

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCDC RECEIVED

ATS-11-89
FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

FEB 08 2011

HOBBSSOCD

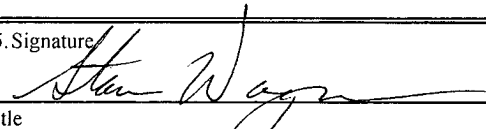
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		5. Lease Serial No. NM 108503
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.		7. Unit or CA Agreement Name and No.
3a. Address P.O. Box 2267 Midland, Texas 79702		8. Lease Name and Well No. <38481> Caballo 23 Federal 1H
3b. Phone No. (include area code) 432-686-3689		9. API Well No. 30-025- 40050
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 50' FNL & 440' FWL, U/L D At proposed prod. zone 330' FSL & 440' FWL, U/L LOCATION UNORTHODOX orthodoxy at approx 9590 MD		10. Field and Pool, or Exploratory Red Hills; Bone Spring
14. Distance in miles and direction from nearest town or post office* Approx 28 miles Southwest from Jal NM		11. Sec., T., R., M., or Blk. and Survey or Area Sec 23, T25S, R33E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 50'	16. No. of Acres in lease 1480	12. County or Parish Lea
17. Spacing Unit dedicated to this well 160	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1320'	19. Proposed Depth 11200' TVD - Pilot Hole 14209 MD - 9450 TVD	20. BLM/BIA Bond No. on file NM 2308
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3342' GL	22. Approximate date work will start* 01/01/2011	23. Estimated duration 30 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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be required by the BLM

25. Signature 	Name (Printed/Typed) Stan Wagner	Date 10/28/10
Title Regulatory Analyst		
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date FEB - 4 2011
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)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

KE 02/10/11

Carlsbad Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-402
Revised October 12, 2005
Submit to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies

FEB 08 2011

HOBSOCD

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025- 40050	Pool Code 51020	Pool Name Red Hills; Bone Spring
Property Code 38481	Property Name CABALLO 23 FEDERAL	Well Number 1H
OCRID No. 7377	Operator Name EOG RESOURCES, INC.	Elevation 3342.5'

Surface Location

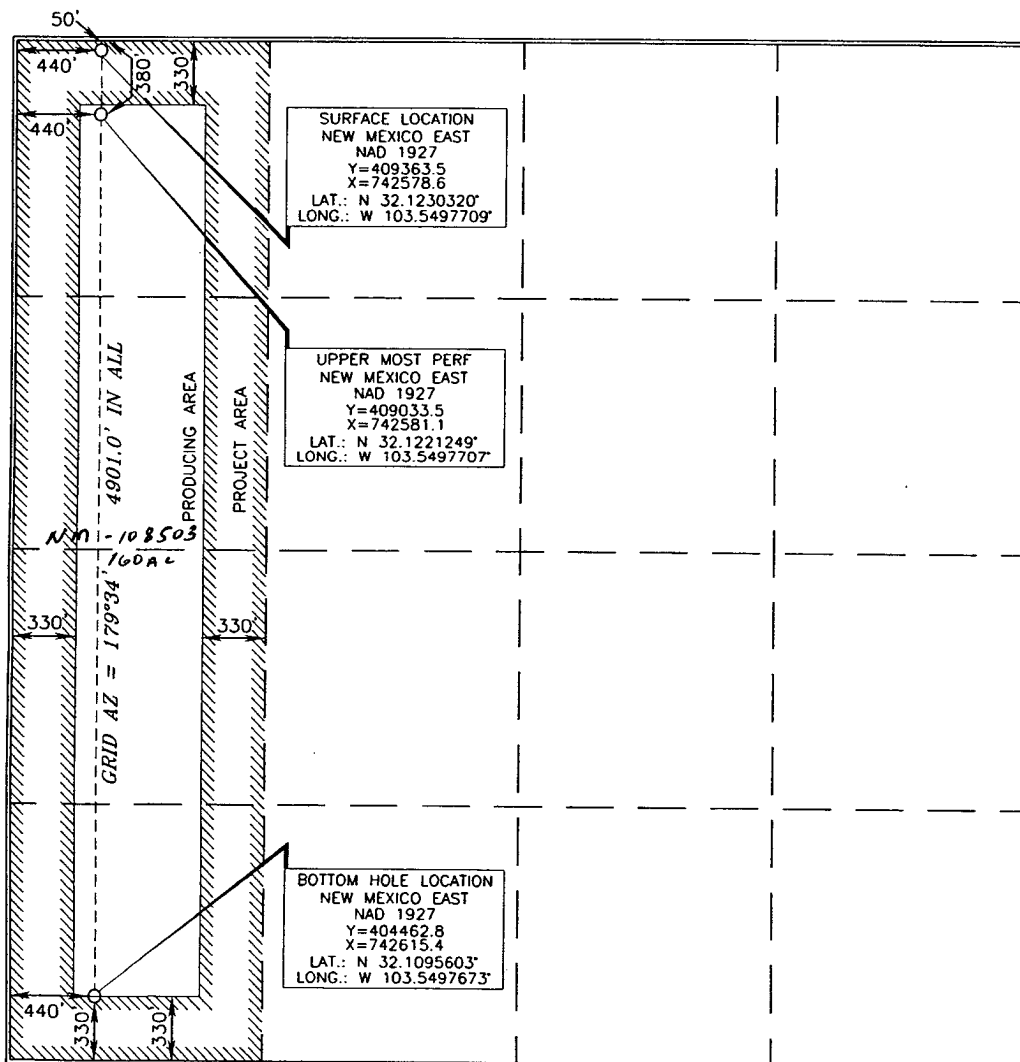
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	23	25 SOUTH	33 EAST, N.M.P.M.		50'	NORTH	440'	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	23	25 SOUTH	33 EAST, N.M.P.M.		330'	SOUTH	440'	WEST	LEA

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

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

Donny G. Glanton 10/21/10
Signature Date

Donny G. Glanton
Printed Name

SURVEYOR CERTIFICATION

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

15079
OCTOBER 7, 2010
Date of Survey

Signature and Seal of Professional Surveyor

Terry J. Hall 10/15/2010
Certificate Number 15079

WO# 101007WL-a (KA)

Permit Information:

Well Name: Caballo 23 Federal No. 1H

Location:

SL: 50' FNL & 440' FWL, Section 23, T-25-S, R-33-E, Lea Co., N.M.

BHL: 330' FSL & 440' FWL, Section 23, T-25-S, R-33-E, Lea Co., N.M.

Casing Program:*see COA*

Casing	Setting Depth	Hole Size	Casing Size	Casing Weight	Casing Grade	Desired TOC
Surface	1,100' 1,140'	17-1/2"	13-3/8"	54.5#	J-55	Surface
Intermediate	4,000'	12-1/4"	9-5/8"	40#	J-55	Surface
	5,000'	12-1/4"	9-5/8"	40#	HCK-55	
Production	14,209'	8-3/4"	5-1/2"	20#	P110 or HCP110	4500'

Cement Program:*see COA*

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Slurry Description
1,100' 1,140'	575	13.5	1.73	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake
	300	14.8	1.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
5,000'	1050	12.7	2.22	Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free
	200	14.8	1.32	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
11,200'	110	18.0	0.90	220' Btm Hole Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt
8,800' - 9,400'	300	18.0	0.90	600' Sidetrack Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt
14,209'	250	10.8	3.67	60:40:0 Class 'C' + 15.00 lb/sk BA-90 + 4.00% MPA-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free
	550	11.8	2.38	50:50:10 Class 'H' + 0.80% FL-52 + 0.45% ASA-301 + 0.40% SMS + 2.00% Salt + 3.00 lb/sx LCM-1 + 0.20% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
	1375	14.2	1.28	50:50:2 Class 'H' + 0.65% FL-52 + 0.20% CD-32 + 0.15% SMS + 2.00% Salt + 0.10% R-3 + 0.005 lb/sk Static Free

