/16" 10,000 PSI WP Manual Valve & Pressure Gauge on Pressure Block
6. 10,000 PSI WP Hydraulic Choke Valve
7. 8" Expansion Chamber
8. LP Butterfly Valve
9. LP Valve
10. 4" Panic Line
11. 6" Butterfly Valve
12. 10-3/4" Butterfly Valve
13. 6" Butterfly Valve



Manufacturer: Midwest Hose & Specialty

Serial Number: SN#90067

Length: 35'

Size: OD = 8" ID = 4"

Ends: Flanges Size: 4-1/16"

WP Rating: 10,000 psi Anchors required by manufacturer: No

M I D W E S T
HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT			
Customer: CACTUS		P.O. Number: RIG #123 Asset # M10761	
HOSE SPECIFICATIONS			
Type: CHOKER LINE		Length: 35'	
I.D. 4" INCHES		O.D. 8" INCHES	
WORKING PRESSURE 10,000 PSI	TEST PRESSURE 15,000 PSI		BURST PRESSURE PSI
COUPLINGS			
Type of End Fitting 4 1/16 10K FLANGE			
Type of Coupling: SWEDGED		MANUFACTURED BY MIDWEST HOSE & SPECIALTY	
PROCEDURE			
<i>Hose assembly pressure tested with water at ambient temperature.</i>			
TIME HELD AT TEST PRESSURE 1 MIN.		ACTUAL BURST PRESSURE: 0 PSI	
COMMENTS: SN#90067 M10761 Hose is covered with stainless steel armour cover and wrapped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes			
Date: 6/6/2011	Tested By: BOBBY FINK		Approved: MENDI JACKSON



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

September 10, 2012

Customer: CACTUS

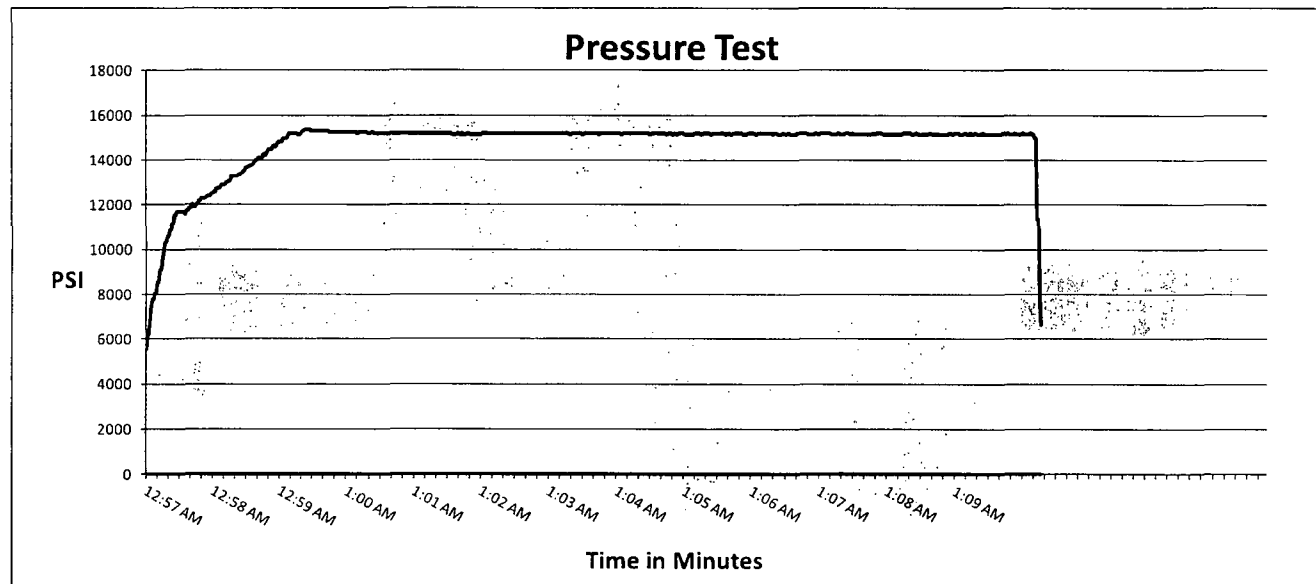
SALES ORDER# 90067

Hose Specifications

<u>Hose Type</u>	<u>Length</u>
C & K	35'
<u>I.D.</u>	<u>O.D.</u>
4"	8"
<u>Working Pressure</u>	<u>Burst Pressure</u>
10000 PSI	Standard Safety Multiplier Applies

Verification

<u>Type of Fitting</u>	<u>Coupling Method</u>
4 1/16 10K	Swage
<u>Die Size</u>	<u>Final O.D.</u>
6.62"	6.68"
<u>Hose Serial #</u>	<u>Hose Assembly Serial #</u>
	90067



Test Pressure
15000 PSI

Time Held at Test Pressure
11 1/4 Minutes

Actual Burst Pressure

Peak Pressure
15439 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Bobby Fink

Approved By: Mendi Jackson