

OCD Hobbs

HOBBS OCD

ATS-15-359

OCT 19 2015

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM108503
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. <i>(7377)</i>		7. If Unit or CA Agreement, Name and No.
3a. Address P.O. Box 2267 Midland, TX 79702		8. Lease Name and Well No. <i>(40259)</i> Vaca 11 Fed 403H
3b. Phone No. (include area code) 432-686-3689		9. API Well No. 30-025- <i>42887</i>
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 240' FSL & 2500' FEL, SWSE (O), Sec 11, 25S, 33E At proposed prod. zone 230' FSL & 2070' FEL, SWSE (O), Sec 14		10. Field and Pool, or Exploratory <i>(51020)</i> <i>RED HILLS, LWR-B5</i>
14. Distance in miles and direction from nearest town or post office* Approximately +/- 27 miles Southwest from Jal, New Mexico		11. Sec., T. R. M. or Blk. and Survey or Area Section 11, T25S, R33E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 240' SL, 330' PP	16. No. of acres in lease 1480.00	12. County or Parish Lea
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 647' frm 404H	19. Proposed Depth 15561' MD, 10500' TVD	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3364' GL	22. Approximate date work will start* 07/01/2015	17. Spacing Unit dedicated to this well 160 ac.
23. Estimated duration 25 days		20. BLM/BIA Bond No. on file NM 2308

**NORTH DOK
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:

- | | |
|--|---|
| 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 <i>Stan Wagner</i>	Name (Printed/Typed) Stan Wagner	Date <i>11/21/15</i>
Title Regulatory Specialist		
Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date OCT 13 2015
Title FIELD MANAGER	Office 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

Ka
10/19/15

Approval Subject to General Requirements
& Special Stipulations Attached

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

OCT 20 2015

EOG RESOURCES, INC.
VACA 11 FED NO. 403H

HOBBS OCD

OCT 19 2015

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

RECEIVED

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,121'
Top of Salt	1,462'
Base of Salt / Top Anhydrite	4,810'
Base Anhydrite	5,054'
Lamar	5,054'
Bell Canyon	5,082'
Cherry Canyon	6,149'
Brushy Canyon	7,768'
Bone Spring Lime	9,236'
1 st Bone Spring Sand	10,179'
2 nd Bone Spring Shale	10,400'
TD	10,500'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,149'	Oil
Brushy Canyon	7,768'	Oil
Bone Spring Lime	9,236'	Oil
1 st Bone Spring Sand	10,179'	Oil
2 nd Bone Spring Shale	10,400'	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 1,145' and circulating cement back to surface.

4. CASING PROGRAM - NEW

See
CON

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0 - 1,145'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0-4,000'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	4,000' - 4,900'	9.625"	40#	HCK55	LTC	1.125	1.25	1.60
8.75"	0'-15,561'	5.500"	17#	P110 or HCP110	LTC	1.125	1.25	1.60

**EOG RESOURCES, INC.
VACA 11 FED NO. 403H**

Cementing Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Mix Water Gal/sk	Slurry Description
13-3/8" 1,145' 1200'	600	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" 4,900'	900	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)
	450	14.8	1.32	6.33	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
5-1/2" 15,561'	400	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 @ 4400')
	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
	1600	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 COF 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 COF 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.
VACA 11 FED NO. 403H

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 – 1,145' 1200	Fresh Water Gel	8.6-8.8	28-34	N/c
1,145' – 4,900'	Saturated Brine	10.0-10.2	28-34	N/c
4,900' – 9,942'	Fresh Water	8.4-8.6	28-34	N/c
9,942' – 15,561' 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.
VACA 11 FED NO. 403H

See COA
8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

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

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

The estimated bottom-hole temperature (BHT) at TD is 163 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 4546 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:

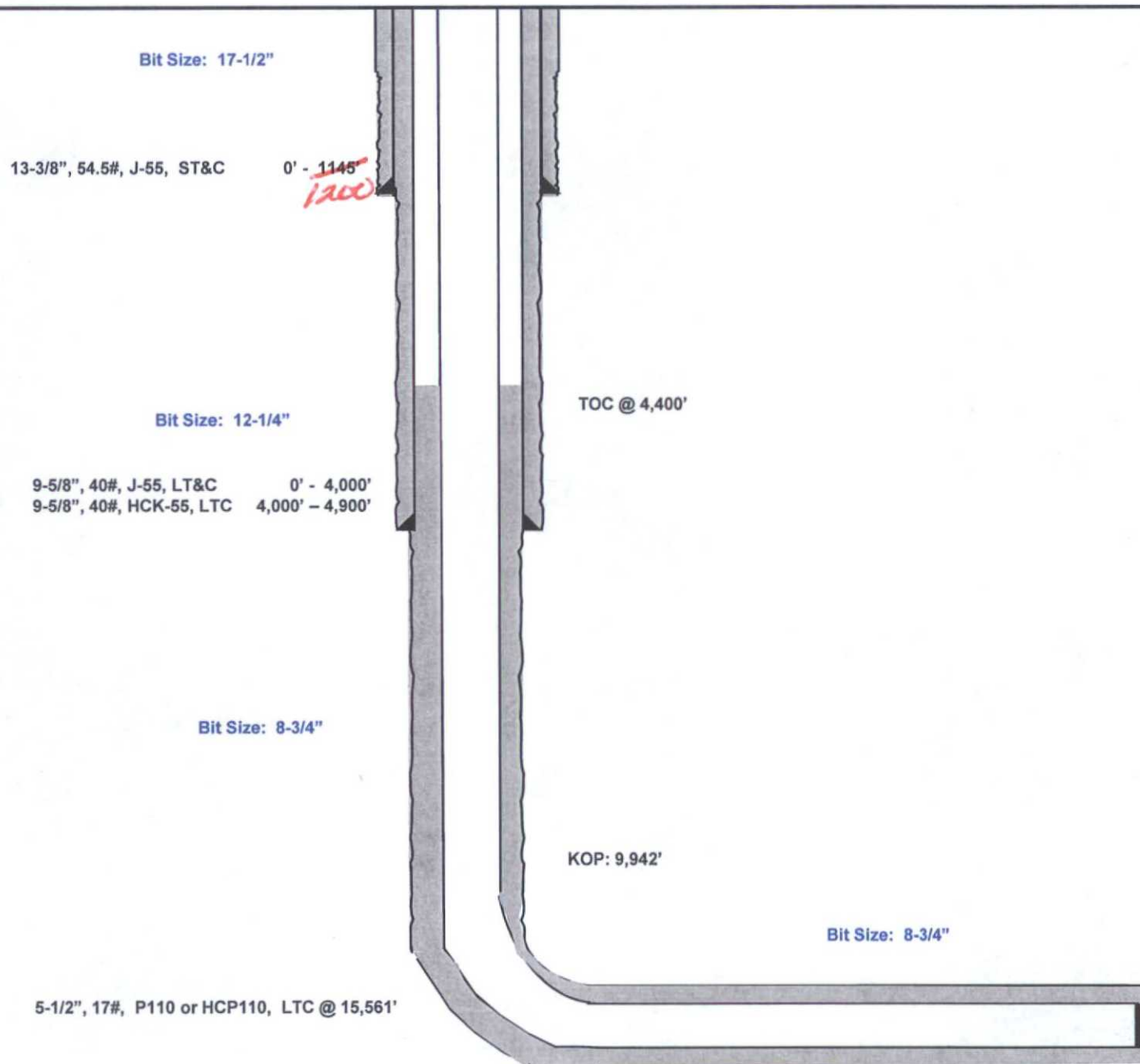
The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

Vaca 11 Fed #403H
Lea County, New Mexico
Proposed Wellbore

240' FSL
2500' FEL
Section 11
T-25-S, R-33-E

API: 30-025-*****

KB: 3,394'
GL: 3,364'



Lateral:
15,561' MD, 10,500' TVD
Upper Most Perf:
330' FNL & 2070' FEL
Lower Most Perf:
330' FSL & 2070' FEL
BH Location: 230' FSL & 2070' FEL
Section 14
T-25-S, R-33-E



Lea County, NM (NAD 27 NME)

#403H

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: -0.42°
Magnetic North: 6.72°
Magnetic Field
Strength: 48219.8 nT
Dip Angle: 60.62°
Date: 12/28/2014
Model: IGRF201014

To convert a Magnetic Direction to a Grid Direction, Add 6.72°
To convert a Magnetic Direction to a True Direction, Add 7.14° East
To convert a True Direction to a Grid Direction, Subtract 6.42°