Mud Program:*See COA*

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 1,100' 1140'	Fresh - Gel	8.6-8.8	28-34	N/c
1,100' - 5,000'	Saturated Brine	10.0-10.2	28-34	N/c
5,000' - 8,500'	Fresh Water	8.4-8.6	28-34	N/c
8,500' - 11,200' Pilot hole	Cut Brine	8.6-9.3	28-34	N/c
9,120' - 14,209' Lateral	Cut Brine - XCD	9.0-9.5	40-42	N/c

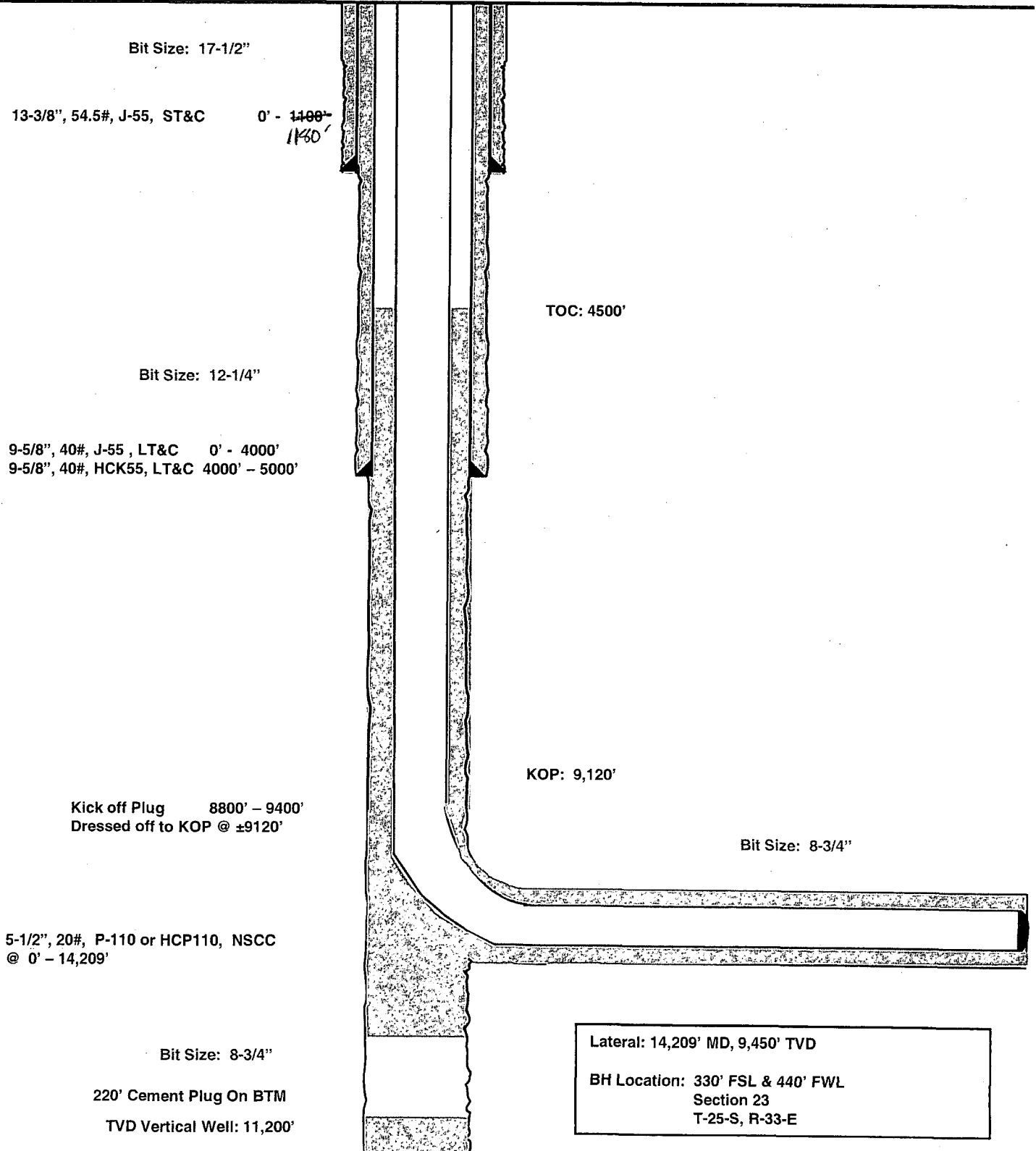
Caballo 23 Federal #1H
Red Hills
Lea County, New Mexico

50' FNL
440' FWL
Section 23
T-25-S, R-33-E

Proposed Wellbore

API: 30-025-

KB: 3,372.5'
GL: 3,342.5'



EOG RESOURCES, INC.
CABALLO 23 FEDERAL NO. 1H

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1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,080'
Base of Salt	4,780'
Delaware	5,020'
Cherry Canyon	6,050'
Bone Spring Lime	9,210'
1 st Bone Spring Sand	10,200'
2 nd Bone Spring Sand	10,820'
Pilot hole TD	11,200'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,050'	Oil
Bone Spring Lime	9,210'	Oil
1 st Bone Spring Sand	10,200'	Oil
2 nd Bone Spring Sand	10,820'	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 ~~1,400'~~ ^{1180'} and circulating cement back to surface.

See COA

4. CASING PROGRAM - NEW

See COA

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0 - 1400' ^{1180'}	13.375"	54.5#	J55	STC	1.10	1.25	1.60
12.25"	0-4000'	9.625"	40#	J55	LTC	1.10	1.25	1.60
12.25"	4000'-5000'	9.625"	40#	HCK55	LTC	1.10	1.25	1.60
8.75"	0'-14,209'	5.5"	20#	P110 or HCP110	NSCC	1.10	1.25	1.60

EOG RESOURCES, INC.
CABALLO 23 FEDERAL NO. 1H

Cementing Program:

See
COA

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Slurry Description
1,100' 1180'	575	13.5	1.73	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake
	300	14.8	1.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
5,000'	1050	12.7	2.22	Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free
	200	14.8	1.32	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
11,200'	110	18.0	0.90	220' Btm Hole Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt
8,800' - 9,400'	300	18.0	0.90	600' Sidetrack Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt
14,209'	250	10.8	3.67	60:40:0 Class 'C' + 15.00 lb/sk BA-90 + 4.00% MPA-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free
	550	11.8	2.38	50:50:10 Class 'H' + 0.80% FL-52 + 0.45% ASA-301 + 0.40% SMS + 2.00% Salt + 3.00 lb/sx LCM-1 + 0.20% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
	1375	14.2	1.28	50:50:2 Class 'H' + 0.65% FL-52 + 0.20% CD-32 + 0.15% SMS + 2.00% Salt + 0.10% R-3 + 0.005 lb/sk Static Free

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

(SEE EXHIBIT #1)

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

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.

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

EOG RESOURCES, INC.
CABALLO 23 FEDERAL NO. 1H

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

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

See COA

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 4,100 11,400'	Fresh - Gel	8.6-8.8	28-34	N/c
4,100 - 5,000'	Saturated Brine	10.0-10.2	28-34	N/c
5,000' - 8,500'	Fresh Water	8.4-8.6	28-34	N/c
8,500' - 11,200'	Cut Brine	8.6-9.3	28-34	N/c
Pilot hole				
9,120' - 14,209'	Cut Brine - XCD	9.0-9.5	40-42	N/c
Lateral				

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) A mud logging unit will be continuously monitoring drill penetration rate and hydrocarbon shows from intermediate casing point to TD.

(D) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

See COA

Open-hole logging is anticipated in the 8-3/4" hole section. The logging suites scheduled for this hole section are listed below:

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

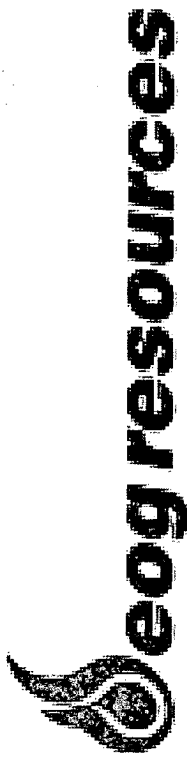
EOG RESOURCES, INC.
CABALLO 23 FEDERAL NO. 1H

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

The estimated bottom hole temperature (BHT) at TD is 165 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 4800 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 two months. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.



