

OCD Hobbs HOBBS OCD

ATS-15-195

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAY 26 2015

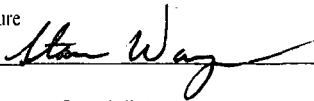
APPLICATION FOR PERMIT TO DRILL OR REENTER RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM112935
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name (H)
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. Almost Eddy 31 Fed 1H (314850)
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 220' FSL & 380' FEL, SESE (P), Sec 31, 25S, 32E At proposed prod. zone 2411' FSL & 380' FEL, NESE (I), Sec 30		9. API Well No. 30-025- 42584
14. Distance in miles and direction from nearest town or post office* Approximately +/- 30 miles Southwest from Jal, NM		10. Field and Pool, or Exploratory. Jennings; Bone Spring Upper Shale (47838)
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 220' SL, 330' PP		11. Sec., T. R. M. or Blk. and Survey or Area Section 31, T25S, R32E
16. No. of acres in lease 800.18		12. County or Parish Lea
17. Spacing Unit dedicated to this well 240 ac.		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1st well		19. Proposed Depth 16030' MD, 8770' TVD
20. BLM/BIA Bond No. on file NM 2308		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3281' GL
22. Approximate date work will start* 02/01/2015		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 	Name (Printed/Typed) Stan Wagner	Date 11/13/2014
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Title
Regulatory Specialist

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date MAY 18 2015
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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)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Kz
05/26/15

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL
MAY 26 2015

EOG RESOURCES, INC.
ALMOST EDDY 31 FED NO. 1H

HOBBS OGD

MAY 26 2015

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

RECEIVED

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,080'
Top of Salt	1,450'
Base of Salt / Top Anhydrite	4,150'
Base Anhydrite	4,631'
Lamar	4,631'
Bell Canyon	4,399'
Cherry Canyon	5,325'
Brushy Canyon	6,852'
Bone Spring Lime	8,510'
TD	8,770'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	5,325'	Oil
Brushy Canyon	6,852'	Oil
Bone Spring Lime	8,510'	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 1,105' and circulating cement back to surface.

4. CASING PROGRAM - NEW

See COA

See COA

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0 - 1,105'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0-3,250'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	3,250' - 4,250'	9.625"	40	HCK55	LTC	1.125	1.25	1.60
8.75"	0'-16,030'	5.500"	17#	P110 or HCP110	LTC	1.125	1.25	1.60

*

EOG RESOURCES, INC.
ALMOST EDDY 31 FED NO. 1H

Cementing Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Mix Water Gal/sk	Slurry Description
13-3/8" 1,105'	500	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
9-5/8" 4,250'	700	12.7	2.22	12.38	Lead: Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free (TOC @ surface)
	200	14.8	1.32	6.33	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
5-1/2" 16,030'	355	10.8	3.67	21.7	Lead: 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 @ 3750')
	400	11.8	2.38	13.25	Middle: 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
	1900	14.2	1.28	5.75	Tail: 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

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.

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.
ALMOST EDDY 31 FED NO. 1H

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.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,105'	Fresh Water Gel	8.6-8.8	28-34	N/c
1,105' – 4,250'	Saturated Brine	10.0-10.2	28-34	N/c
4,250' – 8,292'	Fresh Water	8.4-8.6	28-34	N/c
8,292' – 16,030' Lateral	Cut Brine Water	9.0-9.5	28-34	N/c

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.
ALMOST EDDY 31 FED NO. 1H

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

Open-hole logs are not planned for this well.

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 148 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 3797 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:

