

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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AUG 29 2010

OCD HOBBS

ATS-10-602
FORM APPROVED
OMB NO 1004-0137
Expires July 31, 2010

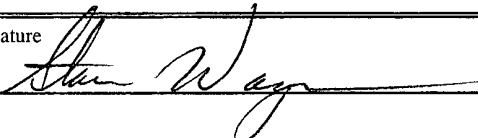
APPLICATION FOR PERMIT TO DRILL OR REENTER

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. <13270> Vaca 14 Fed 4H	
3b. Phone No. (include area code) 432-686-3689		9. API Well No. 30-025-39892	
4. Location of Well (Report location clearly and in accordance with any State requirements)* At surface 330' FNL & 660' FEL, U/L A At proposed prod. zone 330' FSL & 430' FEL, U/L P		10. Field and Pool, or Exploratory Red Hills; Bone Spring	
14. Distance in miles and direction from nearest town or post office* Approx 22 miles SW from Jal, NM		11. Sec., T., R., M., or Blk. and Survey or Area Sec 14, T25S, R33E	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any) 330'		12. County or Parish Lea	
16. No. of Acres in lease 640		13. State NM	
17. Spacing Unit dedicated to this well E/2 E/2		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1300'	
19. Proposed Depth 9450 TVD - 13872 TMD		20. BLM/BIA Bond No. on file NM2308	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3359.8' GL		22. Approximate date work will start* 9/1/10	
		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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM |

25. Signature 	Name (Printed/Typed) Stan Wagner	Date 6/02/10
Title Regulatory Coordinator		
Approved by (Signautre) /s/ Don Peterson	Name (Printed/Typed)	Date
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	AUG 19 2010

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

KZ 09/06/10

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

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AUG 23 2010

Form C-102

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

HOBBSON

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 30-025-39892	Pool Code 51020	Pool Name Rd Hills; Bone Spring
Property Code 13270	Property Name VACA 14 FED.	Well Number 4H
OGRID No. 7377	Operator Name EOG RESOURCES, INC.	Elevation 3359.8'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	14	25 SOUTH	33 EAST, N.M.P.M.		330'	NORTH	660'	EAST	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
P	14	25 SOUTH	33 EAST, N.M.P.M.		330'	SOUTH	430'	EAST	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.

nm-108503
E12 320ac

SURFACE LOCATION
NEW MEXICO EAST
NAD 1927
Y=414392.5
X=746721.7
LAT.: N 32.1367719°
LONG.: W 103.5362692°

BOTTOM HOLE LOCATION
NEW MEXICO EAST
NAD 1927
Y=409773.1
X=746987.4
LAT.: N 32.1240689°
LONG.: W 103.5355213°

GRID AZ = 176°42'

PRODUCING AREA
PROJECT AREA

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.

Don H. Met 5/12/2010
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.

APRIL 21, 2010
Date of Survey

Terry J. Paul 5/4/10
Signature and Seal of Professional Surveyor

Certificate Number 15079

WO# 100421WL-C (KA)

EOG RESOURCES, INC.
VACA 14 FED 4H

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1. GEOLOGIC NAME OF SURFACE FORMATION:
Permian

AUG 23 2010
HOBBSOCD

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,125'
Base of Salt	4,840'
Lamar	5,080'
Bell Canyon	5,110'
Cherry Canyon	6,170'
Bone Spring Lime	9,250'
1 st Bone Spring Sand	10,100'
2 nd Bone Spring	10,470'
2nd Bone Spring Sand	10,845'
Pilot hole TD	11,000'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,170'	Gas/Possible Oil
Bone Spring Lime	9,250'	Oil/Gas
1 st Bone Spring Sand	10,100'	Gas/Possible Oil
2 nd Bone Spring Sand	10,845'	Gas/Possible 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' and circulating cement back to surface.

4. CASING PROGRAM - NEW

See - COA

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.50"	0 - 1,175'	13.375"	54.5#	K55	BTC	1.10	1.25	1.60
12.25"	0-4000'	9.625"	40#	J55	LTC	1.10	1.25	1.60
12.25"	4000' - 5150'	9.625"	40#	HCK55	LTC	1.10	1.25	1.60
8.75"	0'-13872'	5.5"	23#	HCP110	NSCC	1.10	1.25	1.60

Permit Information:

Well Name: Vaca 14 Fed #4 H

Location:

SL: 330' FNL & 660' FEL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

BHL: 330' FSL & 430' FEL, 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	1200' - 1,175'	17-1/2"	13-3/8"	54.5#	K-55	Surface
Intermediate	4,000' - 5,150'	12-1/4"	9-5/8"	40#	J-55	Surface
Production	13,872'	8-3/4"	5-1/2"	23#	HCK-55	4650'

Cement Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Slurry Description
1,175'	500	13.5	1.74	Lead: Class 'C' + 4% Bentonite + 2% CaCl ₂
	300	14.8	1.35	Tail: Class 'C' + 0.6% FL62 + 0.25 pps CF + 0.2% SMS + 2% KCl
5,150'	1100	12.7	2.22	Lead: Class 'C' + 2.00% SMS + 1.50% R-3 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free + 10% Salt
	200	14.8	1.34	Tail: Class 'C' + 0.005 lb/sk Static Free + 0.5% FL62 + 0.25% CD-32 + 0.10% SMS + 1% CaCl ₂ + 0.45% R21
11,000'	100	18.0	0.90	200' plug at TD - Class 'H' + 1.70% CD-32 + 0.05% R-3 + 5.00% Salt (1.234 lb/sk)
9000'	300	18.0	0.90	600' sidetrack plug - Class 'H' + 1.70% CD-32 + 0.05% R-3 + 5.00% Salt (1.234 lb/sk)
13,872'	200	10.8	3.67	Lead: 60:40 Class 'C' + 15 pps BA-90 + 4%MPA5 + 3% SMS + 5% A-10 + 1% BA-10A + 0.8% ASA-301 + 2.2% R-21 + 8pps LCM + 0.01 gps FP13L
	550	11.8	2.39	Lead: 50:50:10 Class 'H' + 0.8% FL52A + 0.5% ASA-301 + 0.9% SMS + 2.0% Salt + 0.35% R-21 + 0.25 pps Cello Flake + 0.005 pps 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 + 0.005 pps Static Free

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 1,175' / 1200'	Fresh - Gel	8.6-8.8	28-34	N/C
1,175' - 5,150'	Brine	10.0-10.2	28-34	N/C
5,150' - 8,500'	Fresh Water	8.4-8.6	28-34	N/C
8,500' - 11,000'	Cut Brine	9.0-9.5	28-34	N/C
Pilot hole				
8,975' - 13,872'	Cut Brine	9.0-9.5	28-34	N/C
Lateral				

