AUG – 7 2008

OCD-ARTESIA

OCD-ARTESIA

ATS-08-733
EA-06-1152

Form 3160-3
(February 2005)

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

Split Estate

S

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work ☑ DRILL ☐ REENTER	5 Lease Serial No. **NM 109414**
	6 If Indian, Allotee or Tribe Name
	7 If Unit or CA Agreement, Name and No.
1b Type of Well ☐ Oil Well ☑ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	8. Lease Name and Well No. 37303 **PEMBINA B 33 FED COM 2H**
2 Name of Operator **EOG Resources, Inc.** 7377	9 API Well No. **30-015-36502**
3a Address **P.O. Box 2267 Midland, TX 79702** / 3b Phone No. *(include area code)* **432-686-3642**	10 Field and Pool, or Exploratory **Four Mile Draw; Wolfcamp (G)**
4 Location of Well *(Report location clearly and in accordance with any State requirements *)* At surface **760' FSL & 510' FEL (U/L P)** At proposed prod. zone **760' FSL & 660' FWL (U/L M)**	11. Sec., T R M or Blk and Survey or Area **Section 33, T18S-R23E, N.M.P.M.**
14 Distance in miles and direction from nearest town or post office* **Approx 8 miles SE of Hope, NM**	12 County or Parish **Eddy** / 13 State **NM**

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) **510'**	16 No of acres in lease **160**	17. Spacing Unit dedicated to this well **S/2 Sec 33, T18S-R23E, N.M.P.M.**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **820'**	19 Proposed Depth ~~4,430~~ 4530 **TVD; 8,445' TMD**	20 BLM/BIA Bond No. on file **NM2308**
21 Elevations (Show whether DF, KDB, RT, GL, etc.) **GL 3,938'**	22 Approximate date work will start* **08/01/2008**	23 Estimated duration **14**

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)* **Donny G. Glanton**	Date **05/27/2008**
Title **Sr. Lease Operations ROW Representative**		
Approved by *(Signature)* **/s/ James Stovall**	Name *(Printed/Typed)*	Date AUG 4 2008
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

*(Instructions on page 2)

Roswell Controlled Water Basin

NOTE: NEW PIT RULE
19-15-17 NMAC PART 17
A form C-144 must be approved
before starting drilling operations.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements & 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-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
30-015-	97415	Four Mile Draw ; Wolfcamp (G)

Property Code	Property Name	Well Number
37048	PEMBINA "B" 33 FED. COM	2H
OGRID No.	**Operator Name**	**Elevation**
7377	EOG RESOURCES, INC.	3938.1'

Surface Location

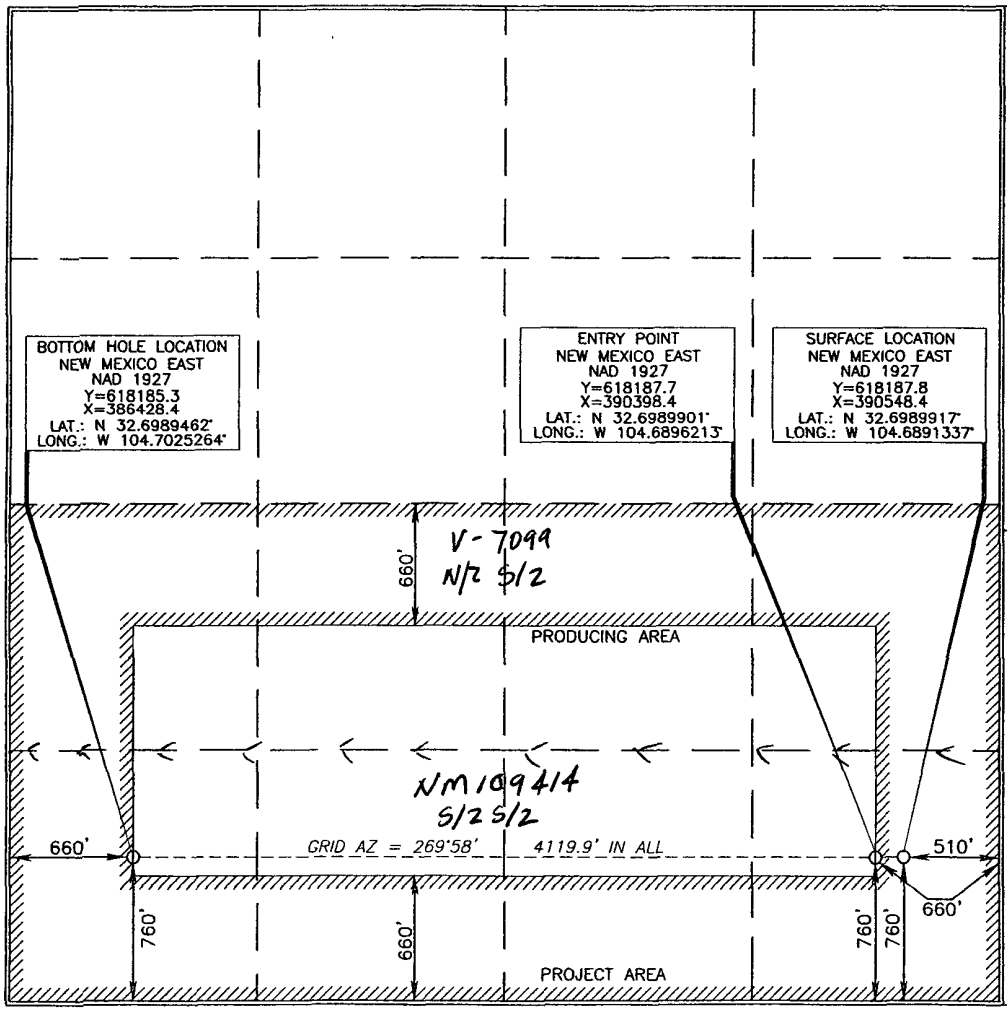
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	33	18 SOUTH	23 EAST, N.M.P.M.		760'	SOUTH	510'	EAST	EDDY

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	33	18 SOUTH	23 EAST, N.M.P.M.		760'	SOUTH	660'	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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: 5/23/08

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.

MAY 1, 2008
Date of Survey

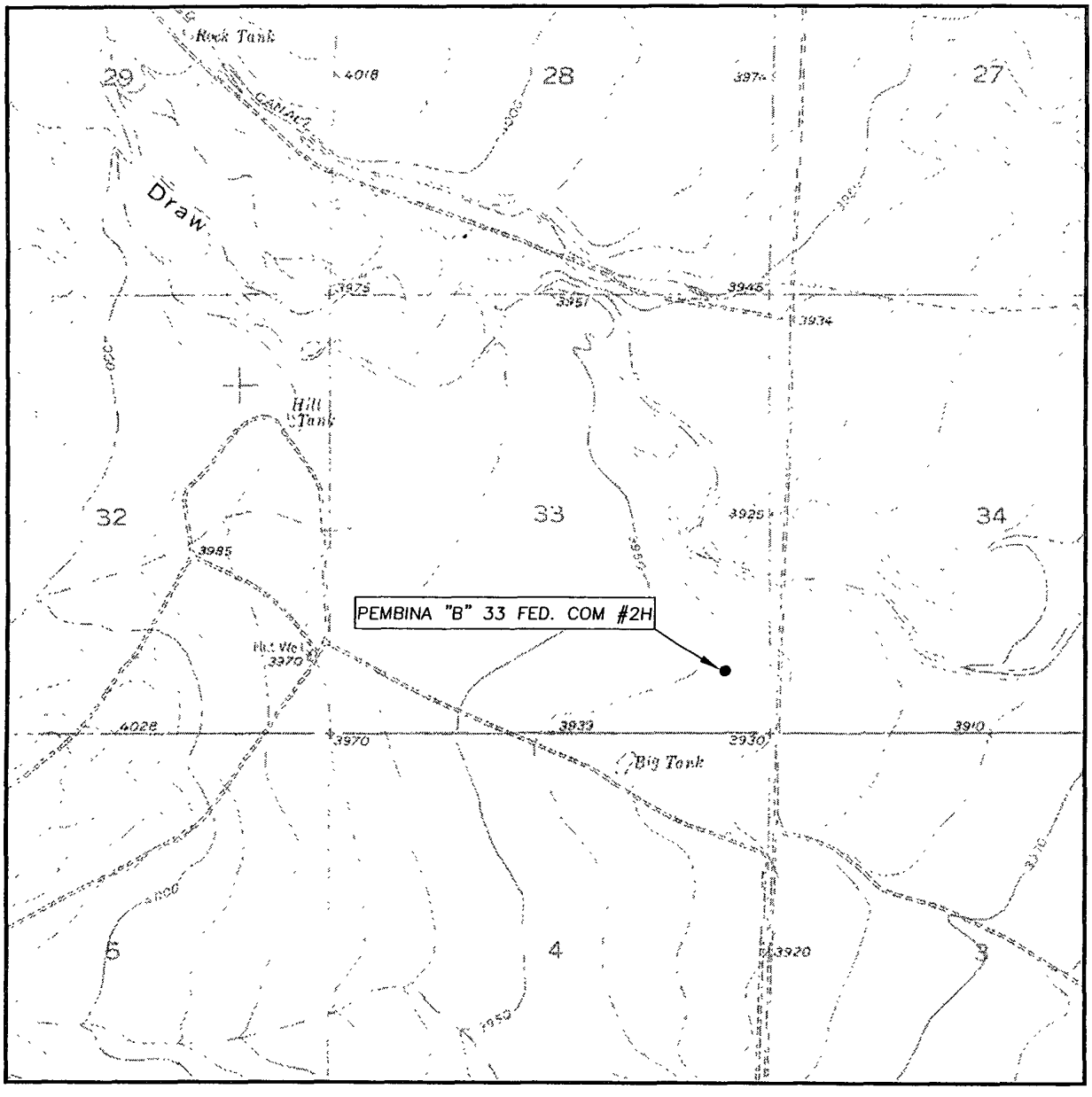
Signature and Seal of Professional Surveyor

NEW MEXICO — 15079 — REGISTERED PROFESSIONAL LAND SURVEYOR

5/13/2008
Certificate Number 15079

WO# 080115WL-d (Rev. A) (KA)

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 33 TWP. 18-S RGE. 23-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 760' FSL & 510' FEL

ELEVATION 3938.1'

OPERATOR EOG RESOURCES INC.

LEASE PEMBINA "B" 33 FED. COM #2H

U.S.G.S. TOPOGRAPHIC MAP
ANTELOPE SINK, N.M.

Asel Surveying

P.O. BOX 393 - 310 W TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

Permit Information:

Well Name: Pembina B 33 Fed Com #2H Revised 5/20/08

Location:
SL 760' FSL & 510' FEL, Section 33, T-18-S, R-23-E, Eddy Co., N.M.
BHL 760' FSL & 660' FWL, Section 33, T-18-S, R-23-E, Eddy Co., N.M.

