AT 5-10-714

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD HOBBS
RECEIVED

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

## APPLICATION FOR PERMIT TO DRILL OR REENTER

OCT 21 2010

HOBBSOCD

| | |
|---|---|
| 1a. Type of Work: [X] DRILL [ ] REENTER | 5. Lease Serial No. NM124212 (SHL), NM108503 (BHL) |
| 1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone | 6. If Indian, Allotee or Tribe Name |
| 2. Name of Operator EOG Resources Inc. (7377) | 7. Unit or CA Agreement Name and No. |
| 3a. Address P.O. Box 2267 Midland, Texas 79702 | 3b. Phone No. (include area code) 432-686-3689 |
| 4. Location of Well (Report location clearly and in accordance with any State equirements)* At surface 50' FNL & 330' FWL, U/L D UNORTHODOX LOCATION | 8. Lease Name and Well No. (38359) Vaca 14 Fed Com 5H |
| At proposed prod. zone 330' FSL & 430' FWL, U/L M | 9. API Well No. 30-025- 39944 |
| | 10. Field and Pool, or Exploratory Red Hills; Bone Spring |
| | 11. Sec., T., R., M., or Blk. and Survey or Area Sec 14, T25S, R33E N.M.P.M. |
| 14. Distance in miles and direction from nearest town or post office* Approx 29 miles SW from Jal, NM | 12. County or Parish Lea / 13. State NM |

| | | |
|---|---|---|
| 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 1520 | 17. Spacing Unit dedicated to this well W/2 W/2 |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1200' | 19. Proposed Depth Pilot hole 11,000' 9400 TVD - 14153 MD | 20 BLM/BIA Bond No. on file NM2308 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc. 3369' GL | 22. Approximate date work will start* 10/1/2010 | 23. Estimated duration 30 |

### 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 7/21/10 |
| Title Regulatory Analyst | | |
| Approved by (*Signautre*) /s/ Jeanette A Martinez | Name (*Printed/Typed*) | Date OCT 15 2010 |
| Title for 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 knowlingly 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 10/29/10

SEE ATTACHED FOR CONDITIONS OF APPROV

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

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Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies
☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-025- 39944 | 51020 | Red Hills; Bone Spring |

| Property Code | Property Name | Well Number |
|---|---|---|
| 38359 | VACA 14 FED. COM | 5H |

| OGRID No. | Operator Name | Elevation |
|---|---|---|
| 7377 | EOG RESOURCES, INC. | 3369.6' |

## Surface Location

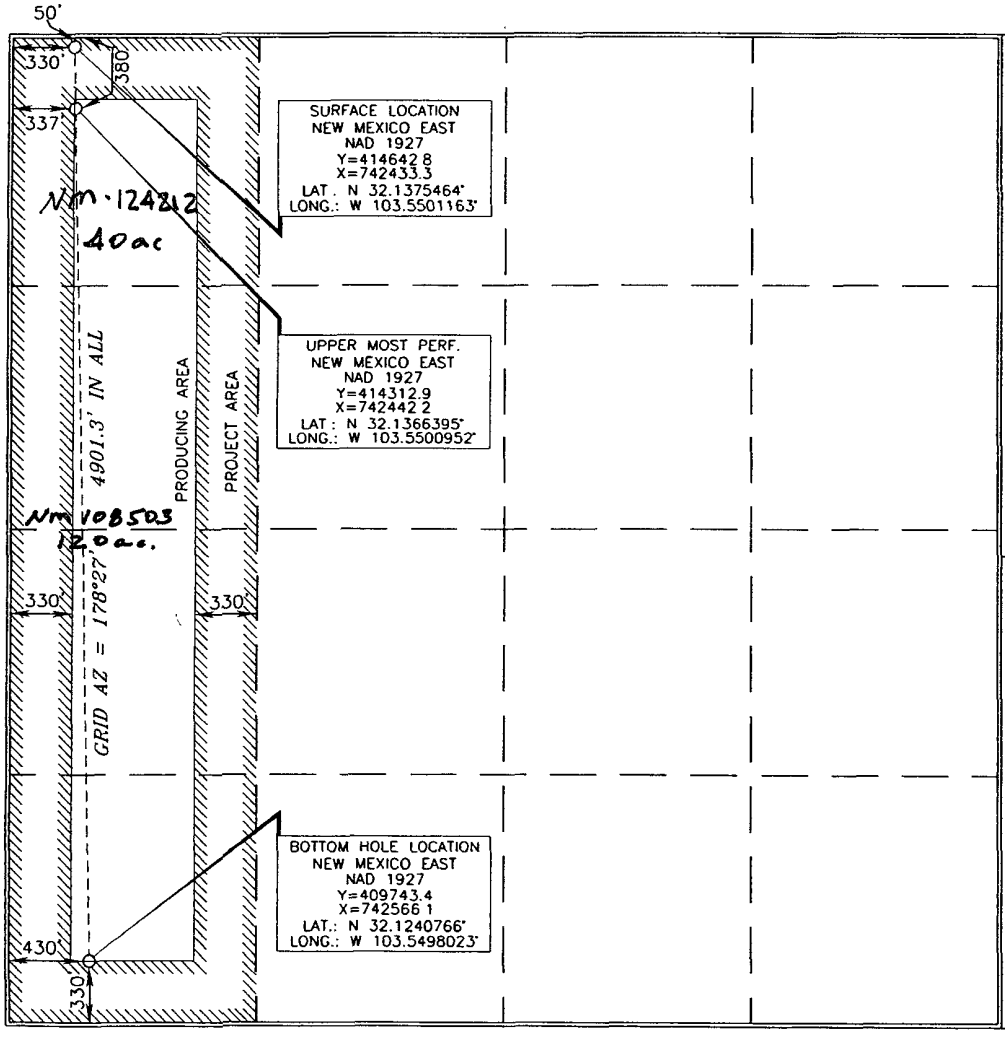
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| D | 14 | 25 SOUTH | 33 EAST, N.M.P.M. | | 50' | NORTH | 330' | WEST | LEA |

## 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 | 14 | 25 SOUTH | 33 EAST, N.M.P.M. | | 330' | SOUTH | 430' | WEST | LEA |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|---|---|---|---|
| 160 | | | |

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.

Signature — Date: 7/14/10

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.

JULY 6, 2010
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number 15079 — 7/9/2010

WO# 100423WL-b (Rev. A) (KA)

**Permit Information**:

Well Name: Vaca 14 Fed Com No. 5H

Location:
SL: 50' FNL & 330' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.
BHL: 330' FSL & 430' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

**Casing Program**:

| Casing | Setting Depth | Hole Size | Casing Size | Casing Weight | Casing Grade | Desired TOC |
|---|---|---|---|---|---|---|
| Surface | 1220' ~~1,175'~~ | 17-1/2" | 13-3/8" | 54.5# | J-55 | Surface |
| Intermediate | 4,000'<br>5,100' | 12-1/4"<br>12-1/4" | 9-5/8"<br>9-5/8" | 40#<br>40# | J-55<br>HCK-55 | Surface |
| Production | 14,153' | 8-3/4" | 5-1/2" | 20# | HCP-110 | 4600' |

See COA

**Cement Program**:

| Depth | No. Sacks | Wt. lb/gal | Yld $Ft^3/ft$ | Slurry Description |
|---|---|---|---|---|
| 1,175' | 600 | 13.5 | 1.74 | Lead: Class 'C' + 4.00% Bentonite + 2.00% CaCl2 |
| | 300 | 14.8 | 1.35 | Tail: Class 'C' + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate + 2.0% KCl (1.06 lb/sk) |
| 5,100' | 1100 | 12.7 | 2.01 | Lead: Class 'C' + 2.00% SMS + 1.50% R-3 + 0.25 lb/sk Cello Flake + 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 |
| 11,000' | 100 | 18.0 | 0.90 | 210' Btm Hole Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt (1.252 lb/sk) |
| 8,790' - 9,390' | 300 | 18.0 | 0.90 | 600' Sidetrack Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt (1.252 lb/sk) |
| 14,153' | 200 | 10.8 | 3.67 | Lead 1: 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 + 2.10% R-21 + 8.00 lb/sk LCM-1 + 0.01 gps FP-13L |
| | 550 | 11.8 | 2.39 | Lead 2: 50:50:10 Class H + 0.80% FL-52A + 0.30% ASA-301 + 0.30% SMS + 2.00% Salt (2.47 lb/sk) + 0.35% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free |
| | 1200 | 14.2 | 1.28 | Tail: 50:50:2 Class H + 0.65% FL-52A + 0.20% CD-32 + 0.15% SMS + 2.00% Salt (0.961 lb/sk) + 0.20% R-3 + 0.005 lb/sk Static Free |

**Mud Program**:

| Depth | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|
| 0 – ~~1,175'~~ 1220' | Fresh - Gel | 8.6-8.8 | 28-34 | N/c |
| ~~1,175'~~ – 5,100' | Brine | 10.0-10.2 | 28-34 | N/c |
| 5,100' – 8,500' | Fresh Water | 8.4-8.6 | 28-34 | N/c |
| 8,500' – 11,000' Pilot hole | Cut Brine | 8.6-9.0 | 28-34 | N/c |
| 9,053' – 14,153' Lateral | Cut Brine - XCD | 9.0-9.5 | 40-42 | N/c |