EOG RESOURCES, INC.
VACA 14 FED 4H

Cementing Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft ³ /ft	Slurry Description
1,175'	500	13.5	1.74	Lead: Class 'C' + 4% Bentonite + 2% CaCl ₂
	300	14.8	1.35	Tail: Class 'C' + 0.6% FL62 + 0.25 pps CF + 0.2% SMS + 2% KCl
5,150'	1100	12.7	2.22	Lead: Class 'C' + 2.00% SMS + 1.50% R-3 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free + 10% Salt
	200	14.8	1.34	Tail: Class 'C' + 0.005 lb/sk Static Free + 0.5% FL62 + 0.25% CD-32 + 0.10% SMS + 1% CaCl ₂ + 0.45% R21
11,000'	100	18.0	0.90	200' plug at TD - Class 'H' + 1.70% CD-32 + 0.05% R-3 + 5.00% Salt (1.234 lb/sk)
9000'	300	18.0	0.90	600' sidetrack plug - Class 'H' + 1.70% CD-32 + 0.05% R-3 + 5.00% Salt (1.234 lb/sk)
13,872'	200	10.8	3.67	Lead: 60:40 Class 'C' + 15 pps BA-90 + 4%MPA5 + 3% SMS + 5% A-10 + 1% BA-10A + 0.8% ASA-301 + 2.2% R-21 + 8pps LCM + 0.01 gps FP13L
	550	11.8	2.39	Lead: 50:50:10 Class 'H' + 0.8% FL52A + 0.5% ASA-301 + 0.9% SMS + 2.0% Salt + 0.35% R-21 + 0.25 pps Cello Flake + 0.005 pps 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 + 0.005 pps Static Free

See previous page

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.

EOG RESOURCES, INC.
VACA 14 FED 4H

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:

See -
COA

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 1,175' / 200'	Fresh - Gel	8.6-8.8	28-34	N/C
1,175' - 5,150'	Brine	10.0-10.2	28-34	N/C
5,150' - 8,500'	Fresh Water	8.4-8.6	28-34	N/C
8,500' - 11,000'	Cut Brine	9.0-9.5	28-34	N/C
Pilot hole				
8,975' - 13,872'	Cut Brine	9.0-9.5	28-34	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 650' to TD.

(D) H₂S monitoring and detection equipment will be utilized from 650' to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

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

See -
COA

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.
VACA 14 FED 4H

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

The estimated bottom hole temperature (BHT) at TD is 185 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 5000 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.

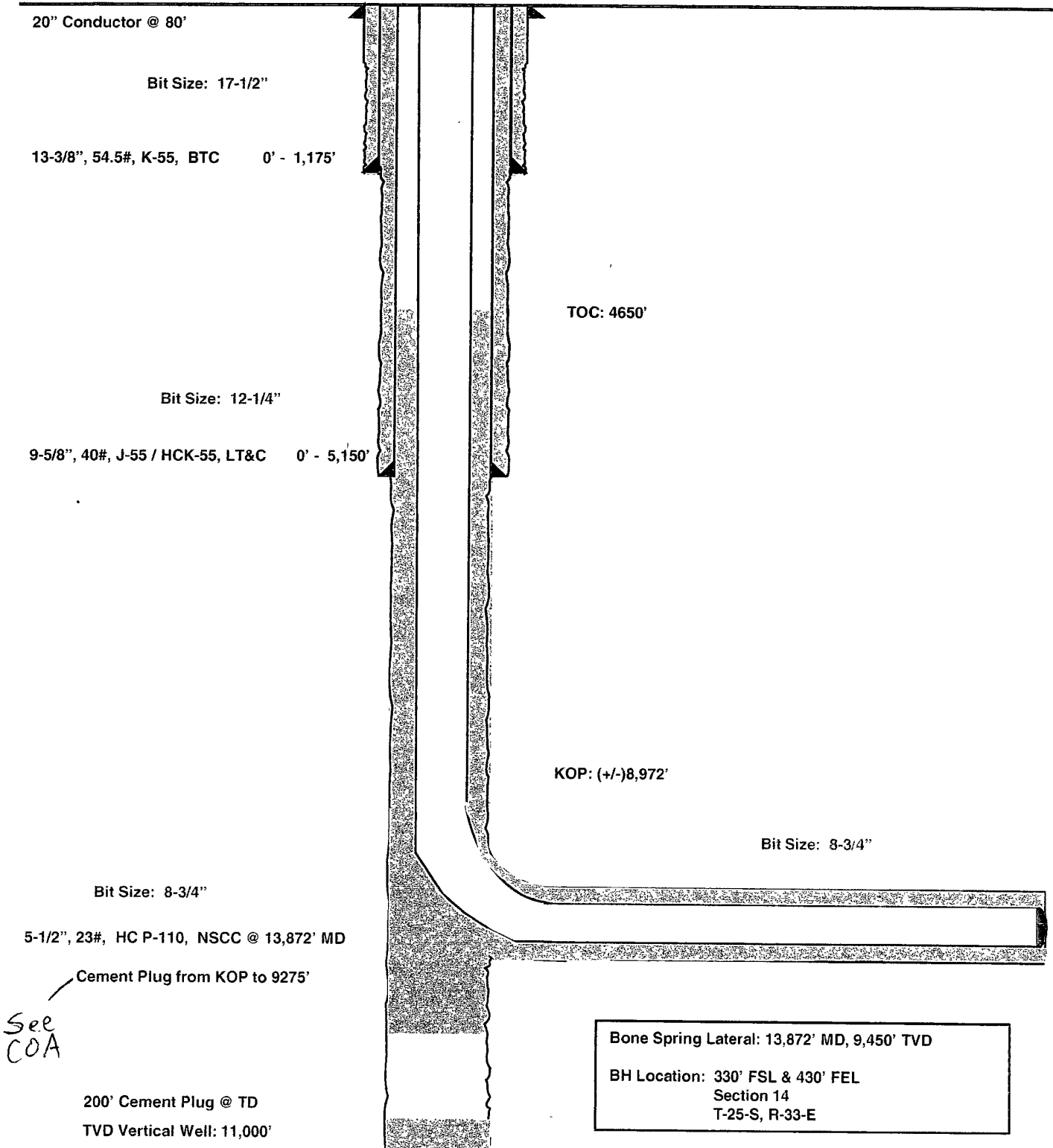
Vaca 14 Fed #4H
Red Hills
Lea County, New Mexico

330' FNL
660' FEL
Section 14
T-25-S, R-33-E

Proposed Wellbore

API: 30-025-

KB: 3,389.8'
GL: 3,359.8'





EOG Resources, Inc.

