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OCD - Artesia

OCT 09 2008

OCD-ARTESIA

APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Split Estate

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input checked="" type="checkbox"/> REENTER		6. If Indian, Allottee or Tribe Name
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No
2. Name of Operator EOG Resources, Inc. 7377		8. Lease Name and Well No. 37433 Bow Fed Com 1H
3a. Address P.O. Box 2267 Midland, TX 79702		9. API Well No 30-015-36720
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 1969' FSL & 1959' FWL (U/L K) of Section 27 At proposed prod zone 1880' FSL & 1980' FEL (U/L J) of Section 28		11. Sec. T R M or Blk and Survey or Area Section 27, T18S-R23E, N.M.P.M.
14. Distance in miles and direction from nearest town or post office* Approx 7 miles SE of Hope, NM		12. County or Parish Eddy
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any) 660'		13. State NM
16. No of acres in lease 320		17. Spacing Unit dedicated to this well SW/4 of Sec 27 & SE/4 of Section 28
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft na		20. BLM/BIA Bond No on file NM2308
21. Elevations (Show whether DF, KDB, RT, GL, etc) GL 3943.7		23. Estimated duration 14
22. Approximate date work will start* 10/23/2008		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must be attached to this form

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office) | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature <i>Donny G. Glanton</i>	Name (Printed/Typed) Donny G. Glanton	Date 09/11/2008
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Title

Sr. Lease Operations ROW Representative

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <i>/s/ Don Peterson</i>	Date OCT 07 2008
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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 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

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 30-015-	Pool Code 9745	Pool Name Four Mile Draw; Wolfcamp (G)
Property Code	Property Name BOW FED. COM	Well Number 1H
OGRID No. 7377	Operator Name EOG RESOURCES, INC.	Elevation 3943.7'

Surface Location

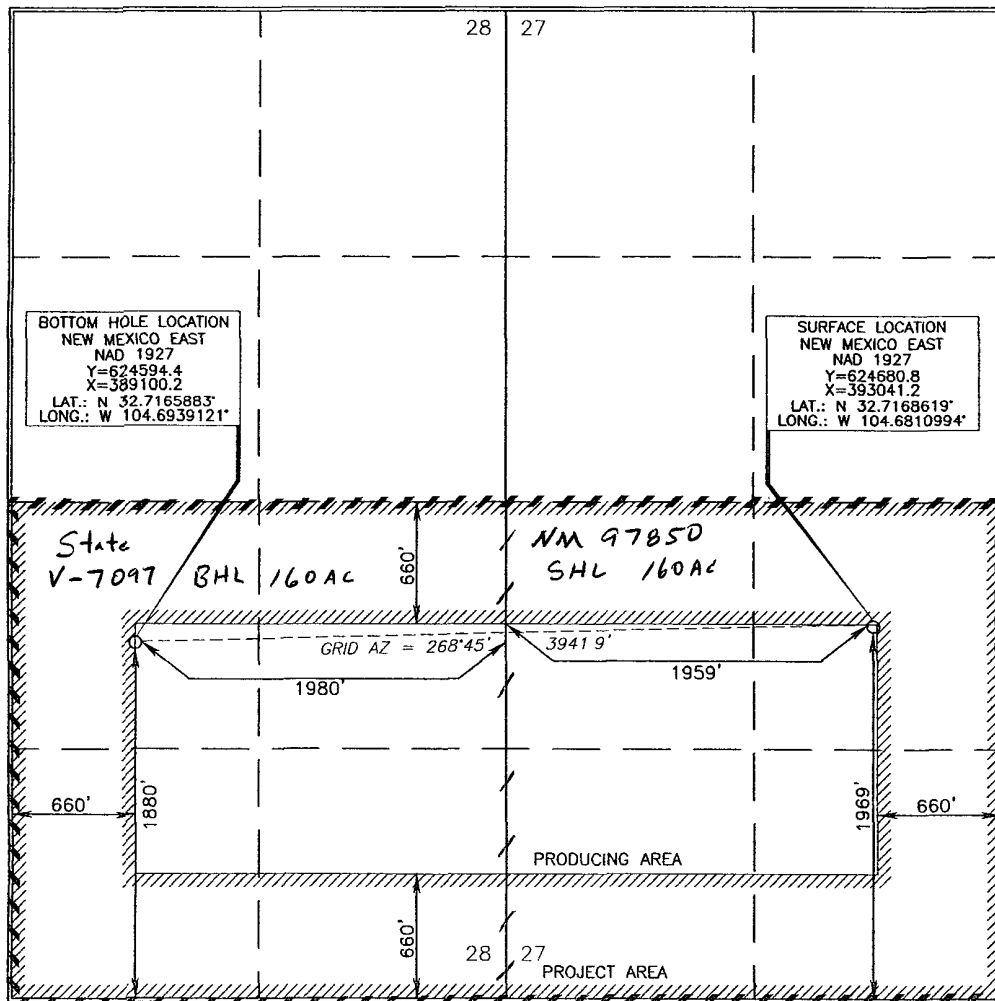
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	27	18 SOUTH	23 EAST, N.M.P.M.		1969	SOUTH	1959	WEST	EDDY

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
J	28	18 SOUTH	23 EAST, N.M.P.M.		1880	SOUTH	1980	EAST	EDDY

Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

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

Don D. Muth 9/8/08
Signature Date

Don D. Muth Donny G. Glaton
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.