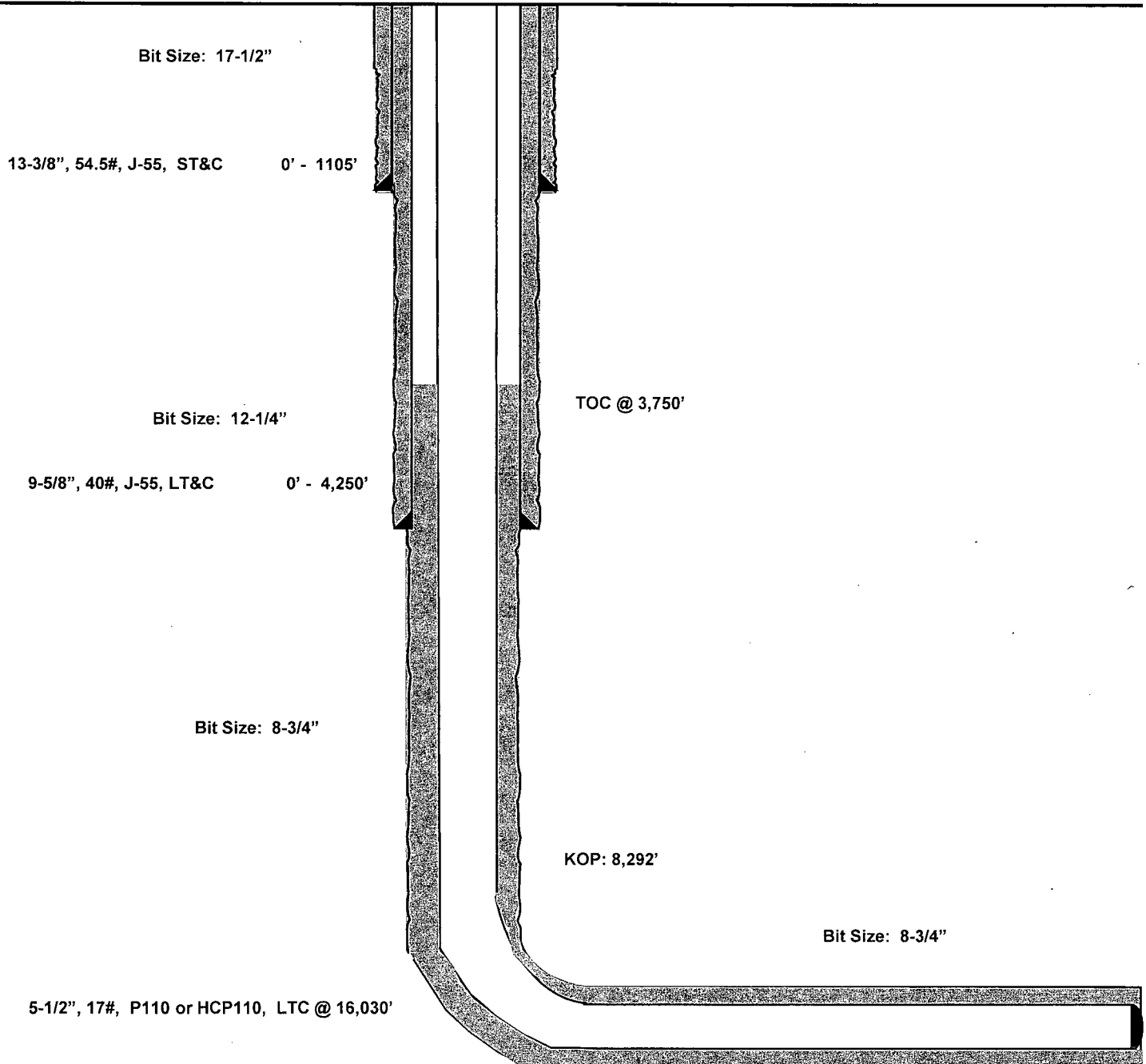
The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

Almost Eddy 31 Fed #1H
Lea County, New Mexico
Proposed Wellbore

220' FSL
380' FEL
Section 31
T-25-S, R-32-E

API: 30-025-*****

KB: 3,311'
GL: 3,281'



Lateral:
16,030' MD, 8,770' TVD
Upper Most Perf:
330' FSL & 380' FEL
Lower Most Perf:
2311' FSL & 380' FEL
BH Location: 2411' FSL & 380' FEL
Section 30
T-25-S, R-32-E

Almost Eddy 31 Fed #1H
Lea County, New Mexico
Proposed Wellbore

220' FSL
380' FEL
Section 31
T-25-S, R-32-E

API: 30-025-*****

KB: 3,311'
GL: 3,281'

Bit Size: 17-1/2"
13-3/8", 54.5#, J-55, ST&C 0' - 1105'

Bit Size: 12-1/4"
9-5/8", 40#, J-55, LT&C 0' - 3,250'
9-5/8", 40#, HCK-55, LTC 3,250' - 4,250'

TOC @ 3,750'

Bit Size: 8-3/4"

KOP: 8,292'

Bit Size: 8-3/4"

5-1/2", 17#, P110 or HCP110, LTC @ 16,030'

OK

Lateral:
16,030' MD, 8,770' TVD
Upper Most Perf:
330' FSL & 380' FEL
Lower Most Perf:
2311' FSL & 380' FEL
BH Location: 2411' FSL & 380' FEL
Section 30
T-25-S, R-32-E



Lea County, NM (NAD 27 NME)

Almost Eddy 31 Fed #1H

Cactus 123

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



Azimuths to Grid North
True North: -0.33°
Magnetic North: 6.94°

Magnetic Field
Strength: 48216.5nT
Dip Angle: 59.96°
Date: 6/13/2014
Model: IGRF201014

To convert a Magnetic Direction to a Grid Direction, Add 6.94°
To convert a Magnetic Direction to a True Direction, Add 7.27° East
To convert a True Direction to a Grid Direction, Subtract 0.33°