EOG Resources, Inc.

Lea County
Caballo 23 Federal
#1H
OH

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Plan: Plan #1

Pathfinder X & Y Planning Report

27 October, 2010

PATHFINDER®

A Schlumberger Company



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company: EOG Resources, Inc.
Project: Lea County
Site: Caballo 23 Federal
Well: #1H
Wellbore: OH
Design: Plan #1

Local/Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey/Calculation Method:
Database:
Well #1H
WELL @ 3372.50ft (30' KB -- Cactus #123)
WELL @ 3372.50ft (30' KB -- Cactus #123)
Grid
Minimum Curvature
Midland Database

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

Site: Caballo 23 Federal
Site Position: Northing: 409,363.500 ft Latitude: 32° 7' 22.915 N
From: Easting: 742,578.600 ft Longitude: 103° 32' 59.175 W
Position Uncertainty: Slot Radius: " Grid Convergence: 0.42 °

Well: #1H
Well Position +N/-S 0.00 ft Latitude: 32° 7' 22.915 N
+E/-W 0.00 ft Longitude: 103° 32' 59.175 W
Position Uncertainty 0.00 ft Ground Level: 3,342.50 ft

Wellbore: OH
Magnetics Model Name Sample Date Dip Angle Field Strength
IGRF200510 11/01/10 7.63 60.13 48,653

Design: Plan #1
Audit Notes:
Version: Phase: PLAN Tie On Depth: 0.00
Vertical Section: Depth From (TVD) (ft) +N/-S (ft) +E/-W (ft) Direction (°)
0.00 0.00 0.00 179.57

Survey Tool/Program Date 10/27/10
From (ft) To (ft) Survey (Wellbore) Tool Name Description
0.00 14,209.20 Plan #1 (OH) MWD MWD - Standard

Company: EOG Resources, Inc.
Project: Lea County
Site: Caballo 23 Federal
Well: #1H
Wellbore: OH
Design: Plan #1

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

Well #1H
WELL @ 3372.50ft (30' KB -- Cactus #123)
WELL @ 3372.50ft (30' KB -- Cactus #123)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,372.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
100.00	0.00	0.00	100.00	-3,272.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
200.00	0.00	0.00	200.00	-3,172.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
300.00	0.00	0.00	300.00	-3,072.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
400.00	0.00	0.00	400.00	-2,972.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
500.00	0.00	0.00	500.00	-2,872.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
600.00	0.00	0.00	600.00	-2,772.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
700.00	0.00	0.00	700.00	-2,672.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
800.00	0.00	0.00	800.00	-2,572.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
900.00	0.00	0.00	900.00	-2,472.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,000.00	0.00	0.00	1,000.00	-2,372.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,100.00	0.00	0.00	1,100.00	-2,272.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,200.00	0.00	0.00	1,200.00	-2,172.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,300.00	0.00	0.00	1,300.00	-2,072.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,400.00	0.00	0.00	1,400.00	-1,972.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,500.00	0.00	0.00	1,500.00	-1,872.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,600.00	0.00	0.00	1,600.00	-1,772.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,700.00	0.00	0.00	1,700.00	-1,672.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,800.00	0.00	0.00	1,800.00	-1,572.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
1,900.00	0.00	0.00	1,900.00	-1,472.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,000.00	0.00	0.00	2,000.00	-1,372.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,100.00	0.00	0.00	2,100.00	-1,272.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,200.00	0.00	0.00	2,200.00	-1,172.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,300.00	0.00	0.00	2,300.00	-1,072.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,400.00	0.00	0.00	2,400.00	-972.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,500.00	0.00	0.00	2,500.00	-872.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,600.00	0.00	0.00	2,600.00	-772.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60



Pathfinder
Pathfinder X & Y Planning Report



Company:
Project:
Site:
Well:
Wellbore:
Design:

EOG Resources, Inc.
Lea County
Caballo 23 Federal
#1H
OH
Plan #1

Local Co-ordinate Reference:
TVD Reference:
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Survey Calculation Method:
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Well #1H
WELL @ 3372.50ft (30' KB -- Cactus #123)
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2,700.00	0.00	0.00	2,700.00	-672.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,800.00	0.00	0.00	2,800.00	-572.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
2,900.00	0.00	0.00	2,900.00	-472.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,000.00	0.00	0.00	3,000.00	-372.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,100.00	0.00	0.00	3,100.00	-272.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,200.00	0.00	0.00	3,200.00	-172.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,300.00	0.00	0.00	3,300.00	-72.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,400.00	0.00	0.00	3,400.00	27.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,500.00	0.00	0.00	3,500.00	127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,600.00	0.00	0.00	3,600.00	227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,700.00	0.00	0.00	3,700.00	327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,800.00	0.00	0.00	3,800.00	427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
3,900.00	0.00	0.00	3,900.00	527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,000.00	0.00	0.00	4,000.00	627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,100.00	0.00	0.00	4,100.00	727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,200.00	0.00	0.00	4,200.00	827.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,300.00	0.00	0.00	4,300.00	927.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,400.00	0.00	0.00	4,400.00	1,027.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,500.00	0.00	0.00	4,500.00	1,127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,600.00	0.00	0.00	4,600.00	1,227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,700.00	0.00	0.00	4,700.00	1,327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,800.00	0.00	0.00	4,800.00	1,427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
4,900.00	0.00	0.00	4,900.00	1,527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,000.00	0.00	0.00	5,000.00	1,627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,100.00	0.00	0.00	5,100.00	1,727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,200.00	0.00	0.00	5,200.00	1,827.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,300.00	0.00	0.00	5,300.00	1,927.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60



Pathfinder

Pathfinder X & Y Planning Report



Company: EOG Resources, Inc.
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Site: Caballo 23 Federal
Well: #1H
Wellbore: OH-
Design: Plan #1

Local Co-ordinate Reference:
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Well #1H
WELL @ 3372.50ft (30' KB -- Cactus #123)
WELL @ 3372.50ft (30' KB -- Cactus #123)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	2,027.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,500.00	0.00	0.00	5,500.00	2,127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,600.00	0.00	0.00	5,600.00	2,227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,700.00	0.00	0.00	5,700.00	2,327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,800.00	0.00	0.00	5,800.00	2,427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
5,900.00	0.00	0.00	5,900.00	2,527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,000.00	0.00	0.00	6,000.00	2,627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,100.00	0.00	0.00	6,100.00	2,727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,200.00	0.00	0.00	6,200.00	2,827.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,300.00	0.00	0.00	6,300.00	2,927.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,400.00	0.00	0.00	6,400.00	3,027.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,500.00	0.00	0.00	6,500.00	3,127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,600.00	0.00	0.00	6,600.00	3,227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,700.00	0.00	0.00	6,700.00	3,327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,800.00	0.00	0.00	6,800.00	3,427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
6,900.00	0.00	0.00	6,900.00	3,527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,000.00	0.00	0.00	7,000.00	3,627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,100.00	0.00	0.00	7,100.00	3,727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,200.00	0.00	0.00	7,200.00	3,827.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,300.00	0.00	0.00	7,300.00	3,927.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,400.00	0.00	0.00	7,400.00	4,027.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,500.00	0.00	0.00	7,500.00	4,127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,600.00	0.00	0.00	7,600.00	4,227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,700.00	0.00	0.00	7,700.00	4,327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,800.00	0.00	0.00	7,800.00	4,427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
7,900.00	0.00	0.00	7,900.00	4,527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,000.00	0.00	0.00	8,000.00	4,627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60