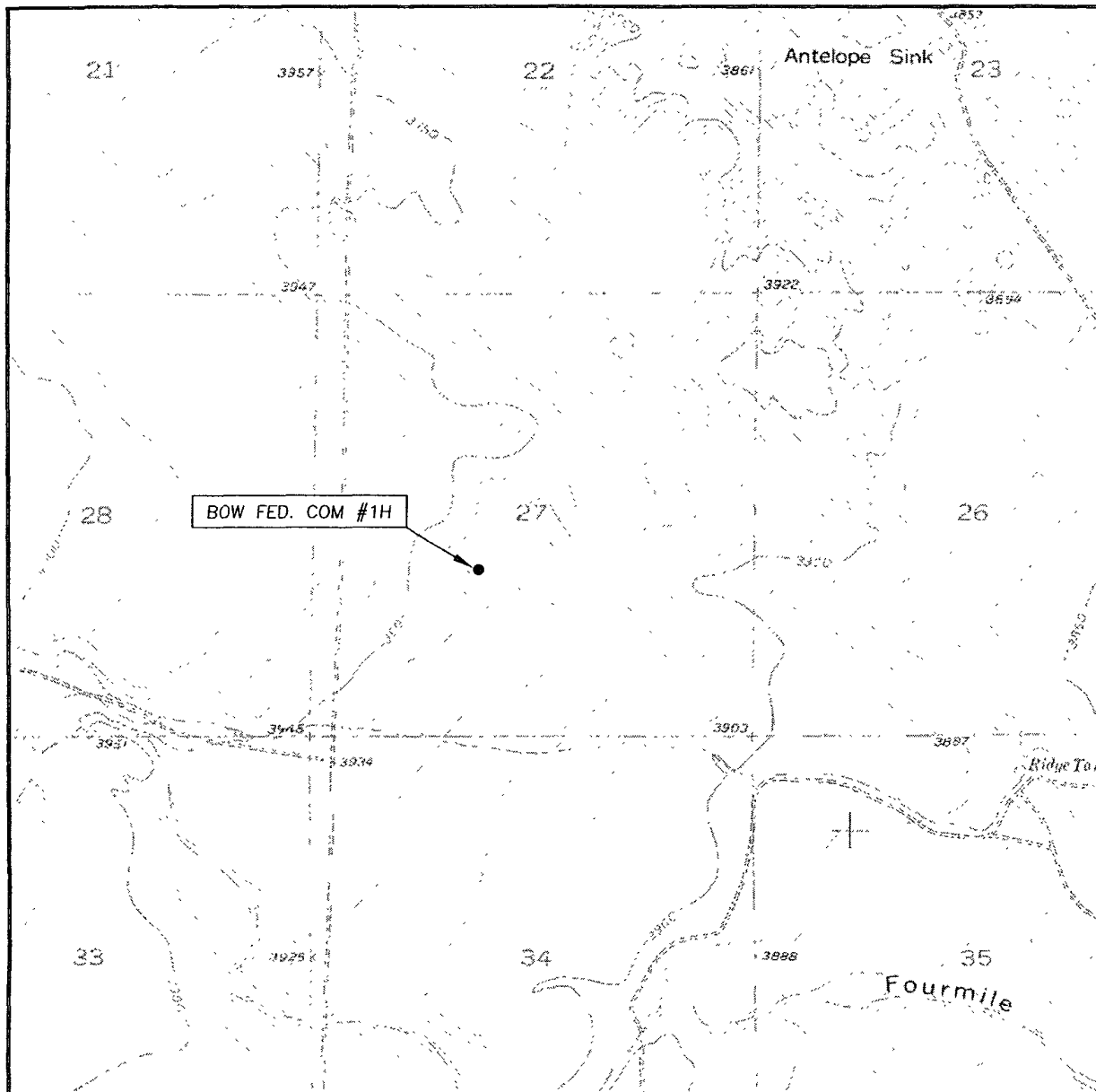
AUGUST 29, 2008
Date of Survey

Signature and Seal of Professional Surveyor

Terry J. Abel 9/3/2008
Certificate Number 15079

WO# 080829WL(KA)

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 27 TWP. 18-S RGE. 23-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1969' FSL & 1959' FWL

ELEVATION 3943.7'

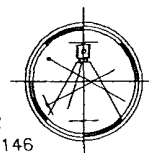
OPERATOR EOG RESOURCES INC.