WELL DETAILS: Almost Eddy 31 Fed #1H

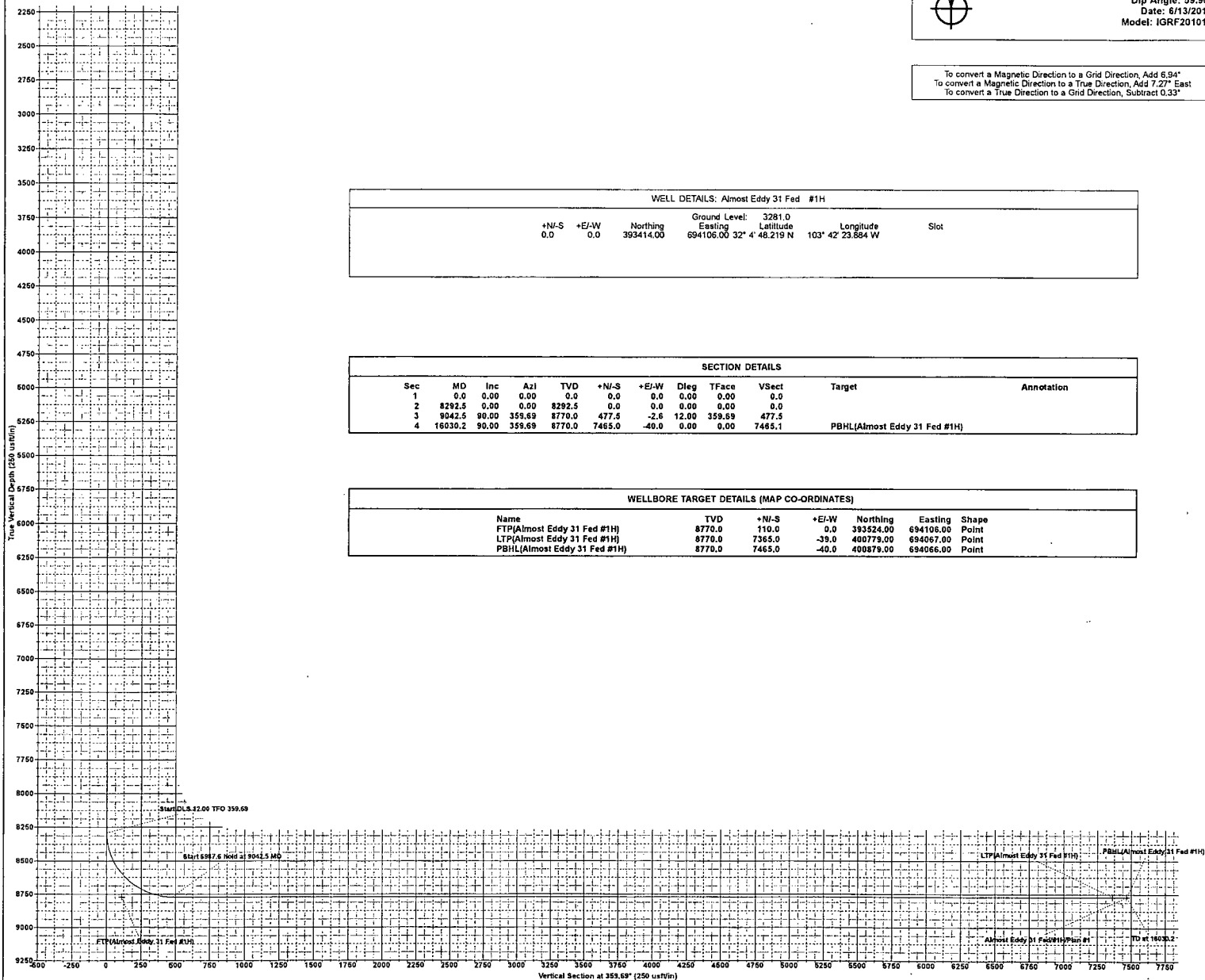
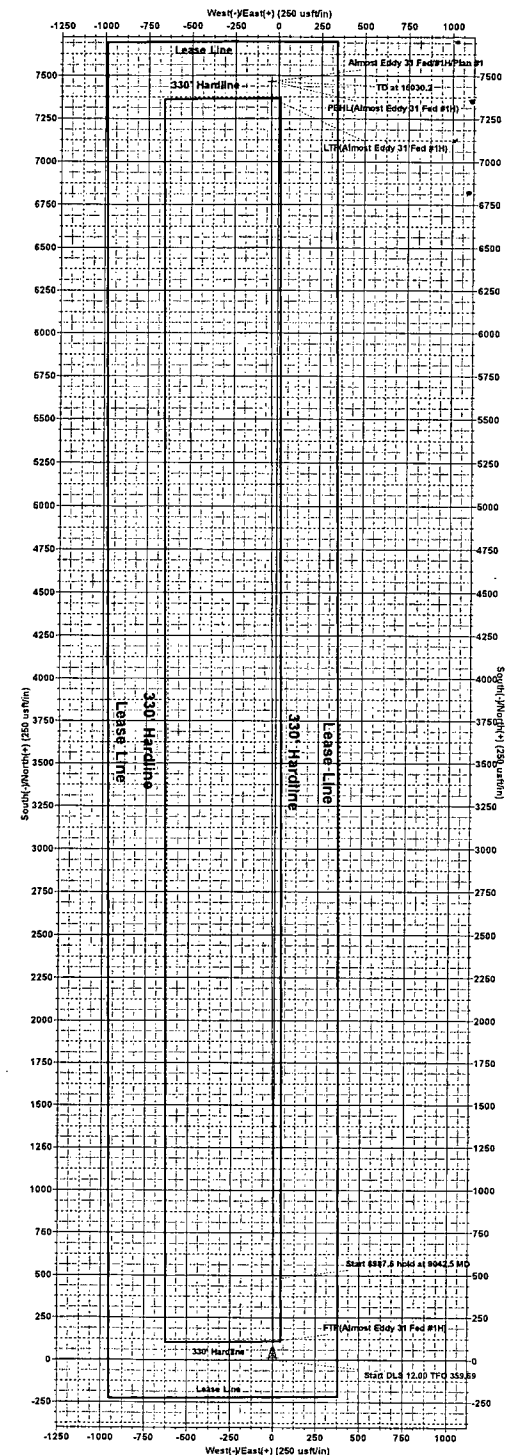
+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.0	0.0	393414.00	694106.00	32° 4' 48.219 N	103° 42' 23.884 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.0		
2	8292.5	0.00	0.00	8292.5	0.0	0.0	0.00	0.00	0.00		
3	9042.5	90.00	359.69	8770.0	477.5	-2.6	12.00	359.89	477.5		
4	16030.2	90.00	359.69	8770.0	7465.0	-40.0	0.00	0.00	7465.1	PBHL(Almost Eddy 31 Fed #1H)	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
FTP(Almost Eddy 31 Fed #1H)	8770.0	110.0	0.0	393524.00	694106.00	Point
LTP(Almost Eddy 31 Fed #1H)	8770.0	7365.0	-39.0	400779.00	694067.00	Point
PBHL(Almost Eddy 31 Fed #1H)	8770.0	7465.0	-40.0	400879.00	694066.00	Point





EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Almost Eddy 31 Fed

#1H

OH

Plan: Plan #1

Standard Planning Report

13 June, 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: Almost Eddy 31 Fed
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: KB = 30' @ 3311.0usft (Cactus 123)
MD Reference: KB = 30' @ 3311.0usft (Cactus 123)
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	Almost Eddy 31 Fed			
Site Position:		Northing:	393,414.00 usft	Latitude: 32° 4' 48.219 N
From:	Map	Easting:	694,106.00 usft	Longitude: 103° 42' 23.884 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.33 °

Well	#1H			
Well Position	+N/-S	0.0 usft	Northing:	393,414.00 usft
	+E/-W	0.0 usft	Easting:	694,106.00 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft
			Ground Level:	3,281.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF201014	6/13/2014	7.27	59.96	48,217

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	359.69	

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	
8,292.5	0.00	0.00	8,292.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,042.5	90.00	359.69	8,770.0	477.5	-2.6	12.00	12.00	-0.04	359.69	
16,030.2	90.00	359.69	8,770.0	7,465.0	-40.0	0.00	0.00	0.00	0.00	PBHL(Almost Eddy 31)



EOG Resources, Inc.

Planning Report

Database: EDM 5000.1 Single User Db
 Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Almost Eddy 31 Fed
 Well: #1H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #1H
 TVD Reference: KB = 30' @ 3311.0usft (Cactus 123)
 MD Reference: KB = 30' @ 3311.0usft (Cactus 123)
 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
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00



EOG Resources, Inc.

Planning Report

Database: EDM 5000.1 Single User Db
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 Project: Lea County, NM (NAD 27 NME)
 Site: Almost Eddy 31 Fed
 Well: #1H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #1H
 TVD Reference: KB = 30' @ 3311.0usft (Cactus 123)
 MD Reference: KB = 30' @ 3311.0usft (Cactus 123)
 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)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,292.5	0.00	0.00	8,292.5	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.90	359.69	8,300.0	0.1	0.0	0.1	12.00	12.00	0.00
8,325.0	3.90	359.69	8,325.0	1.1	0.0	1.1	12.00	12.00	0.00
8,350.0	6.90	359.69	8,349.9	3.5	0.0	3.5	12.00	12.00	0.00
8,375.0	9.90	359.69	8,374.6	7.1	0.0	7.1	12.00	12.00	0.00
8,400.0	12.90	359.69	8,399.1	12.0	-0.1	12.0	12.00	12.00	0.00
8,425.0	15.90	359.69	8,423.3	18.3	-0.1	18.3	12.00	12.00	0.00
8,450.0	18.90	359.69	8,447.2	25.7	-0.1	25.7	12.00	12.00	0.00
8,475.0	21.90	359.69	8,470.6	34.4	-0.2	34.4	12.00	12.00	0.00
8,500.0	24.90	359.69	8,493.5	44.4	-0.2	44.4	12.00	12.00	0.00
8,525.0	27.90	359.69	8,515.9	55.5	-0.3	55.5	12.00	12.00	0.00
8,550.0	30.90	359.69	8,537.7	67.7	-0.4	67.7	12.00	12.00	0.00
8,575.0	33.90	359.69	8,558.8	81.1	-0.4	81.1	12.00	12.00	0.00
8,600.0	36.90	359.69	8,579.2	95.6	-0.5	95.6	12.00	12.00	0.00
8,625.0	39.90	359.69	8,598.8	111.1	-0.6	111.1	12.00	12.00	0.00
8,650.0	42.90	359.69	8,617.5	127.7	-0.7	127.7	12.00	12.00	0.00
8,675.0	45.90	359.69	8,635.4	145.2	-0.8	145.2	12.00	12.00	0.00
8,700.0	48.90	359.69	8,652.3	163.6	-0.9	163.6	12.00	12.00	0.00
8,725.0	51.90	359.69	8,668.2	182.8	-1.0	182.8	12.00	12.00	0.00
8,727.2	52.16	359.69	8,669.6	184.6	-1.0	184.6	12.00	12.00	0.00
FTP(Almost Eddy 31 Fed #1H)									
8,750.0	54.90	359.69	8,683.2	202.9	-1.1	202.9	12.00	12.00	0.00
8,775.0	57.90	359.69	8,697.0	223.7	-1.2	223.7	12.00	12.00	0.00
8,800.0	60.90	359.69	8,709.7	245.2	-1.3	245.2	12.00	12.00	0.00



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 Design: Plan #1

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Well #1H

KB = 30' @ 3311.0usft (Cactus 123)

KB = 30' @ 3311.0usft (Cactus 123)