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WELL @ 3372.50ft (30' KB -- Cactus #123)
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Grid
Minimum Curvature
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Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,100.00	0.00	0.00	8,100.00	4,727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,200.00	0.00	0.00	8,200.00	4,827.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,300.00	0.00	0.00	8,300.00	4,927.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,400.00	0.00	0.00	8,400.00	5,027.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,500.00	0.00	0.00	8,500.00	5,127.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,600.00	0.00	0.00	8,600.00	5,227.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,700.00	0.00	0.00	8,700.00	5,327.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,800.00	0.00	0.00	8,800.00	5,427.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
8,900.00	0.00	0.00	8,900.00	5,527.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
9,000.00	0.00	0.00	9,000.00	5,627.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
9,100.00	0.00	0.00	9,100.00	5,727.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
9,120.00	0.00	0.00	9,120.00	5,747.50	0.00	0.00	0.00	0.00	409,363.50	742,578.60
KOP-9120.00°MD,0.00°INC,0.00°AZI,9120.00°TVD										
9,125.00	0.87	179.57	9,125.00	5,752.50	-0.04	0.00	0.04	17.36	409,363.46	742,578.60
9,150.00	5.21	179.57	9,149.96	5,777.46	-1.36	0.01	1.36	17.36	409,362.14	742,578.61
9,175.00	9.55	179.57	9,174.75	5,802.25	-4.57	0.03	4.57	17.36	409,358.93	742,578.63
9,200.00	13.89	179.57	9,199.22	5,826.72	-9.65	0.07	9.65	17.36	409,353.85	742,578.67
9,225.00	18.23	179.57	9,223.24	5,850.74	-16.56	0.12	16.56	17.36	409,346.94	742,578.72
9,250.00	22.57	179.57	9,246.66	5,874.16	-25.28	0.19	25.28	17.36	409,338.22	742,578.79
9,275.00	26.91	179.57	9,269.36	5,896.86	-35.74	0.27	35.74	17.36	409,327.76	742,578.87
9,300.00	31.25	179.57	9,291.21	5,918.71	-47.88	0.36	47.89	17.36	409,315.62	742,578.96
9,325.00	35.59	179.57	9,312.07	5,939.57	-61.65	0.46	61.65	17.36	409,301.85	742,579.06
9,350.00	39.93	179.57	9,331.83	5,959.33	-76.96	0.58	76.96	17.36	409,286.54	742,579.18
9,375.00	44.27	179.57	9,350.37	5,977.87	-93.71	0.70	93.72	17.36	409,269.79	742,579.30
9,400.00	48.61	179.57	9,367.59	5,995.09	-111.83	0.84	111.83	17.36	409,251.67	742,579.44
9,425.00	52.96	179.57	9,383.39	6,010.89	-131.19	0.98	131.19	17.36	409,232.31	742,579.58
9,450.00	57.30	179.57	9,397.69	6,025.19	-151.70	1.14	151.70	17.36	409,211.80	742,579.74

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Well #1H
WELL @ 3372.50ft (30' KB -- Cactus #123)
WELL @ 3372.50ft (30' KB -- Cactus #123)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,475.00	61.64	179.57	9,410.38	6,037.88	-173.22	1.30	173.23	17.36	409,190.28	742,579.90
9,500.00	65.98	179.57	9,421.42	6,048.92	-195.65	1.47	195.66	17.36	409,167.85	742,580.07
9,525.00	70.32	179.57	9,430.72	6,058.22	-218.85	1.64	218.85	17.36	409,144.65	742,580.24
9,550.00	74.66	179.57	9,438.24	6,065.74	-242.68	1.82	242.69	17.36	409,120.82	742,580.42
9,575.00	79.00	179.57	9,443.94	6,071.44	-267.02	2.00	267.03	17.36	409,096.48	742,580.60
9,600.00	83.34	179.57	9,447.77	6,075.27	-291.72	2.19	291.72	17.36	409,071.78	742,580.79
9,625.00	87.68	179.57	9,449.73	6,077.23	-316.63	2.38	316.64	17.36	409,046.87	742,580.98
9,638.36	90.00	179.57	9,450.00	6,077.50	-329.99	2.48	330.00	17.36	409,033.51	742,581.08
EOC-9638.36°MD,90.00°INC,179.57°AZI,9450.00°TVD,17.36°DLS, 330.00°VS, -329.99°N, 2.48°E										
9,638.37	90.00	179.57	9,450.00	6,077.50	-330.00	2.48	330.01	0.00	409,033.50	742,581.08
PP(Caballo23)										
9,700.00	90.00	179.57	9,450.00	6,077.50	-391.63	2.94	391.64	0.00	408,971.87	742,581.54
9,800.00	90.00	179.57	9,450.00	6,077.50	-491.62	3.69	491.64	0.00	408,871.88	742,582.29
9,900.00	90.00	179.57	9,450.00	6,077.50	-591.62	4.44	591.64	0.00	408,771.88	742,583.04
10,000.00	90.00	179.57	9,450.00	6,077.50	-691.62	5.19	691.64	0.00	408,671.88	742,583.79
10,100.00	90.00	179.57	9,450.00	6,077.50	-791.61	5.94	791.64	0.00	408,571.89	742,584.54
10,200.00	90.00	179.57	9,450.00	6,077.50	-891.61	6.69	891.64	0.00	408,471.89	742,585.29
10,300.00	90.00	179.57	9,450.00	6,077.50	-991.61	7.44	991.64	0.00	408,371.89	742,586.04
10,400.00	90.00	179.57	9,450.00	6,077.50	-1,091.61	8.19	1,091.64	0.00	408,271.89	742,586.79
10,500.00	90.00	179.57	9,450.00	6,077.50	-1,191.60	8.94	1,191.64	0.00	408,171.90	742,587.54
10,600.00	90.00	179.57	9,450.00	6,077.50	-1,291.60	9.69	1,291.64	0.00	408,071.90	742,588.29
10,700.00	90.00	179.57	9,450.00	6,077.50	-1,391.60	10.44	1,391.64	0.00	407,971.90	742,589.04
10,800.00	90.00	179.57	9,450.00	6,077.50	-1,491.60	11.19	1,491.64	0.00	407,871.90	742,589.79
10,900.00	90.00	179.57	9,450.00	6,077.50	-1,591.59	11.94	1,591.64	0.00	407,771.91	742,590.54
11,000.00	90.00	179.57	9,450.00	6,077.50	-1,691.59	12.70	1,691.64	0.00	407,671.91	742,591.30
11,100.00	90.00	179.57	9,450.00	6,077.50	-1,791.59	13.45	1,791.64	0.00	407,571.91	742,592.05
11,200.00	90.00	179.57	9,450.00	6,077.50	-1,891.58	14.20	1,891.64	0.00	407,471.92	742,592.80