WELL DETAILS: #403H

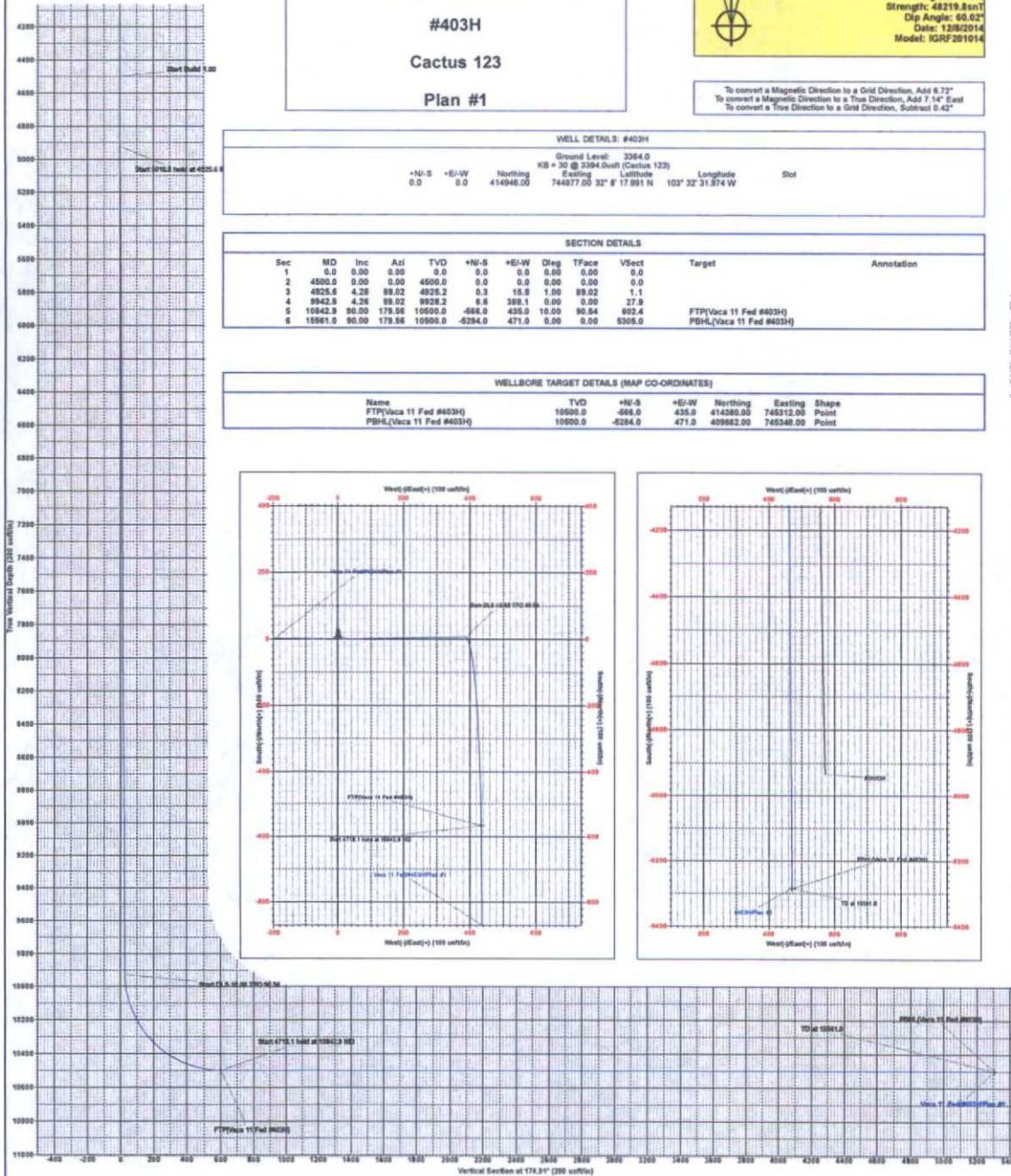
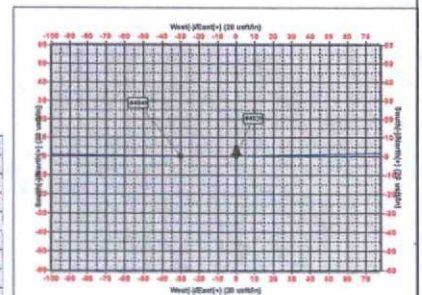
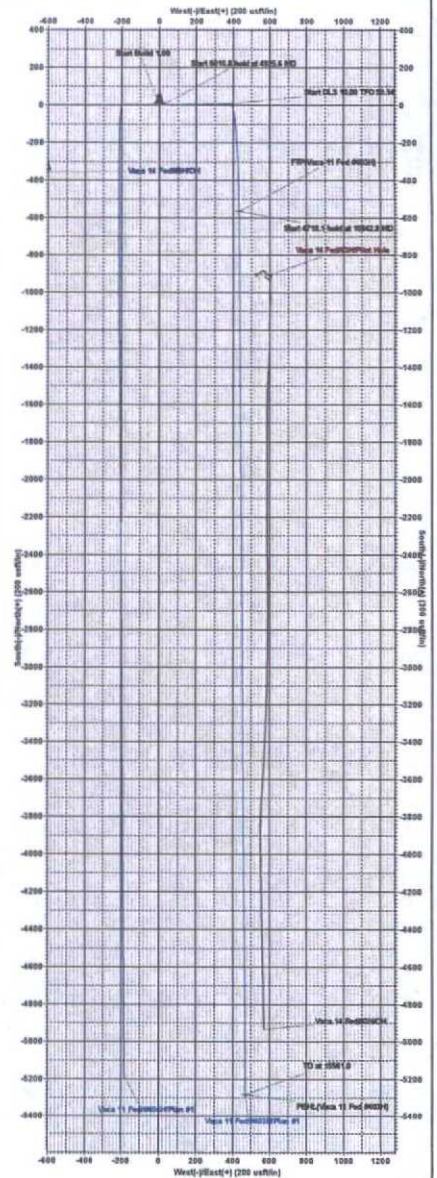
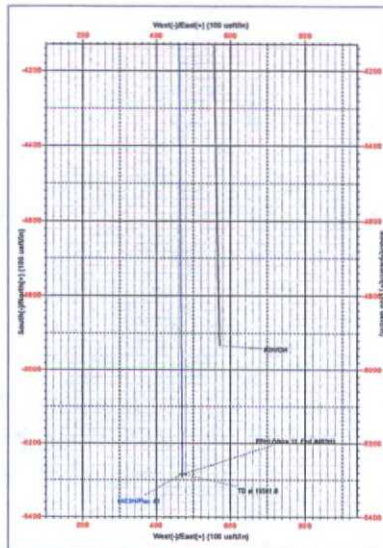
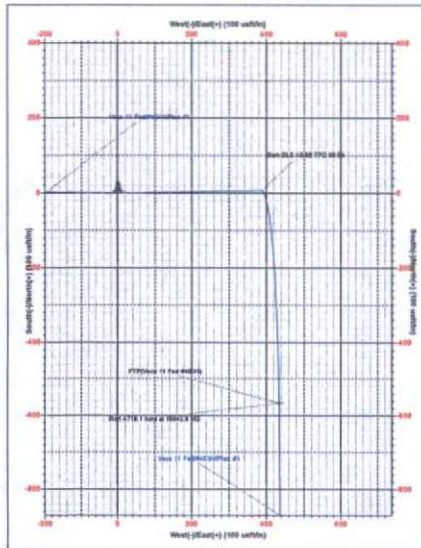
Ground Level: 3264.0
KB + 30 @ 3394.0 (Cactus 123)
+N/-S +E/-W Northing Easting Longitude Slot
0.0 0.0 414946.00 744877.00 32° 17' 59.1" N 103° 32' 31.874" W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeal	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	4500.0	0.00	0.00	4500.0	0.0	0.0	0.00	0.00	0.0		
3	4925.6	4.26	89.02	4925.2	0.3	16.9	1.00	89.02	1.1		
4	9942.6	4.26	89.02	9928.2	8.8	368.1	0.00	0.00	27.9		
5	10542.9	90.00	179.56	10520.0	-566.0	435.0	10.00	90.54	802.4	FTP(Vaca 11 Fed #603H)	
6	10561.0	90.00	179.56	10500.0	-5284.0	471.0	0.00	0.00	8305.0	PBL(Vaca 11 Fed #603H)	

WELLSBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
FTP(Vaca 11 Fed #603H)	10500.0	-566.0	435.0	414380.00	745312.00	Point
PBL(Vaca 11 Fed #603H)	10500.0	-5284.0	471.0	409662.00	745348.00	Point



Lea County, NM (NAD 27 NME)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level



EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Vaca 11 Fed

#403H

OH

Plan: Plan #1

Standard Planning Report

08 December, 2014



EOG Resources, Inc.
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #403H
Company:	EOG Resources - Midland	TVD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Project:	Lea County, NM (NAD 27 NME)	MD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Site:	Vaca 11 Fed	North Reference:	Grid
Well:	#403H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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	Vaca 11 Fed		
Site Position:		Northing:	414,888.00 usft
From:	Map	Easting:	746,178.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 8' 17.322 N
		Longitude:	103° 32' 16.849 W
		Grid Convergence:	0.42 °

Well	#403H		
Well Position	+N/-S	58.0 usft	Northing:
	+E/-W	-1,301.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF201014	12/8/2014	7.14
			Dip Angle
			(°)
			60.02
			Field Strength
			(nT)
			48,220

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
			(°)
			174.91

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	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,925.6	4.26	89.02	4,925.2	0.3	15.8	1.00	1.00	0.00	89.02	
9,942.5	4.26	89.02	9,928.2	6.6	388.1	0.00	0.00	0.00	0.00	
10,842.9	90.00	179.56	10,500.0	-566.0	435.0	10.00	9.52	10.06	90.54	FTP(Vaca 11 Fed #40
15,561.0	90.00	179.56	10,500.0	-5,284.0	471.0	0.00	0.00	0.00	0.00	PBHL(Vaca 11 Fed #4



EOG Resources, Inc.

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #403H
Company:	EOG Resources - Midland	TVD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Project:	Lea County, NM (NAD 27 NME)	MD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Site:	Vaca 11 Fed	North Reference:	Grid
Well:	#403H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	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	1.00	89.02	4,600.0	0.0	0.9	0.1	1.00	1.00	0.00
4,700.0	2.00	89.02	4,700.0	0.1	3.5	0.3	1.00	1.00	0.00
4,800.0	3.00	89.02	4,799.9	0.1	7.9	0.6	1.00	1.00	0.00
4,900.0	4.00	89.02	4,899.7	0.2	14.0	1.0	1.00	1.00	0.00
4,925.6	4.26	89.02	4,925.2	0.3	15.8	1.1	1.00	1.00	0.00
5,000.0	4.26	89.02	4,999.4	0.4	21.3	1.5	0.00	0.00	0.00
5,100.0	4.26	89.02	5,099.1	0.5	28.7	2.1	0.00	0.00	0.00
5,200.0	4.26	89.02	5,198.9	0.6	36.2	2.6	0.00	0.00	0.00



EOG Resources, Inc.