LEASE BOW FED. COM #1H

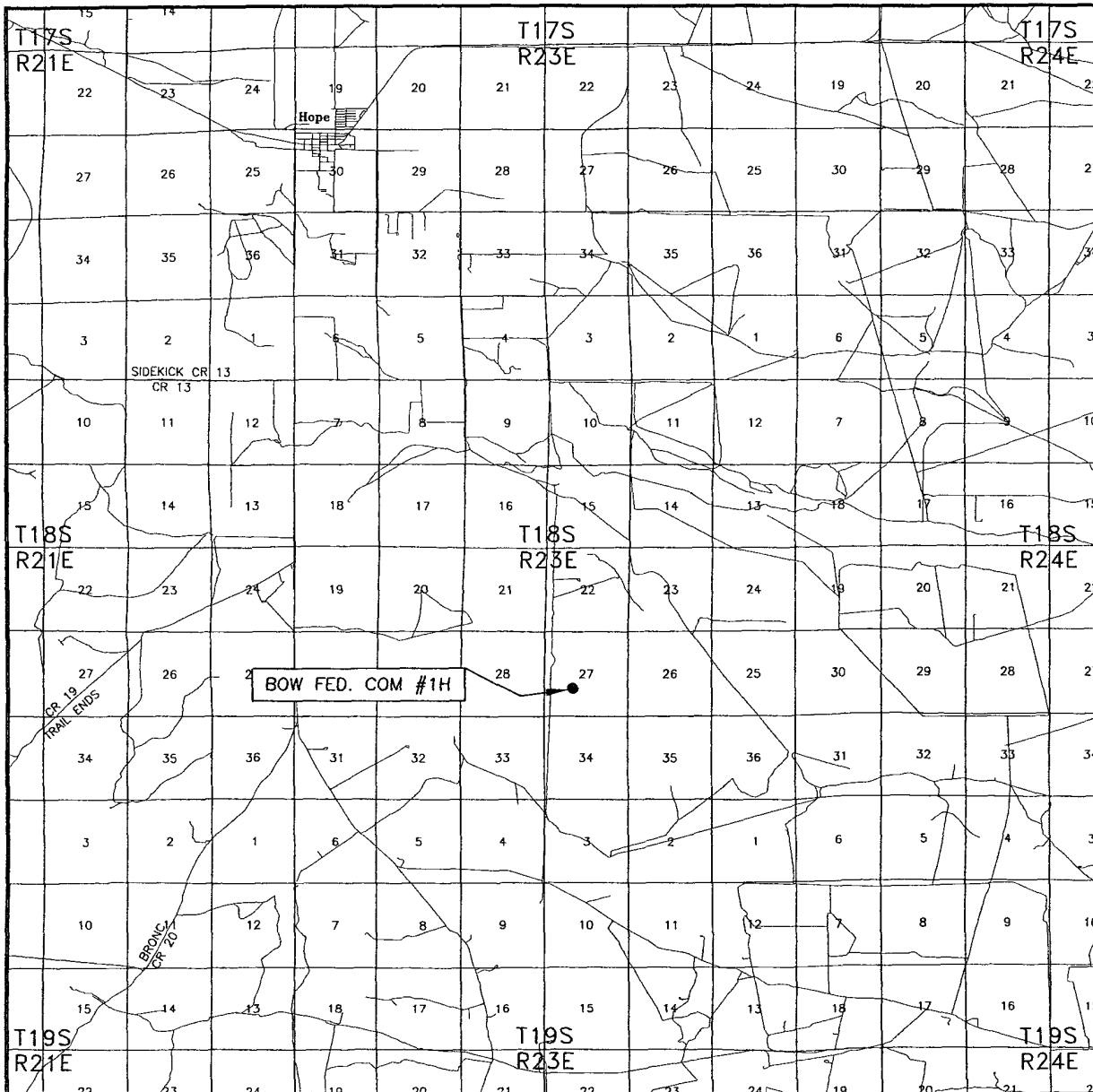
U.S.G.S. TOPOGRAPHIC MAP
ANTELOPE SINK, N.M.

Asel Surveying

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



VICINITY MAP

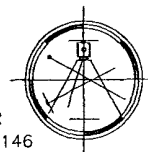


SEC. 27 TWP. 18-S RGE. 23-E
 SURVEY N.M.P.M.
 COUNTY EDDY
 DESCRIPTION 1969' FSL & 1959' FWL
 ELEVATION 3943.7'
 OPERATOR EOG RESOURCES INC.
 LEASE BOW FED. COM #1H

SCALE: 1" = 2 MILES

Asel Surveying

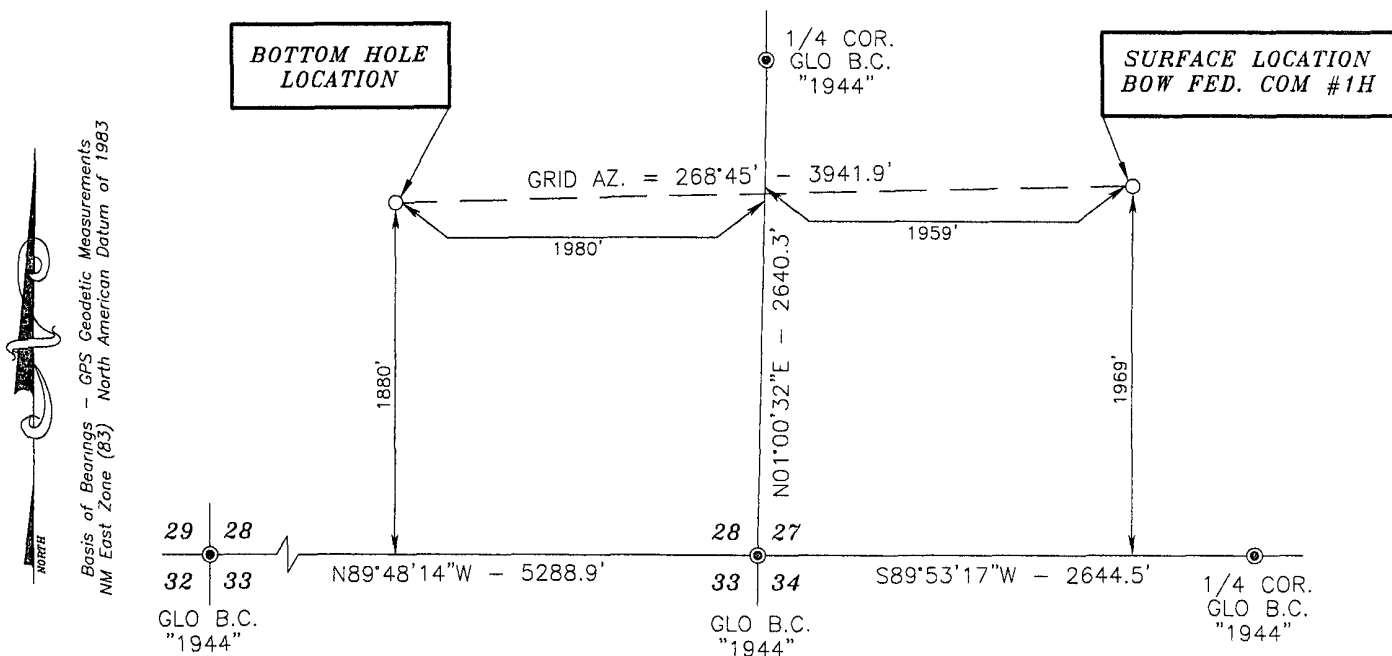
P.O. BOX 393 - 310 W TAYLOR
 HOBBS, NEW MEXICO - 575-393-9146