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11,300.00	90.00	179.57	9,450.00	6,077.50	-1,991.58	14.95	1,991.64	0.00	407,371.92	742,593.55
11,400.00	90.00	179.57	9,450.00	6,077.50	-2,091.58	15.70	2,091.64	0.00	407,271.92	742,594.30
11,500.00	90.00	179.57	9,450.00	6,077.50	-2,191.58	16.45	2,191.64	0.00	407,171.92	742,595.05
11,600.00	90.00	179.57	9,450.00	6,077.50	-2,291.57	17.20	2,291.64	0.00	407,071.93	742,595.80
11,700.00	90.00	179.57	9,450.00	6,077.50	-2,391.57	17.95	2,391.64	0.00	406,971.93	742,596.55
11,800.00	90.00	179.57	9,450.00	6,077.50	-2,491.57	18.70	2,491.64	0.00	406,871.93	742,597.30
11,900.00	90.00	179.57	9,450.00	6,077.50	-2,591.56	19.45	2,591.64	0.00	406,771.94	742,598.05
12,000.00	90.00	179.57	9,450.00	6,077.50	-2,691.56	20.20	2,691.64	0.00	406,671.94	742,598.80
12,100.00	90.00	179.57	9,450.00	6,077.50	-2,791.56	20.95	2,791.64	0.00	406,571.94	742,599.55
12,200.00	90.00	179.57	9,450.00	6,077.50	-2,891.56	21.70	2,891.64	0.00	406,471.94	742,600.30
12,300.00	90.00	179.57	9,450.00	6,077.50	-2,991.55	22.45	2,991.64	0.00	406,371.95	742,601.05
12,400.00	90.00	179.57	9,450.00	6,077.50	-3,091.55	23.20	3,091.64	0.00	406,271.95	742,601.80
12,500.00	90.00	179.57	9,450.00	6,077.50	-3,191.55	23.95	3,191.64	0.00	406,171.95	742,602.55
12,600.00	90.00	179.57	9,450.00	6,077.50	-3,291.54	24.70	3,291.64	0.00	406,071.96	742,603.30
12,700.00	90.00	179.57	9,450.00	6,077.50	-3,391.54	25.45	3,391.64	0.00	405,971.96	742,604.05
12,800.00	90.00	179.57	9,450.00	6,077.50	-3,491.54	26.20	3,491.64	0.00	405,871.96	742,604.80
12,900.00	90.00	179.57	9,450.00	6,077.50	-3,591.54	26.95	3,591.64	0.00	405,771.96	742,605.55
13,000.00	90.00	179.57	9,450.00	6,077.50	-3,691.53	27.71	3,691.64	0.00	405,671.97	742,606.31
13,100.00	90.00	179.57	9,450.00	6,077.50	-3,791.53	28.46	3,791.64	0.00	405,571.97	742,607.06
13,200.00	90.00	179.57	9,450.00	6,077.50	-3,891.53	29.21	3,891.64	0.00	405,471.97	742,607.81
13,300.00	90.00	179.57	9,450.00	6,077.50	-3,991.52	29.96	3,991.64	0.00	405,371.98	742,608.56
13,400.00	90.00	179.57	9,450.00	6,077.50	-4,091.52	30.71	4,091.64	0.00	405,271.98	742,609.31
13,500.00	90.00	179.57	9,450.00	6,077.50	-4,191.52	31.46	4,191.64	0.00	405,171.98	742,610.06
13,600.00	90.00	179.57	9,450.00	6,077.50	-4,291.52	32.21	4,291.64	0.00	405,071.98	742,610.81
13,700.00	90.00	179.57	9,450.00	6,077.50	-4,391.51	32.96	4,391.64	0.00	404,971.99	742,611.56
13,800.00	90.00	179.57	9,450.00	6,077.50	-4,491.51	33.71	4,491.64	0.00	404,871.99	742,612.31
13,900.00	90.00	179.57	9,450.00	6,077.50	-4,591.51	34.46	4,591.64	0.00	404,771.99	742,613.06

Company: EOG Resources, Inc.
Project: Lea County
Site: Caballo 23 Federal
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference: WELL @ 3372.50ft (30' KB -- Cactus #123)
MD Reference: WELL @ 3372.50ft (30' KB -- Cactus #123)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
14,000.00	90.00	179.57	9,450.00	6,077.50	-4,691.51	35.21	4,691.64	0.00	404,671.99	742,613.81
14,100.00	90.00	179.57	9,450.00	6,077.50	-4,791.50	35.96	4,791.64	0.00	404,572.00	742,614.56
14,209.20	90.00	179.57	9,450.00	6,077.50	-4,900.70	36.78	4,900.84	0.00	404,462.80	742,615.38

TD at 14209.20 - PBHL(Caballo23)

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PP(Caballo23) - plan hits target center - Point	0.00	0.00	9,450.00	-330.00	2.50	409,033.500	742,581.100	32° 7' 19.649 N	103° 32' 59.174 W
PBHL(Caballo23) - plan hits target center - Point	0.00	0.00	9,450.00	-4,900.70	36.80	404,462.800	742,615.400	32° 6' 34.417 N	103° 32' 59.162 W

Plan/Annotations

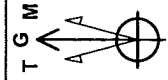
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/S (ft)	+E/W (ft)	Comment
9,120.00	9,120.00	0.00	0.00	KOP-9120.00'MD,0.00°INC,0.00°AZI,9120.00'TVD
9,638.36	9,450.00	-329.99	2.48	EOC-9638.36'MD,90.00°INC,179.57°AZI,9450.00'TVD,17.36°DLS, 330
14,209.20	9,450.00	-4,900.70	36.78	TD at 14209.20

Checked By: _____

Approved By: _____

Date: _____

Azimuths to Grid North
True North: -0.42°
Magnetic North: 7.21°
Magnetic Field
Strength: 48653.2snT
Dip Angle: 60.13°
Date: 11/01/2010
Model: IGRF200510



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

Project: Lea County
Site: Caballo 23 Feder
Well: #1H
Wellbore: OH
Plan: Plan #1 (#1H/OH)