Grid

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)
8,825.0	63.90	359.69	8,721.3	267.4	-1.4	267.4	12.00	12.00	0.00
8,850.0	66.90	359.69	8,731.7	290.1	-1.6	290.1	12.00	12.00	0.00
8,875.0	69.90	359.69	8,740.9	313.3	-1.7	313.3	12.00	12.00	0.00
8,900.0	72.90	359.69	8,748.9	337.0	-1.8	337.0	12.00	12.00	0.00
8,925.0	75.90	359.69	8,755.6	361.1	-1.9	361.1	12.00	12.00	0.00
8,950.0	78.90	359.69	8,761.1	385.5	-2.1	385.5	12.00	12.00	0.00
8,975.0	81.90	359.69	8,765.2	410.1	-2.2	410.1	12.00	12.00	0.00
9,000.0	84.90	359.69	8,768.1	435.0	-2.3	435.0	12.00	12.00	0.00
9,025.0	87.90	359.69	8,769.7	459.9	-2.5	459.9	12.00	12.00	0.00
9,042.5	90.00	359.69	8,770.0	477.5	-2.6	477.5	12.00	12.00	0.00
9,100.0	90.00	359.69	8,770.0	534.9	-2.9	534.9	0.00	0.00	0.00
9,200.0	90.00	359.69	8,770.0	634.9	-3.4	634.9	0.00	0.00	0.00
9,300.0	90.00	359.69	8,770.0	734.9	-3.9	734.9	0.00	0.00	0.00
9,400.0	90.00	359.69	8,770.0	834.9	-4.5	834.9	0.00	0.00	0.00
9,500.0	90.00	359.69	8,770.0	934.9	-5.0	934.9	0.00	0.00	0.00
9,600.0	90.00	359.69	8,770.0	1,034.9	-5.5	1,034.9	0.00	0.00	0.00
9,700.0	90.00	359.69	8,770.0	1,134.9	-6.1	1,134.9	0.00	0.00	0.00
9,800.0	90.00	359.69	8,770.0	1,234.9	-6.6	1,234.9	0.00	0.00	0.00
9,900.0	90.00	359.69	8,770.0	1,334.9	-7.2	1,334.9	0.00	0.00	0.00
10,000.0	90.00	359.69	8,770.0	1,434.9	-7.7	1,434.9	0.00	0.00	0.00
10,100.0	90.00	359.69	8,770.0	1,534.9	-8.2	1,534.9	0.00	0.00	0.00
10,200.0	90.00	359.69	8,770.0	1,634.9	-8.8	1,634.9	0.00	0.00	0.00
10,300.0	90.00	359.69	8,770.0	1,734.9	-9.3	1,734.9	0.00	0.00	0.00
10,400.0	90.00	359.69	8,770.0	1,834.9	-9.8	1,834.9	0.00	0.00	0.00
10,500.0	90.00	359.69	8,770.0	1,934.9	-10.4	1,934.9	0.00	0.00	0.00
10,600.0	90.00	359.69	8,770.0	2,034.9	-10.9	2,034.9	0.00	0.00	0.00
10,700.0	90.00	359.69	8,770.0	2,134.9	-11.4	2,134.9	0.00	0.00	0.00
10,800.0	90.00	359.69	8,770.0	2,234.9	-12.0	2,234.9	0.00	0.00	0.00
10,900.0	90.00	359.69	8,770.0	2,334.9	-12.5	2,334.9	0.00	0.00	0.00
11,000.0	90.00	359.69	8,770.0	2,434.9	-13.0	2,434.9	0.00	0.00	0.00
11,100.0	90.00	359.69	8,770.0	2,534.9	-13.6	2,534.9	0.00	0.00	0.00
11,200.0	90.00	359.69	8,770.0	2,634.9	-14.1	2,634.9	0.00	0.00	0.00
11,300.0	90.00	359.69	8,770.0	2,734.9	-14.7	2,734.9	0.00	0.00	0.00
11,400.0	90.00	359.69	8,770.0	2,834.9	-15.2	2,834.9	0.00	0.00	0.00
11,500.0	90.00	359.69	8,770.0	2,934.9	-15.7	2,934.9	0.00	0.00	0.00
11,600.0	90.00	359.69	8,770.0	3,034.9	-16.3	3,034.9	0.00	0.00	0.00
11,700.0	90.00	359.69	8,770.0	3,134.9	-16.8	3,134.9	0.00	0.00	0.00
11,800.0	90.00	359.69	8,770.0	3,234.9	-17.3	3,234.9	0.00	0.00	0.00
11,900.0	90.00	359.69	8,770.0	3,334.9	-17.9	3,334.9	0.00	0.00	0.00
12,000.0	90.00	359.69	8,770.0	3,434.9	-18.4	3,434.9	0.00	0.00	0.00
12,100.0	90.00	359.69	8,770.0	3,534.9	-18.9	3,534.9	0.00	0.00	0.00
12,200.0	90.00	359.69	8,770.0	3,634.9	-19.5	3,634.9	0.00	0.00	0.00
12,300.0	90.00	359.69	8,770.0	3,734.9	-20.0	3,734.9	0.00	0.00	0.00
12,400.0	90.00	359.69	8,770.0	3,834.9	-20.5	3,834.9	0.00	0.00	0.00
12,500.0	90.00	359.69	8,770.0	3,934.9	-21.1	3,934.9	0.00	0.00	0.00
12,600.0	90.00	359.69	8,770.0	4,034.9	-21.6	4,034.9	0.00	0.00	0.00
12,700.0	90.00	359.69	8,770.0	4,134.9	-22.2	4,134.9	0.00	0.00	0.00
12,800.0	90.00	359.69	8,770.0	4,234.9	-22.7	4,234.9	0.00	0.00	0.00
12,900.0	90.00	359.69	8,770.0	4,334.9	-23.2	4,334.9	0.00	0.00	0.00
13,000.0	90.00	359.69	8,770.0	4,434.9	-23.8	4,434.9	0.00	0.00	0.00
13,100.0	90.00	359.69	8,770.0	4,534.9	-24.3	4,534.9	0.00	0.00	0.00
13,200.0	90.00	359.69	8,770.0	4,634.9	-24.8	4,634.9	0.00	0.00	0.00
13,300.0	90.00	359.69	8,770.0	4,734.9	-25.4	4,734.9	0.00	0.00	0.00
13,400.0	90.00	359.69	8,770.0	4,834.9	-25.9	4,834.9	0.00	0.00	0.00