Lea County
Vaca "14" Fed
#4H
OH

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Plan: Plan #1

Pathfinder X & Y Planning Report

25 May, 2010

PATHFINDER

Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
MD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: 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 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 #4H

Well Position	+N/-S	0.00 ft	Northing:	414,392.500 ft	Latitude:	32° 8' 12.379 N
	+E/-W	0.00 ft	Easting:	746,721.700 ft	Longitude:	103° 32' 10.569 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,360.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	05/25/2010	7.68	60.16	48,705

Design Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 8,972.50

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	176.71

Survey Tool Program Date 05/25/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
8,972.50	13,872.09	Plan #1 (OH)		

Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed.
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
MD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
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)
0.00	0.00	0.00	0.00	-3,390.00	0.00	0.00	0.00	0.00	414,392.50	746,721.70
8,972.50	0.00	0.00	8,972.50	5,582.50	0.00	0.00	0.00	0.00	414,392.50	746,721.70
8,975.00	0.30	176.71	8,975.00	5,585.00	-0.01	0.00	0.01	12.00	414,392.49	746,721.70
9,000.00	3.30	176.71	8,999.98	5,609.98	-0.79	0.05	0.79	12.00	414,391.71	746,721.75
9,025.00	6.30	176.71	9,024.89	5,634.89	-2.88	0.17	2.88	12.00	414,389.62	746,721.87
9,050.00	9.30	176.71	9,049.66	5,659.66	-6.27	0.36	6.28	12.00	414,386.23	746,722.06
9,075.00	12.30	176.71	9,074.21	5,684.21	-10.94	0.63	10.96	12.00	414,381.56	746,722.33
9,100.00	15.30	176.71	9,098.49	5,708.49	-16.89	0.97	16.92	12.00	414,375.61	746,722.67
9,125.00	18.30	176.71	9,122.42	5,732.42	-24.11	1.39	24.15	12.00	414,368.39	746,723.09
9,150.00	21.30	176.71	9,145.94	5,755.94	-32.56	1.87	32.61	12.00	414,359.94	746,723.57
9,175.00	24.30	176.71	9,168.98	5,778.98	-42.23	2.43	42.30	12.00	414,350.27	746,724.13
9,200.00	27.30	176.71	9,191.49	5,801.49	-53.09	3.05	53.18	12.00	414,339.41	746,724.75
9,225.00	30.30	176.71	9,213.40	5,823.40	-65.11	3.74	65.22	12.00	414,327.39	746,725.44
9,250.00	33.30	176.71	9,234.64	5,844.64	-78.26	4.50	78.39	12.00	414,314.24	746,726.20
9,268.62	35.53	176.71	9,250.00	5,860.00	-88.77	5.10	88.91	12.00	414,303.73	746,726.80
Bone Spring Lime										
9,275.00	36.30	176.71	9,255.17	5,865.17	-92.50	5.32	92.66	12.00	414,300.00	746,727.02
9,300.00	39.30	176.71	9,274.92	5,884.92	-107.80	6.20	107.98	12.00	414,284.70	746,727.90
9,325.00	42.30	176.71	9,293.84	5,903.84	-124.10	7.13	124.31	12.00	414,268.40	746,728.83
9,350.00	45.30	176.71	9,311.89	5,921.89	-141.38	8.13	141.61	12.00	414,251.12	746,729.83
9,375.00	48.30	176.71	9,329.00	5,939.00	-159.57	9.17	159.83	12.00	414,232.93	746,730.87
9,400.00	51.30	176.71	9,345.14	5,955.14	-178.63	10.27	178.92	12.00	414,213.87	746,731.97
9,425.00	54.30	176.71	9,360.25	5,970.25	-198.50	11.41	198.83	12.00	414,194.00	746,733.11
9,450.00	57.30	176.71	9,374.30	5,984.30	-219.14	12.60	219.51	12.00	414,173.36	746,734.30
9,475.00	60.30	176.71	9,387.25	5,997.25	-240.49	13.82	240.89	12.00	414,152.01	746,735.52
9,500.00	63.30	176.71	9,399.07	6,009.07	-262.48	15.09	262.92	12.00	414,130.02	746,736.79
9,525.00	66.30	176.71	9,409.71	6,019.71	-285.06	16.39	285.53	12.00	414,107.44	746,738.09

Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
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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)
9,550.00	69.29	176.71	9,419.16	6,029.16	-308.17	17.71	308.68	12.00	414,084.33	746,739.41
9,575.00	72.29	176.71	9,427.38	6,037.38	-331.73	19.07	332.28	12.00	414,060.77	746,740.77
9,600.00	75.29	176.71	9,434.36	6,044.36	-355.70	20.45	356.29	12.00	414,036.80	746,742.15
9,625.00	78.29	176.71	9,440.07	6,050.07	-379.99	21.84	380.62	12.00	414,012.51	746,743.54
9,650.00	81.29	176.71	9,444.50	6,054.50	-404.56	23.26	405.22	12.00	413,987.94	746,744.96
9,675.00	84.29	176.71	9,447.63	6,057.63	-429.31	24.68	430.02	12.00	413,963.19	746,746.38
9,700.00	87.29	176.71	9,449.47	6,059.47	-454.20	26.11	454.95	12.00	413,938.30	746,747.81
9,722.56	90.00	176.71	9,450.00	6,060.00	-476.71	27.40	477.50	12.00	413,915.79	746,749.10
9,800.00	90.00	176.71	9,450.00	6,060.00	-554.03	31.85	554.94	0.00	413,838.47	746,753.55
9,900.00	90.00	176.71	9,450.00	6,060.00	-653.87	37.59	654.94	0.00	413,738.63	746,759.29
10,000.00	90.00	176.71	9,450.00	6,060.00	-753.70	43.33	754.94	0.00	413,638.80	746,765.03
10,100.00	90.00	176.71	9,450.00	6,060.00	-853.54	49.07	854.94	0.00	413,538.96	746,770.77
10,200.00	90.00	176.71	9,450.00	6,060.00	-953.37	54.80	954.94	0.00	413,439.13	746,776.50
10,300.00	90.00	176.71	9,450.00	6,060.00	-1,053.21	60.54	1,054.94	0.00	413,339.29	746,782.24
10,400.00	90.00	176.71	9,450.00	6,060.00	-1,153.04	66.28	1,154.94	0.00	413,239.46	746,787.98
10,500.00	90.00	176.71	9,450.00	6,060.00	-1,252.88	72.02	1,254.94	0.00	413,139.62	746,793.72
10,600.00	90.00	176.71	9,450.00	6,060.00	-1,352.71	77.76	1,354.94	0.00	413,039.79	746,799.46
10,700.00	90.00	176.71	9,450.00	6,060.00	-1,452.55	83.50	1,454.94	0.00	412,939.95	746,805.20
10,800.00	90.00	176.71	9,450.00	6,060.00	-1,552.38	89.24	1,554.94	0.00	412,840.12	746,810.94
10,900.00	90.00	176.71	9,450.00	6,060.00	-1,652.22	94.98	1,654.94	0.00	412,740.28	746,816.68
11,000.00	90.00	176.71	9,450.00	6,060.00	-1,752.05	100.72	1,754.94	0.00	412,640.45	746,822.42
11,100.00	90.00	176.71	9,450.00	6,060.00	-1,851.89	106.45	1,854.94	0.00	412,540.61	746,828.15
11,200.00	90.00	176.71	9,450.00	6,060.00	-1,951.72	112.19	1,954.94	0.00	412,440.78	746,833.89
11,300.00	90.00	176.71	9,450.00	6,060.00	-2,051.56	117.93	2,054.94	0.00	412,340.94	746,839.63
11,400.00	90.00	176.71	9,450.00	6,060.00	-2,151.39	123.67	2,154.94	0.00	412,241.11	746,845.37
11,500.00	90.00	176.71	9,450.00	6,060.00	-2,251.23	129.41	2,254.94	0.00	412,141.27	746,851.11
11,600.00	90.00	176.71	9,450.00	6,060.00	-2,351.06	135.15	2,354.94	0.00	412,041.44	746,856.85

Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
MD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
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)
11,700.00	90.00	176.71	9,450.00	6,060.00	-2,450.90	140.89	2,454.94	0.00	411,941.60	746,862.59
11,800.00	90.00	176.71	9,450.00	6,060.00	-2,550.73	146.63	2,554.94	0.00	411,841.77	746,868.33
11,900.00	90.00	176.71	9,450.00	6,060.00	-2,650.57	152.37	2,654.94	0.00	411,741.93	746,874.07
12,000.00	90.00	176.71	9,450.00	6,060.00	-2,750.40	158.11	2,754.94	0.00	411,642.10	746,879.81
12,100.00	90.00	176.71	9,450.00	6,060.00	-2,850.24	163.84	2,854.94	0.00	411,542.26	746,885.54
12,200.00	90.00	176.71	9,450.00	6,060.00	-2,950.07	169.58	2,954.94	0.00	411,442.43	746,891.28
12,300.00	90.00	176.71	9,450.00	6,060.00	-3,049.91	175.32	3,054.94	0.00	411,342.59	746,897.02
12,400.00	90.00	176.71	9,450.00	6,060.00	-3,149.74	181.06	3,154.94	0.00	411,242.76	746,902.76
12,500.00	90.00	176.71	9,450.00	6,060.00	-3,249.58	186.80	3,254.94	0.00	411,142.92	746,908.50
12,600.00	90.00	176.71	9,450.00	6,060.00	-3,349.42	192.54	3,354.94	0.00	411,043.08	746,914.24
12,700.00	90.00	176.71	9,450.00	6,060.00	-3,449.25	198.28	3,454.94	0.00	410,943.25	746,919.98
12,800.00	90.00	176.71	9,450.00	6,060.00	-3,549.09	204.02	3,554.94	0.00	410,843.41	746,925.72
12,900.00	90.00	176.71	9,450.00	6,060.00	-3,648.92	209.76	3,654.94	0.00	410,743.58	746,931.46
13,000.00	90.00	176.71	9,450.00	6,060.00	-3,748.76	215.50	3,754.94	0.00	410,643.74	746,937.20
13,100.00	90.00	176.71	9,450.00	6,060.00	-3,848.59	221.23	3,854.94	0.00	410,543.91	746,942.93
13,200.00	90.00	176.71	9,450.00	6,060.00	-3,948.43	226.97	3,954.94	0.00	410,444.07	746,948.67
13,300.00	90.00	176.71	9,450.00	6,060.00	-4,048.26	232.71	4,054.94	0.00	410,344.24	746,954.41
13,400.00	90.00	176.71	9,450.00	6,060.00	-4,148.10	238.45	4,154.94	0.00	410,244.40	746,960.15
13,500.00	90.00	176.71	9,450.00	6,060.00	-4,247.93	244.19	4,254.94	0.00	410,144.57	746,965.89
13,600.00	90.00	176.71	9,450.00	6,060.00	-4,347.77	249.93	4,354.94	0.00	410,044.73	746,971.63
13,700.00	90.00	176.71	9,450.00	6,060.00	-4,447.60	255.67	4,454.94	0.00	409,944.90	746,977.37
13,800.00	90.00	176.71	9,450.00	6,060.00	-4,547.44	261.41	4,554.94	0.00	409,845.06	746,983.11
13,872.09	90.00	176.71	9,450.00	6,060.00	-4,619.41	265.54	4,627.03	0.00	409,773.09	746,987.24

PBHL(Vaca#4)

Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed
Well: #4H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #4H
TVD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
MD Reference: Cactus #123 @ 3390.00ft (30' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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(Vaca#4) - plan hits target center - Point	0.00	0.00	9,450.00	-4,619.40	265.70	409,773.100	746,987.400	32° 7' 26.648 N	103° 32' 7.877 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
9,268.62	9,250.00	Bone Spring Lime		0.00	
	10,845.00	2nd Bone Spring Sand		0.00	
4,840.00	4,840.00	Base Salt		0.00	
6,170.00	6,170.00	Cherry Canyon		0.00	
	10,470.00	2nd Bone Spring		0.00	
1,125.00	1,125.00	Rustler		0.00	
	10,100.00	1st Bone Spring Sand		0.00	
5,110.00	5,110.00	Bell Canyon		0.00	
5,080.00	5,080.00	Lamar		0.00	

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County
Site: Vaca "14" Fed
Well: #4H
Wellbore: OH
Plan: Plan #1 (#4H/OH)



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

Magnetic Field
Strength: 48705.1snT
Dip Angle: 60.16°
Date: 05/25/2010
Model: IGRF200510