Casing Program:

Casing	Setting Depth	Hole Size	Casing Size	Casing Weight	Casing Grade	Desired TOC
Surface	1,200'	12-1/4"	8-5/8"	32#	J-55	Surface
Production	8,445'	7-7/8"	5 ½"	17#	N-80	Surface

Cement Program:

Depth	No. Sacks	Slurries:
1,200'	345	Lead: 35:65 Poz C + 4% Bentonite+ 0.005 gps FP-6L + 0.005 pps Static Free + 5 pps LCM-1 + 5% NaCl + 5% MPA-5 + 0.8% SMS
	400	Tail: Class C + 0.005 gps FP-6L + 0.005 pps Static Free + 0.125 pps CelloFlake
8,445'	630	Lead: 50:50 Poz:Class C + 0.005 gps FP-6L + 10% Bentonite + 0.005 pps Static Free + 0.125 pps CelloFlake
	745	Tail: 50:50 Poz:Class C + 2% Bentonite + 0.005 gps FP-6L + 0.005 pps Static Free + 5% NaCl + 0.3% FL-2A + 0.2% CD-32 + 0.05% R-3

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,200'	Fresh - Gel	8.6-8.8	28-34	N/c
1,200' – 3,000'	Fresh Water	8.4-8.6	28-34	N/c
3,000' – 4,048'	Cut Brine	8.8-9.2	28-34	10-15
4,048' – 8,445'	Polymer (Lateral)	9.0-9.4	40-45	10-25

EOG RESOURCES, INC.
PEMBINA B 33 FED COM 2H

DRILLING PROGRAM

1. GEOLOGIC NAME OF SURFACE FORMATION:

Quaternary Alluvium	0-200

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

San Andres	480'
Glorieta	1,750'
Tubb	3,050'
Abo Shale	3,740'
Wolfcamp Pay	4,530'

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

Quanterary Alluvium	0- 200'	Fresh Water
San Andres	480'	Oil
Glorieta	1,750'	Oil/Gas
Tubb	3,050'	Oil/Gas
Abo/Wolfcamp Pay	4,530'	Gas

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 8.625" casing at 1,200' and circulating cement back to surface.

4. CASING PROGRAM-NEW

Hole	Interval	OD Csg	Weight	Grade	Conn.	Collapse Design Factor	Burst Design Factor	Tension Design Factor
12.250"	0-1,200'	8.625"	32#	J-55	LT&C	4.41	3.81	9.96
7.875"	0-8,445'	5.5"	17#	N-80	LT&C	2.70	1.25	3.33

Cementing Program:

8.625" Surface Casing: Cement to surface, Lead: 345 sx 35:65 Poz C + 0.005 pps Static Free + 5% NaCl + 5 pps LCM-1 + 0.005 gps FP-6L + 4% Bentonite + 5% MPA-5 + 0.8% SMS, 12.7 ppg, 2.02 yield
Tail: 400 sx Prem Plus C + 0.125 pps CelloFlake + 0.005 FP-6L + 0.005 pps Static Free, 14.8 ppg, 1.33 yield

5.50" Production:	Cement to surface, Lead: 630 sx 50:50 Poz C + 0.005 pps Static Free + 0.125 pps CelloFlake + 0.005 gps FP-6L + 10% Bentonite, 11.8 ppg, 2.29 yield Tail: 745 sx 50:50 Poz C + 2% Bentonite + 0.005 gps FP-6L + 0.005 pps Static Free + 5% NaCl + 0.05% R-3 + 0.2% CD-32 + 0.3% FL-52A, 14.2 ppg, 1.30 yield

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 top and drill pipe rams on bottom. All BOP's and accessory equipment will be tested in accordance with Onshore Oil & Gas order No. 2. for a 3M system.

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 requests a variance to eliminate the stipulation requiring a BOPE test within 500' of the Wolfcamp. The Wolfcamp is not expected to be abnormally pressured (approx 1,800 lbs.) and the BOPE will be tested to the appropriate pressure requirements as per Onshore Order No. 2 prior to drilling out of the surface casing.

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	Wt (PPG)	Viscosit (sec)	Waterloss (cc)
0-1,200'	Fresh – Gel	8.6-8.8	28-34	N/c
1,200'-3,000'	Fresh water	8.8-9.2	28-34	N/c
3,000'-4,048'	Cut Brine	8.8-9.2	28-34	N/c
4,048'-8,445'	Polymer (Lateral)	9.0-9.4	40-45	10-25

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.

8. LOGGING, TESTING AND CORING PROGRAM:

No open-hole logging is anticipated. The Pembina B 33 Fed Com #2H is intended to be drilled as a non-pilot hole well.

GR- CCL in vertical - per operator 6/25/08 wsi

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

The estimated bottom hole temperature (BHT) at TD is 125 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 2000 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. No major loss circulation zones have been reported in offsetting wells.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 30-60 days will be required for completion and testing before a decision is made to install permanent facilities.

EOG Resources Inc
Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Pembina B 33 Fed Com #2H (II)
Company:	Midland - New Mexico	TVD Reference:	WELL @ 3957.10ft (Original Well Elev)
Project:	Thames	MD Reference:	WELL @ 3957.10ft (Original Well Elev)
Site:	Pembina B 33 Fed Com #2H (II)	North Reference:	Grid
Well:	Pembina B 33 Fed Com #2H (II)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pembina B 33 Fed Com #2H (II)		
Design:	Original Plan		

Project Thames

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

Site Pembina B 33 Fed Com #2H (II)

Site Position:		**Northing:**	618,187 80ft	**Latitude:**	32° 41' 56.370 N
From:	Map	**Easting:**	390,548.40ft	**Longitude:**	104° 41' 20 881 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	-0.19 ?

Well Pembina B 33 Fed Com #2H (II)

Well Position	**+N/-S**	0.00 ft	**Northing:**	618,187.80 ft	**Latitude:**	32° 41' 56.370 N
	+E/-W	0.00 ft	**Easting:**	390,548 40 ft	**Longitude:**	104° 41' 20.881 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3,938.10ft

Wellbore Pembina B 33 Fed Com #2H (II)

Magnetics	Model Name	Sample Date	Declination (?)	Dip Angle (?)	Field Strength (nT)
	IGRF2005	5/20/2008	8.48	60.48	49,029

Design Original Plan

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (?)
	4,439.00	0.00	0 00	269 97

Plan Sections

Measured Depth (ft)	Inclination (?)	Azimuth (?)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)	TFO (?)	Target
0 00	0.00	0 00	0 00	0.00	0.00	0 00	0.00	0 00	0.00	
4,048 00	0.00	0.00	4,048.00	0.00	0 00	0.00	0.00	0 00	0.00	
4,805.12	90.00	269.96	4,530.00	-0.34	-482.00	11 89	11.89	0 00	269.96	
5,805.12	90.00	269.96	4,530.00	-1.03	-1,482 00	0.00	0 00	0.00	0.00	
5,871 82	92.00	269.97	4,528.84	-1 08	-1,548.69	3.00	3.00	0.01	0.24	
8,444 65	92 00	269.97	4,439.00	-2 50	-4,119 94	0.00	0 00	0.00	0 00	
8,444.72	92.00	269.97	4,439.00	-2.50	-4,120.01	3.00	-1.45	2.63	118.99	BHL (Pembina B #2

Database:	EDM	**Local Co-ordinate Reference:**	Well Pembina B 33 Fed Com #2H (II)
Company:	Midland - New Mexico	**TVD Reference:**	WELL @ 3957.10ft (Original Well Elev)
Project:	Thames	**MD Reference:**	WELL @ 3957 10ft (Original Well Elev)
Site:	Pembina B 33 Fed Com #2H (II)	**North Reference:**	Grid
Well:	Pembina B 33 Fed Com #2H (II)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Pembina B 33 Fed Com #2H (II)		
Design:	Original Plan		

Planned Survey

Measured Depth (ft)	Inclination (?)	Azimuth (?)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)
0.00	0 00	0.00	0.00	0 00	0.00	0 00	0.00	0.00	0 00
100.00	0 00	0.00	100 00	0 00	0.00	0 00	0 00	0.00	0.00
200 00	0 00	0.00	200 00	0 00	0.00	0 00	0 00	0.00	0.00
300.00	0 00	0 00	300.00	0 00	0.00	0.00	0.00	0 00	0 00
400 00	0 00	0 00	400.00	0.00	0 00	0.00	0 00	0 00	0 00
500 00	0 00	0 00	500.00	0.00	0 00	0.00	0.00	0 00	0.00
600.00	0.00	0.00	600 00	0 00	0 00	0.00	0 00	0 00	0 00
700 00	0.00	0.00	700 00	0 00	0.00	0 00	0 00	0 00	0.00
800.00	0 00	0 00	800 00	0.00	0.00	0 00	0.00	0.00	0.00
900 00	0 00	0 00	900.00	0 00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0 00	0 00
1,100.00	0 00	0.00	1,100.00	0.00	0.00	0 00	0 00	0.00	0 00
1,200.00	0 00	0.00	1,200.00	0 00	0.00	0 00	0.00	0 00	0 00
1,300 00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0 00	0.00
1,400.00	0.00	0.00	1,400.00	0 00	0.00	0.00	0.00	0 00	0 00
1,500 00	0.00	0.00	1,500.00	0 00	0 00	0.00	0.00	0.00	0.00
1,600.00	0.00	0 00	1,600 00	0.00	0.00	0.00	0.00	0 00	0.00
1,700 00	0 00	0 00	1,700.00	0 00	0.00	0.00	0.00	0.00	0.00
1,800 00	0.00	0.00	1,800 00	0.00	0.00	0 00	0.00	0 00	0 00
1,900 00	0.00	0.00	1,900 00	0.00	0.00	0 00	0.00	0.00	0 00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0 00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0 00
2,300.00	0.00	0.00	2,300.00	0 00	0 00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0 00	0.00	0 00	0.00	0.00	0 00
2,500 00	0.00	0.00	2,500.00	0 00	0.00	0.00	0 00	0 00	0 00
2,600 00	0.00	0.00	2,600.00	0 00	0.00	0 00	0 00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900 00	0 00	0 00	2,900.00	0 00	0.00	0 00	0.00	0.00	0.00
3,000.00	0 00	0 00	3,000.00	0.00	0 00	0.00	0.00	0 00	0.00
3,100.00	0.00	0 00	3,100.00	0.00	0 00	0.00	0.00	0.00	0 00
3,200.00	0 00	0 00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300 00	0 00	0.00	3,300.00	0.00	0 00	0.00	0.00	0 00	0 00
3,400 00	0.00	0.00	3,400.00	0 00	0.00	0 00	0 00	0.00	0 00
3,500 00	0.00	0.00	3,500.00	0 00	0.00	0 00	0 00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0 00	0.00	0.00	0 00	0.00	0 00
3,700 00	0 00	0.00	3,700.00	0.00	0.00	0 00	0.00	0.00	0 00
3,800 00	0.00	0.00	3,800.00	0 00	0.00	0.00	0.00	0 00	0.00
3,900.00	0.00	0 00	3,900.00	0 00	0 00	0.00	0.00	0.00	0.00
4,000 00	0.00	0 00	4,000.00	0 00	0 00	0.00	0.00	0.00	0 00
4,048.00	0.00	0 00	4,048.00	0.00	0 00	0.00	0.00	0.00	0 00
4,100.00	6 18	269 96	4,099.90	0.00	-2 80	2.80	11 89	11 89	0.00
4,200.00	18.07	269.96	4,197.49	-0.02	-23.77	23 77	11.89	11.89	0.00
4,300.00	29.96	269.96	4,288.68	-0.04	-64.39	64.39	11.89	11.89	0.00
4,400.00	41.84	269.96	4,369 54	-0 09	-122.92	122.92	11 89	11.89	0.00
4,500 00	53.73	269.96	4,436 61	-0 14	-196.85	196.85	11.89	11.89	0 00
PP (Pembina B #2H (II))									
4,600.00	65 62	269 96	4,487 01	-0 20	-283.01	283.01	11.89	11 89	0.00
4,700.00	77.50	269.96	4,518.58	-0.26	-377 71	377 71	11 89	11 89	0.00
4,800.00	89 39	269 96	4,529.97	-0 33	-476 88	476 88	11 89	11.89	0.00
4,805 12	90 00	269.96	4,530.00	-0.34	-482 00	482.00	11 89	11 89	0.00
4,900 00	90.00	269.96	4,530.00	-0.40	-576.88	576.88	0.00	0.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well Pembina B 33 Fed Com #2H (II)
Company:	Midland - New Mexico	TVD Reference:	WELL @ 3957 10ft (Original Well Elev)
Project:	Thames	MD Reference:	WELL @ 3957 10ft (Original Well Elev)
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Wellbore:	Pembina B 33 Fed Com #2H (II)		
Design:	Original Plan		