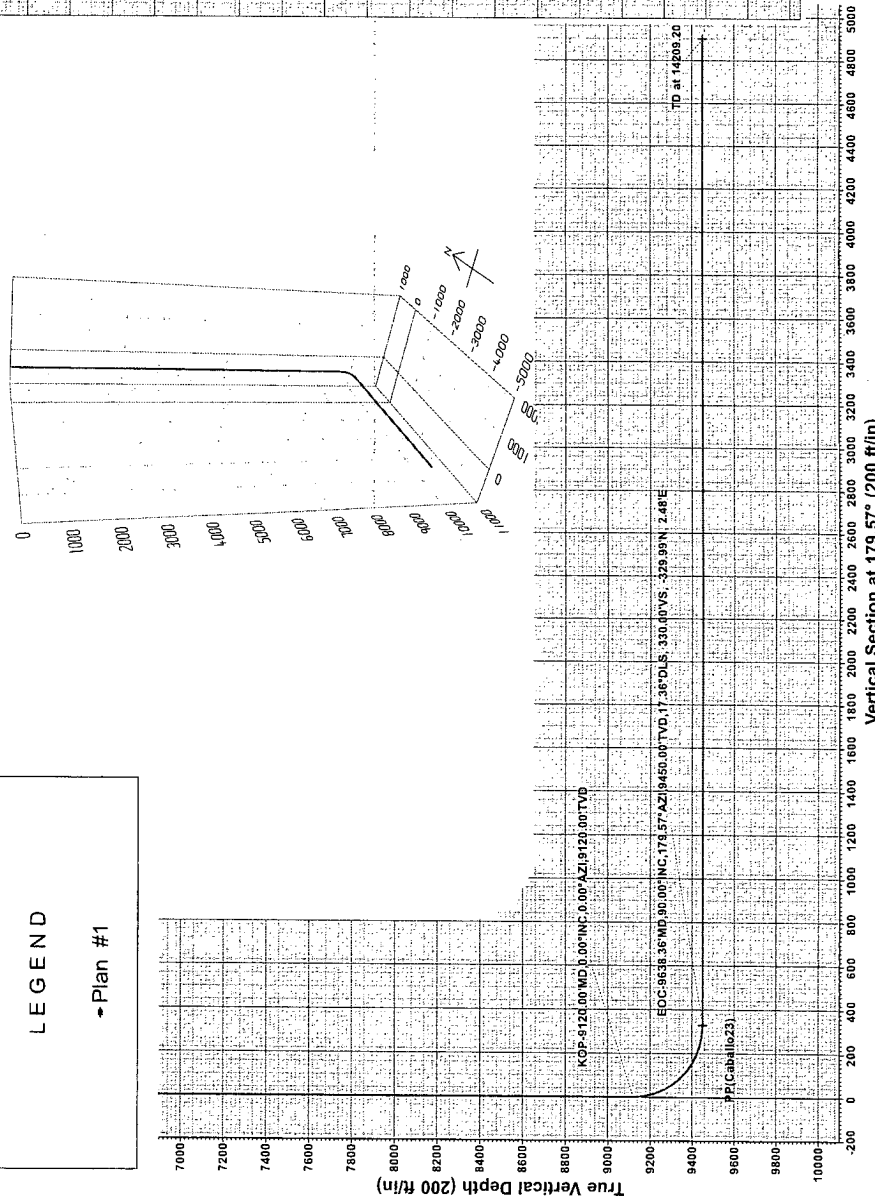
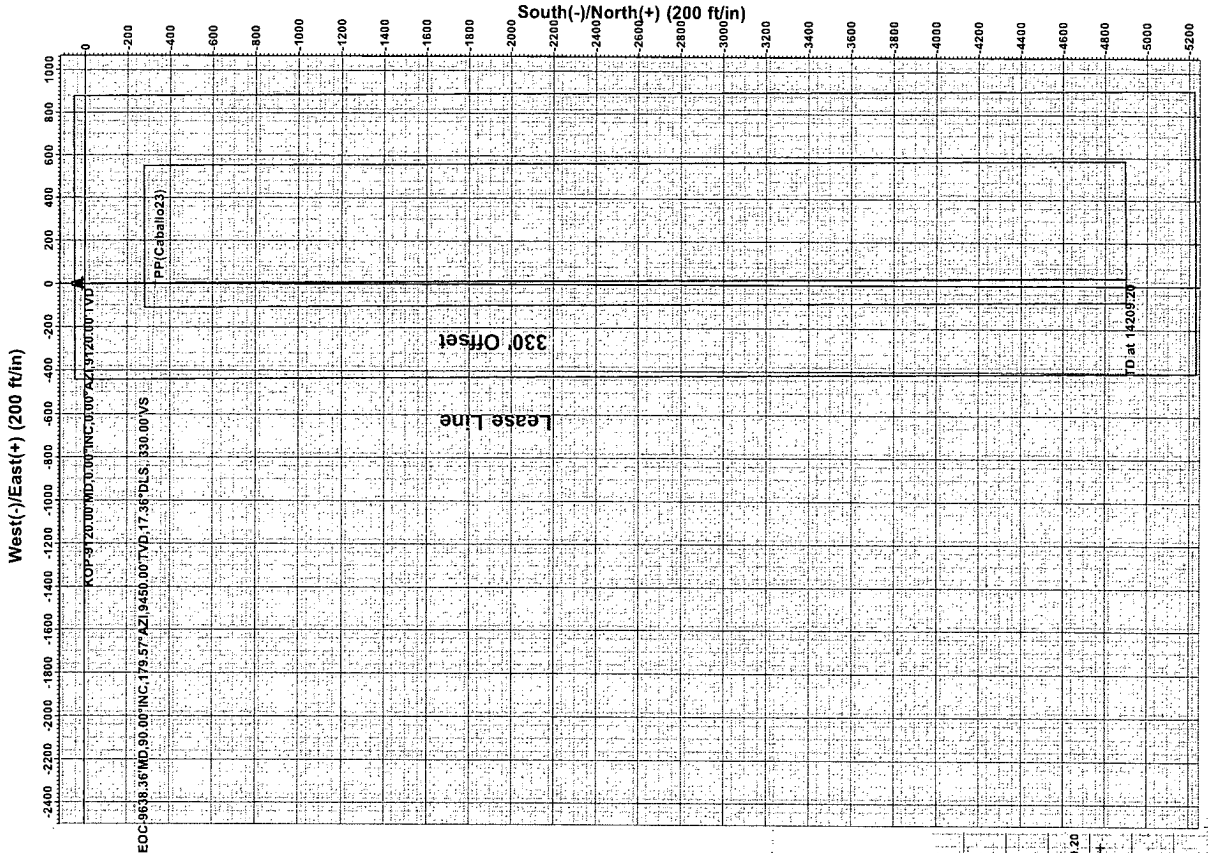
WELL DETAILS: #1H				
Ground Elevation: 3342.50				
RKB Elevation: WELL @ 3372.50ft (30' KB -- Cactus #123)				
Rig Name: 30' KB -- Cactus #123				
+	N/S	+E/W	Eastings	Northings
0.00	0.00	0.00	742578.000	409363.000
Slot				
Longitude				
Latitude				
32° 7' 22.915 N 103° 32' 59.175 W				

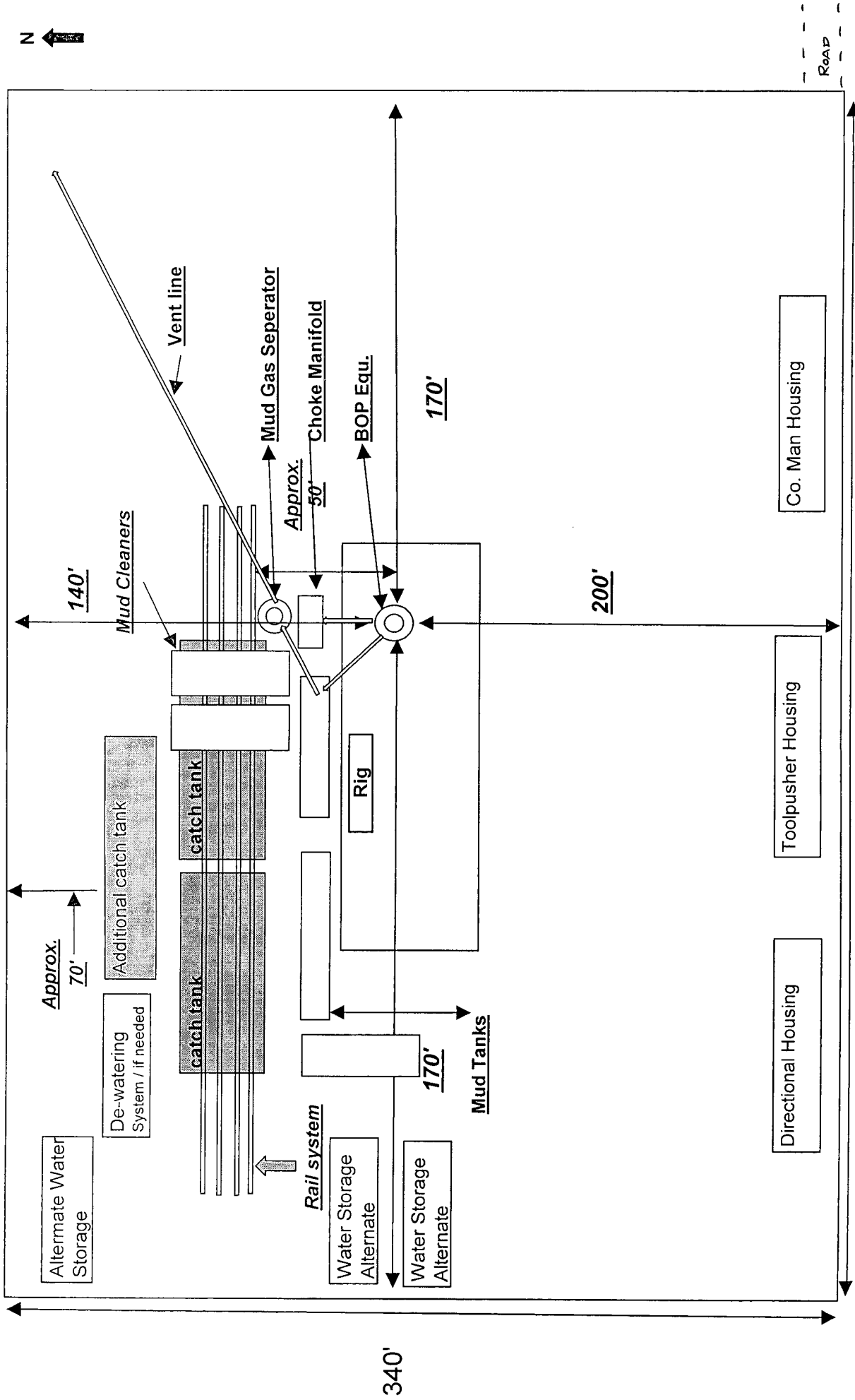
SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	VSec Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	9120.00	0.00	0.00	9120.00	0.00	0.00	0.00	0.00	0.00
3	9120.00	0.00	179.57	9450.00	-329.99	2.48	17.36	179.57	330.00
4	14209.20	90.00	179.57	9450.00	-4900.70	36.76	0.00	4900.84	PBHL(Caballo23)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)									
Name	MD	Inc	Azi	TVD	+N/S	+E/W	Northings	Eastings	Shape Point
PBHL(Caballo23)	9450.00	0.00	0.00	-900.70	36.80	404462.500	742578.000	742581.100	Point