PATHFINDER

WELL DETAILS: #4H

Ground Elevation:: 3360.00
RKB Elevation: Cactus #123 @ 3390.00ft (30' KB Correction)
Rig Name: 30' KB Correction

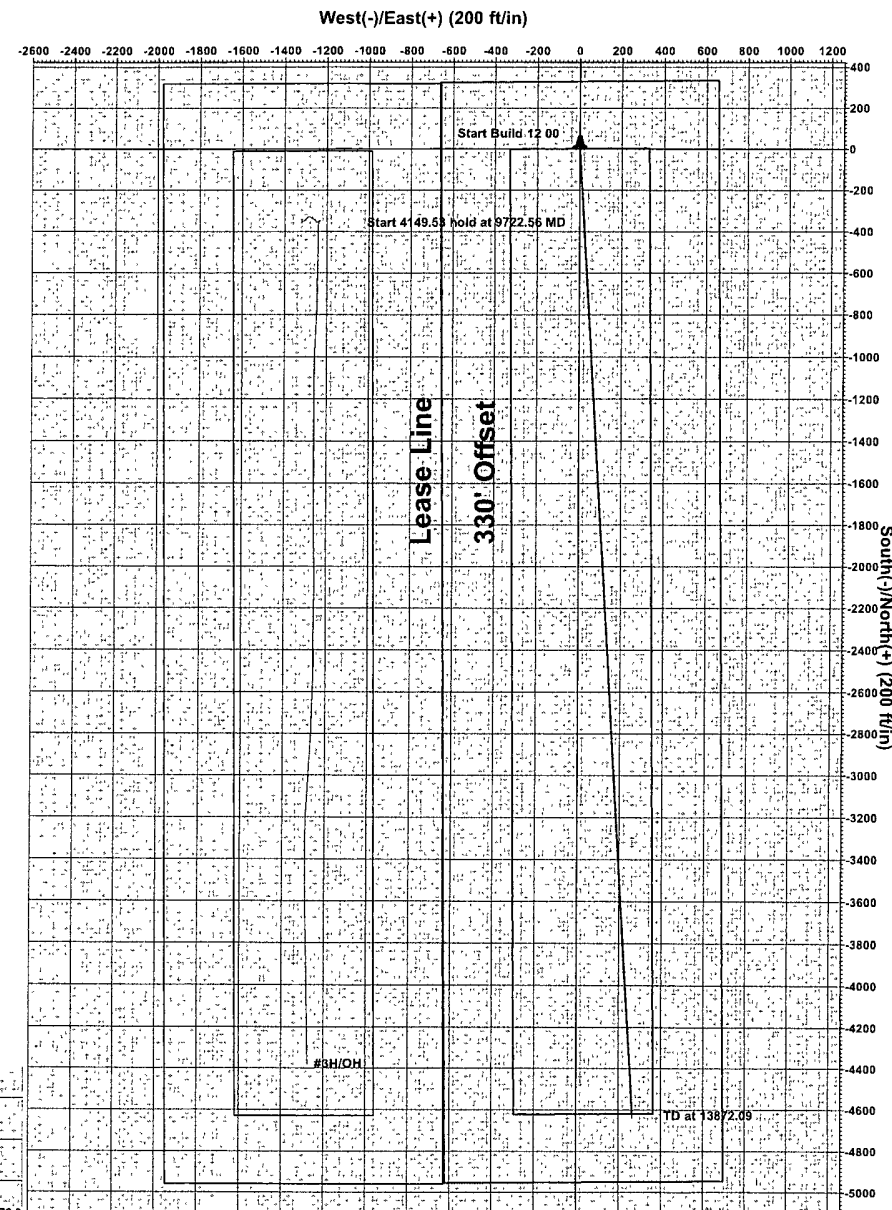
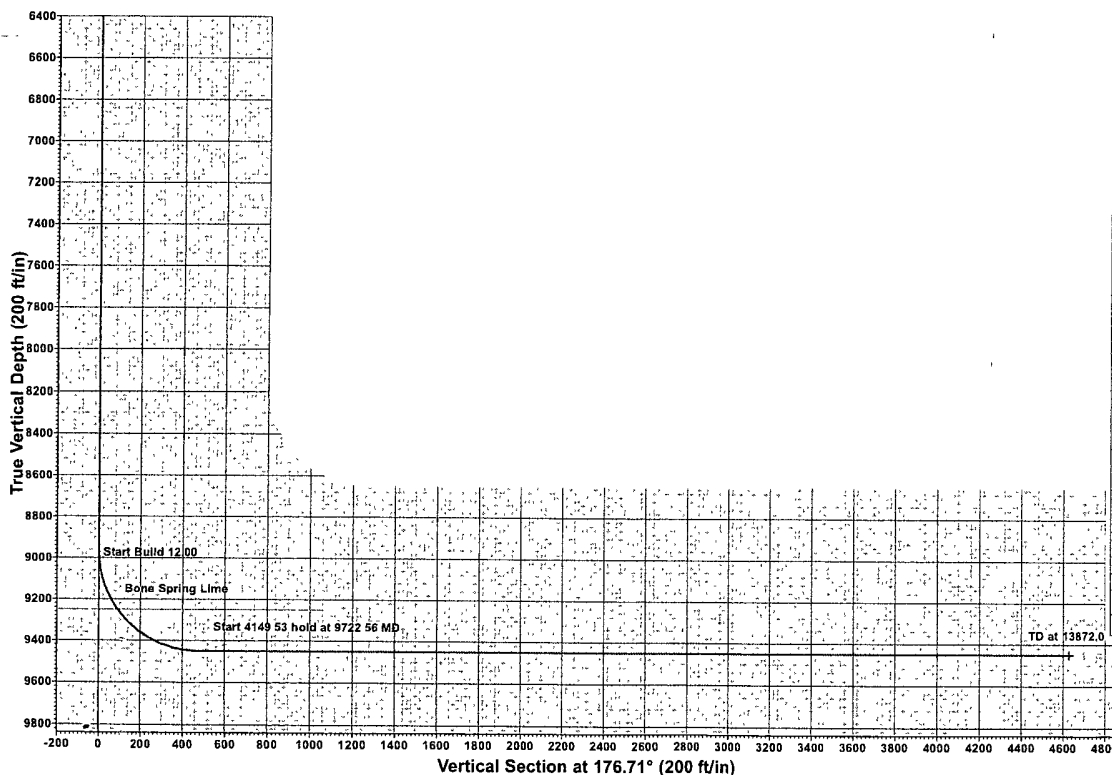
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	414392.500	746721.700	32° 8' 12.379 N	103° 32' 10.569 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL(Vaca#4)	9450.00	-4619.40	265.70	409773.100	746987.400