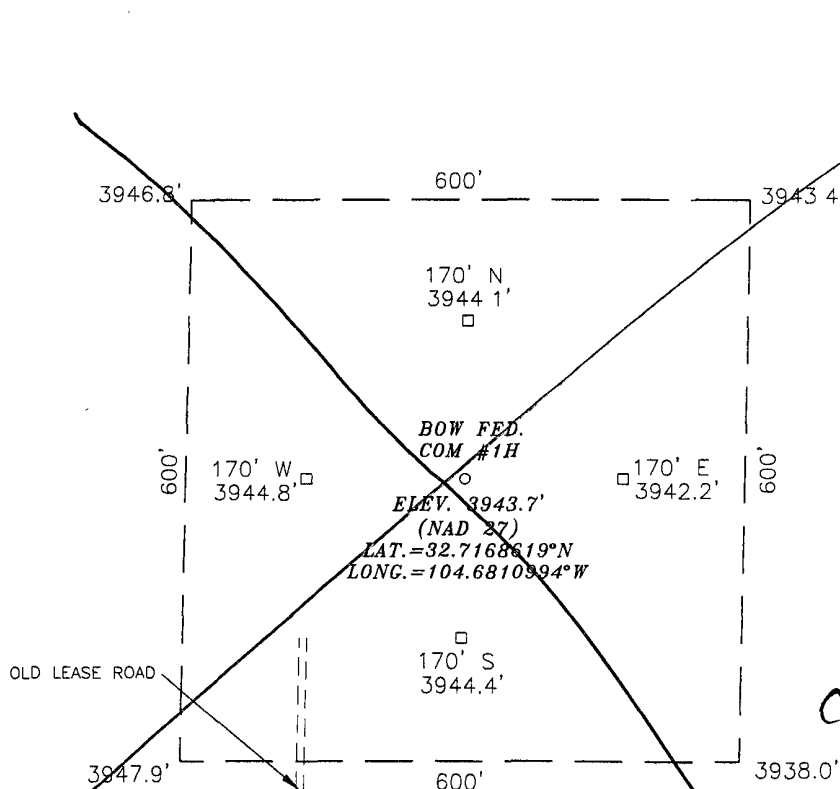
DIRECTIONS BEGINNING IN HOPE AT THE INTERSECTION OF US HWY. #82 AND EDDY COUNTY ROAD #12 (ARMSTRONG ROAD), GO SOUTH ON EDDY CO. ROAD #12 FOR 9.1 MILES, TURN LEFT AND GO EAST ON EDDY COUNTY ROAD #21 (ROCKIN R RED) FOR 1.7 MILES, TURN NORTH AND GO 2.3 MILES, TURN EAST FOR 0.3 MILES, TURN NORTH FOR 0.1 MILE TO LOCATION.

SECTIONS 27 & 28, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO

Exhibit 2a



Basis of Bearings - GPS Geodetic Measurements
NM East Zone (83) North American Datum of 1983



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 AND GO 2.3 MILES, TURN EAST FOR 0.3 MILES, TURN NORTH FOR 0.1 MILE TO LOCATION.

C.L. 09/30/08

SCALE - 1" = 200'