See COA

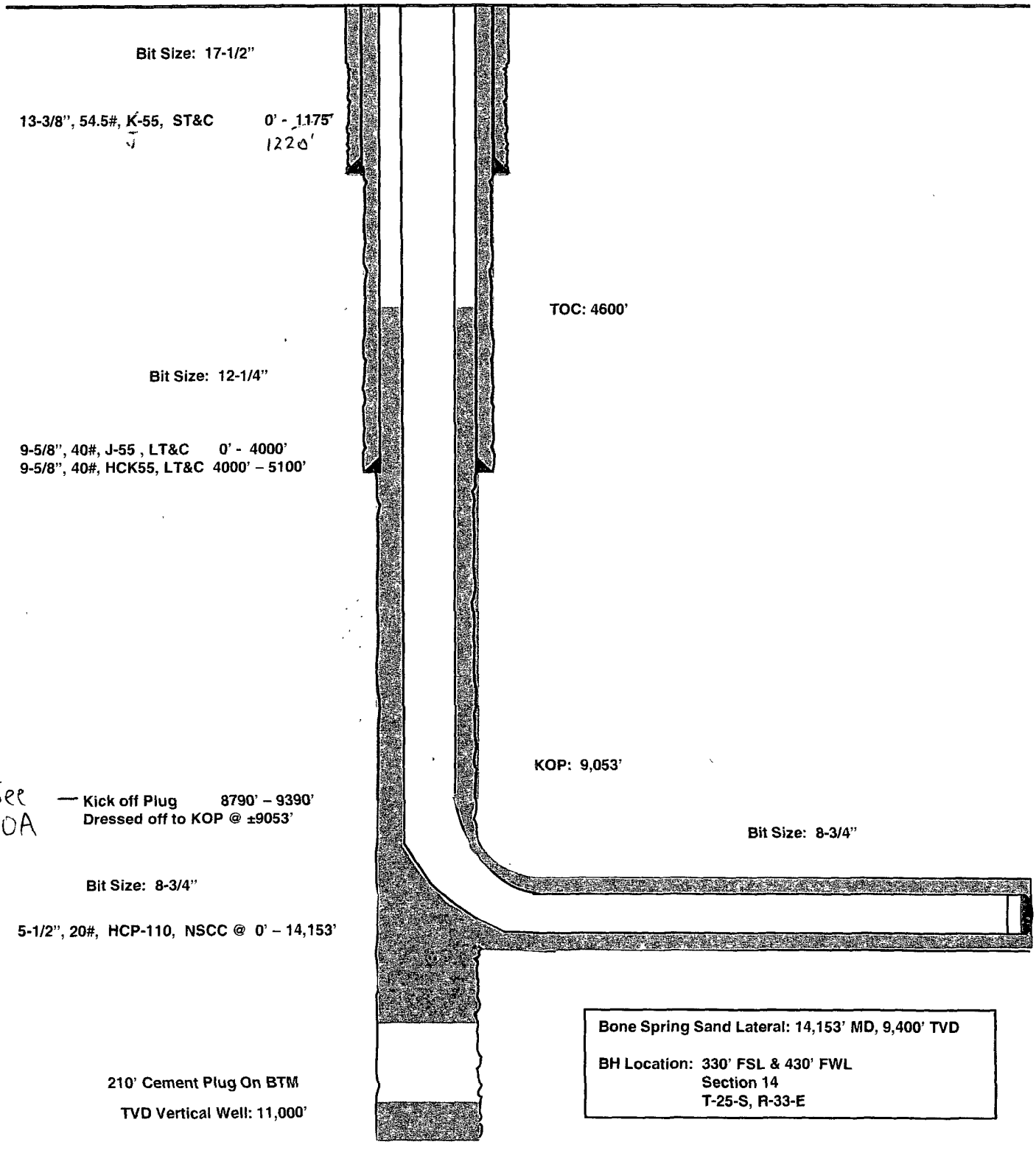
# Vaca 14 Fed Com #5H
## Red Hills
## Lea County, New Mexico

50' FNL
330' FWL
Section 14
T-25-S, R-33-E

**Proposed Wellbore**

API: 30-025-

KB: 3,399.6'
GL: 3,369.6'



EOG RESOURCES, INC.
VACA 14 FED COM NO. 5H

## 1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

## 2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

| | |
|---|---|
| Rustler | 1,120' |
| Base of Salt | 4,790' |
| Lamar | 5,030' |
| Bell Canyon | 5,060' |
| Cherry Canyon | 6,140' |
| Bone Spring Lime | 9,200' |
| 1st Bone Spring Sand | 10,160' |
| 2nd Bone Spring | 10,420' |
| 2nd Bone Spring Sand | 10,810' |
| Pilot hole TD | 11,000' |

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

| | | |
|---|---|---|
| Upper Permian Sands | 0- 400' | Fresh Water |
| Lamar | 5,030' | Oil |
| Bell Canyon | 5,060' | Oil |
| Cherry Canyon | 6,140' | Oil |
| Bone Spring Lime | 9,200' | Oil |
| 1st Bone Spring Sand | 10,160' | Oil |
| 2nd Bone Spring | 10,420' | Oil |
| 2nd Bone Spring Sand | 10,810' | 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 ~~1,175'~~ 1220' and circulating cement back to surface.

## 4. CASING PROGRAM - NEW

| Hole Size | Interval | Csg OD | Weight | Grade | Conn | $DF_{min}$ Collapse | $DF_{min}$ Burst | $DF_{min}$ Tension |
|---|---|---|---|---|---|---|---|---|
| 17.5" | 0 – ~~1175'~~ 1220' | 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'-5100' | 9.625" | 40# | HCK55 | LTC | 1.10 | 1.25 | 1.60 |
| 8.75" | 0'-14,153' | 5.5" | 20# | HCP110 | NSCC | 1.10 | 1.25 | 1.60 |

**Cementing Program:**

| Depth | No. Sacks | Wt. lb/gal | Yld $Ft^3/ft$ | Slurry Description |
|---|---|---|---|---|
| 1,175' | 600 | 13.5 | 1.74 | Lead: Class 'C' + 4.00% Bentonite + 2.00% CaCl2 |
| | 300 | 14.8 | 1.35 | Tail: Class 'C' + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate + 2.0% KCl (1.06 lb/sk) |
| 5,100' | 1100 | 12.7 | 2.01 | Lead: Class 'C' + 2.00% SMS + 1.50% R-3 + 0.25 lb/sk Cello Flake + 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 |
| 11,000' | 100 | 18.0 | 0.90 | 210' Btm Hole Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt (1.252 lb/sk) |
| 8,790' - 9,390' | 300 | 18.0 | 0.90 | 600' Sidetrack Plug - Class 'H' + 1.20% CD-31 + 0.20% R-3 + 5.00% Salt (1.252 lb/sk) |
| 14,153' | 200 | 10.8 | 3.67 | Lead 1: 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 + 2.10% R-21 + 8.00 lb/sk LCM-1 + 0.01 gps FP-13L |
| | 550 | 11.8 | 2.49 | Lead 2: 50:50:10 Class H + 0.80% FL-52A + 0.30% ASA-301 + 0.30% SMS + 2.00% Salt (2.47 lb/sk) + 0.35% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free |
| | 1200 | 14.2 | 1.28 | Tail: 50:50:2 Class H + 0.65% FL-52A + 0.20% CD-32 + 0.15% SMS + 2.00% Salt (0.961 lb/sk) + 0.20% 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. EOG Resources request authorization to use a 2M system, providing for an annular preventer to be used prior to drilling out of the surface casing shoe and while drilling the intermediate section. 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.

**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:

| Depth | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|
| 0 – 1,~~175~~ 1220' | Fresh - Gel | 8.6-8.8 | 28-34 | N/c |
| ~~1,175~~' – 5,100' | Brine | 10.0-10.2 | 28-34 | N/c |
| 5,100' – 8,500' | Fresh Water | 8.4-8.6 | 28-34 | N/c |
| 8,500'– 11,000' Pilot hole | Cut Brine | 8.6-9.0 | 28-34 | N/c |
| KOP – 14,153' Lateral | Cut Brine | 9.0-9.5 | 40-42 | N/c |

See COA

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 1,175' to TD.