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	8972.50	0.00	0.00	8972.50	0.00	0.00	0.00	0.00	0.00	
2	9722.56	90.00	176.71	9450.00	-476.71	27.40	12.00	176.71	477.50	
3	13872.09	90.00	176.71	9450.00	-4619.41	265.54	0.00	0.00	4627.03	PBHL(Vaca#4)



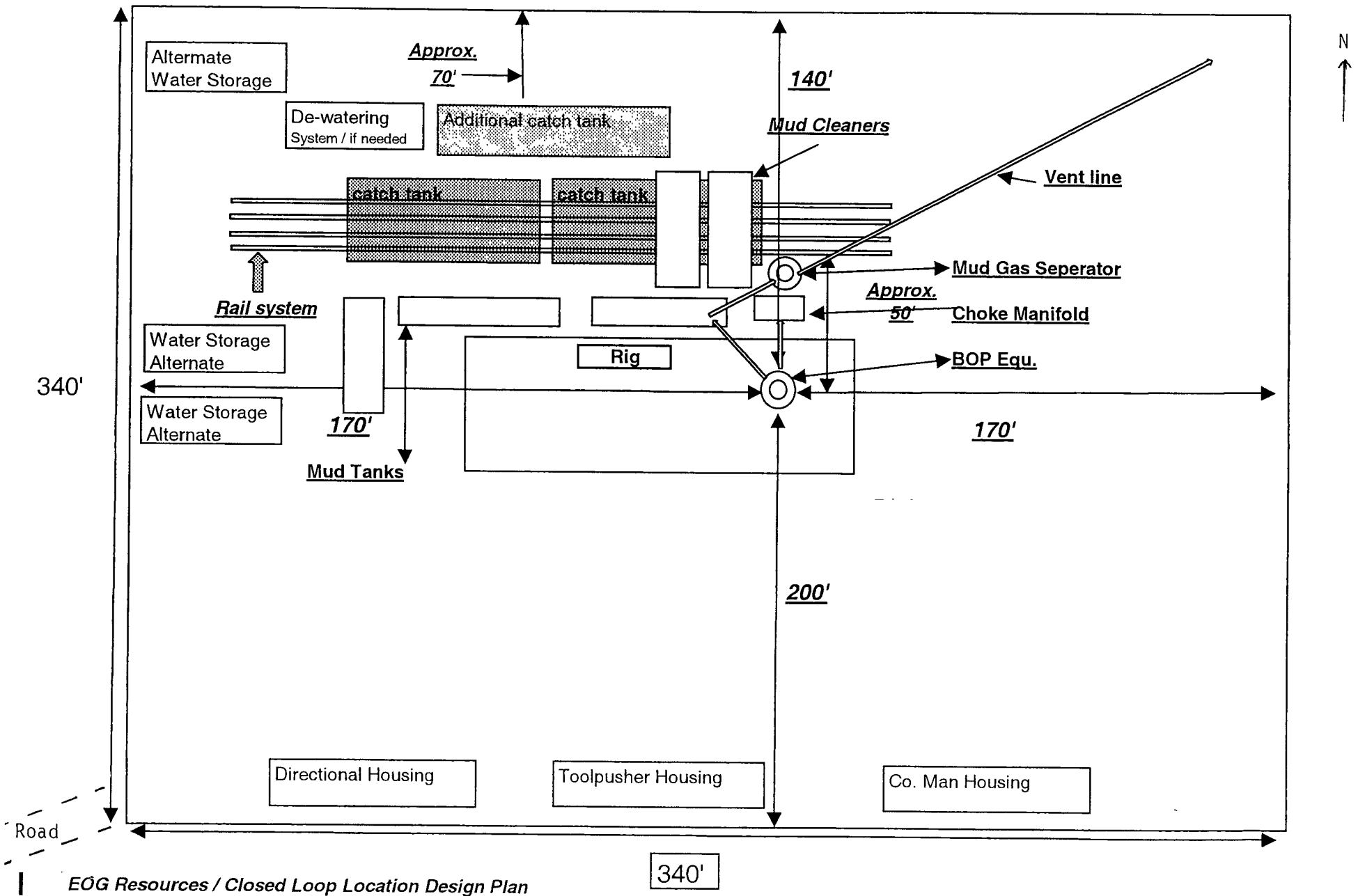
PROJECT DETAILS: Lea County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level
Local North: Grid

Plan Plan #1 (#4H/OH)