LEGEND

● - DENOTES FOUND MONUMENT AS NOTED

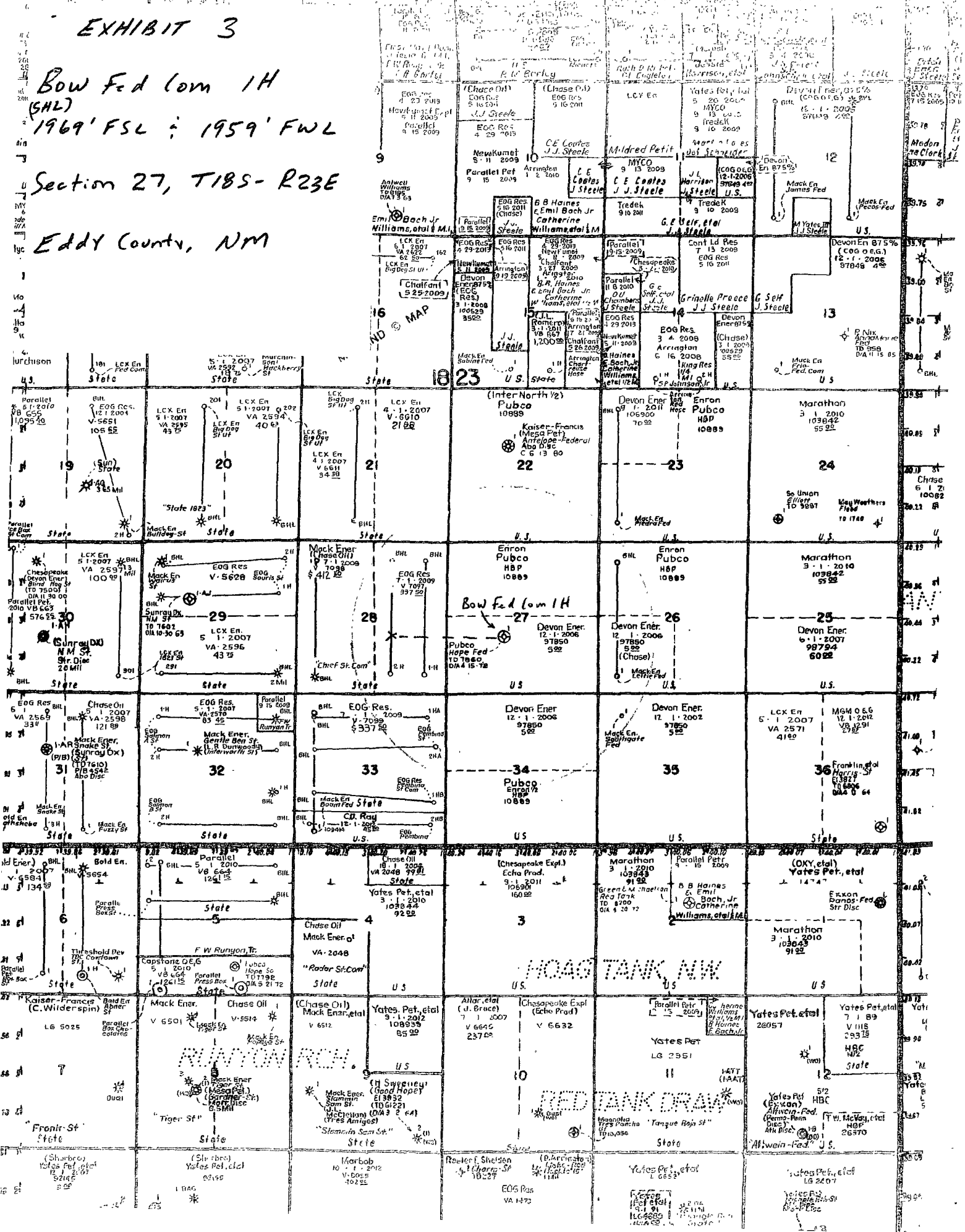
EXHIBIT 3

Bow Fed Com 1H
(SHL)

1969' FSL : 1959' FWL

Section 27, T18S-R23E

Eddy County, NM



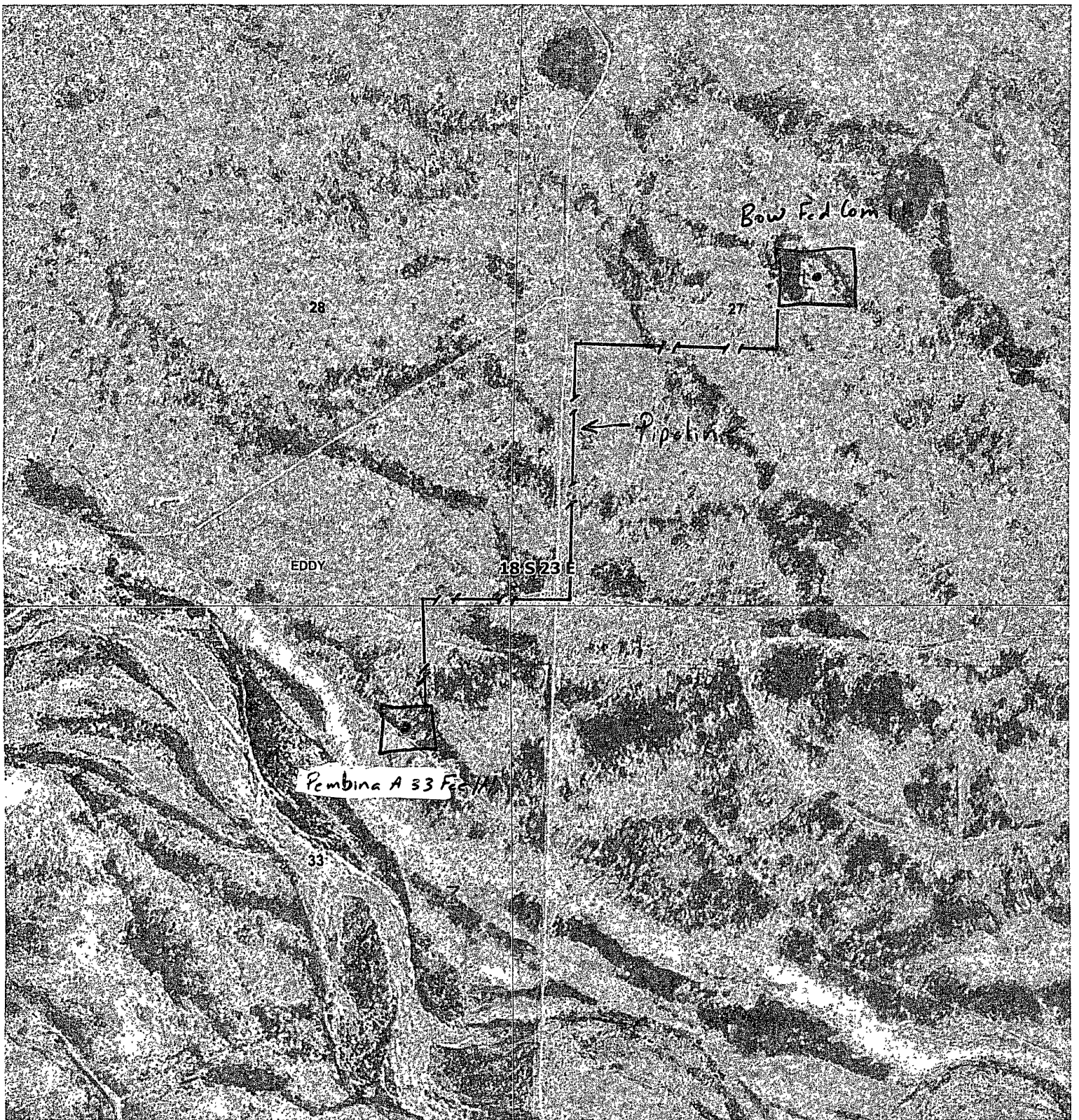


Exhibit 5

Bow Fed Com 1H

Pipeline

EOG RESOURCES, INC.
BOW FED COM 1H
DRILLING PROGRAM

1. GEOLOGIC NAME OF SURFACE FORMATION:

Quaternary Alluvium 0-200

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

San Andres	460'
Glorieta	1,535'
Tubb	2,868'
Abo Shale	3,524'
Wolfcamp Pay	4,670'

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

Quaternary Alluvium	0- 200'	Fresh Water
San Andres	460'	Oil
Glorieta	1,535'	Oil/Gas
Tubb	2,868'	Oil/Gas
Abo/Wolfcamp Pay	4,670'	Gas

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh waters are protected by 8.625" casing at 1,810' with circulating cement back to surface. The Bow Fed #1H is a re-entry of the plug and abandoned Hope Federal Com #1.