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #403H
Company:	EOG Resources - Midland	TVD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Project:	Lea County, NM (NAD 27 NME)	MD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Site:	Vaca 11 Fed	North Reference:	Grid
Well:	#403H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	4.26	89.02	5,298.6	0.7	43.6	3.1	0.00	0.00	0.00
5,400.0	4.26	89.02	5,398.3	0.9	51.0	3.7	0.00	0.00	0.00
5,500.0	4.26	89.02	5,498.0	1.0	58.4	4.2	0.00	0.00	0.00
5,600.0	4.26	89.02	5,597.7	1.1	65.8	4.7	0.00	0.00	0.00
5,700.0	4.26	89.02	5,697.5	1.2	73.3	5.3	0.00	0.00	0.00
5,800.0	4.26	89.02	5,797.2	1.4	80.7	5.8	0.00	0.00	0.00
5,900.0	4.26	89.02	5,896.9	1.5	88.1	6.3	0.00	0.00	0.00
6,000.0	4.26	89.02	5,996.6	1.6	95.5	6.9	0.00	0.00	0.00
6,100.0	4.26	89.02	6,096.4	1.8	102.9	7.4	0.00	0.00	0.00
6,200.0	4.26	89.02	6,196.1	1.9	110.4	7.9	0.00	0.00	0.00
6,300.0	4.26	89.02	6,295.8	2.0	117.8	8.5	0.00	0.00	0.00
6,400.0	4.26	89.02	6,395.5	2.1	125.2	9.0	0.00	0.00	0.00
6,500.0	4.26	89.02	6,495.3	2.3	132.6	9.5	0.00	0.00	0.00
6,600.0	4.26	89.02	6,595.0	2.4	140.0	10.1	0.00	0.00	0.00
6,700.0	4.26	89.02	6,694.7	2.5	147.5	10.6	0.00	0.00	0.00
6,800.0	4.26	89.02	6,794.4	2.6	154.9	11.1	0.00	0.00	0.00
6,900.0	4.26	89.02	6,894.2	2.8	162.3	11.7	0.00	0.00	0.00
7,000.0	4.26	89.02	6,993.9	2.9	169.7	12.2	0.00	0.00	0.00
7,100.0	4.26	89.02	7,093.6	3.0	177.2	12.7	0.00	0.00	0.00
7,200.0	4.26	89.02	7,193.3	3.1	184.6	13.3	0.00	0.00	0.00
7,300.0	4.26	89.02	7,293.1	3.3	192.0	13.8	0.00	0.00	0.00
7,400.0	4.26	89.02	7,392.8	3.4	199.4	14.3	0.00	0.00	0.00
7,500.0	4.26	89.02	7,492.5	3.5	206.8	14.9	0.00	0.00	0.00
7,600.0	4.26	89.02	7,592.2	3.7	214.3	15.4	0.00	0.00	0.00
7,700.0	4.26	89.02	7,692.0	3.8	221.7	15.9	0.00	0.00	0.00
7,800.0	4.26	89.02	7,791.7	3.9	229.1	16.5	0.00	0.00	0.00
7,900.0	4.26	89.02	7,891.4	4.0	236.5	17.0	0.00	0.00	0.00
8,000.0	4.26	89.02	7,991.1	4.2	243.9	17.5	0.00	0.00	0.00
8,100.0	4.26	89.02	8,090.9	4.3	251.4	18.0	0.00	0.00	0.00
8,200.0	4.26	89.02	8,190.6	4.4	258.8	18.6	0.00	0.00	0.00
8,300.0	4.26	89.02	8,290.3	4.5	266.2	19.1	0.00	0.00	0.00
8,400.0	4.26	89.02	8,390.0	4.7	273.6	19.6	0.00	0.00	0.00
8,500.0	4.26	89.02	8,489.8	4.8	281.0	20.2	0.00	0.00	0.00
8,600.0	4.26	89.02	8,589.5	4.9	288.5	20.7	0.00	0.00	0.00
8,700.0	4.26	89.02	8,689.2	5.0	295.9	21.2	0.00	0.00	0.00
8,800.0	4.26	89.02	8,788.9	5.2	303.3	21.8	0.00	0.00	0.00
8,900.0	4.26	89.02	8,888.6	5.3	310.7	22.3	0.00	0.00	0.00
9,000.0	4.26	89.02	8,988.4	5.4	318.1	22.8	0.00	0.00	0.00
9,100.0	4.26	89.02	9,088.1	5.6	325.6	23.4	0.00	0.00	0.00
9,200.0	4.26	89.02	9,187.8	5.7	333.0	23.9	0.00	0.00	0.00
9,300.0	4.26	89.02	9,287.5	5.8	340.4	24.4	0.00	0.00	0.00
9,400.0	4.26	89.02	9,387.3	5.9	347.8	25.0	0.00	0.00	0.00
9,500.0	4.26	89.02	9,487.0	6.1	355.2	25.5	0.00	0.00	0.00
9,600.0	4.26	89.02	9,586.7	6.2	362.7	26.0	0.00	0.00	0.00
9,700.0	4.26	89.02	9,686.4	6.3	370.1	26.6	0.00	0.00	0.00
9,800.0	4.26	89.02	9,786.2	6.4	377.5	27.1	0.00	0.00	0.00
9,900.0	4.26	89.02	9,885.9	6.6	384.9	27.6	0.00	0.00	0.00
9,942.5	4.26	89.02	9,928.2	6.6	388.1	27.9	0.00	0.00	0.00
9,950.0	4.32	99.11	9,935.8	6.6	388.6	28.0	10.00	0.79	133.57
10,000.0	7.12	143.00	9,985.5	3.8	392.4	31.1	10.00	5.61	87.79
10,050.0	11.52	158.15	10,034.9	-3.3	396.1	38.5	10.00	8.80	30.29
10,100.0	16.27	164.79	10,083.4	-14.7	399.8	50.1	10.00	9.49	13.28
10,150.0	21.13	168.46	10,130.7	-30.3	403.4	66.0	10.00	9.72	7.35
10,200.0	26.04	170.80	10,176.5	-50.0	407.0	85.9	10.00	9.82	4.69