LEGEND

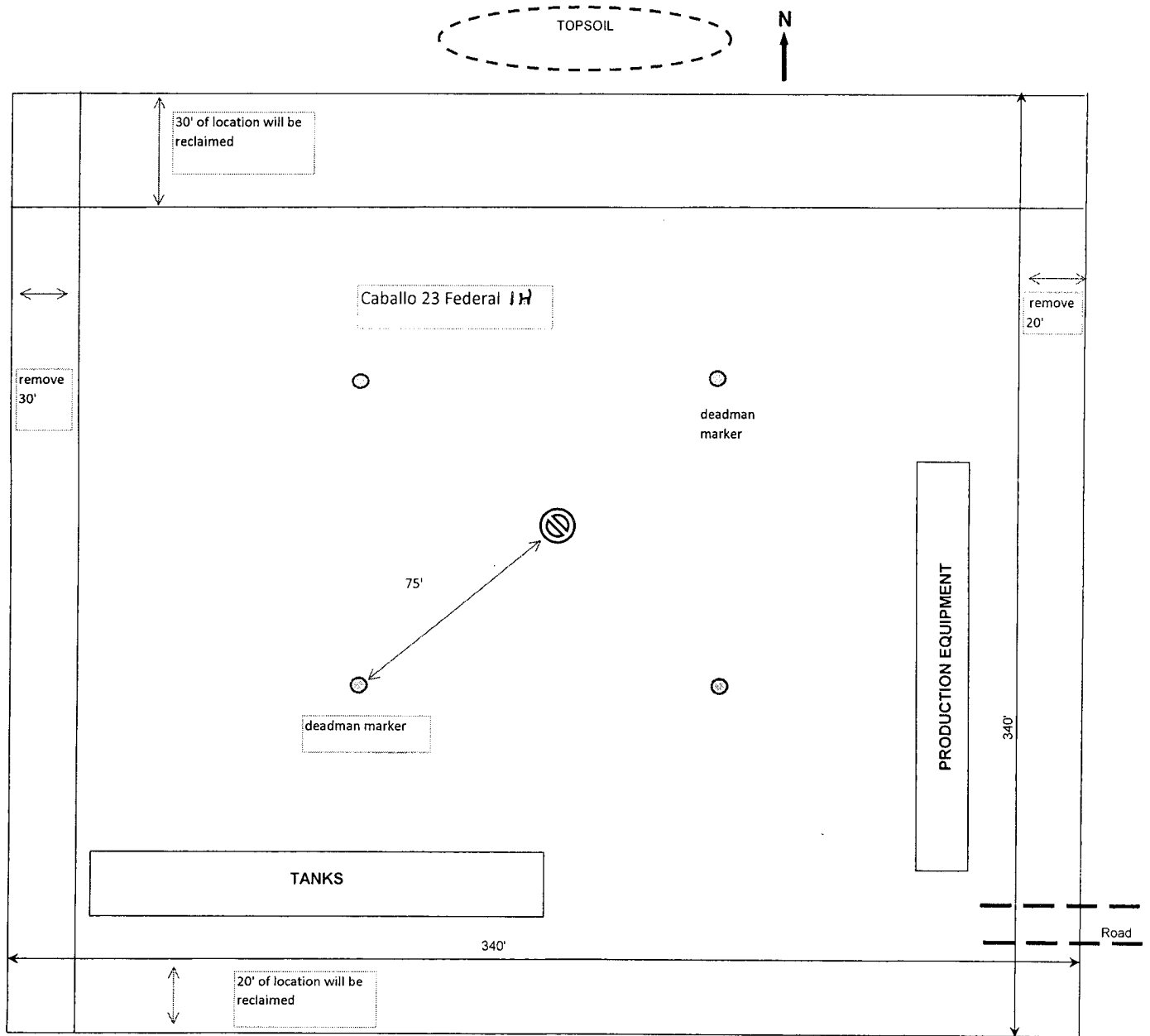
• Plan #1





EOG Resources / Closed Loop Location Design Plan

Not to scale



Not to Scale

EOG RESOURCES, INC.
CABALLO 23 FED 1H

ATTACHMENT TO EXHIBIT #1

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

EXHIBIT 1

EOG Resources
Caballo 23 Federal No. 1H

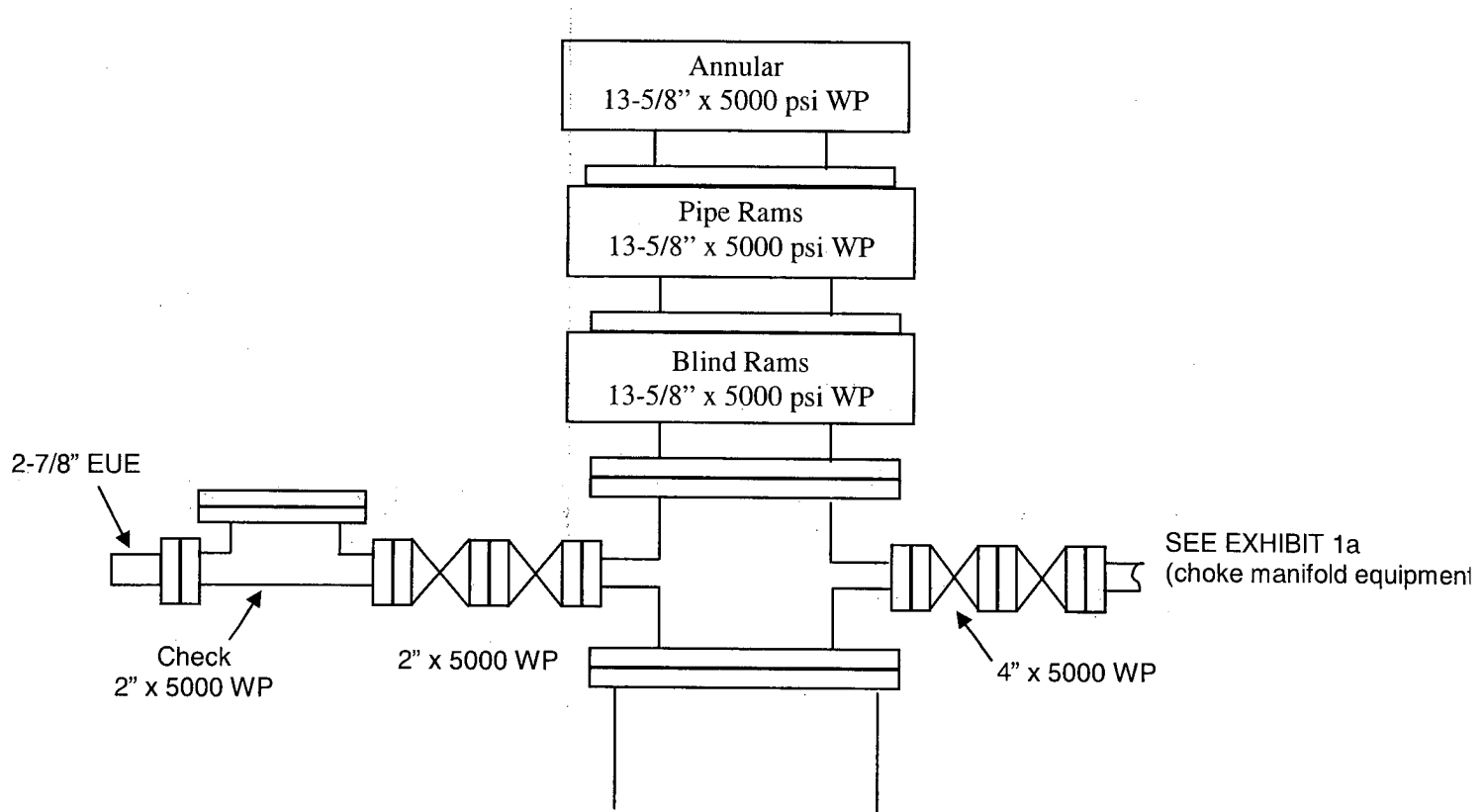