Planned Survey

Measured Depth (ft)	Inclination (?)	Azimuth (?)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)
5,000 00	90.00	269 96	4,530 00	-0.47	-676 88	676.88	0 00	0.00	0 00
5,100.00	90 00	269.96	4,530.00	-0 54	-776.88	776.88	0.00	0.00	0.00
5,200.00	90 00	269.96	4,530.00	-0 61	-876.88	876 88	0.00	0.00	0 00
5,300.00	90 00	269.96	4,530.00	-0 68	-976.88	976.88	0.00	0 00	0.00
5,400.00	90.00	269.96	4,530.00	-0.75	-1,076 88	1,076.88	0.00	0 00	0.00
5,500.00	90.00	269 96	4,530 00	-0.82	-1,176.88	1,176.88	0.00	0.00	0 00
5,600 00	90.00	269 96	4,530.00	-0 89	-1,276.88	1,276.88	0.00	0.00	0 00
5,700.00	90.00	269 96	4,530.00	-0.96	-1,376 88	1,376.88	0 00	0.00	0 00
5,800.00	90 00	269 96	4,530.00	-1.03	-1,476 88	1,476 88	0 00	0 00	0 00
5,805 12	90 00	269.96	4,530.00	-1.03	-1,482.00	1,482.00	0.00	0.00	0.00
5,871.82	92 00	269 97	4,528.84	-1 08	-1,548 69	1,548.69	3.00	3.00	0 01
5,900.00	92.00	269.97	4,527.85	-1 09	-1,576.85	1,576.85	0.00	0 00	0.00
6,000 00	92.00	269.97	4,524.36	-1 15	-1,676.78	1,676.78	0.00	0.00	0.00
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7,400.00	92 00	269 97	4,475 48	-1.92	-3,075 93	3,075 93	0.00	0 00	0.00
7,500 00	92.00	269.97	4,471.99	-1 98	-3,175 87	3,175 87	0.00	0.00	0.00
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8,444.72	92.00	269.97	4,439 00	-2.50	-4,120.01	4,120 01	3.00	-1.45	2.63
BHL (Pembina B #2H (II))									

Database:	EDM	**Local Co-ordinate Reference:**	Well Pembina B 33 Fed Com #2H (II)
Company:	Midland - New Mexico	**TVD Reference:**	WELL @ 3957.10ft (Original Well Elev)
Project:	Thames	**MD Reference:**	WELL @ 3957 10ft (Original Well Elev)
Site:	Pembina B 33 Fed Com #2H (II)	**North Reference:**	Grid
Well:	Pembina B 33 Fed Com #2H (II)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Pembina B 33 Fed Com #2H (II)		
Design:	Original Plan		

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 (Pembina B #2H (- plan misses target center by 78.83ft at 4500.00ft MD (4436.61 TVD, -0 14 N, -196.85 E) - Point	0 00	360.00	4,500.00	-0 10	-150.00	618,187.70	390,398 40	32° 41' 56.364 N	104° 41' 22 637 W
BHL (Pembina B #2H - plan hits target center - Point	0.00	0 00	4,439.00	-2.50	-4,120.01	618,185.30	386,428 40	32° 41' 56.206 N	104° 42' 9.095 W

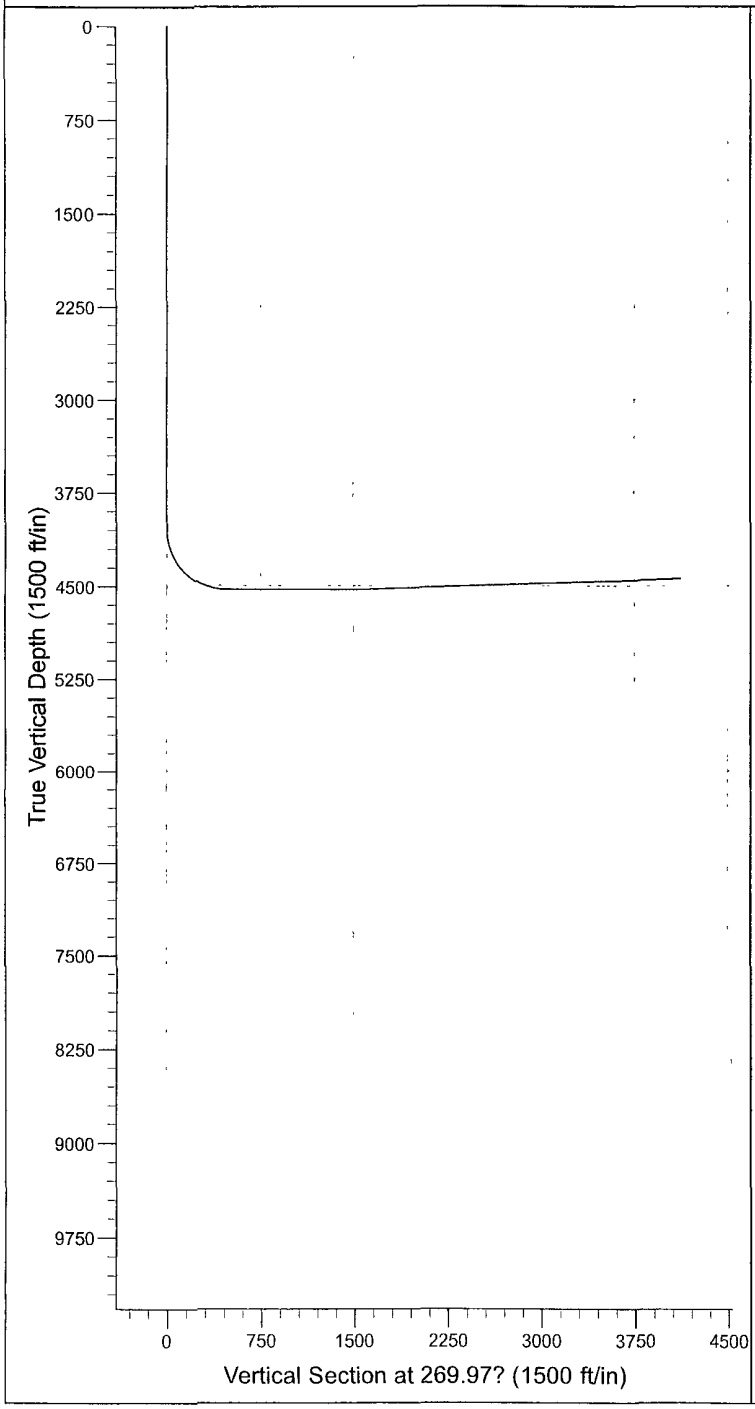
WELL DETAILS: Pembina B 33 Fed Com #2H (II)

Ground Level: 3938.10

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	618187.80	390548.40	32° 41' 56.370 N	104° 41' 20.881 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	4048.00	0.00	0.00	4048.00	0.00	0.00	0.00	0.00	0.00	
3	4805.12	90.00	269.96	4530.00	-0.34	-482.00	11.89	269.96	482.00	
4	5805.12	90.00	269.96	4530.00	-1.03	-1482.00	0.00	0.00	1482.00	
5	5871.82	92.00	269.97	4528.84	-1.08	-1548.69	3.00	0.24	1548.69	
6	8444.65	92.00	269.97	4439.00	-2.50	-4119.94	0.00	0.00	4119.94	
7	8444.72	92.00	269.97	4439.00	-2.50	-4120.01	0.00	0.00	4120.01	BHL (Pembina B 33 #2H (II))



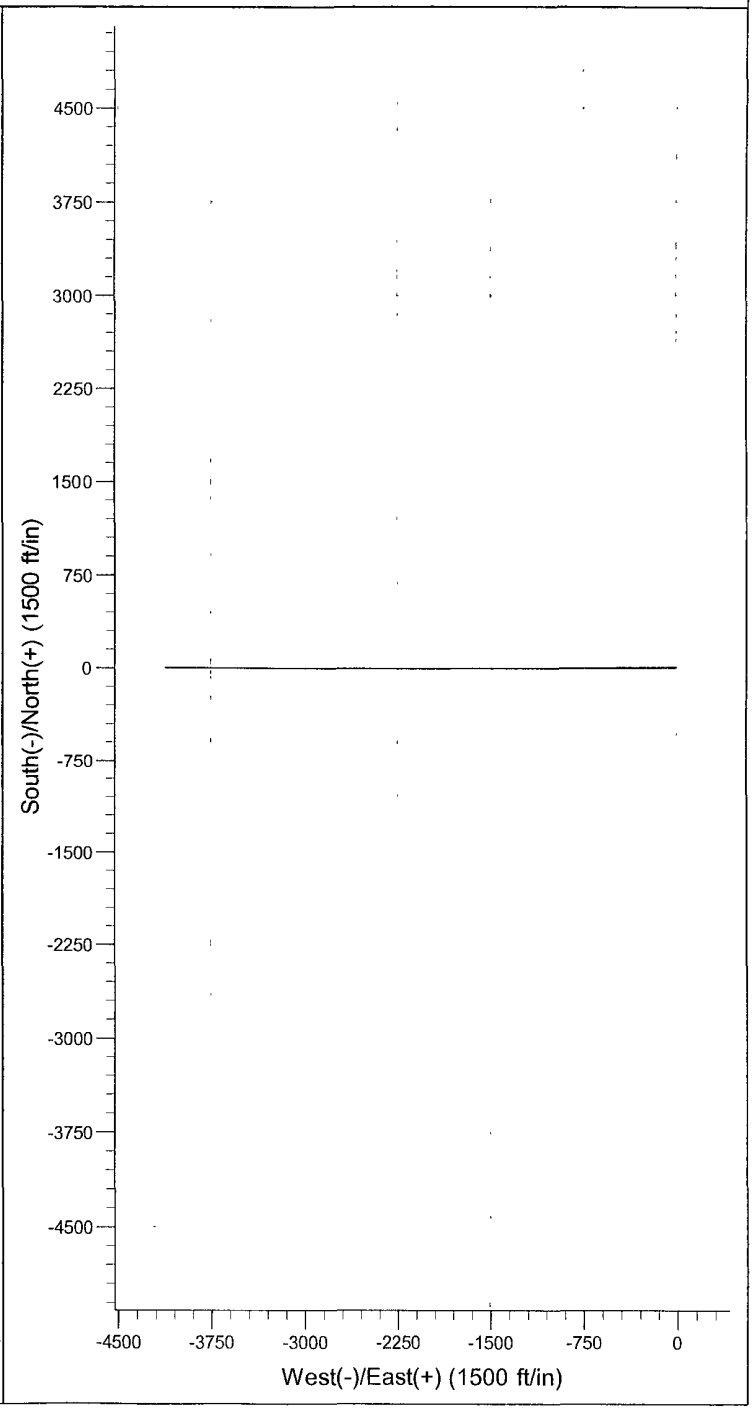


EXHIBIT "4"