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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,500.0	90.00	359.69	8,770.0	4,934.9	-26.4	4,934.9	0.00	0.00	0.00
13,600.0	90.00	359.69	8,770.0	5,034.9	-27.0	5,034.9	0.00	0.00	0.00
13,700.0	90.00	359.69	8,770.0	5,134.9	-27.5	5,134.9	0.00	0.00	0.00
13,800.0	90.00	359.69	8,770.0	5,234.8	-28.1	5,234.9	0.00	0.00	0.00
13,900.0	90.00	359.69	8,770.0	5,334.8	-28.6	5,334.9	0.00	0.00	0.00
14,000.0	90.00	359.69	8,770.0	5,434.8	-29.1	5,434.9	0.00	0.00	0.00
14,100.0	90.00	359.69	8,770.0	5,534.8	-29.7	5,534.9	0.00	0.00	0.00
14,200.0	90.00	359.69	8,770.0	5,634.8	-30.2	5,634.9	0.00	0.00	0.00
14,300.0	90.00	359.69	8,770.0	5,734.8	-30.7	5,734.9	0.00	0.00	0.00
14,400.0	90.00	359.69	8,770.0	5,834.8	-31.3	5,834.9	0.00	0.00	0.00
14,500.0	90.00	359.69	8,770.0	5,934.8	-31.8	5,934.9	0.00	0.00	0.00
14,600.0	90.00	359.69	8,770.0	6,034.8	-32.3	6,034.9	0.00	0.00	0.00
14,700.0	90.00	359.69	8,770.0	6,134.8	-32.9	6,134.9	0.00	0.00	0.00
14,800.0	90.00	359.69	8,770.0	6,234.8	-33.4	6,234.9	0.00	0.00	0.00
14,900.0	90.00	359.69	8,770.0	6,334.8	-33.9	6,334.9	0.00	0.00	0.00
15,000.0	90.00	359.69	8,770.0	6,434.8	-34.5	6,434.9	0.00	0.00	0.00
15,100.0	90.00	359.69	8,770.0	6,534.8	-35.0	6,534.9	0.00	0.00	0.00
15,200.0	90.00	359.69	8,770.0	6,634.8	-35.6	6,634.9	0.00	0.00	0.00
15,300.0	90.00	359.69	8,770.0	6,734.8	-36.1	6,734.9	0.00	0.00	0.00
15,400.0	90.00	359.69	8,770.0	6,834.8	-36.6	6,834.9	0.00	0.00	0.00
15,500.0	90.00	359.69	8,770.0	6,934.8	-37.2	6,934.9	0.00	0.00	0.00
15,600.0	90.00	359.69	8,770.0	7,034.8	-37.7	7,034.9	0.00	0.00	0.00
15,700.0	90.00	359.69	8,770.0	7,134.8	-38.2	7,134.9	0.00	0.00	0.00
15,800.0	90.00	359.69	8,770.0	7,234.8	-38.8	7,234.9	0.00	0.00	0.00
15,900.0	90.00	359.69	8,770.0	7,334.8	-39.3	7,334.9	0.00	0.00	0.00
15,930.2	90.00	359.69	8,770.0	7,365.0	-39.5	7,365.1	0.00	0.00	0.00
LTP(Almost Eddy 31 Fed #1H)									
16,000.0	90.00	359.69	8,770.0	7,434.8	-39.8	7,434.9	0.00	0.00	0.00
16,030.2	90.00	359.69	8,770.0	7,465.0	-40.0	7,465.1	0.00	0.00	0.00
PBHL(Almost Eddy 31 Fed #1H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP(Almost Eddy 31 Fed #1H)	0.00	0.00	8,770.0	110.0	0.0	393,524.00	694,106.00	32° 4' 49.308 N	103° 42' 23.877 W
- hit/miss target									
- plan misses target center by 125.1usft at 8727.2usft MD (8669.6 TVD, 184.6 N, -1.0 E)									
- Point									
LTP(Almost Eddy 31 Fed #1H)	0.00	0.00	8,770.0	7,365.0	-39.0	400,779.00	694,067.00	32° 6' 1.105 N	103° 42' 23.840 W
- hit/miss target									
- plan misses target center by 0.5usft at 15930.2usft MD (8770.0 TVD, 7365.0 N, -39.5 E)									
- Point									
PBHL(Almost Eddy 31 Fed #1H)	0.00	0.01	8,770.0	7,465.0	-40.0	400,879.00	694,066.00	32° 6' 2.095 N	103° 42' 23.845 W
- hit/miss target									
- plan hits target center									
- Point									

Exhibit 1

EOG Resources

5M BOPE

Rig Floor

1. 13 5/8" Rotating Head
2. Hydril 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. 8" OD x 4" ID 10,000 PSI WP 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" 5,000 PSI WP Spacer Spools
16. Flow Line
17. 2" Fill Line