4. CASING PROGRAM-NEW

<u>Hole</u>	<u>Interval</u>	<u>OD Csg</u>	<u>Weight</u>	<u>Grade</u>	<u>Conn.</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
*12.250"	0-1,810'	8.625"	24#	J-55	LT&C	1.61	2.41	5.52
7.875"	0-8,409'	5.5"	17#	N-80	LT&C	3.09	1.10	1.92

*The 8-5/8", 24#, J-55 casing was set when initially drilled in 1972.

Cementing Program:

*8.625" Surface Casing: Cement to surface, Lead: 700 sx Halliburton Light + 5 pps Gilsonite + ¼ pps Flocele + 2% CaCl₂, 12.4 ppg, 2.05 yield
 Tail: 200 sx Prem Plus + ¼ pps Flocele + 2% CaCl₂, 14.8 ppg, 1.35 yield
 *Original cement volumes and slurries.

EOG RESOURCES, INC.
BOW FED COM 1H

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 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. 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:

<u>Depth</u>	<u>Type</u>	<u>Wt</u> <u>(PPG)</u>	<u>Vis/</u> <u>(sec)</u>	<u>Waterloss</u> <u>(cc)</u>
0-1,810'	Fresh - Gel	8.6-8.8	28-34	N/c
1,810'-4,200'	Cut Brine	8.8-9.2	28-34	N/c
4,200'-5,000'	Cut Brine	8.8-9.2	28-34	10-15
4,188'-8,409'	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.

EOG RESOURCES, INC.

BOW FED COM 1H

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:

Electric logging will consist of GR-Dual Laterlog and GR-Compensated Density-Neutron from +/-1,810' to TVD.

Possible sidewall cores based on shows.

Possible FMI.

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.

Permit Information:

Well Name: Bow Fed Com #1H

Location:

SL 1969' FSL & 1959' FWL, Section 27, T-18-S, R-23-E, Eddy Co., N.M.

BHL 1880' FSL & 1980' FEL, Section 28, 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	*1,810'	12-1/4"	8-5/8"	32#	J-55	Surface
Production	8,409'	7-7/8"	5 1/2"	17#	N-80	Surface

*The Bow Fed #1H is a re-entry of the plugged and abandoned Hope Federal Com #1. 8-5/8", 24#, J-55 casing was originally set at 1,810' and cemented to surface.

Cement Program:

Depth	No. Sacks	Slurries:
1,810'	700	Lead: Halliburton Light + 2% CaCl ₂ + 5 pps Gilsonite + 1/4 pps Flocele
	200	Tail: Premium Plus + 2% CaCl ₂ + 1/4 pps Flocele
8,409'	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 - 1,810'	Fresh - Gel	8.6-8.8	28-34	N/c
1,810' - 4,200'	Cut Brine	8.8-9.2	28-34	N/c
4,200' - 5,000'	Cut Brine	8.8-9.2	28-34	10-15
4,188' - 8,409'	Polymer (Lateral)	8.8-9.4	40-45	10-25

1969' FSL
1959' FWL
Section 27
Township 18 South
Range 23 East

**Bow Fed Com #1H
Thames Field
Eddy County, NM**

**API #: 30-015-20590
Current Wellbore**

**KB: 3962.7'
GL: 3943.7'**

13-3/8", 72# @ 341'

w/ 150 sx Halliburton Light + ¼ pps Flocele + 2%
CaCl₂ and
200 sx Class C + ¼ pps Flocele + 2% CaCl₂

Circ 55 sx.

8-5/8", 24#, J-55 @ 1810'

w/ 700 sx Halliburton Light + 5 pps Gilsomite + ¼ pps
Gilsomite + 2% CaCl₂ and
200 sx Class C + ¼ pps Flocele + 2% CaCl₂

Did not circ cmt- found TOC at 1080' by TS. Pumped a
total of 435 sx during 1" jobs.

P&A'd in 1972.

Cmt Plug from 1150-1250'.

Cmt Plug from 3000-3100'.

Cmt Plug from 4600-4700'.

Cmt Plug from 6060-6160'.

Cmt Plug from 6550-6650'.

TD well at 7860'.