Pembina B 33 Fed Com 2H

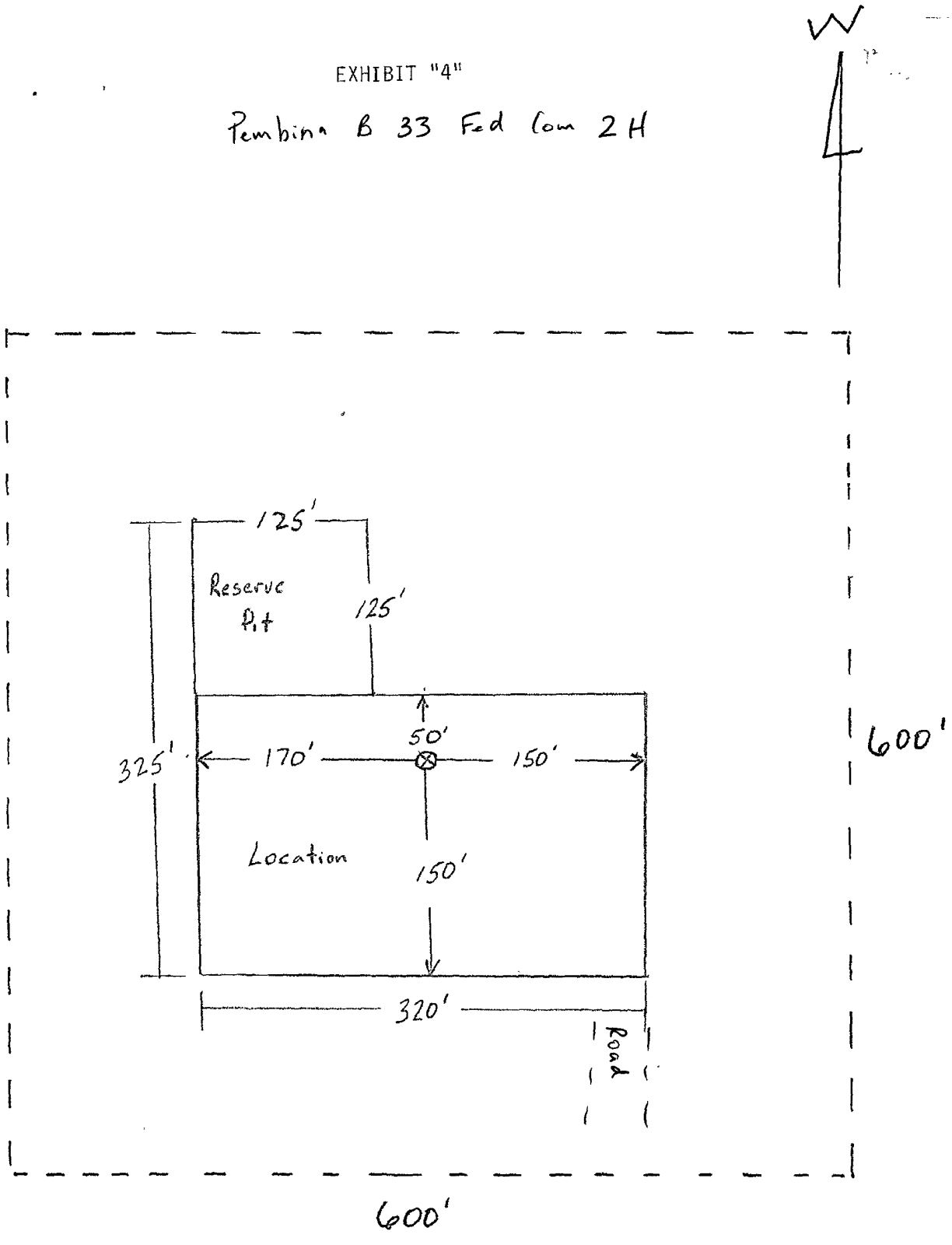
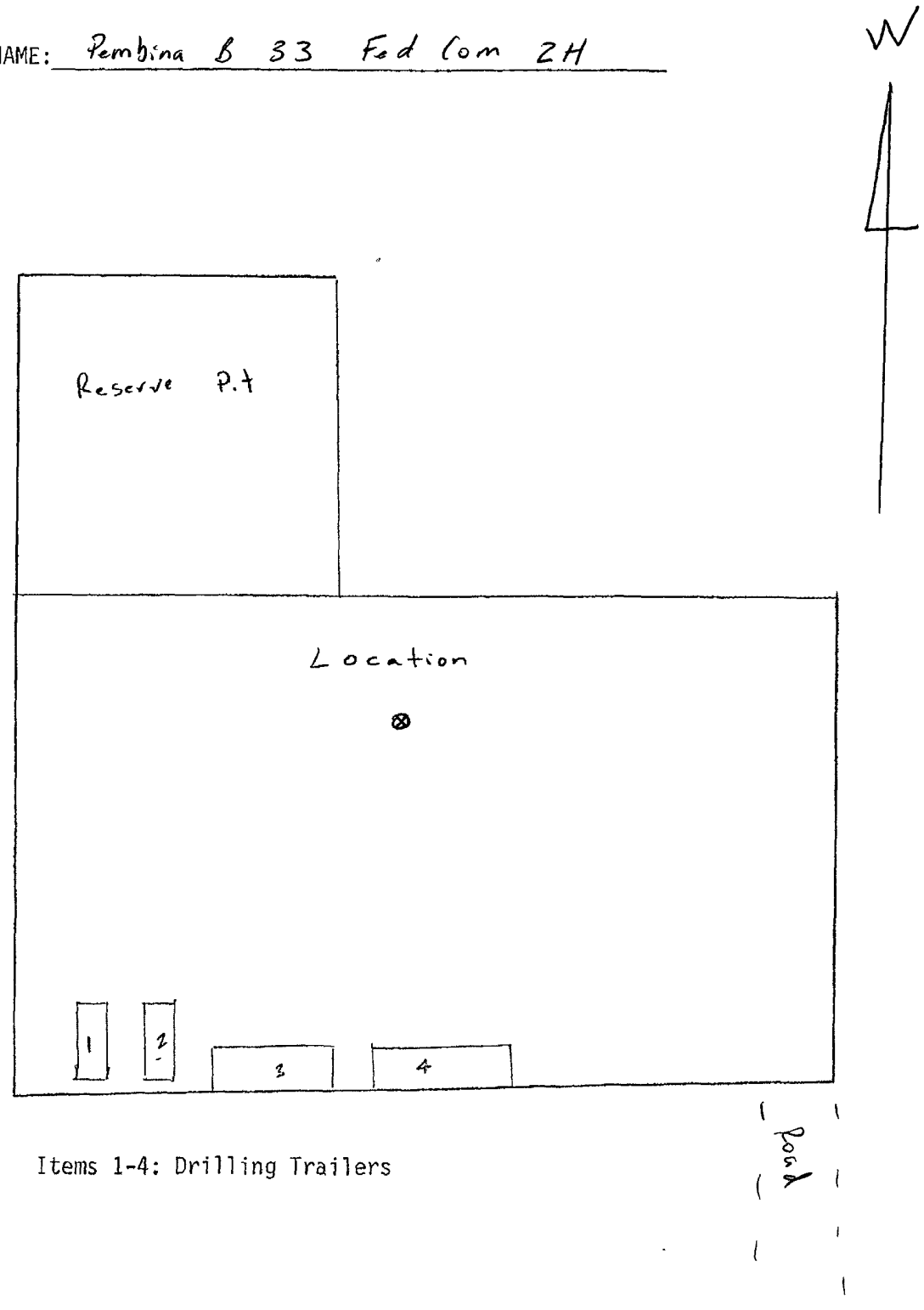