(D) $H_2S$ monitoring and detection equipment will be utilized from 1,175' 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 for this hole section are listed below:

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

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

The estimated bottom hole temperature (BHT) at TD is 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 30-60 days will be required for completion and testing before a decision is made to install permanent facilities.

eog resources

# EOG Resources, Inc.

**Lea County**
**Vaca "14" Fed**
**#5H**
**OH**

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**Plan: Plan #1**

# Pathfinder X & Y Planning Report

**20 July, 2010**

PATHFINDER

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **Database:** | Midland Database |

**Project** Lea County

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

**Site** Vaca "14" Fed

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 414,051.100 ft | **Latitude:** | 32° 8' 9.097 N |
| **From:** | Map | **Easting:** | 745,404.300 ft | **Longitude:** | 103° 32' 25.918 W |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | " | **Grid Convergence:** | 0.42 ° |

**Well** #5H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 414,642 800 ft | **Latitude:** | 32° 8' 15.167 N |
| | **+E/-W** | 0.00 ft | **Easting:** | 742,433.300 ft | **Longitude:** | 103° 33' 0.418 W |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 3,369.60 ft |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF200510 | 07/31/2010 | 7.66 | 60.15 | 48,686 |

**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 | 178 45 |

**Survey Tool Program** Date 07/20/2010

| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0 00 | 14,152.22 | Plan #1 (OH) | MWD | MWD - Standard |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0 00 | 0.00 | 0.00 | -3,399.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 100.00 | 0.00 | 0.00 | 100.00 | -3,299.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 200.00 | 0.00 | 0 00 | 200.00 | -3,199.60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 300.00 | 0.00 | 0 00 | 300.00 | -3,099.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 400 00 | 0.00 | 0.00 | 400 00 | -2,999.60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 500.00 | 0.00 | 0.00 | 500.00 | -2,899.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 600.00 | 0.00 | 0.00 | 600 00 | -2,799.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |
| 700.00 | 0.00 | 0.00 | 700.00 | -2,699.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 800.00 | 0 00 | 0.00 | 800.00 | -2,599.60 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 900.00 | 0.00 | 0.00 | 900.00 | -2,499.60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,000.00 | 0.00 | 0 00 | 1,000.00 | -2,399.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 1,100.00 | 0.00 | 0.00 | 1,100 00 | -2,299.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,200.00 | 0.00 | 0.00 | 1,200 00 | -2,199.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,300.00 | 0 00 | 0.00 | 1,300.00 | -2,099.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | -1,999.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,500.00 | 0.00 | 0.00 | 1,500.00 | -1,899 60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 1,600.00 | 0.00 | 0.00 | 1,600.00 | -1,799.60 | 0 00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,700.00 | 0.00 | 0.00 | 1,700.00 | -1,699 60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,800.00 | 0.00 | 0.00 | 1,800.00 | -1,599 60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 1,900.00 | 0.00 | 0 00 | 1,900.00 | -1,499 60 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |
| 2,000.00 | 0 00 | 0 00 | 2,000.00 | -1,399 60 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 2,100 00 | 0 00 | 0.00 | 2,100.00 | -1,299 60 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 2,200.00 | 0 00 | 0.00 | 2,200.00 | -1,199.60 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 2,300.00 | 0.00 | 0.00 | 2,300 00 | -1,099.60 | 0 00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 2,400 00 | 0.00 | 0.00 | 2,400.00 | -999.60 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 2,500.00 | 0 00 | 0.00 | 2,500.00 | -899.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 2,600.00 | 0.00 | 0.00 | 2,600.00 | -799.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2,700.00 | 0.00 | 0.00 | 2,700.00 | -699 60 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 2,800.00 | 0.00 | 0.00 | 2,800.00 | -599 60 | 0 00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 2,900.00 | 0.00 | 0.00 | 2,900.00 | -499.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 3,000.00 | 0.00 | 0.00 | 3,000.00 | -399.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,100.00 | 0.00 | 0 00 | 3,100.00 | -299.60 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,200.00 | 0.00 | 0 00 | 3,200.00 | -199.60 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433 30 |
| 3,300.00 | 0.00 | 0 00 | 3,300.00 | -99.60 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,400.00 | 0.00 | 0 00 | 3,400 00 | 0.40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 3,500.00 | 0.00 | 0.00 | 3,500.00 | 100.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 3,600.00 | 0.00 | 0.00 | 3,600 00 | 200.40 | 0.00 | 0 00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,700.00 | 0.00 | 0.00 | 3,700.00 | 300 40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,800.00 | 0.00 | 0.00 | 3,800 00 | 400.40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 3,900.00 | 0.00 | 0 00 | 3,900.00 | 500.40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433 30 |
| 4,000.00 | 0.00 | 0.00 | 4,000.00 | 600 40 | 0 00 | 0 00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,100 00 | 0.00 | 0.00 | 4,100.00 | 700 40 | 0 00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,200 00 | 0.00 | 0.00 | 4,200.00 | 800.40 | 0 00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,300 00 | 0.00 | 0.00 | 4,300.00 | 900 40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,400 00 | 0.00 | 0.00 | 4,400.00 | 1,000 40 | 0 00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,500 00 | 0.00 | 0.00 | 4,500.00 | 1,100.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,600.00 | 0.00 | 0.00 | 4,600.00 | 1,200.40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642 80 | 742,433 30 |
| 4,700.00 | 0.00 | 0 00 | 4,700.00 | 1,300.40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,800.00 | 0 00 | 0.00 | 4,800.00 | 1,400 40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 4,900.00 | 0 00 | 0 00 | 4,900.00 | 1,500.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 5,000.00 | 0 00 | 0 00 | 5,000.00 | 1,600.40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 5,100.00 | 0.00 | 0.00 | 5,100.00 | 1,700.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 5,200.00 | 0.00 | 0.00 | 5,200 00 | 1,800 40 | 0.00 | 0 00 | 0.00 | 0 00 | 414,642 80 | 742,433.30 |
| 5,300 00 | 0.00 | 0.00 | 5,300.00 | 1,900.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 5,400.00 | 0.00 | 0.00 | 5,400.00 | 2,000.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642 80 | 742,433.30 |
| 5,500.00 | 0.00 | 0.00 | 5,500.00 | 2,100.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 5,600.00 | 0.00 | 0 00 | 5,600.00 | 2,200.40 | 0 00 | 0 00 | 0 00 | 0.00 | 414,642 80 | 742,433.30 |
| 5,700.00 | 0 00 | 0 00 | 5,700.00 | 2,300.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 5,800.00 | 0.00 | 0 00 | 5,800 00 | 2,400 40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642 80 | 742,433.30 |
| 5,900.00 | 0.00 | 0.00 | 5,900.00 | 2,500 40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433.30 |
| 6,000.00 | 0 00 | 0 00 | 6,000.00 | 2,600.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642 80 | 742,433.30 |
| 6,100.00 | 0.00 | 0.00 | 6,100.00 | 2,700.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 6,200.00 | 0.00 | 0 00 | 6,200.00 | 2,800.40 | 0.00 | 0.00 | 0 00 | 0 00 | 414,642 80 | 742,433.30 |
| 6,300.00 | 0.00 | 0.00 | 6,300.00 | 2,900.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 6,400.00 | 0.00 | 0 00 | 6,400.00 | 3,000.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 6,500.00 | 0.00 | 0 00 | 6,500.00 | 3,100.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |
| 6,600.00 | 0.00 | 0.00 | 6,600.00 | 3,200.40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |
| 6,700.00 | 0.00 | 0 00 | 6,700.00 | 3,300 40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 6,800.00 | 0.00 | 0.00 | 6,800.00 | 3,400 40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 6,900.00 | 0.00 | 0.00 | 6,900.00 | 3,500.40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 7,000.00 | 0.00 | 0 00 | 7,000.00 | 3,600.40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642 80 | 742,433 30 |
| 7,100.00 | 0.00 | 0.00 | 7,100.00 | 3,700.40 | 0 00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 7,200.00 | 0.00 | 0 00 | 7,200 00 | 3,800 40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 7,300.00 | 0.00 | 0.00 | 7,300.00 | 3,900.40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 7,400 00 | 0 00 | 0 00 | 7,400.00 | 4,000.40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 7,500.00 | 0.00 | 0 00 | 7,500.00 | 4,100.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 7,600.00 | 0 00 | 0.00 | 7,600 00 | 4,200.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 7,700.00 | 0.00 | 0 00 | 7,700.00 | 4,300.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 7,800.00 | 0.00 | 0 00 | 7,800.00 | 4,400.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 7,900.00 | 0.00 | 0 00 | 7,900.00 | 4,500.40 | 0 00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433 30 |
| 8,000.00 | 0.00 | 0 00 | 8,000.00 | 4,600.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed. | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8,100.00 | 0.00 | 0.00 | 8,100.00 | 4,700 40 | 0.00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 8,200.00 | 0.00 | 0 00 | 8,200.00 | 4,800 40 | 0.00 | 0.00 | 0 00 | 0 00 | 414,642 80 | 742,433.30 |
| 8,300.00 | 0 00 | 0.00 | 8,300.00 | 4,900.40 | 0.00 | 0.00 | 0 00 | 0.00 | 414,642.80 | 742,433.30 |
| 8,400.00 | 0 00 | 0.00 | 8,400.00 | 5,000.40 | 0 00 | 0.00 | 0 00 | 0.00 | 414,642 80 | 742,433.30 |
| 8,500.00 | 0 00 | 0.00 | 8,500.00 | 5,100.40 | 0 00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 8,600.00 | 0.00 | 0.00 | 8,600.00 | 5,200.40 | 0 00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 8,700.00 | 0.00 | 0.00 | 8,700.00 | 5,300.40 | 0 00 | 0 00 | 0 00 | 0 00 | 414,642.80 | 742,433.30 |
| 8,800.00 | 0.00 | 0.00 | 8,800 00 | 5,400.40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642.80 | 742,433.30 |
| 8,900.00 | 0.00 | 0 00 | 8,900 00 | 5,500 40 | 0.00 | 0.00 | 0.00 | 0 00 | 414,642 80 | 742,433.30 |
| 9,000.00 | 0.00 | 0.00 | 9,000 00 | 5,600.40 | 0.00 | 0.00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 9,053.00 | 0.00 | 0.00 | 9,053.00 | 5,653 40 | 0 00 | 0 00 | 0.00 | 0.00 | 414,642.80 | 742,433.30 |
| 9,075.00 | 3.63 | 176.00 | 9,074.99 | 5,675.39 | -0 70 | 0.05 | 0 70 | 16 51 | 414,642.10 | 742,433.35 |
| 9,100.00 | 7.76 | 176.00 | 9,099.86 | 5,700.26 | -3.17 | 0 22 | 3.18 | 16.51 | 414,639.63 | 742,433.52 |
| 9,125 00 | 11.89 | 176.00 | 9,124.48 | 5,724.88 | -7.42 | 0 52 | 7.44 | 16 51 | 414,635.38 | 742,433.82 |
| 9,150.00 | 16.02 | 176.00 | 9,148 74 | 5,749.14 | -13.44 | 0.94 | 13.46 | 16.51 | 414,629.36 | 742,434.24 |
| 9,175.00 | 20.14 | 176.00 | 9,172.50 | 5,772.90 | -21.17 | 1.48 | 21.21 | 16.51 | 414,621.63 | 742,434.78 |
| 9,200 00 | 24.27 | 176.00 | 9,195.64 | 5,796.04 | -30.60 | 2.14 | 30.65 | 16.51 | 414,612.20 | 742,435 44 |
| 9,225.00 | 28.40 | 176.00 | 9,218.04 | 5,818.44 | -41.66 | 2.91 | 41.72 | 16.51 | 414,601.14 | 742,436.21 |
| 9,250 00 | 32.53 | 176.00 | 9,239.59 | 5,839.99 | -54 30 | 3 80 | 54.39 | 16.51 | 414,588.50 | 742,437 10 |
| 9,275.00 | 36.66 | 176.00 | 9,260.16 | 5,860.56 | -68.46 | 4 79 | 68.56 | 16.51 | 414,574 34 | 742,438 09 |
| 9,300.00 | 40.78 | 176.00 | 9,279.66 | 5,880.06 | -84.05 | 5.88 | 84.18 | 16 51 | 414,558 75 | 742,439.18 |
| 9,325.00 | 44.91 | 176.00 | 9,297.99 | 5,898 39 | -101.01 | 7.06 | 101.16 | 16.51 | 414,541.79 | 742,440 36 |
| 9,350.00 | 49.04 | 176.00 | 9,315.04 | 5,915.44 | -119.24 | 8 34 | 119 42 | 16.51 | 414,523.56 | 742,441.64 |
| 9,375.00 | 53 17 | 176.00 | 9,330 74 | 5,931.14 | -138.64 | 9.69 | 138 86 | 16 51 | 414,504.16 | 742,442.99 |
| 9,400.00 | 57 30 | 176.00 | 9,344.99 | 5,945.39 | -159.13 | 11 13 | 159.37 | 16.51 | 414,483.67 | 742,444.43 |
| 9,425.00 | 61 42 | 176.00 | 9,357.73 | 5,958.13 | -180.58 | 12.63 | 180.85 | 16.51 | 414,462.22 | 742,445.93 |
| 9,450.00 | 65.55 | 176.00 | 9,368 89 | 5,969.29 | -202.89 | 14.19 | 203 20 | 16.51 | 414,439.91 | 742,447.49 |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9,475.00 | 69.68 | 176 00 | 9,378 40 | 5,978.80 | -225 95 | 15.80 | 226.29 | 16 51 | 414,416.85 | 742,449.10 |
| 9,500.00 | 73.81 | 176.00 | 9,386 23 | 5,986.63 | -249.62 | 17.46 | 250.01 | 16 51 | 414,393.18 | 742,450.76 |
| 9,525.00 | 77.94 | 176.00 | 9,392 34 | 5,992.74 | -273.80 | 19.15 | 274.22 | 16 51 | 414,369.00 | 742,452.45 |
| 9,550.00 | 82.06 | 176.00 | 9,396 68 | 5,997.08 | -298.36 | 20 86 | 298.81 | 16 51 | 414,344.44 | 742,454 16 |
| 9,575.00 | 86.19 | 176 00 | 9,399.23 | 5,999 63 | -323.16 | 22.60 | 323.66 | 16.51 | 414,319.64 | 742,455.90 |
| 9,598.07 | 90.00 | 176.00 | 9,400.00 | 6,000 40 | -346.15 | 24.21 | 346.68 | 16 51 | 414,296.65 | 742,457.51 |
| 9,600.00 | 90.00 | 176.05 | 9,400.00 | 6,000 40 | -348.08 | 24.34 | 348.62 | 2 50 | 414,294.72 | 742,457 64 |
| 9,704 66 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -452 63 | 29.17 | 453.25 | 2.50 | 414,190.17 | 742,462 47 |
| 9,800.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -547.94 | 31.39 | 548.59 | 0.00 | 414,094.86 | 742,464.69 |
| 9,900.00 | 90.00 | 178 66 | 9,400.00 | 6,000 40 | -647.91 | 33.72 | 648.59 | 0.00 | 413,994.89 | 742,467.02 |
| 10,000.00 | 90 00 | 178.66 | 9,400.00 | 6,000 40 | -747.88 | 36.05 | 748.59 | 0.00 | 413,894.92 | 742,469.35 |
| 10,100.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -847 86 | 38 38 | 848.58 | 0.00 | 413,794.94 | 742,471.68 |
| 10,200 00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -947.83 | 40.71 | 948.58 | 0.00 | 413,694.97 | 742,474.01 |
| 10,300.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,047.80 | 43 04 | 1,048.58 | 0.00 | 413,595.00 | 742,476.34 |
| 10,400.00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -1,147.77 | 45.37 | 1,148.58 | 0.00 | 413,495.03 | 742,478.67 |
| 10,500 00 | 90 00 | 178.66 | 9,400.00 | 6,000 40 | -1,247.75 | 47.70 | 1,248.58 | 0 00 | 413,395.05 | 742,481.00 |
| 10,600 00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,347.72 | 50.03 | 1,348.58 | 0.00 | 413,295.08 | 742,483.33 |
| 10,700.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,447.69 | 52.36 | 1,448 58 | 0.00 | 413,195.11 | 742,485.66 |
| 10,800.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,547.67 | 54.69 | 1,548 58 | 0.00 | 413,095 13 | 742,487.99 |
| 10,900.00 | 90.00 | 178.66 | 9,400 00 | 6,000.40 | -1,647.64 | 57.02 | 1,648.58 | 0.00 | 412,995 16 | 742,490 32 |
| 11,000.00 | 90.00 | 178.66 | 9,400.00 | 6,000 40 | -1,747.61 | 59.35 | 1,748 58 | 0.00 | 412,895.19 | 742,492 65 |
| 11,100.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,847.58 | 61.68 | 1,848 58 | 0.00 | 412,795 22 | 742,494.98 |
| 11,200.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -1,947.56 | 64 01 | 1,948.58 | 0.00 | 412,695 24 | 742,497 31 |
| 11,300.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -2,047.53 | 66 34 | 2,048.58 | 0.00 | 412,595.27 | 742,499.64 |
| 11,400.00 | 90 00 | 178 66 | 9,400.00 | 6,000.40 | -2,147.50 | 68 67 | 2,148.58 | 0.00 | 412,495.30 | 742,501.97 |
| 11,500.00 | 90 00 | 178 66 | 9,400.00 | 6,000 40 | -2,247 48 | 71.00 | 2,248.57 | 0.00 | 412,395.32 | 742,504.30 |
| 11,600 00 | 90 00 | 178 66 | 9,400 00 | 6,000.40 | -2,347 45 | 73 33 | 2,348.57 | 0.00 | 412,295.35 | 742,506.63 |