EOG Resources, Inc.
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #403H
Company:	EOG Resources - Midland	TVD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Project:	Lea County, NM (NAD 27 NME)	MD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Site:	Vaca 11 Fed	North Reference:	Grid
Well:	#403H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,250.0	30.98	172.44	10,220.5	-73.6	410.4	109.7	10.00	9.88	3.28	
10,300.0	35.93	173.67	10,262.2	-100.9	413.8	137.3	10.00	9.91	2.45	
10,350.0	40.90	174.63	10,301.3	-131.8	416.9	168.3	10.00	9.93	1.93	
10,400.0	45.87	175.42	10,337.7	-166.0	419.9	202.7	10.00	9.94	1.58	
10,450.0	50.84	176.09	10,370.9	-203.3	422.6	240.0	10.00	9.95	1.33	
10,500.0	55.82	176.67	10,400.7	-243.3	425.1	280.1	10.00	9.96	1.16	
10,550.0	60.80	177.18	10,427.0	-285.8	427.4	322.6	10.00	9.96	1.03	
10,600.0	65.79	177.64	10,449.4	-330.4	429.4	367.2	10.00	9.97	0.93	
10,650.0	70.77	178.08	10,467.9	-376.8	431.2	413.6	10.00	9.97	0.86	
10,700.0	75.76	178.48	10,482.3	-424.6	432.6	461.4	10.00	9.97	0.81	
10,750.0	80.74	178.87	10,492.5	-473.6	433.7	510.2	10.00	9.97	0.77	
10,800.0	85.73	179.24	10,498.4	-523.2	434.6	559.7	10.00	9.97	0.75	
10,842.9	90.00	179.56	10,500.0	-566.0	435.0	602.4	10.00	9.97	0.74	
FTP(Vaca 11 Fed #403H)										
10,900.0	90.00	179.56	10,500.0	-623.1	435.4	659.3	0.00	0.00	0.00	
11,000.0	90.00	179.56	10,500.0	-723.1	436.2	759.0	0.00	0.00	0.00	
11,100.0	90.00	179.56	10,500.0	-823.1	437.0	858.7	0.00	0.00	0.00	
11,200.0	90.00	179.56	10,500.0	-923.1	437.7	958.4	0.00	0.00	0.00	
11,300.0	90.00	179.56	10,500.0	-1,023.1	438.5	1,058.0	0.00	0.00	0.00	
11,400.0	90.00	179.56	10,500.0	-1,123.1	439.3	1,157.7	0.00	0.00	0.00	
11,500.0	90.00	179.56	10,500.0	-1,223.1	440.0	1,257.4	0.00	0.00	0.00	
11,600.0	90.00	179.56	10,500.0	-1,323.1	440.8	1,357.0	0.00	0.00	0.00	
11,700.0	90.00	179.56	10,500.0	-1,423.1	441.5	1,456.7	0.00	0.00	0.00	
11,800.0	90.00	179.56	10,500.0	-1,523.1	442.3	1,556.4	0.00	0.00	0.00	
11,900.0	90.00	179.56	10,500.0	-1,623.1	443.1	1,656.0	0.00	0.00	0.00	
12,000.0	90.00	179.56	10,500.0	-1,723.1	443.8	1,755.7	0.00	0.00	0.00	
12,100.0	90.00	179.56	10,500.0	-1,823.1	444.6	1,855.4	0.00	0.00	0.00	
12,200.0	90.00	179.56	10,500.0	-1,923.1	445.4	1,955.1	0.00	0.00	0.00	
12,300.0	90.00	179.56	10,500.0	-2,023.1	446.1	2,054.7	0.00	0.00	0.00	
12,400.0	90.00	179.56	10,500.0	-2,123.1	446.9	2,154.4	0.00	0.00	0.00	
12,500.0	90.00	179.56	10,500.0	-2,223.1	447.6	2,254.1	0.00	0.00	0.00	
12,600.0	90.00	179.56	10,500.0	-2,323.1	448.4	2,353.7	0.00	0.00	0.00	
12,700.0	90.00	179.56	10,500.0	-2,423.1	449.2	2,453.4	0.00	0.00	0.00	
12,800.0	90.00	179.56	10,500.0	-2,523.1	449.9	2,553.1	0.00	0.00	0.00	
12,900.0	90.00	179.56	10,500.0	-2,623.1	450.7	2,652.7	0.00	0.00	0.00	
13,000.0	90.00	179.56	10,500.0	-2,723.1	451.5	2,752.4	0.00	0.00	0.00	
13,100.0	90.00	179.56	10,500.0	-2,823.1	452.2	2,852.1	0.00	0.00	0.00	
13,200.0	90.00	179.56	10,500.0	-2,923.1	453.0	2,951.8	0.00	0.00	0.00	
13,300.0	90.00	179.56	10,500.0	-3,023.1	453.7	3,051.4	0.00	0.00	0.00	
13,400.0	90.00	179.56	10,500.0	-3,123.1	454.5	3,151.1	0.00	0.00	0.00	
13,500.0	90.00	179.56	10,500.0	-3,223.1	455.3	3,250.8	0.00	0.00	0.00	
13,600.0	90.00	179.56	10,500.0	-3,323.1	456.0	3,350.4	0.00	0.00	0.00	
13,700.0	90.00	179.56	10,500.0	-3,423.1	456.8	3,450.1	0.00	0.00	0.00	
13,800.0	90.00	179.56	10,500.0	-3,523.1	457.6	3,549.8	0.00	0.00	0.00	
13,900.0	90.00	179.56	10,500.0	-3,623.1	458.3	3,649.4	0.00	0.00	0.00	
14,000.0	90.00	179.56	10,500.0	-3,723.1	459.1	3,749.1	0.00	0.00	0.00	
14,100.0	90.00	179.56	10,500.0	-3,823.1	459.9	3,848.8	0.00	0.00	0.00	
14,200.0	90.00	179.56	10,500.0	-3,923.1	460.6	3,948.5	0.00	0.00	0.00	
14,300.0	90.00	179.56	10,500.0	-4,023.0	461.4	4,048.1	0.00	0.00	0.00	
14,400.0	90.00	179.56	10,500.0	-4,123.0	462.1	4,147.8	0.00	0.00	0.00	
14,500.0	90.00	179.56	10,500.0	-4,223.0	462.9	4,247.5	0.00	0.00	0.00	
14,600.0	90.00	179.56	10,500.0	-4,323.0	463.7	4,347.1	0.00	0.00	0.00	
14,700.0	90.00	179.56	10,500.0	-4,423.0	464.4	4,446.8	0.00	0.00	0.00	