EXHibit 5

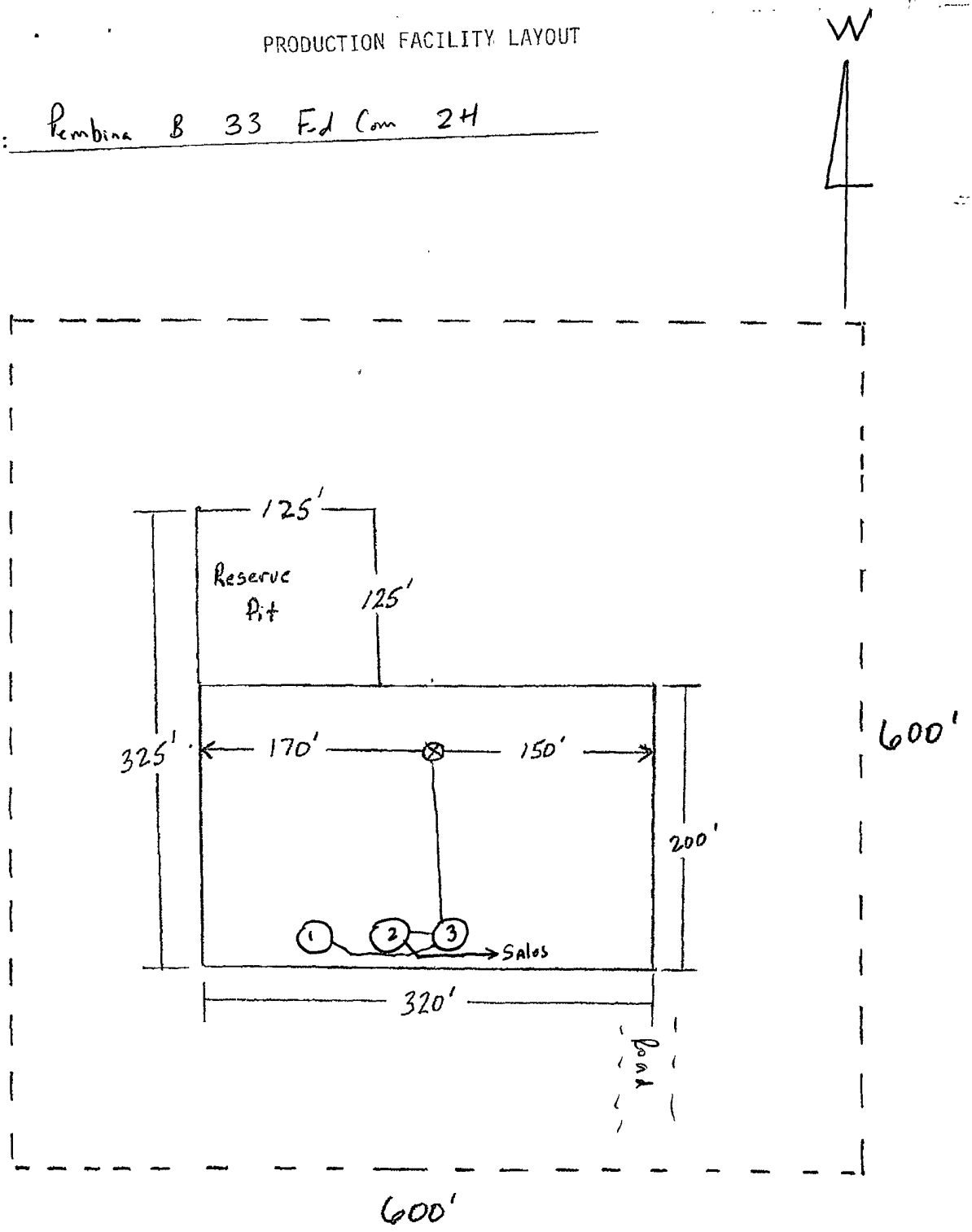
WELL NAME: Pembina B 33 Fed Com 2H



Items 1-4: Drilling Trailers

PRODUCTION FACILITY LAYOUT

Well Name: Pembina B 33 Fed Com 2H



Legend:

Item 1: TANK
Item 2: METER
ITEM 3: SEPARATOR

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, 3000 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 3000 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.

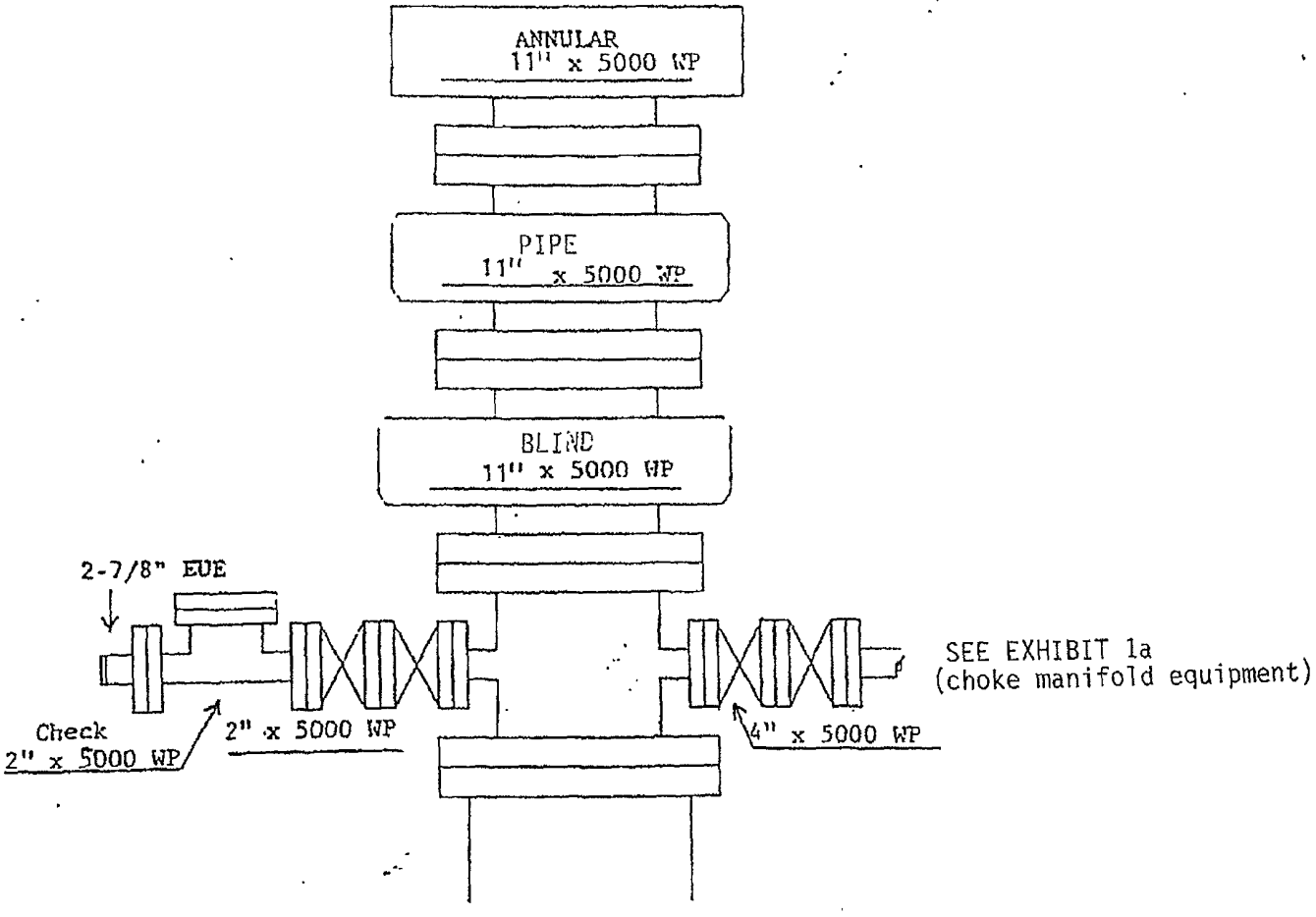
9. Blow out preventer control to be located as close to driller's position as feasible.

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.

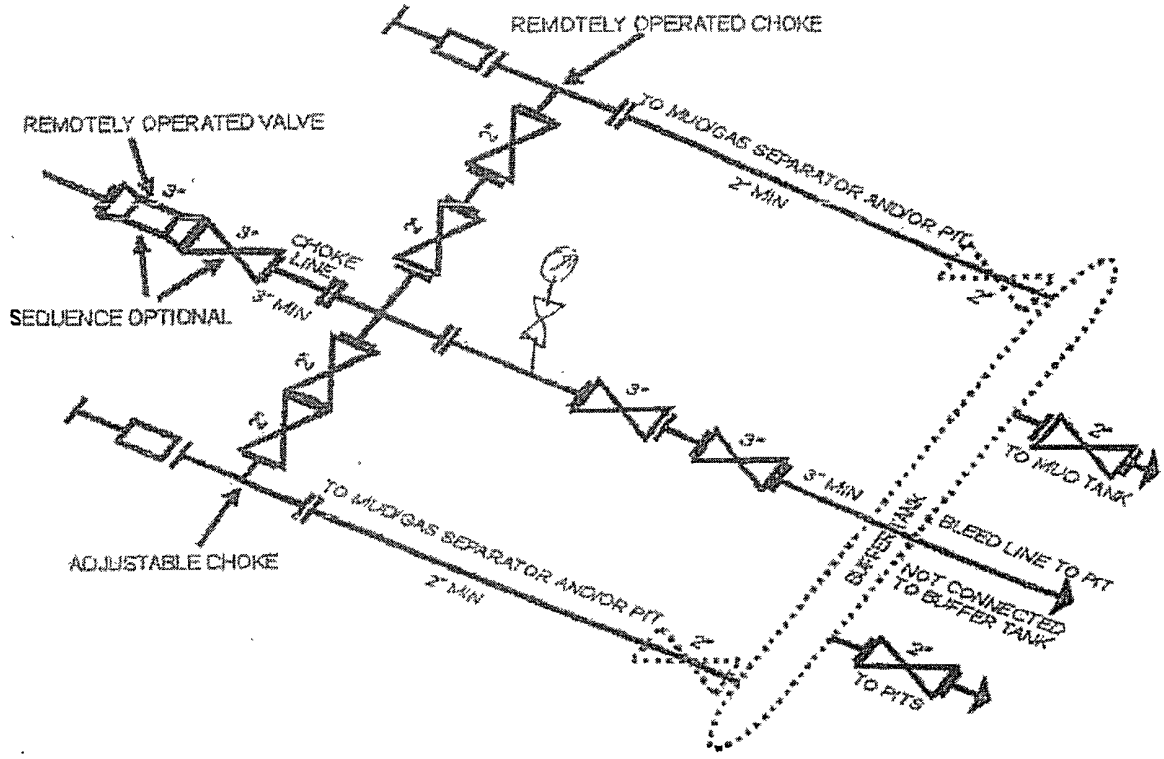
EXHIBIT 1

EOG Resources, Inc.

Pembina B 33 Fed Com 2H



WELL NAME: Pembina B 33 Fed Com 2H 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]

eog resources

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702
(432) 686-3600

May 20, 2008

State of New Mexico Energy, Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

To Whom It May Concern:

I am writing to request a waiver for the inclusion of an H_2S Contingency Plan for the Pembina B 33 Fed Com #2H. The current plan is to complete this well in the Wolfcamp, which is sweet, and I do not anticipate encountering any H_2S bearing formations during drilling operations.

Sincerely,

Jason LaGrega
Drilling Engineer

SURFACE USE PLAN OF OPERATION

SHL: 760' FSL & 510' FEL, Unit P, Section 33, T18S-R23E, N.M.P.M., Eddy, NM
BHL: 760' FSL & 660' FWL, Unit M, Section 33, T18S-R23E, N.M.P.M., Eddy, NM

1. EXISTING ROADS:

a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by Terry Asel, RPL 15079.
b. All roads into the location are depicted on Exhibit 2 & 2a.
c. Directions to Locations: Beginning in Hope, NM, at the intersection of Hwy 82 and Eddy County Road #12 (Armstrong), go south on ECR 12 for 9.1 miles, turn left on Eddy County Road #21 (Rockin R Red) for 1.7 miles, turn north on lease road and go 1.1 miles, turn west for 0.1 miles to location.

2. NEW OR RECONSTRUCTED ACCESS ROAD:

a. The well site layout, Exhibit 2a shows the layout. The proposed access road, begins on existing lease road trending west 493.5' to NE corner of well pad. (See 1c above for driving directions).
b. The maximum width of the road will be 15'. It will be crowned and made of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent soil erosion.
c. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. The average grade will be approximately 1%.
d. Cattleguards will be set where fences are cut. No turnouts are planned.