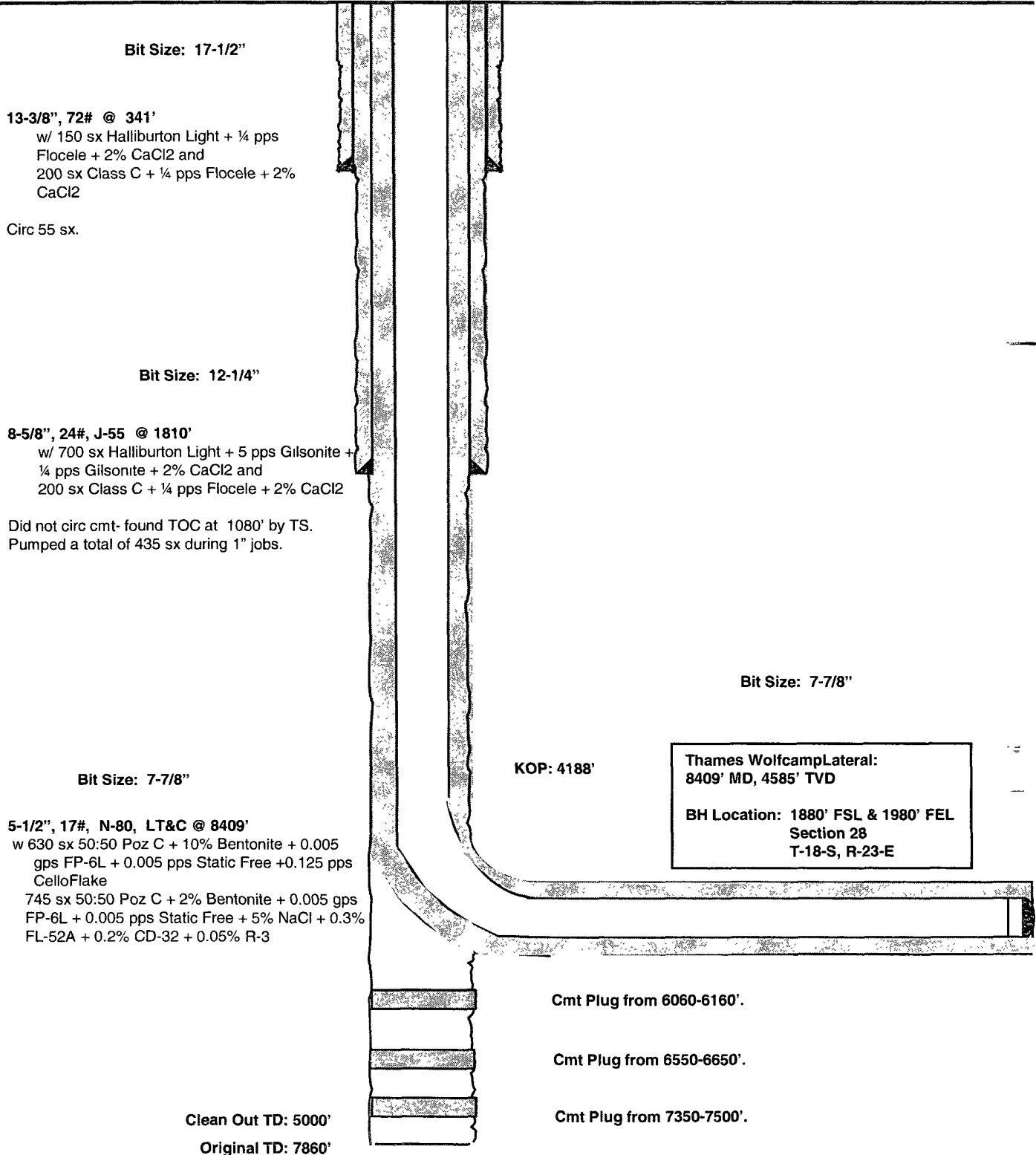
Cmt Plug from 7350-7500'.

Bow Fed Com #1H
Thames Field
Eddy County, New Mexico

1969' FSL
1959' FWL
Section 27
Township 18 South
Range 23 East

Proposed Wellbore

KB: 3962.7'
GL: 3943.7'



EOG Resources Inc

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Bow Fed Com #1H
Company:	Midland - New Mexico	TVD Reference:	WELL @ 3962.70ft (Original Well Elev)
Project:	Thames	MD Reference:	WELL @ 3962.70ft (Original Well Elev)
Site:	Bow Fed Com #1H	North Reference:	Grid
Well:	Bow Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Bow Fed Com #1H		
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:		Bow Fed Com #1H			
Site Position:		Northing:	624,680.80ft	Latitude:	32° 43' 0.703 N
From:	Map	Easting:	393,041.20ft	Longitude:	104° 40' 51.958 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	-0.19 deg

Well	Bow Fed Com #1H					
Well Position	+N/-S	0.00 ft	Northing:	624,680.80 ft	Latitude:	32° 43' 0.703 N
	+E/-W	0.00 ft	Easting:	393,041.20 ft	Longitude:	104° 40' 51.958 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,943.70 ft	

Wellbore		Bow Fed Com #1H			
Magnetics	Model Name	Sample Date	Declination (deg)	Dip Angle (deg)	Field Strength (nT)
	IGRF2005	9/9/2008	8.45	60.49	49,010

Design: Original Plan				
Audit Notes:				
Version:		Phase:	PROTOTYPE	Tie On Depth: 0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(deg)
	0.00	0 00	0 00	268 74

Plan Sections										
Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)	TFO (deg)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,188.00	0.00	360.00	4,188.00	0.00	0.00	0.00	0.00	0.00	360.00	
4,564.57	45.00	260.00	4,527.03	-24.39	-138.30	11.95	11.95	0.00	260.00	
4,947.21	90.00	269.41	4,670.00	-51.29	-481.27	11.96	11.76	2.46	13.19	
5,947.21	90.00	269.41	4,670.00	-61.59	-1,481.22	0.00	0.00	0.00	0.00	
6,014.09	92.01	269.42	4,668.83	-62.27	-1,548.08	3.00	3.00	0.02	0.35	
8,408.39	92.01	269.42	4,585.01	-86.40	-3,940.79	0.00	0.00	0.00	0.00	
8,408.61	92.00	269.42	4,585.00	-86.40	-3,941.01	3.00	-2.82	-1.04	-159.78	BHL (Bow Fed #1H)

EOG Resources Inc

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Bow Fed Com #1H
Company:	Midland - New Mexico	TVD Reference:	WELL @ 3962.70ft (Original Well Elev)
Project:	Thames	MD Reference:	WELL @ 3962.70ft (Original Well Elev)
Site:	Bow Fed Com #1H	North Reference:	Grid
Well:	Bow Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Bow Fed Com #1H		
Design:	Original Plan		