| | | | |
|---|---|---|---|
| Company: | EOG Resources, Inc. | Local Co-ordinate Reference: | Well #5H |
| Project: | Lea County | TVD Reference: | WELL @ 3399.60ft (30' KB Correction) |
| Site: | Vaca "14" Fed | MD Reference: | WELL @ 3399.60ft (30' KB Correction) |
| Well: | #5H | North Reference: | Grid |
| Wellbore: | OH | Survey Calculation Method: | Minimum Curvature |
| Design: | Plan #1 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| 11,700.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -2,447.42 | 75.66 | 2,448.57 | 0.00 | 412,195.38 | 742,508.96 |
| 11,800.00 | 90.00 | 178 66 | 9,400.00 | 6,000.40 | -2,547.39 | 77.99 | 2,548.57 | 0.00 | 412,095.41 | 742,511.29 |
| 11,900.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -2,647.37 | 80.32 | 2,648.57 | 0.00 | 411,995.43 | 742,513.62 |
| 12,000.00 | 90.00 | 178 66 | 9,400.00 | 6,000.40 | -2,747.34 | 82.65 | 2,748 57 | 0.00 | 411,895 46 | 742,515.95 |
| 12,100.00 | 90 00 | 178 66 | 9,400.00 | 6,000.40 | -2,847.31 | 84.98 | 2,848 57 | 0 00 | 411,795.49 | 742,518.28 |
| 12,200.00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -2,947.29 | 87 31 | 2,948.57 | 0.00 | 411,695.51 | 742,520.61 |
| 12,300.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,047.26 | 89.64 | 3,048.57 | 0.00 | 411,595.54 | 742,522.94 |
| 12,400.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,147.23 | 91.96 | 3,148 57 | 0.00 | 411,495.57 | 742,525 26 |
| 12,500.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,247.20 | 94.29 | 3,248 57 | 0.00 | 411,395 60 | 742,527.59 |
| 12,600.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,347.18 | 96.62 | 3,348.57 | 0.00 | 411,295.62 | 742,529.92 |
| 12,700.00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -3,447.15 | 98.95 | 3,448.57 | 0.00 | 411,195.65 | 742,532.25 |
| 12,800.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,547.12 | 101.28 | 3,548.57 | 0.00 | 411,095.68 | 742,534.58 |
| 12,900.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,647.10 | 103.61 | 3,648.56 | 0 00 | 410,995 70 | 742,536.91 |
| 13,000.00 | 90.00 | 178.66 | 9,400 00 | 6,000.40 | -3,747.07 | 105.94 | 3,748.56 | 0.00 | 410,895.73 | 742,539.24 |
| 13,100.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -3,847.04 | 108.27 | 3,848.56 | 0.00 | 410,795.76 | 742,541.57 |
| 13,200.00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -3,947.01 | 110.60 | 3,948.56 | 0.00 | 410,695.79 | 742,543.90 |
| 13,300 00 | 90.00 | 178.66 | 9,400.00 | 6,000 40 | -4,046.99 | 112.93 | 4,048.56 | 0.00 | 410,595.81 | 742,546.23 |
| 13,400.00 | 90 00 | 178.66 | 9,400.00 | 6,000.40 | -4,146.96 | 115.26 | 4,148.56 | 0 00 | 410,495 84 | 742,548.56 |
| 13,500.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,246.93 | 117 59 | 4,248.56 | 0.00 | 410,395.87 | 742,550.89 |
| 13,600.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,346.91 | 119.92 | 4,348.56 | 0.00 | 410,295.89 | 742,553.22 |
| 13,700 00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,446.88 | 122 25 | 4,448.56 | 0 00 | 410,195.92 | 742,555.55 |
| 13,800.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,546.85 | 124.58 | 4,548.56 | 0 00 | 410,095.95 | 742,557.88 |
| 13,900.00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,646.82 | 126.91 | 4,648.56 | 0.00 | 409,995.98 | 742,560.21 |
| 14,000.00 | 90.00 | 178.66 | 9,400 00 | 6,000 40 | -4,746.80 | 129 24 | 4,748.56 | 0.00 | 409,896.00 | 742,562.54 |
| 14,100 00 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,846.77 | 131 57 | 4,848.56 | 0.00 | 409,796 03 | 742,564.87 |
| 14,152.64 | 90.00 | 178.66 | 9,400.00 | 6,000.40 | -4,899.40 | 132.80 | 4,901.20 | 0 00 | 409,743 40 | 742,566.10 |