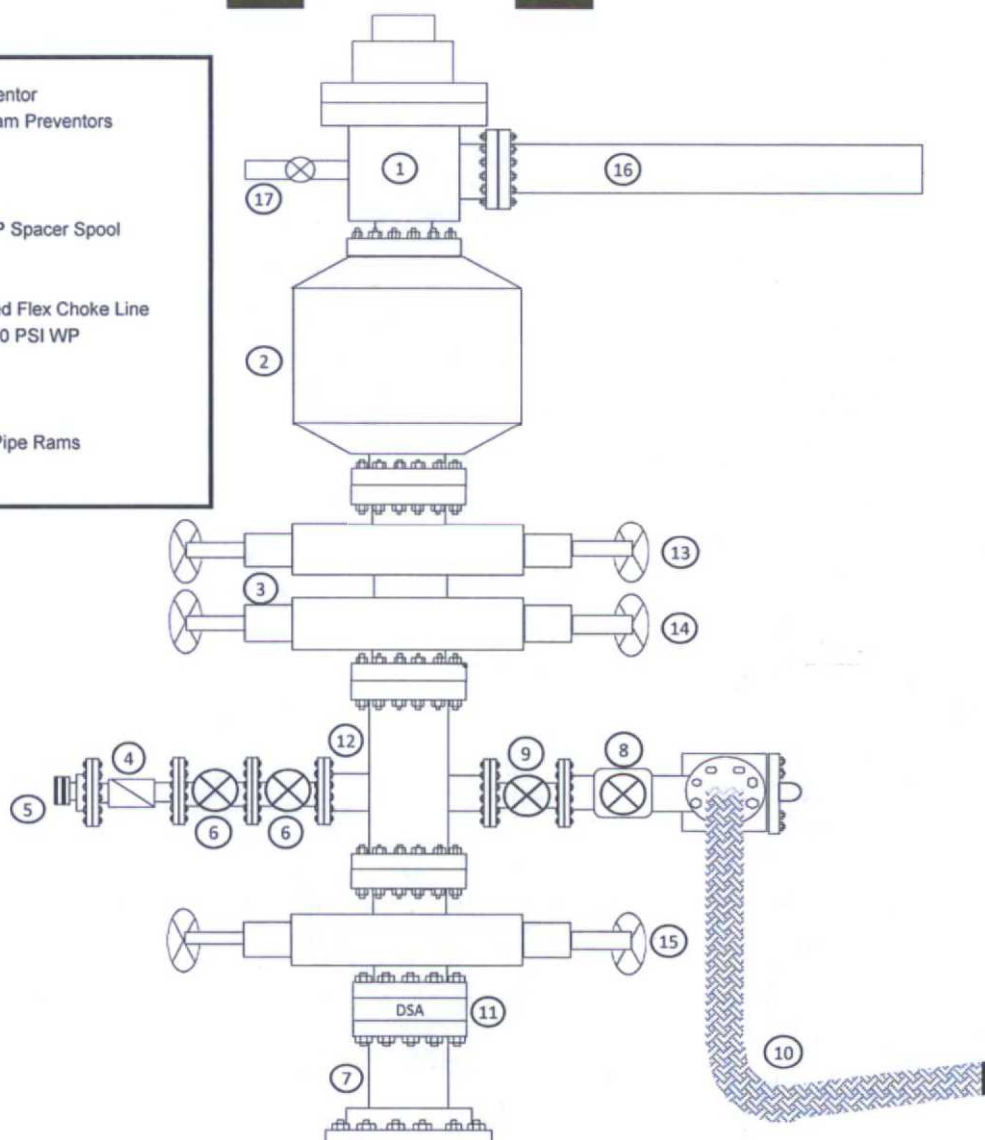
EOG Resources, Inc.
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #403H
Company:	EOG Resources - Midland	TVD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Project:	Lea County, NM (NAD 27 NME)	MD Reference:	KB = 30 @ 3394.0usft (Cactus 123)
Site:	Vaca 11 Fed	North Reference:	Grid
Well:	#403H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,800.0	90.00	179.56	10,500.0	-4,523.0	465.2	4,546.5	0.00	0.00	0.00
14,900.0	90.00	179.56	10,500.0	-4,623.0	466.0	4,646.1	0.00	0.00	0.00
15,000.0	90.00	179.56	10,500.0	-4,723.0	466.7	4,745.8	0.00	0.00	0.00
15,100.0	90.00	179.56	10,500.0	-4,823.0	467.5	4,845.5	0.00	0.00	0.00
15,200.0	90.00	179.56	10,500.0	-4,923.0	468.2	4,945.2	0.00	0.00	0.00
15,300.0	90.00	179.56	10,500.0	-5,023.0	469.0	5,044.8	0.00	0.00	0.00
15,400.0	90.00	179.56	10,500.0	-5,123.0	469.8	5,144.5	0.00	0.00	0.00
15,500.0	90.00	179.56	10,500.0	-5,223.0	470.5	5,244.2	0.00	0.00	0.00
15,561.0	90.00	179.56	10,500.0	-5,284.0	471.0	5,305.0	0.00	0.00	0.00
PBHL(Vaca 11 Fed #403H)									