3. LOCATION OF EXISTING WELLS:

Exhibit #3 shows all existing wells within a one-mile radius of this well.

4. LOCATION OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES:

a. In the event the well is found to be productive, the Pembina B 33 Fed Com 2H tank battery would be utilized and the necessary production equipment will be installed at the well site. See Production Facilities Layout diagram.
b. As a proposed gas well, we do not anticipate the need for electrical service.
c. All flow lines will adhere to API standards.
d. As a proposed gas well, we do not anticipate the need for electrical service.
e. If the well is productive, rehabilitation plans are as follows:
   i. The reserve pit will be back filled after the contents of the pit are dry (within 120 days after completion, weather permitting).

ii. The original topsoil from the well site will be returned to the location. The drill site will be contoured as close as possible to the original state.

5. LOCATION AND TYPE OF WATER SUPPLY:

This location will be drilled using a combination of water mud systems (outlined in the drilling program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using existing and proposed roads shown in Exhibit 2. On occasion, water will be obtained from existing water wells. In these cases where a poly pipeline is used to transport water for drilling purposes, proper authorizations will be secured. If poly pipeline is used to transport fresh water to the location, proper authorization will be secured by the contractor.

6. CONSTRUCTION MATERIALS

All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of rolled and compacted caliche.Will use BLM recommended use of extra caliche from other locations close by roads, if available.

7. METHODS OF HANDLING WASTE MATERIALS

a. Drill cuttings will be disposed of in the reserve pit.
b. All trash, junk, and other waste material will be contained in trash cages or trash bins to prevent scattering. When a job is completed, all contents will be removed and disposed of in an approved landfill.
c. The supplier, including broken sacks, will pick up salts remaining after completion of well.
d. If necessary, a porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
e. Remaining drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry enough to be broken for further drying. If the drilling fluids do not evaporate in a reasonable time they will be hauled off by transports to a state approved disposal site. Later pits will be broken out to speed dry. Water produced during completion will be put in reserve pits. Oil and condensate produced will be put in a storage tank and sold.
f. Disposal of fluids to be transported by the following companies:
    i. RGB TRUCKING
    ii. LOBO TRUCKING
    iii. I & W TRUCKING
    iv. CRANE HOT OIL & TRANSPORT

8. ANCILLARY FACILITIES:

a. No airstrip, campsite, or other facilities will be built.

9. WELL SITE LAYOUT:

a. Exhibit 4 shows the proposed well site layout with dimensions of the pad layout.
b. Exhibit 5 shows proposed location of reserve and sump pits and living facilities.
c. Mud pits in the active circulating system will be steel pits and the reserve pits will be lined.
d. If needed, the reserve pit is to be line with polyethylene. The pit liner will be 12 mils thick. Pit liner will extend a minimum of two feet (2') over the reserve pit's dykes where the liner will be anchored down.
e. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down after the pit contents have dried. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. PLANS FOR SURFACE RECLAMATION:

a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The reserve pit area will be broken out and leveled after drying to a condition where these are feasible. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography. The pit will be closed per OCD compliance regulations.
b. The pit lining will be buried or hauled away in order to return the location and road to their pristine nature. All pits will be filled and the location leveled, weather permitting, within 120 days after abandonment.
c. The location and road will be rehabilitated as recommended by the BLM.
d. The reserve pit will be fenced on three side throughout drilling operations. After the rotary rig is removed, the reserve pit will be fenced on the fourth side to preclude endangering wildlife. The fencing will be in place until the pit is reclaimed.
e. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days subsequent to the completion date. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.

11. SURFACE OWNERSHIP

The surface is owned by the Barbara Runyon Ranch LLC. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The proposed road routes and surface location will be restored as directed by the BLM.

As a requirement of the New Mexico Surface Owners Protection Act (NMSOPA), EOG has entered into a written Surface Use Agreement with the fee surface owner below:

Barbara Runyon Ranch LLC
Marian Thompson-Manager
505-627-7248

Jim Bob Barnett – Ranch Foreman
575-365-8291 cell

12. OTHER INFORMATION:

a. The area surrounding the well is grassland. The topsoil is sandy & rocky in nature. The vegetation is moderately sparse with native prairie grass and cactus. No wildlife was observed but it is likely that deer, rabbits, coyotes, rodents and birds transverse the area.
b. There are not dwellings within 2 miles of location.
c. There is no permanent or live water within 1 miles of the location.
d. A Cutural Resources Examination will be conducted by Danny Boone and registered with BLM office in Carlsbad, New Mexico.

13. BOND COVERAGE:

a. Bond Coverage is Nationwide; Bond No. NM 2308

COMPANY REPRESENTATIVES:

Representatives responsible for ensuring compliance of the surface use plan are listed below:

Permitting & Land

Mr. Donny G. Glanton
Senior Lease Operations ROW Representative
EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702
(432) 686-3642 Office
(432) 770-0602 Cell

Drilling

Mr. Jason LaGrega
Division Drilling Engineer
EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702
(432) 686-3633 Office
(432) 894-1217 Cell

Operations

Mr. Howard Kemp
Production Manager
EOG Resources, Inc
P.O. Box 2267
Midland, TX 79702
(432) 686-3704 Office
(432) 634-1001 Cell

OPERATOR CERTIFICATION

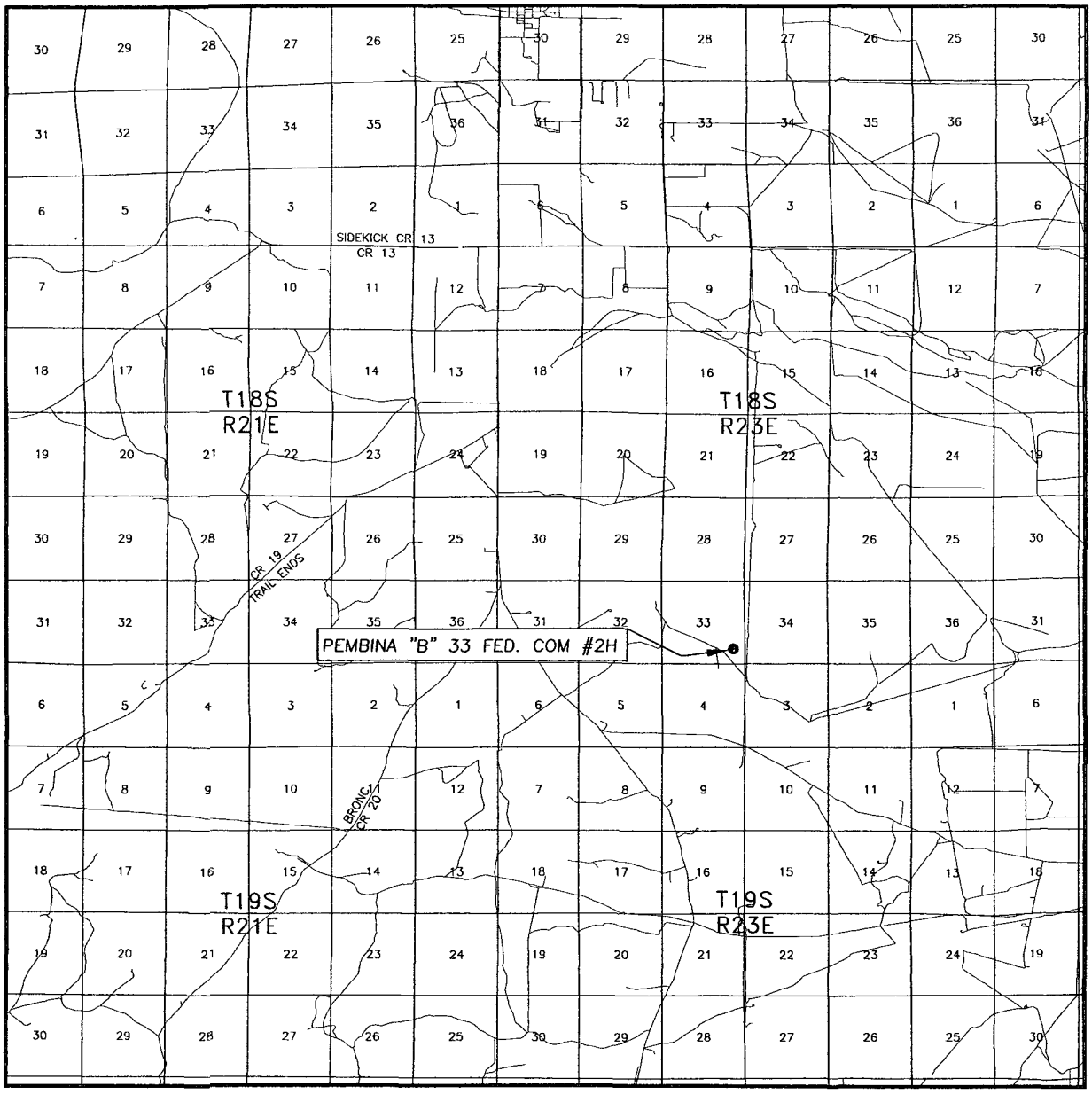
I certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal Laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true, and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 27th day of May 2008.

Name: Donny G. Glanton
Position: Sr. Lease Operations ROW Representative
Address: P.O. Box 2267 Midland, TX 79705
Telephone: 432-686-3642
Email: donny_glanton@eogresources.com

Signed: Donny G. Glanton

Exhibit 2

VICINITY MAP



SEC. 33 TWP. 18-S RGE. 23-E
SURVEY N.M.P.M.
COUNTY EDDY
DESCRIPTION 760' FSL & 510' FEL
ELEVATION 3938.1'
OPERATOR EOG RESOURCES INC.
LEASE PEMBINA "B" 33 FED. COM #2H