| | | | |
|---|---|---|---|
| **Company:** | EOG Resources, Inc. | **Local Co-ordinate Reference:** | Well #5H |
| **Project:** | Lea County | **TVD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Site:** | Vaca "14" Fed | **MD Reference:** | WELL @ 3399.60ft (30' KB Correction) |
| **Well:** | #5H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **Database:** | Midland Database |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| PBHL(V#5H)<br>- plan hits target center<br>- Point | 0.00 | 0 00 | 9,400.00 | -4,899.40 | 132.80 | 409,743.400 | 742,566.100 | 32° 7' 26.675 N | 103° 32' 59.289 W |

Checked By: _____ Approved By: _____ Date: _____

eog resources

PATHFINDER

Project: Lea County
Site: Vaca "14" Fed
Well: #5H
Wellbore: OH
Plan: Plan #1 (#5H/OH)

Azimuths to Grid North
True North: -0.42°
Magnetic North: 7.25°

Magnetic Field
Strength: 48686.3snT
Dip Angle: 60.15°
Date: 07/31/2010
Model: IGRF200510

## WELL DETAILS: #5H

Ground Elevation:: 3369.60
RKB Elevation: WELL @ 3399.60ft (30' KB Correction)
Rig Name: 30' KB Correction

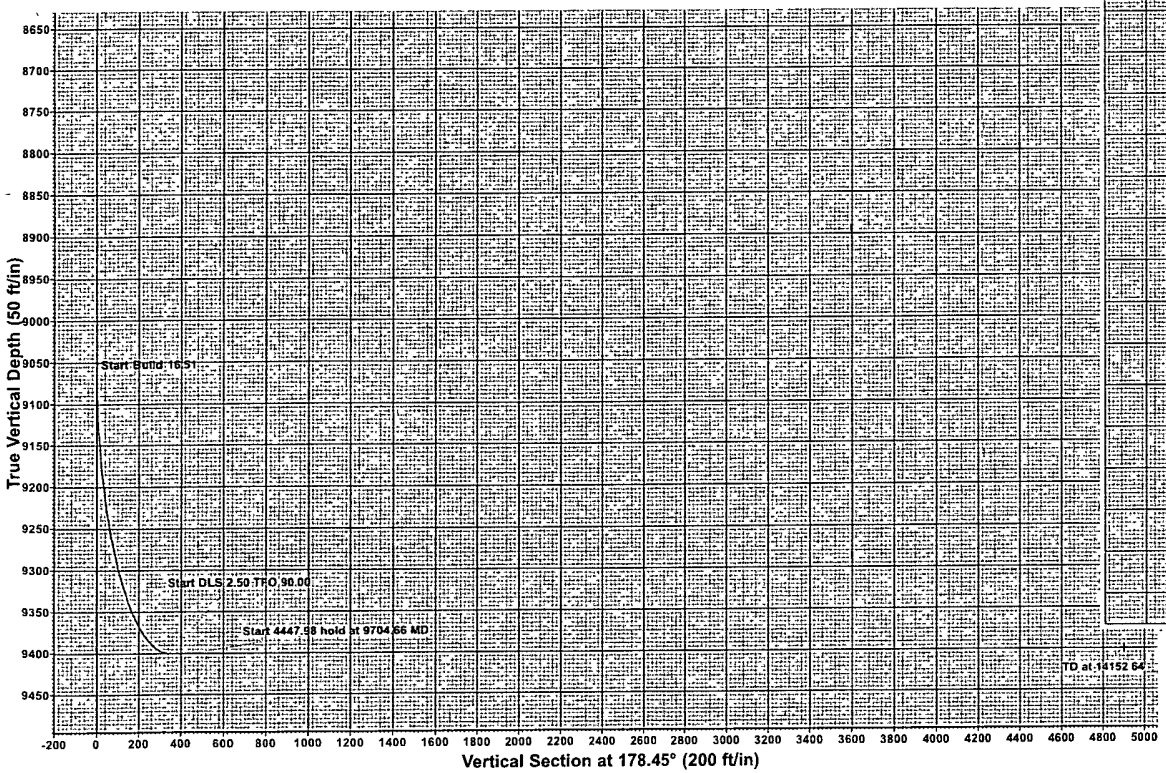
| +N/-S | +E/-W | Northing | Easting | Latittude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 414642.800 | 742433.300 | 32° 8' 15.167 N | 103° 33' 0.418 W |