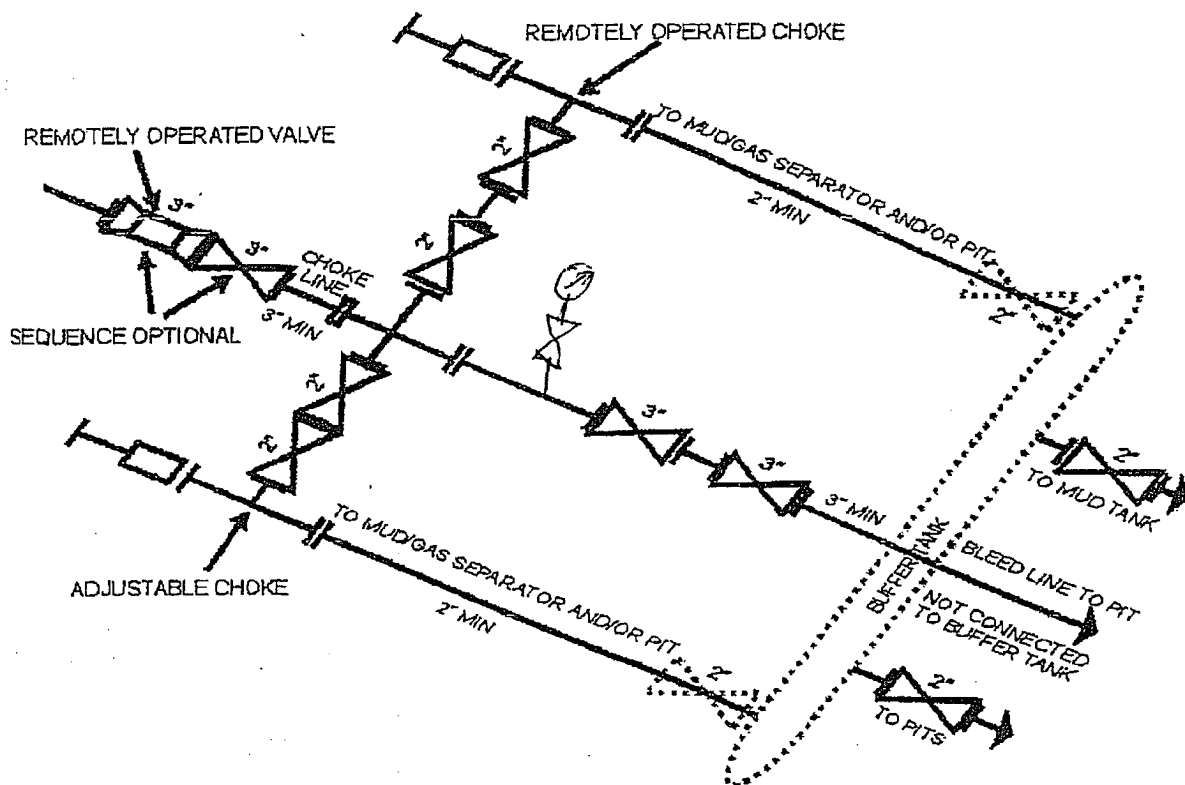


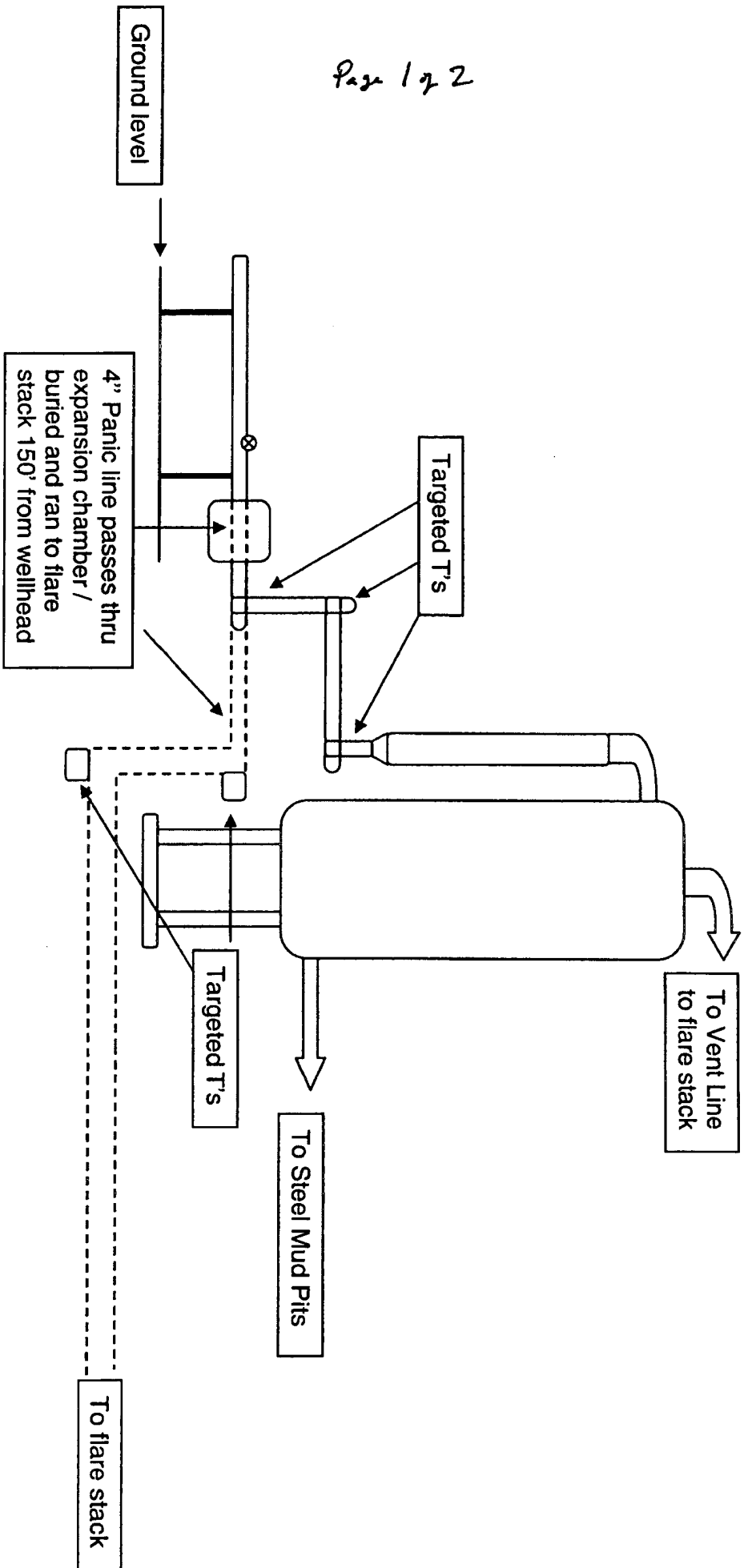
EXHIBIT 1a
EOG Resources, Inc.



5M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

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

[54 FR 39528, Sept. 27, 1989]



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

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