SCALE: 1" = 2 MILES

Asel Surveying

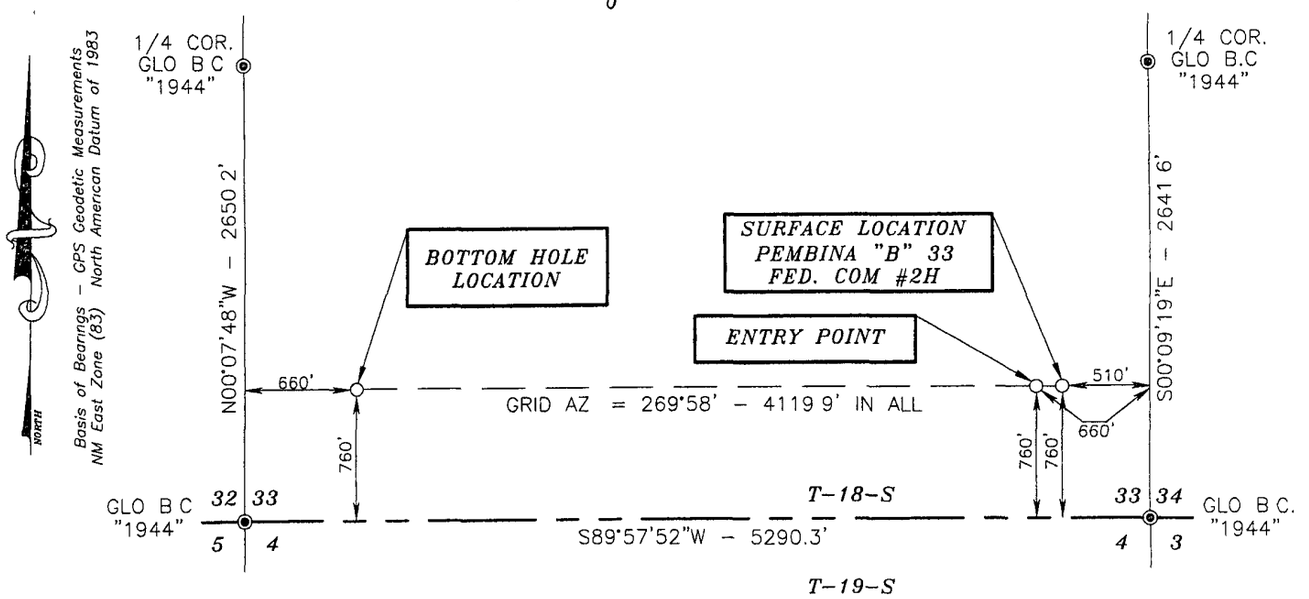
P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

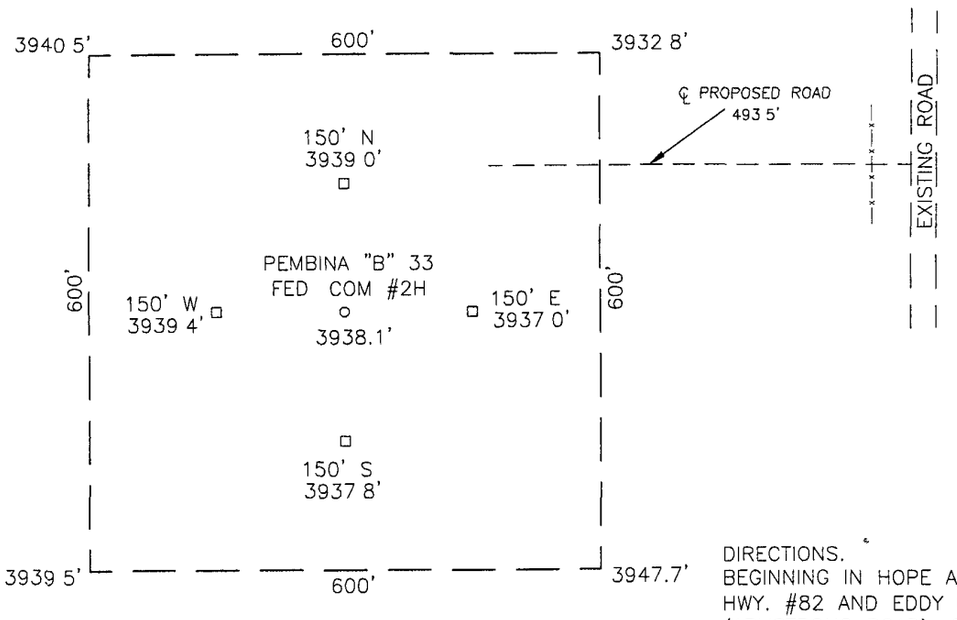
DIRECTIONS BEGINNING IN HOPE AT THE INTERSECTION OF US HWY. #82 AND EDDY COUNTY ROAD #12 (ARMSTRONG ROAD), GO SOUTH ON EDDY CO. ROAD #12 FOR 9.1 MILES, TURN LEFT AND GO EAST ON EDDY COUNTY ROAD #21 (ROCKIN R RED) FOR 1.7 MILES, TURN NORTH ON LEASE ROAD AND GO 1.1 MILES, TURN WEST FOR 0.1 MILES TO LOCATION.

SECTION 33, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO

Exhibit 2a

Page 1 of 2





SCALE–1'=200'

DIRECTIONS.
BEGINNING IN HOPE AT THE INTERSECTION OF U S HWY. #82 AND EDDY COUNTY ROAD #12 (ARMSTRONG ROAD), GO SOUTH ON EDDY CO ROAD #12 FOR 9.1 MILES, TURN LEFT AND GO EAST ON EDDY COUNTY ROAD #21 (ROCKIN R RED) FOR 1.7 MILES, TURN NORTH ON LEASE ROAD AND GO 1 1 MILES, TURN WEST FOR 0 1 MILES TO LOCATION

TERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 5/13/2008
Terry J. Asel / N.M. R.P.S. No. 15079

Asel Surveying

P O BOX 393 – 310 W TAYLOR
HOBBS, NEW MEXICO – 575–393–9146

LEGEND

◉ – DENOTES FOUND MONUMENT AS NOTED

1000' 0 1000' 2000' FEET
SCALE: 1"=1000'

EOG RESOURCES, INC.

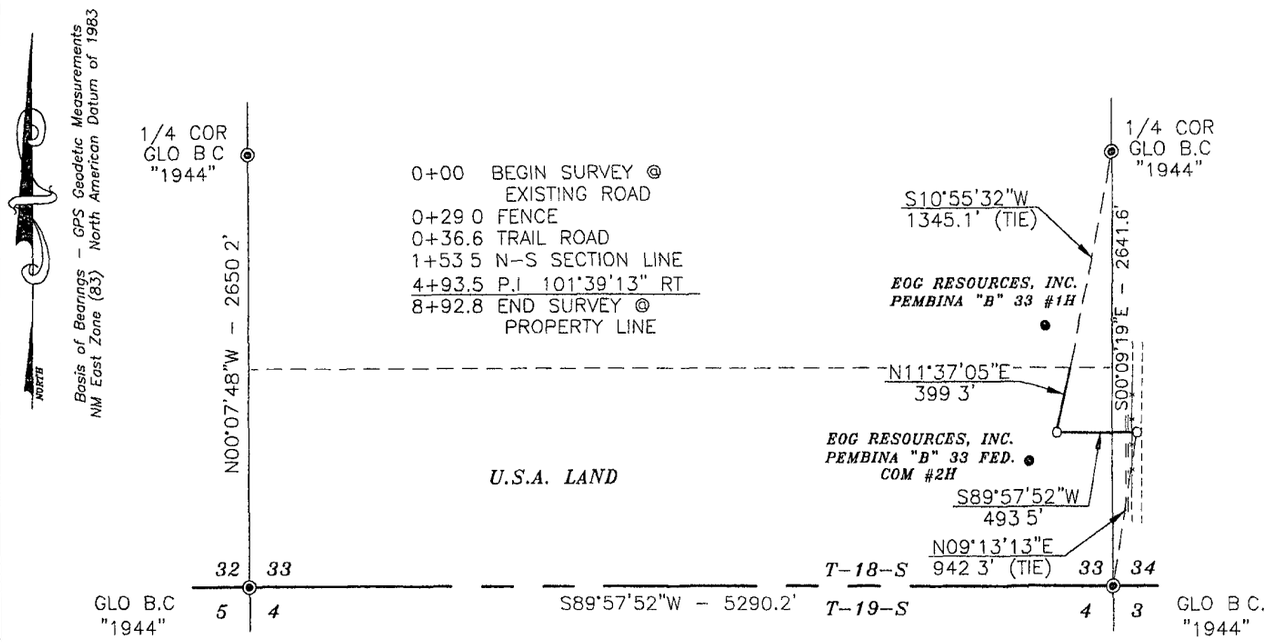
PEMBINA "B" 33 FED. COM #2H
IN SECTION 33, TOWNSHIP 18 SOUTH,
RANGE 23 EAST, N M.P.M., EDDY COUNTY,
NEW MEXICO

Survey Date: 05/01/08	Sheet 1 of 1 Sheets	
W.O. Number: 080115WL–d (Rev A)	Drawn By: KA	Rev: A
Date: 05/07/08	080115WL–d	Scale:1"=1000'

SECTIONS 33 & 34, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M., EDDY COUNTY NEW MEXICO

EXHIBIT 2a

Page 2 of 2



DESCRIPTION

SURVEY FOR A ROAD EASEMENT CROSSING U.S.A. LAND IN SECTIONS 33 & 34, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON AN EXISTING ROAD WHICH LIES N09°13'13"E - 942.3 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 34; THEN S89°57'52"W - 493.5 FEET; THEN N11°37'05"E - 399.3 FEET TO A POINT WHICH LIES S10°55'32"W - 1345.1 FEET FROM THE EAST QUARTER CORNER OF SAID SECTION 33.

TOTAL LENGTH EQUALS 892.8 FEET OR 0.169 MILES

TERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

LEGEND

◉ - DENOTES FOUND MONUMENT AS NOTED

1000' 0 1000' 2000' FEET

SCALE: 1"=1000'