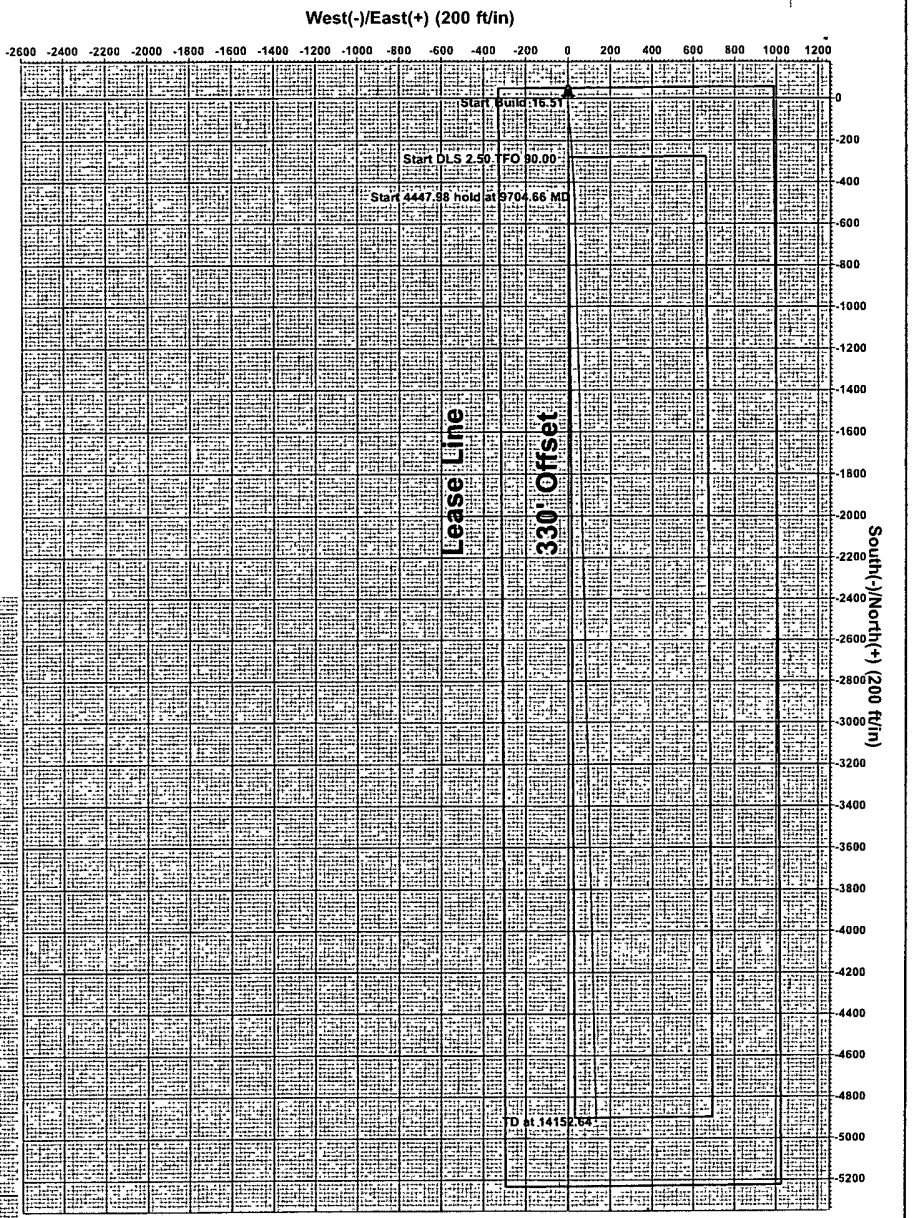
## WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

| Name | TVD | +N/-S | +E/-W | Northing | Easting |
|---|---|---|---|---|---|
| PBHL(V#5H) | 9400.00 | -4899.40 | 132.80 | 409743.400 | 742566.100 |

## 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 | 9053.00 | 0.00 | 0.00 | 9053.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 9598.07 | 90.00 | 176.00 | 9400.00 | -346.15 | 24.21 | 16.51 | 176.00 | 346.68 | |
| 4 | 9704.66 | 90.00 | 178.66 | 9400.00 | -452.63 | 29.17 | 2.50 | 90.00 | 453.25 | |
| 5 | 14152.64 | 90.00 | 178.66 | 9400.00 | -4899.40 | 132.80 | 0.00 | 0.00 | 4901.20 | PBHL(V#5H) |

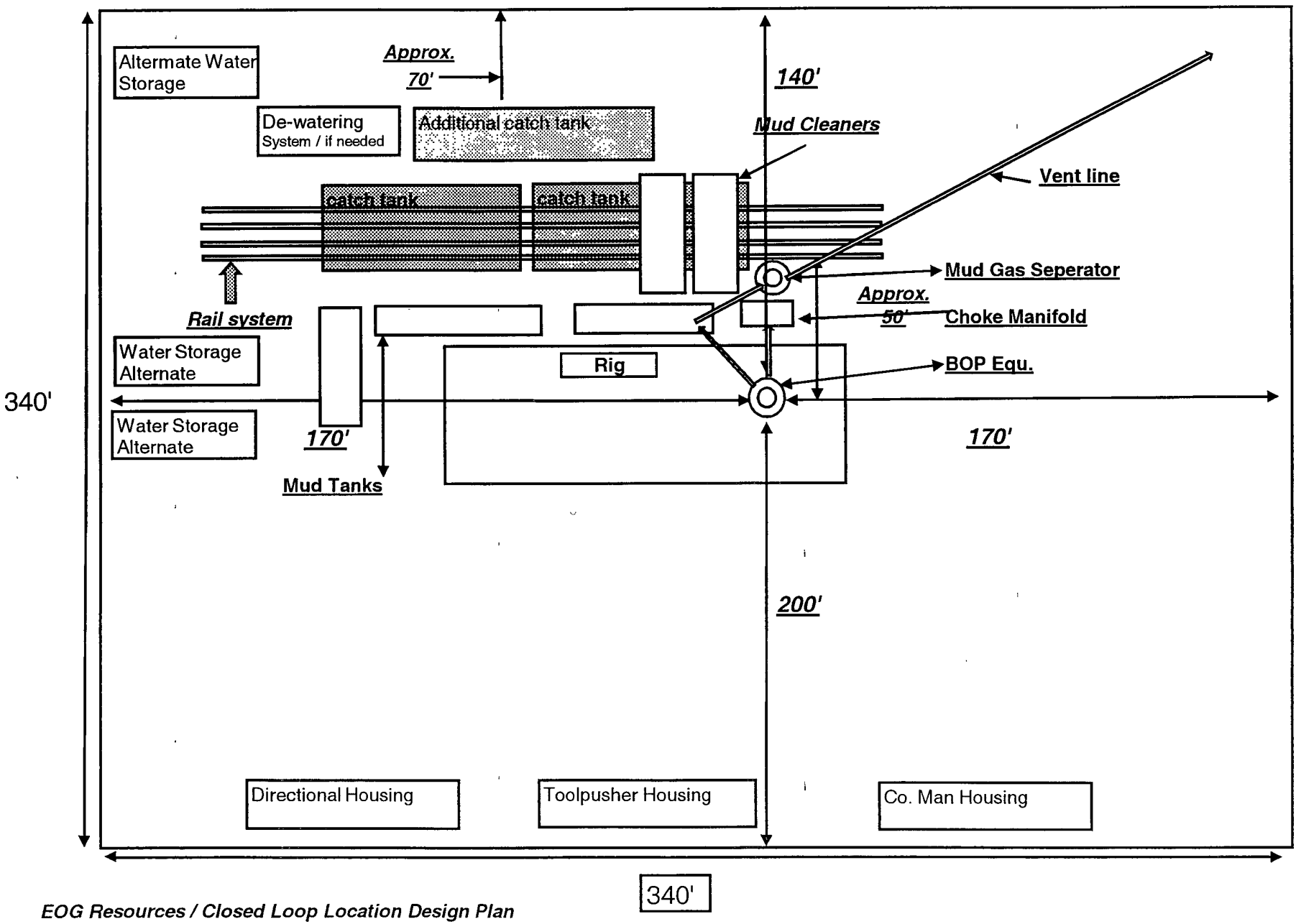



PROJECT DETAILS: Lea County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level
Local North: Grid

Plan Plan #1 (#5H/OH)
Created By Nate Bingham Date. 9 37, July 20 2010
Checked. _____ Date. _____