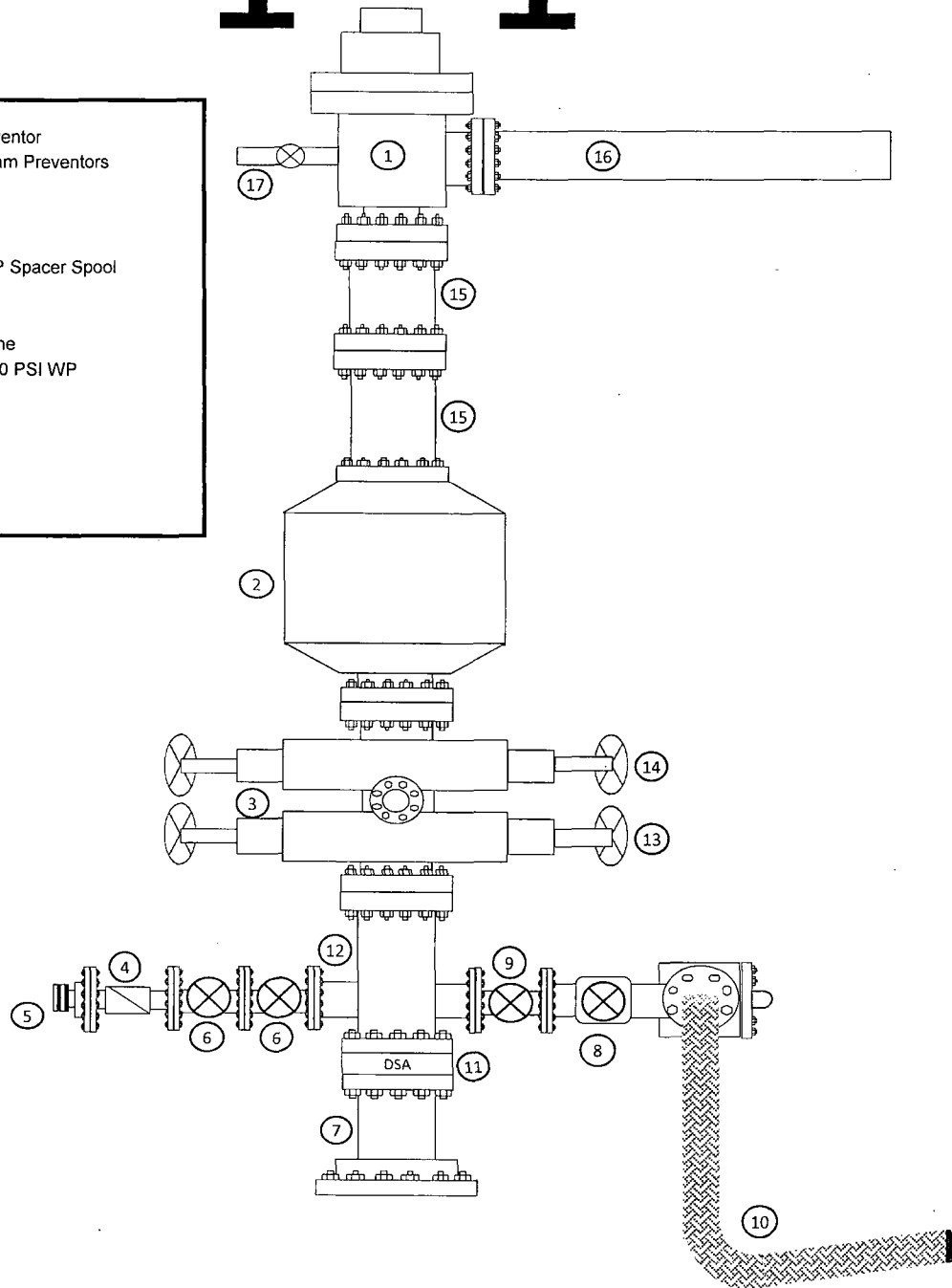
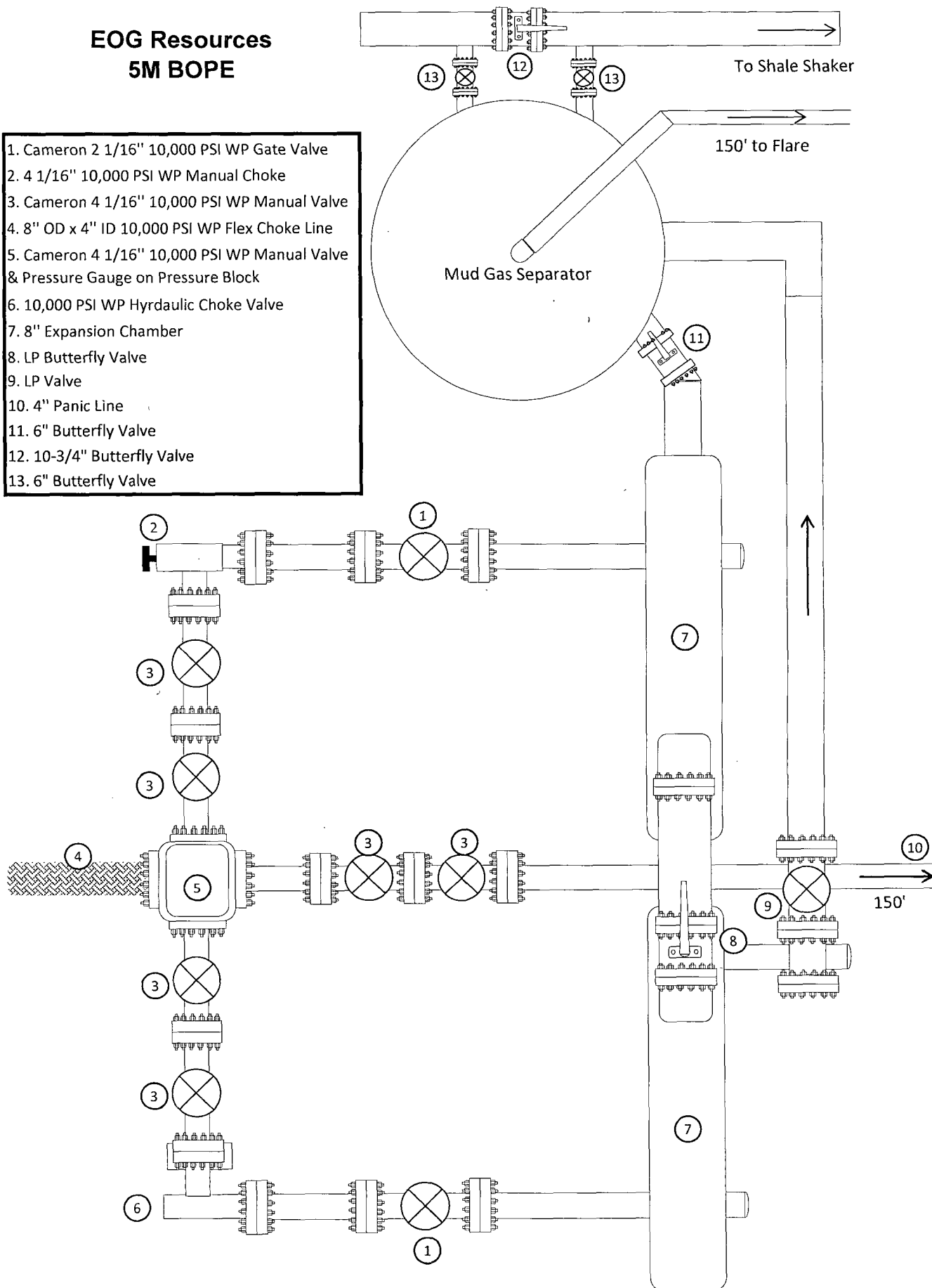