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 5/13/2008

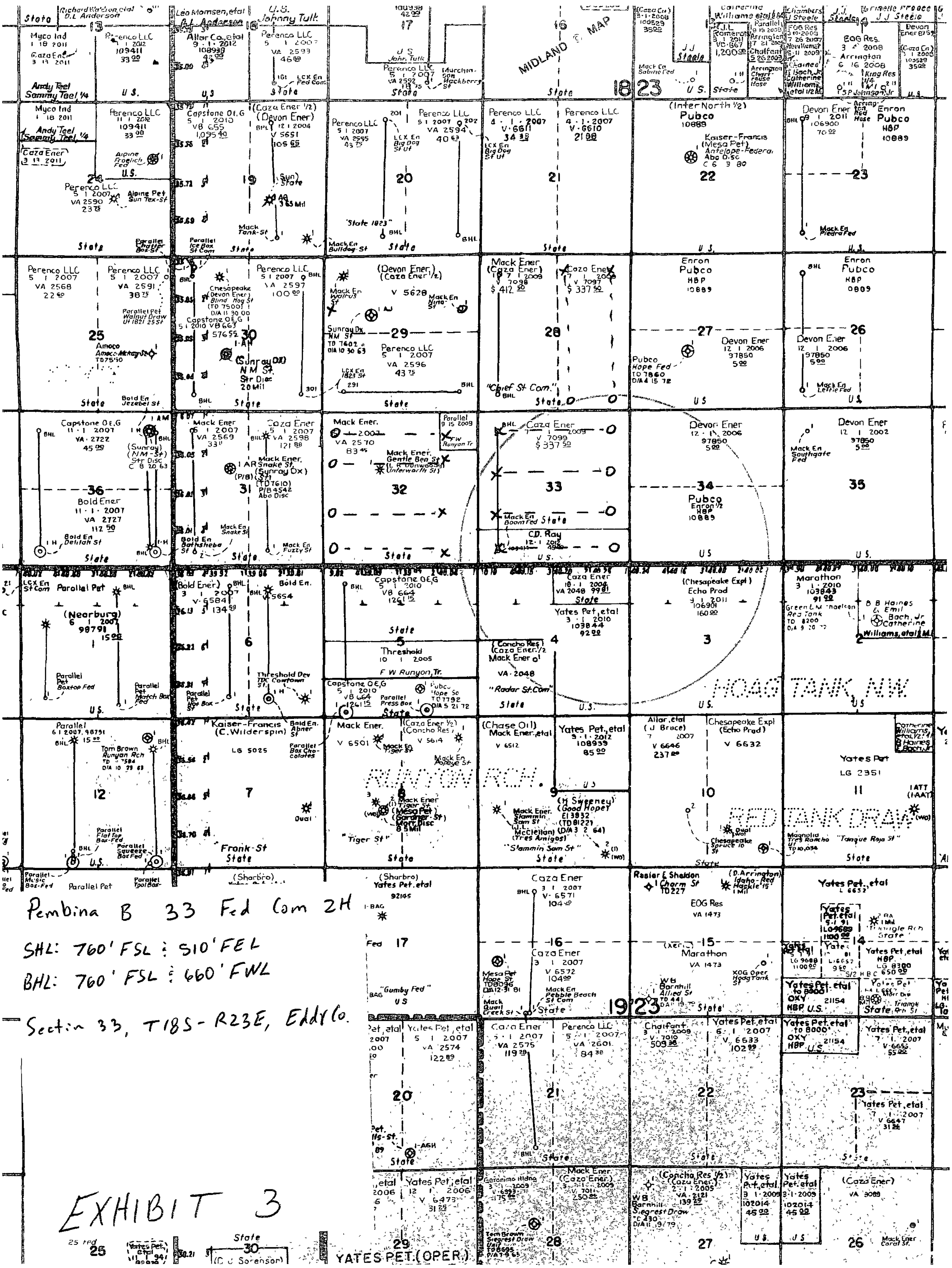
Terry J. Asel / N.M. R.P.S. No. 15079

Asel Surveying
P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

EOG RESOURCES, INC.

SURVEY FOR A ROAD EASEMENT CROSSING U.S.A. LAND IN SECTIONS 33 & 34, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 05/01/08	Sheet 1 of 1 Sheets		
W.O. Number: 080501RD	Drawn By: KA		
Date: 05/08/08	080501RD.DWG	Scale: 1"=1000'	



Pembina B 33 Fed Com 2H

SHL: 760' FSL : 510' FEL

BHL: 760' FSL : 660' FWL

Section 33, T18S-R23E, Eddy Co.

EXHIBIT 3

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG Resources Inc.
LEASE NO.:	NM-109414
WELL NAME & NO.:	2H-pembina B 33 Fed Com
SURFACE HOLE FOOTAGE:	760' FSL & 510' FEL
BOTTOM HOLE FOOTAGE	760' FSL & 660' FWL
LOCATION:	Section 33, T. 18 S., R 23 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Mitigation Measures: The mitigation measures include the Pecos District Conditions of Approval, the Aplomado Falcon stipulations, and the standard stipulation for permanent resource roads.

Stipulations for Drilling in Aplomado Falcon Habitat

The following well pads construction and reclamation measures will be implemented to provide for minimal long-term disturbance:

No Yuccas over 5 feet in height will be damaged by vehicular use or any other activity associated with this project.

Remove all caliche from well pads and roads that are plugged and abandoned. Reclamation will consist of disking, mulching, seeding with a drill (See seed mixture below), and application of water to encourage seed germination.

Well pad size will not exceed 300 ft. x 390 ft. (unless multiple wells are drilled from the same well pad). All unused portions of the well pad associated with producing wells will be reclaimed using the seed mixture below:

Buffalograss (Buchloe dactyloides)	4 lbs/acre
Blue grama (Bouteloua gracilis)	1 lbs/acre
Cane bluestem (Bothriochloa barbinodis)	5 lbs/acre
Sideoats grama (Boutelou curtipendula)	5 lbs/acre
Plains bristlegrass (Setaria macrostachya)	6 lbs/acre

Reserve pits for drilling and disposal are not allowed unless the pit can be effectively netted to the satisfaction of the BLM. Steel tank circulation system must be used if the reserve pit is not netted.

All active raptor nests will be avoided by a minimum of 400 meters by all activities or curtail activities until fledging is complete.

All inactive raptor nests will be avoided by a minimum of 200 meters by all activities.

All roads associated with well development will not exceed 30 ft in width

Pembina B 33 Federal Com. # 2H: Pit West V-Door North

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 8 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 125' X 125' on the West side of the well pad-V-Door North.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the
Carlsbad Field Office at (505) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

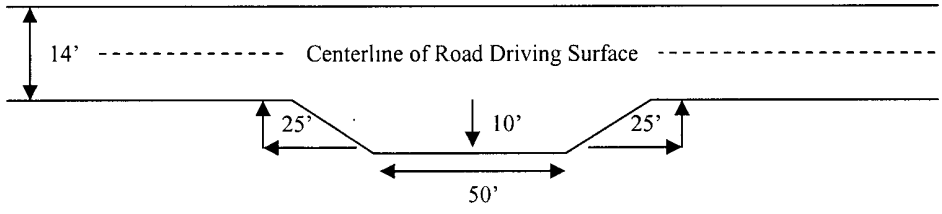
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

Standard Turnout – Plan View

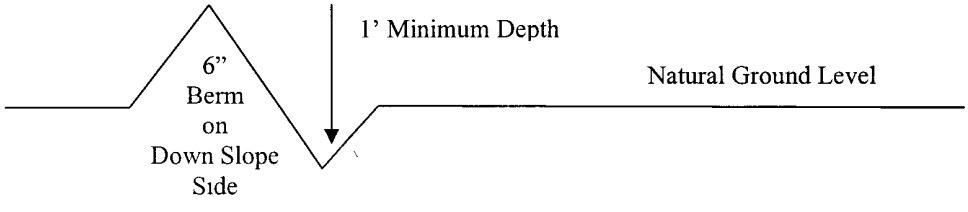


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$\text{400 foot road with 4\% road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations
Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards
An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

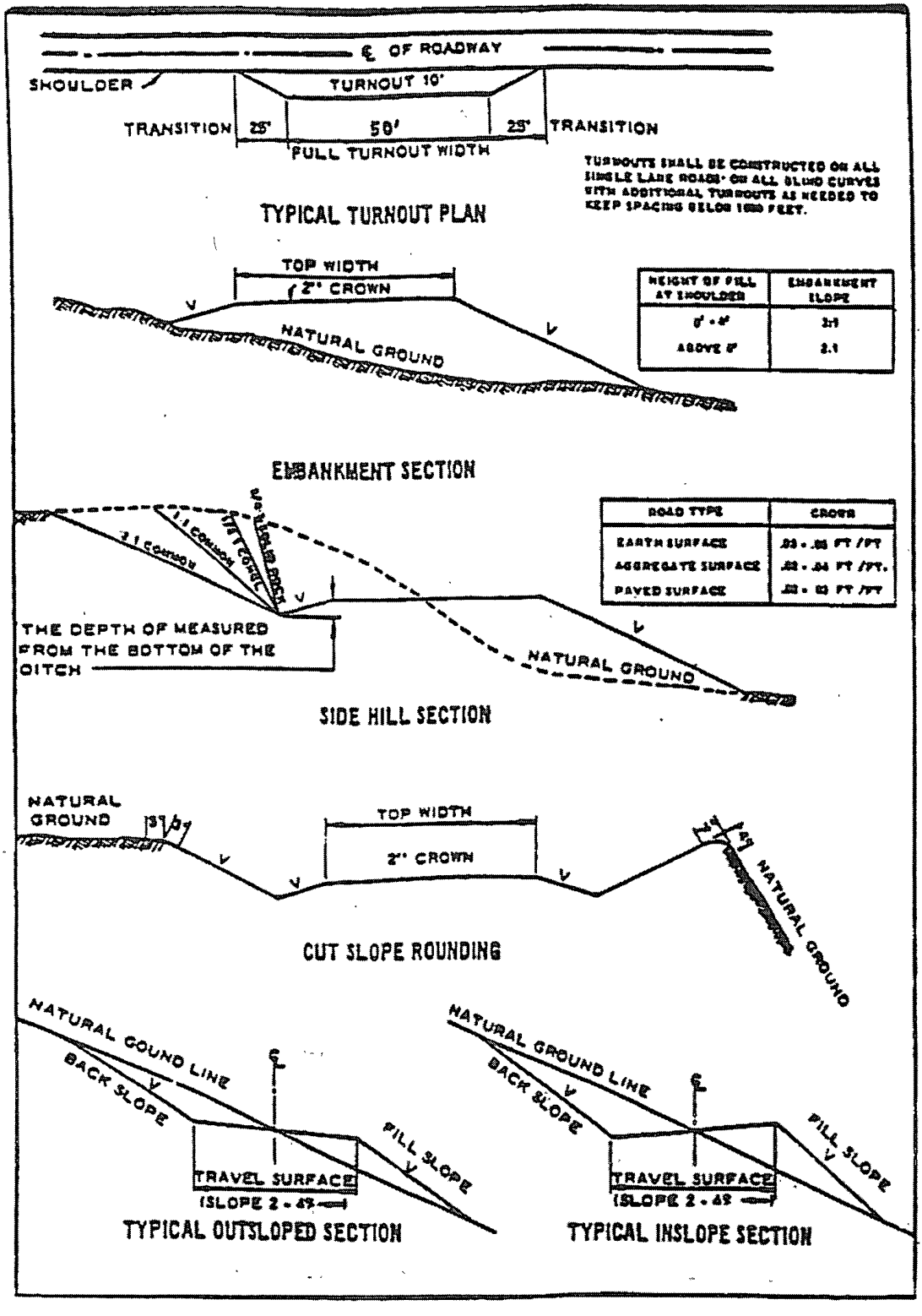
A gate shall be constructed and fastened securely to H-braces.

Fence Requirement
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings
c. BOPE tests

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possible lost circulation in San Andres, Glorieta & Wolfcamp
Medium potential for cave/karst
Possible heavy H2O flows from the San Andres
Possible high pressure gas bursts in Wolfcamp

1. The **8-5/8** inch surface casing shall be set at **approximately 1200** feet and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

    b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.

2. The minimum required fill of cement behind the **5-1/2** inch production casing is:

    ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. The tests shall be done by an independent service company.

    b. The results of the test shall be reported to the appropriate BLM office.

    c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

    d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

    e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

LB 6/25/08

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures
The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

C. ELECTRIC LINES

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

B. RESERVE PIT CLOSURE

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

Aplomado Falcon Habitat Seed Mixture

Buffalograss (Buchloe dactyloides)) ---------- 4 lbs/acre
Blue grama (Bouteloua gracilis) ---------- 1 lb/acre
Cane bluestem (Bothriochloa barbinodis) ---------- 5 lbs/acre
Sideoats grama (Bouteloua curtipendula) ---------- 5 lbs/acre
Plains bristlegrass (Setaria macrostachya) ---------- 6 lbs/acre

FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.