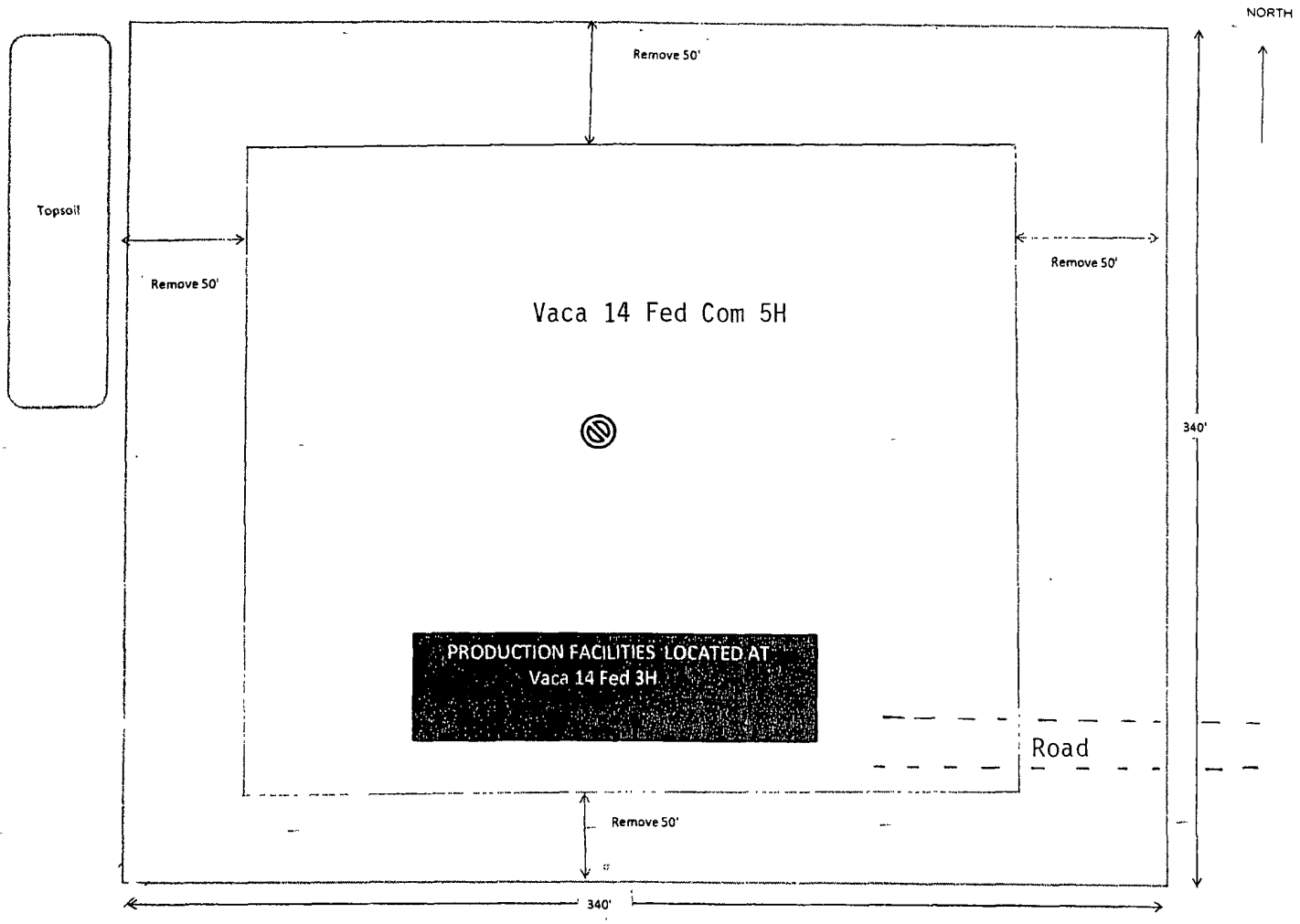

*EOG Resources / Closed Loop Location Design Plan*

Not to scale

6/30/2008

Exhibit 4 - Vaca 14 Fed Com 5H

**Production Facility Layout**




NOT TO SCALE

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, Inc.

Vaca 14 Fed Com 5H

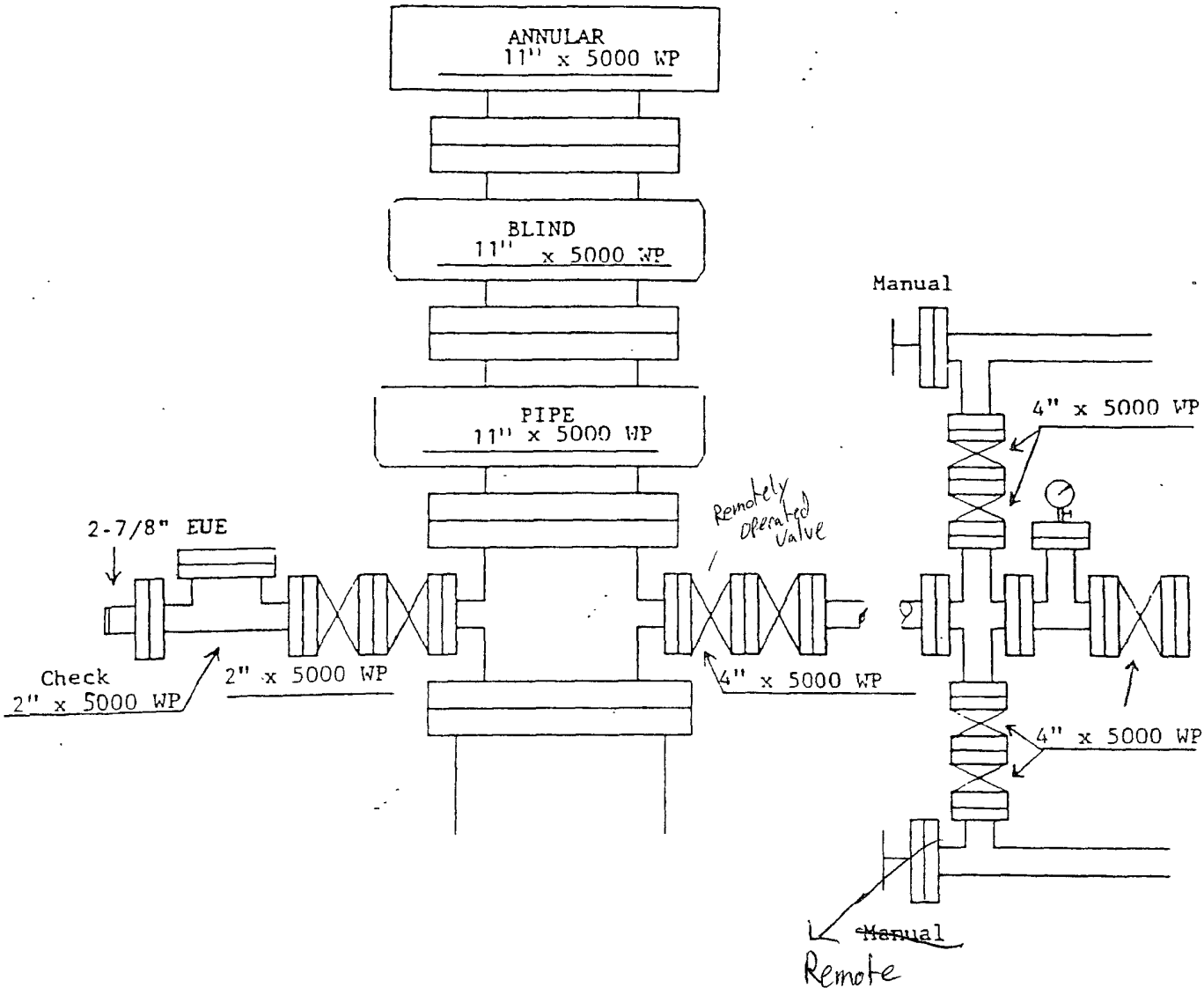
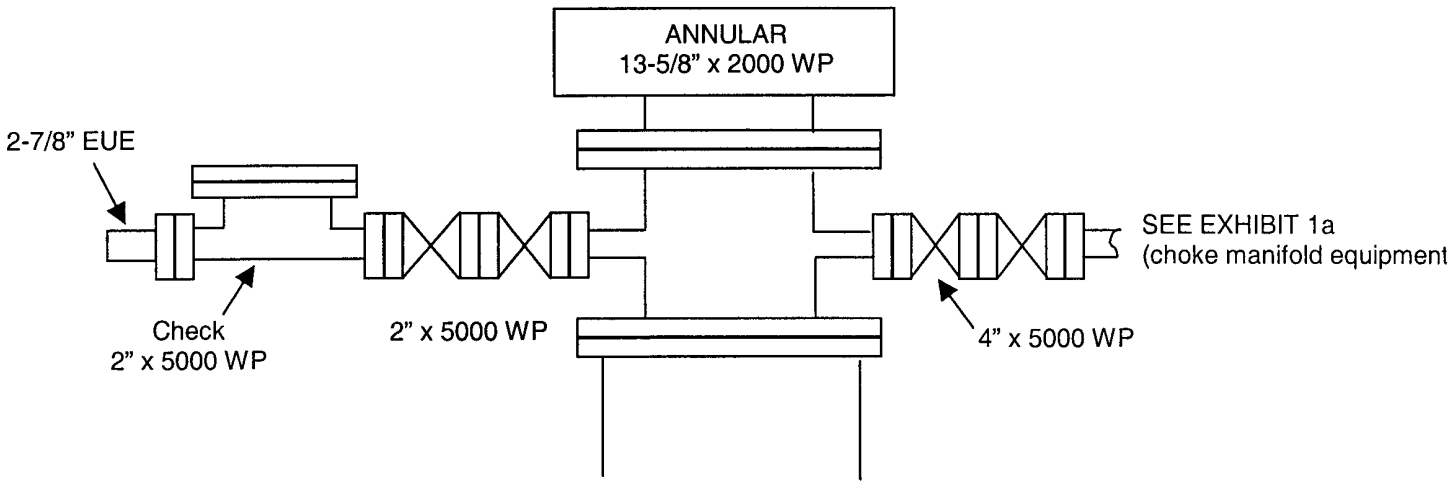


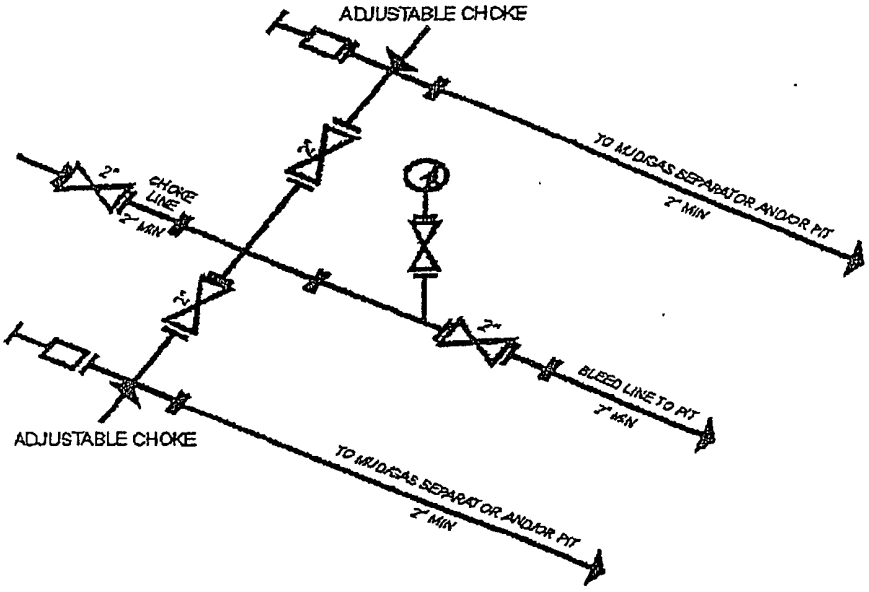
EXHIBIT 1

EOG Resources, Inc.