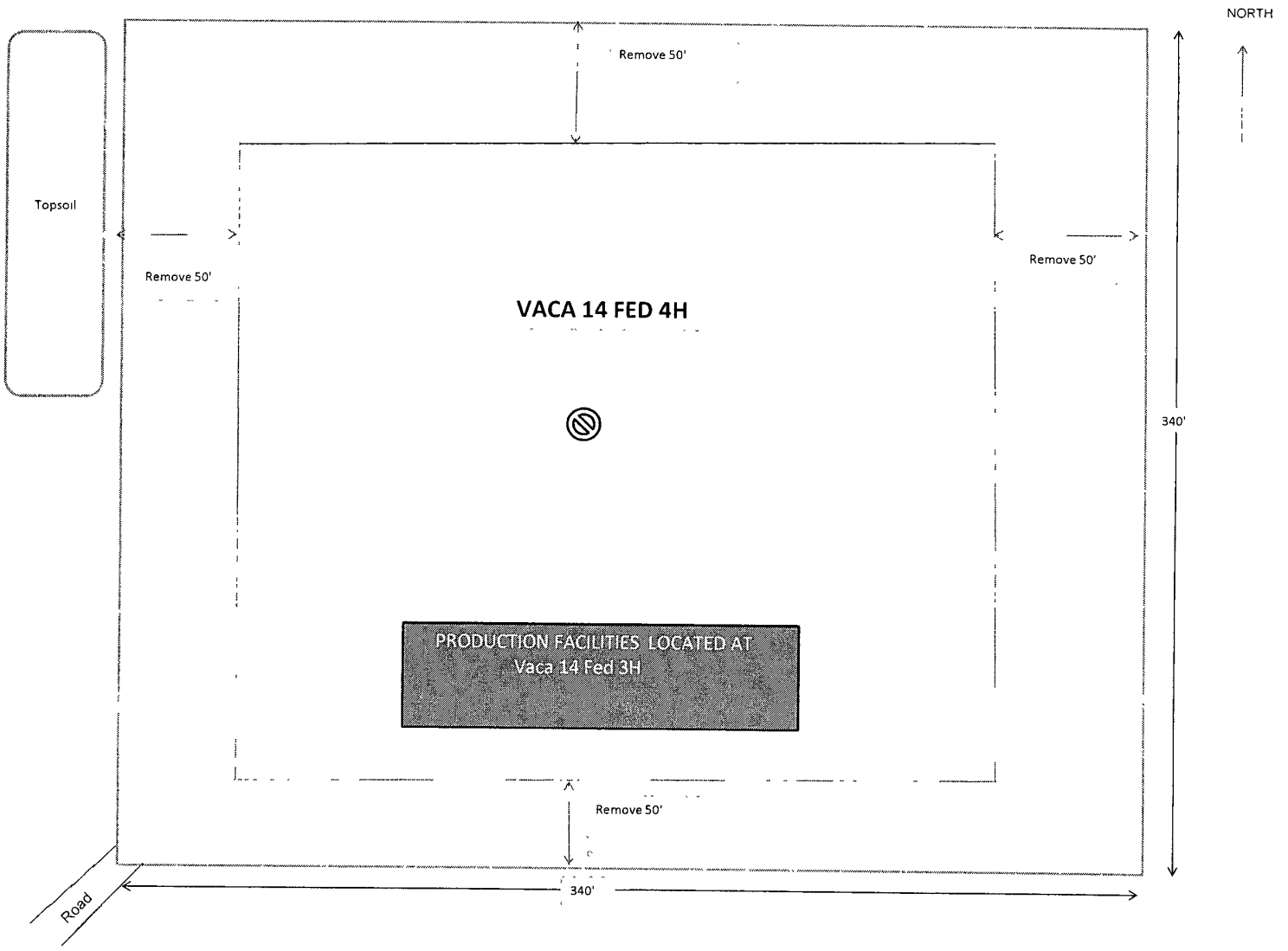
Created By: Nate Bingham Date: 10.29, May 25 2010