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(Vaca 11 Fed #403H)	0.00	0.00	10,500.0	-5,284.0	471.0	409,662.00	745,348.00	32° 7' 25.669 N	103° 32' 26.948 W
- plan hits target center									
- Point									
FTP(Vaca 11 Fed #403H)	0.00	0.00	10,500.0	-566.0	435.0	414,380.00	745,312.00	32° 8' 12.358 N	103° 32' 26.963 W
- plan hits target center									
- Point									

Rig Floor



EOG Resources
5M BOPE

- [illegible]

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

Customer: CACTUS

SALES ORDER# 90067

Hose Specifications

Hose Type

C & K

Length

35'

I.D.

4"

O.D.

8"

Verification

Type of Fitting

4 1/16 10K

Coupling Method

Swage

Final O.D.

6.68"

Working Pressure

10000 PSI

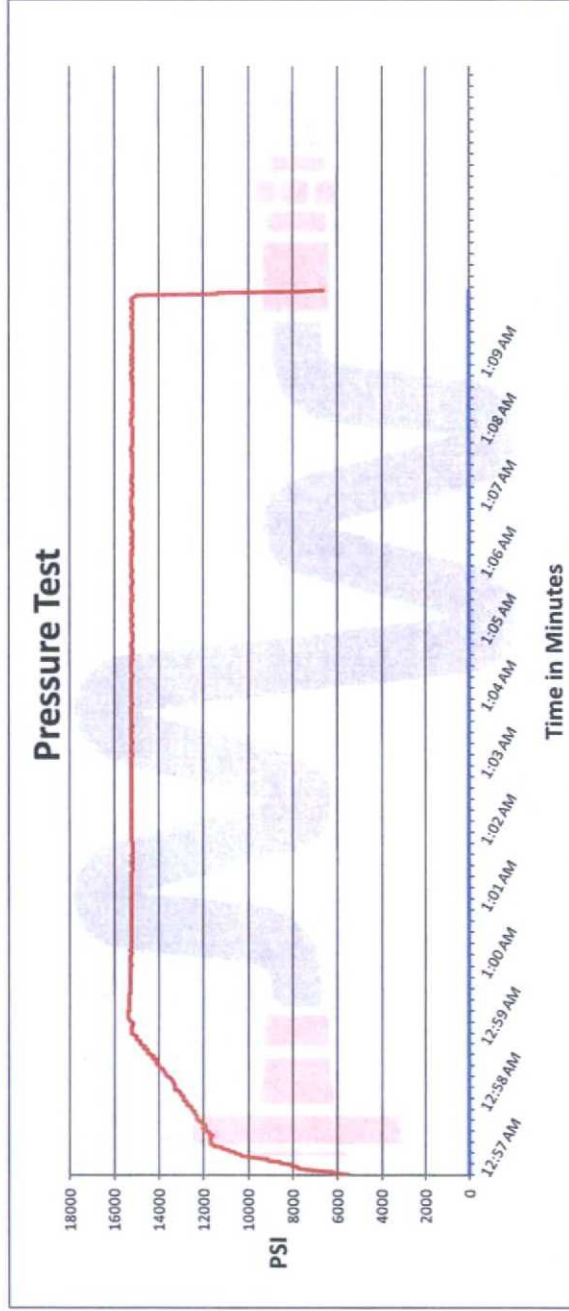
Burst Pressure

Standard Safety Multiplier Applies

Hose Serial #

Hose Assembly Serial #

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

Mendi Jackson

Exhibit 4

EOG Resources

Vaca 11 Fed #403H

Well Site Diagram