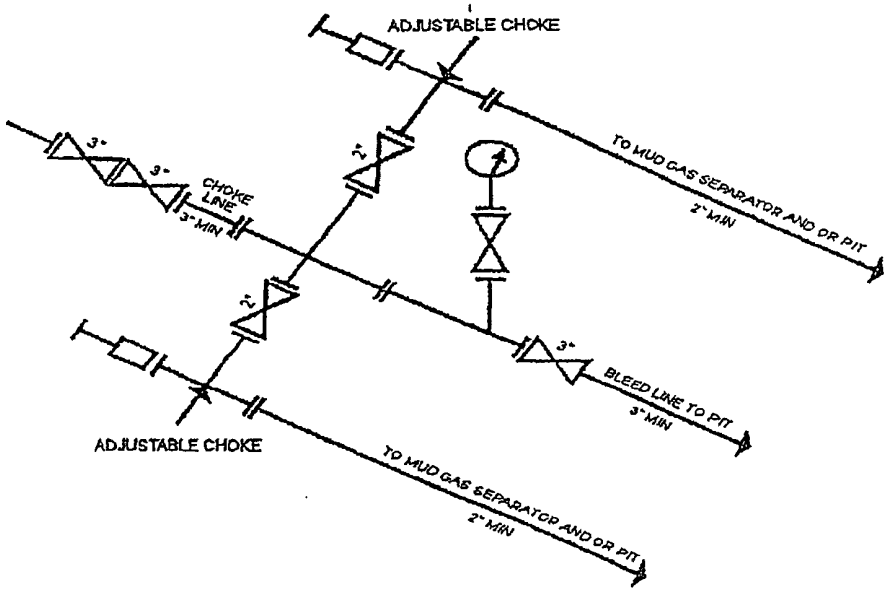
Vaca 14 Fed Com 5H



Attachment I. Diagrams of Choke Manifold Equipment



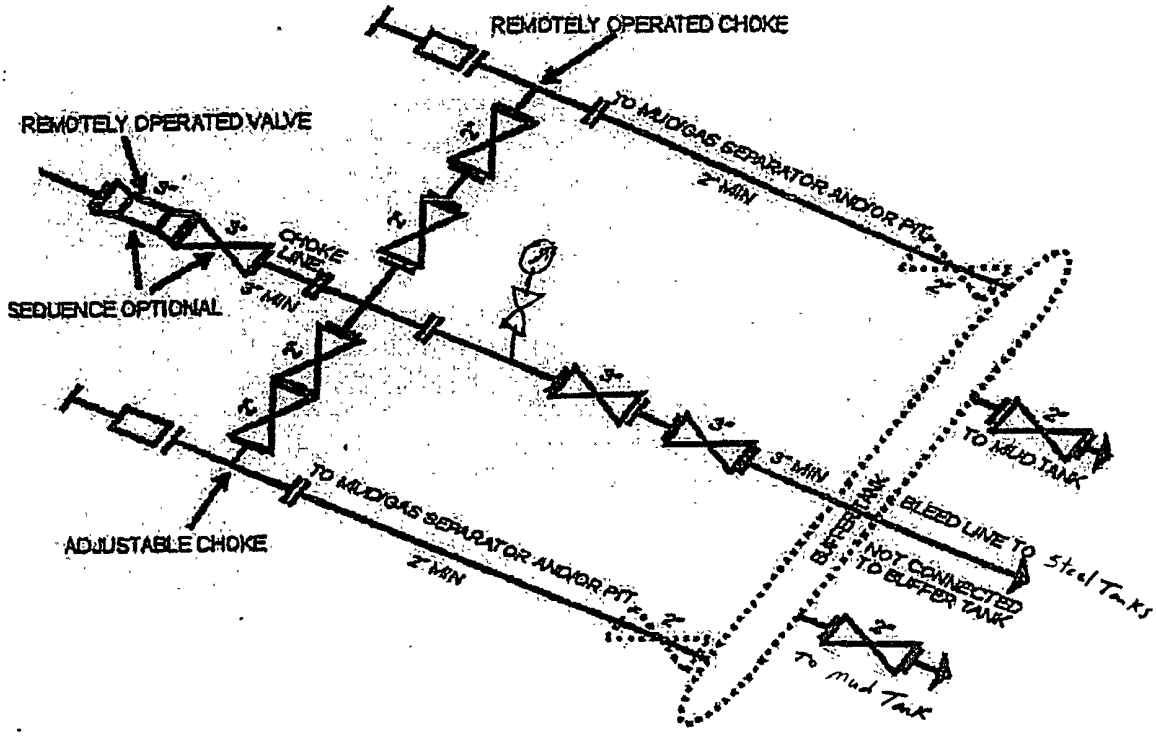

2M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY




3M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY
[54 FR 39528, Sept. 27, 1989]

WELL NAME: Vaca 14 Fed Com 5H

Exhibit 1a

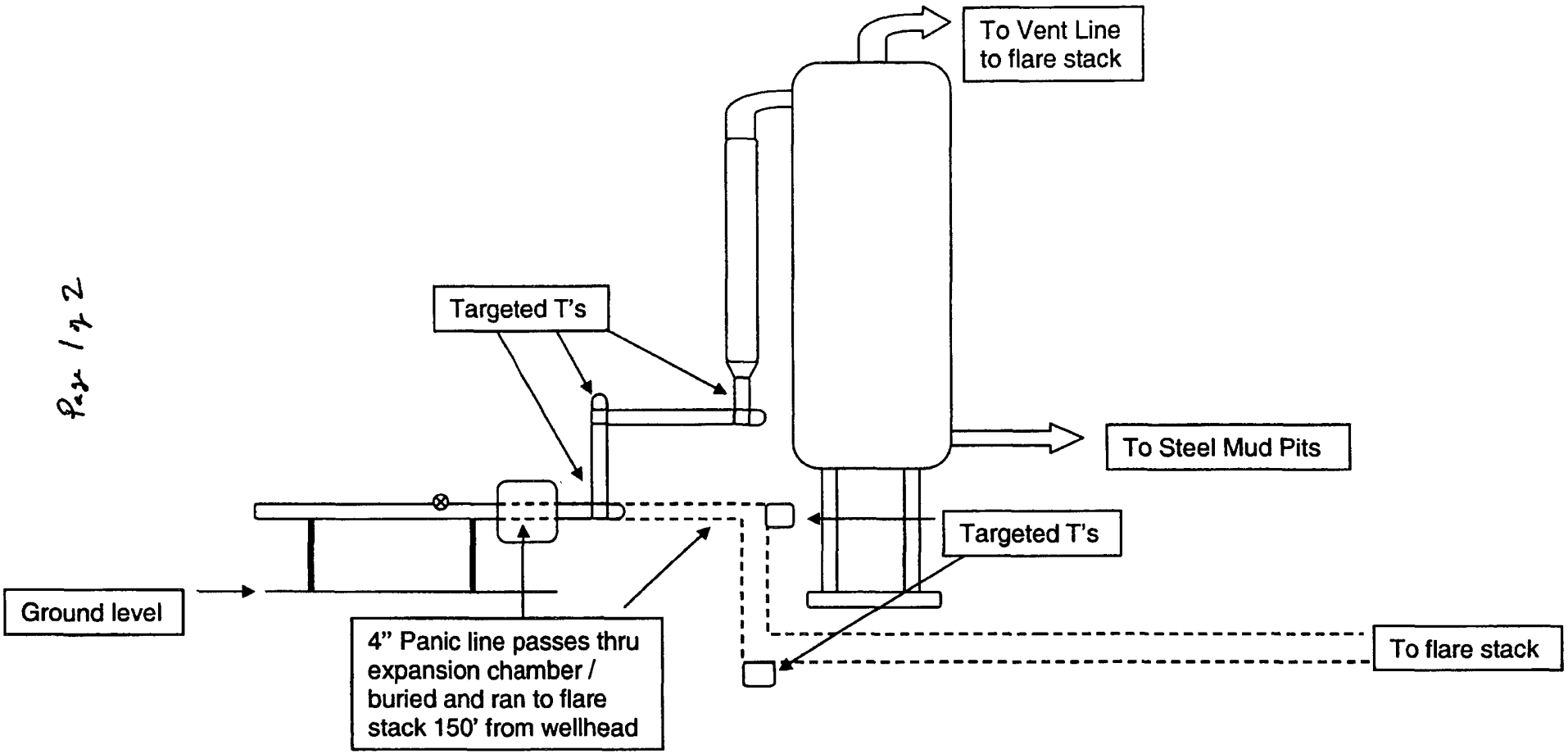



## 5M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

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




Pg 1 of 2

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