Exhibit 1a

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#90087 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

Report Form 10-10-10-1

Customer: CACTUS

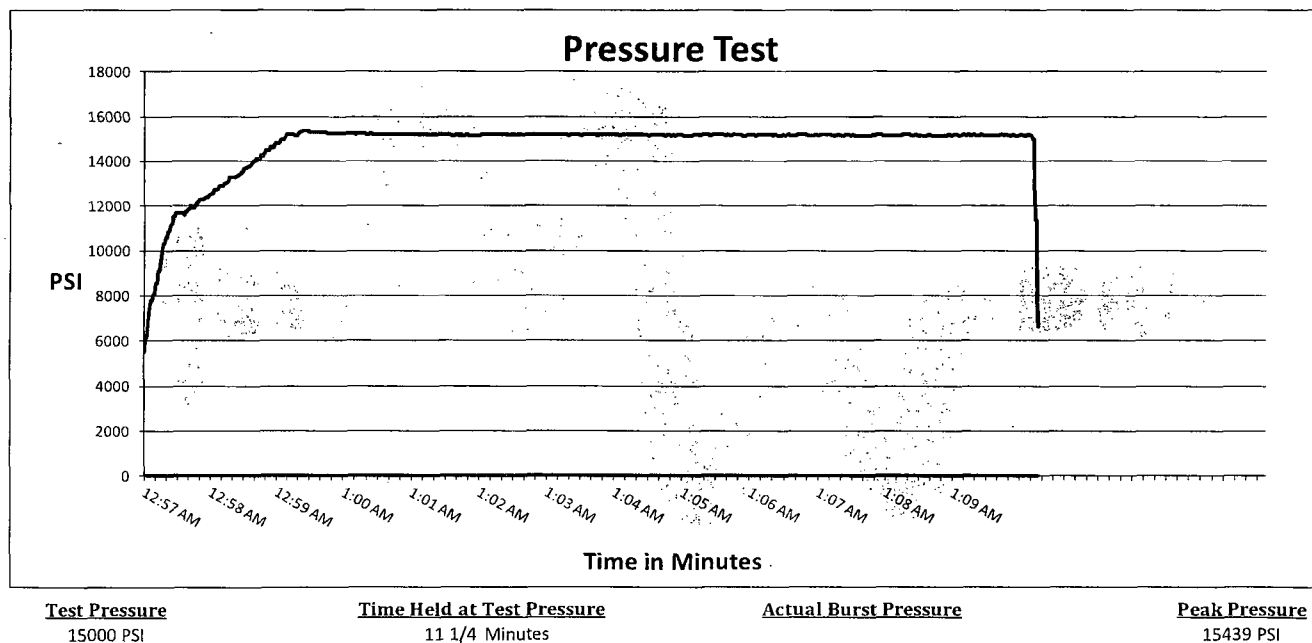
SALES ORDER# 90067

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



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

Tested By: Bobby Fink

Approved By: Mendi Jackson

Bobby Fink

Mendi Jackson