Checked: _____ Date: _____



Not to scale

Production Facility Layout



NOT TO SCALE

EOG RESOURCES, INC.
VACA 14 FED 4H

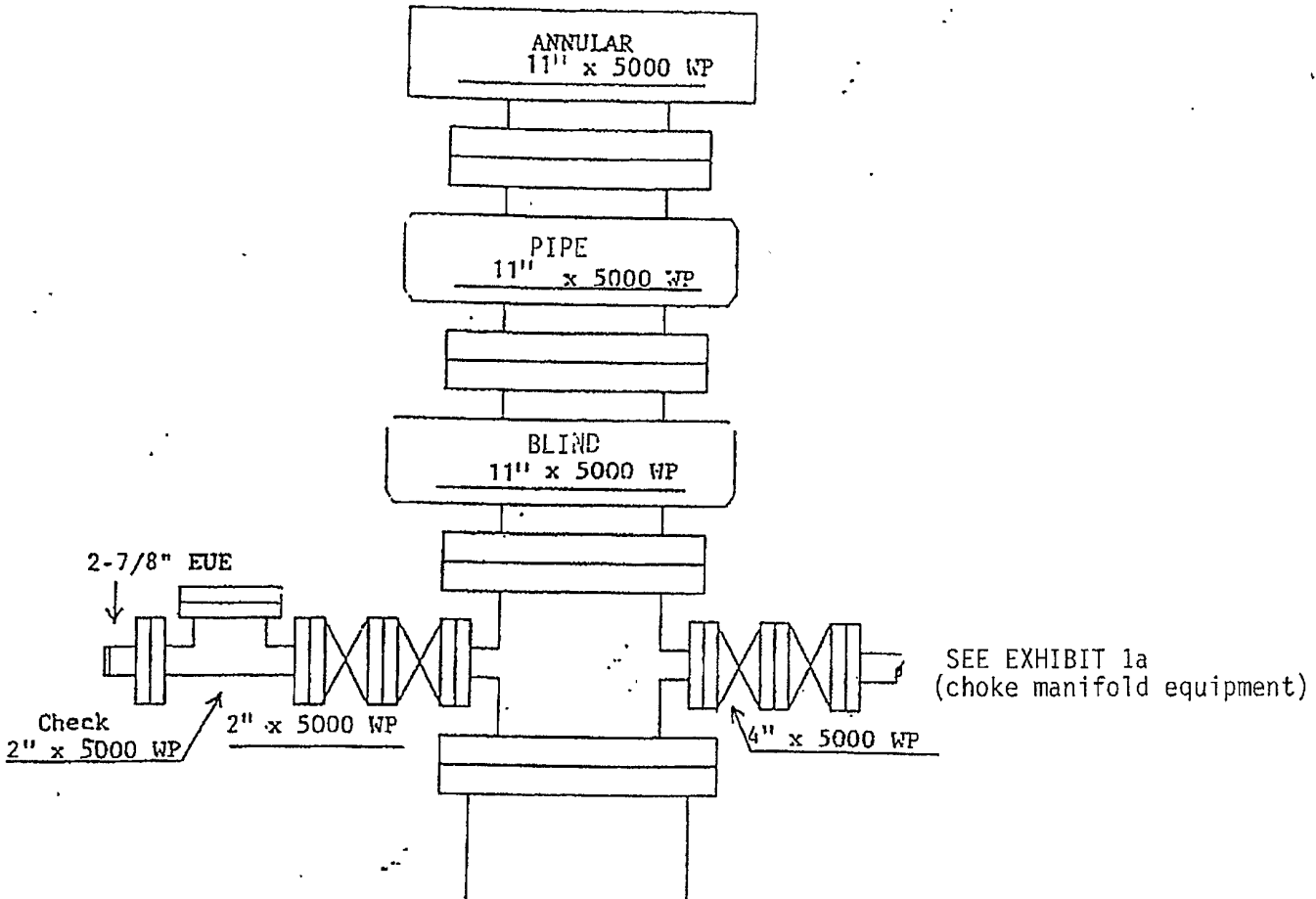
ATTACHMENT TO EXHIBIT #1

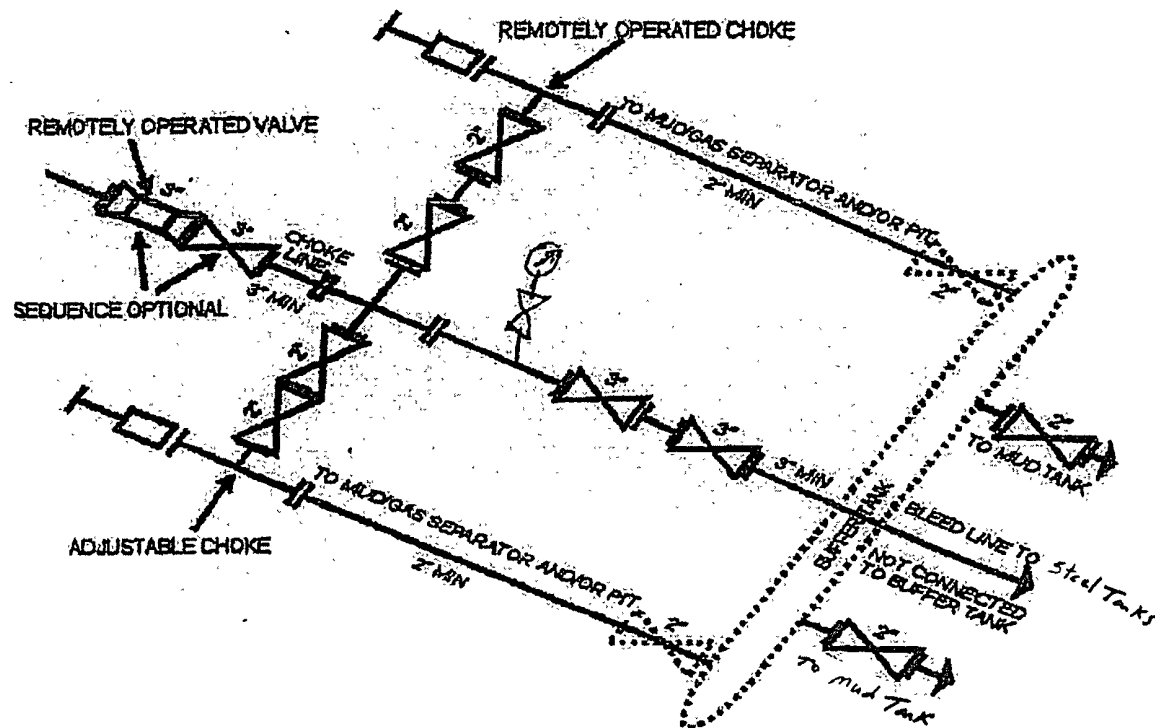
1. Wear ring to be properly installed in head.
2. Blow out preventer and all fittings must be in good condition, 5000 psi W.P. minimum. Exhibit #1.
3. All fittings to be flanged
4. Safety valve must be available on rig floor at all times with proper connections, valve to be full bore 5000 psi W.P. minimum.
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 4H



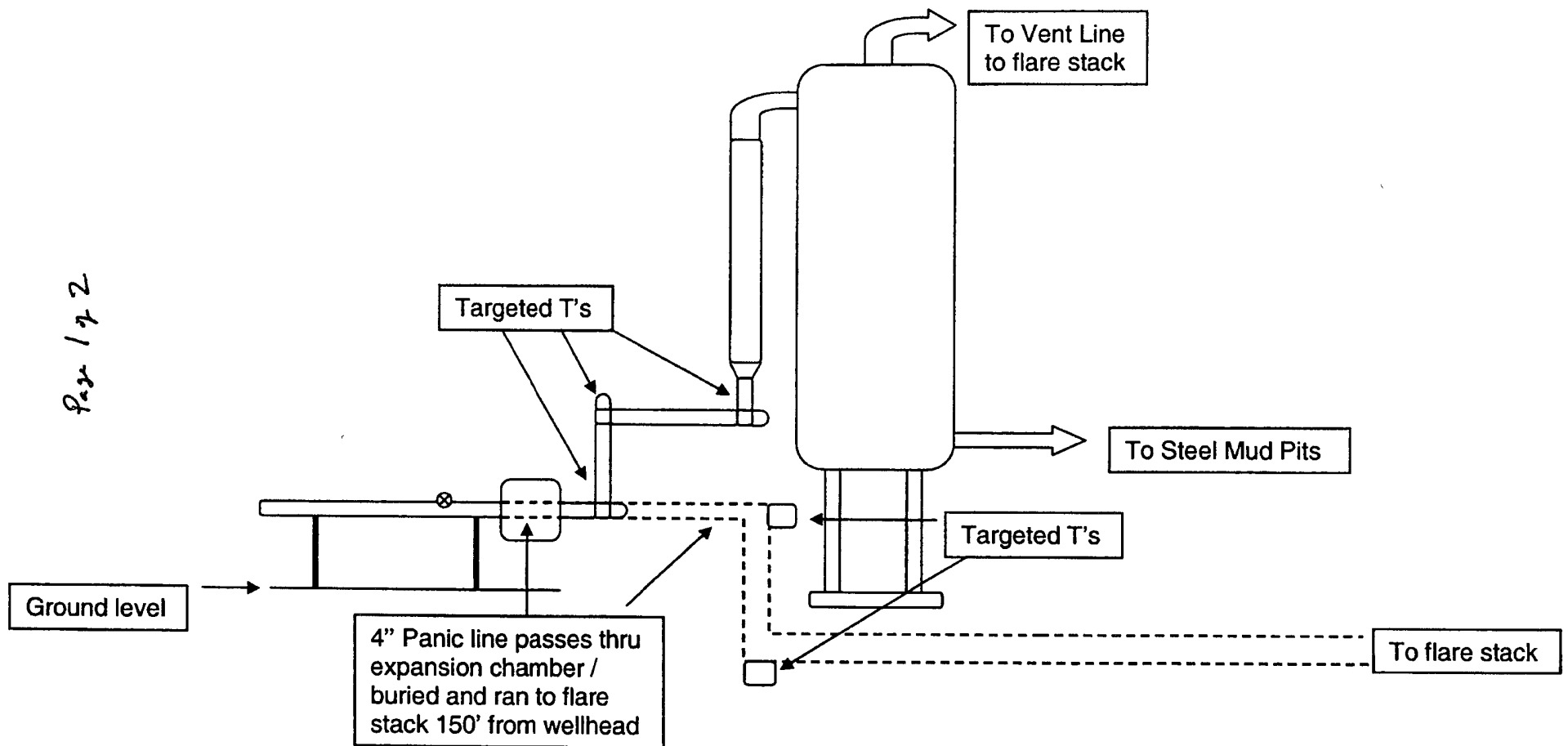


5M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

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



Page 2 of 2

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