Planned Survey										
Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	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	360.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	360.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	360.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	360.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	360.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	360.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	360.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	360.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	360.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	360.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	360.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	360.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	360.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	360.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	360.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	360.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	0.00	360.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	360.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	360.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	360.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	360.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	360.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	0.00	360.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	360.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	360.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,600.00	0.00	360.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,700.00	0.00	360.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,800.00	0.00	360.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,900.00	0.00	360.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	360.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	0.00	360.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,200.00	0.00	360.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,300.00	0.00	360.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,400.00	0.00	360.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.00	0.00	360.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,600.00	0.00	360.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,700.00	0.00	360.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,800.00	0.00	360.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,900.00	0.00	360.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	0.00	360.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,100.00	0.00	360.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,188.00	0.00	360.00	4,188.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,200.00	1.43	260.00	4,200.00	-0.03	-0.15	0.15	11.95	11.95	0.00	
4,300.00	13.38	260.00	4,298.98	-2.26	-12.82	12.87	11.95	11.95	0.00	
4,400.00	25.33	260.00	4,393.16	-8.01	-45.41	45.57	11.95	11.95	0.00	
4,500.00	37.28	260.00	4,478.44	-17.01	-96.49	96.84	11.95	11.95	0.00	
4,564.57	45.00	260.00	4,527.03	-24.39	-138.30	138.80	11.95	11.95	0.00	
4,600.00	49.13	261.28	4,551.16	-28.59	-163.89	164.48	11.96	11.67	3.61	
4,700.00	60.86	264.18	4,608.43	-38.79	-245.00	245.79	11.96	11.72	2.90	
4,800.00	72.63	266.48	4,647.85	-46.18	-336.41	337.34	11.96	11.77	2.30	
4,900.00	84.43	268.50	4,667.71	-50.43	-434.14	435.14	11.96	11.80	2.02	
4,947.21	90.00	269.41	4,670.00	-51.29	-481.27	482.28	11.96	11.80	1.94	
5,000.00	90.00	269.41	4,670.00	-51.84	-534.06	535.06	0.00	0.00	0.00	

EOG Resources Inc

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well-Bow Fed Com #1H
Company:	Midland - New Mexico	TVD Reference:	WELL @ 3962 70ft (Original Well Elev)
Project:	Thames	MD Reference:	WELL @ 3962 70ft (Original Well Elev)
Site:	Bow Fed Com #1H	North Reference:	Grid
Well:	Bow Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Bow Fed Com #1H		
Design:	Original Plan		

Planned Survey										
Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)	
5,100.00	90.00	269.41	4,670.00	-52.87	-634.05	635.06	0.00	0.00	0.00	
5,200.00	90.00	269.41	4,670.00	-53.90	-734.05	735.05	0.00	0.00	0.00	
5,300.00	90.00	269.41	4,670.00	-54.93	-834.04	835.04	0.00	0.00	0.00	
5,400.00	90.00	269.41	4,670.00	-55.96	-934.03	935.04	0.00	0.00	0.00	
5,500.00	90.00	269.41	4,670.00	-56.99	-1,034.03	1,035.03	0.00	0.00	0.00	
5,600.00	90.00	269.41	4,670.00	-58.02	-1,134.02	1,135.02	0.00	0.00	0.00	
5,700.00	90.00	269.41	4,670.00	-59.05	-1,234.02	1,235.02	0.00	0.00	0.00	
5,800.00	90.00	269.41	4,670.00	-60.08	-1,334.01	1,335.01	0.00	0.00	0.00	
5,900.00	90.00	269.41	4,670.00	-61.10	-1,434.01	1,435.00	0.00	0.00	0.00	
5,947.21	90.00	269.41	4,670.00	-61.59	-1,481.22	1,482.21	0.00	0.00	0.00	
6,000.00	91.58	269.42	4,669.27	-62.13	-1,534.00	1,534.99	3.00	3.00	0.02	
6,014.09	92.01	269.42	4,668.83	-62.27	-1,548.08	1,549.07	3.00	3.00	0.02	
6,100.00	92.01	269.42	4,665.82	-63.14	-1,633.93	1,634.92	0.00	0.00	0.00	
6,200.00	92.01	269.42	4,662.32	-64.15	-1,733.87	1,734.85	0.00	0.00	0.00	
6,300.00	92.01	269.42	4,658.82	-65.15	-1,833.80	1,834.79	0.00	0.00	0.00	
6,400.00	92.01	269.42	4,655.32	-66.16	-1,933.73	1,934.72	0.00	0.00	0.00	
6,500.00	92.01	269.42	4,651.82	-67.17	-2,033.67	2,034.65	0.00	0.00	0.00	
6,600.00	92.01	269.42	4,648.32	-68.18	-2,133.60	2,134.58	0.00	0.00	0.00	
6,700.00	92.01	269.42	4,644.82	-69.18	-2,233.53	2,234.51	0.00	0.00	0.00	
6,800.00	92.01	269.42	4,641.32	-70.19	-2,333.47	2,334.44	0.00	0.00	0.00	
6,900.00	92.01	269.42	4,637.81	-71.20	-2,433.40	2,434.38	0.00	0.00	0.00	
7,000.00	92.01	269.42	4,634.31	-72.21	-2,533.33	2,534.31	0.00	0.00	0.00	
7,100.00	92.01	269.42	4,630.81	-73.21	-2,633.27	2,634.24	0.00	0.00	0.00	
7,200.00	92.01	269.42	4,627.31	-74.22	-2,733.20	2,734.17	0.00	0.00	0.00	
7,300.00	92.01	269.42	4,623.81	-75.23	-2,833.13	2,834.10	0.00	0.00	0.00	
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7,500.00	92.01	269.42	4,616.81	-77.24	-3,033.00	3,033.97	0.00	0.00	0.00	
7,600.00	92.01	269.42	4,613.31	-78.25	-3,132.94	3,133.90	0.00	0.00	0.00	
7,700.00	92.01	269.42	4,609.81	-79.26	-3,232.87	3,233.83	0.00	0.00	0.00	
7,800.00	92.01	269.42	4,606.31	-80.27	-3,332.80	3,333.76	0.00	0.00	0.00	
7,900.00	92.01	269.42	4,602.81	-81.28	-3,432.74	3,433.69	0.00	0.00	0.00	
8,000.00	92.01	269.42	4,599.30	-82.28	-3,532.67	3,533.63	0.00	0.00	0.00	
8,100.00	92.01	269.42	4,595.80	-83.29	-3,632.60	3,633.56	0.00	0.00	0.00	
8,200.00	92.01	269.42	4,592.30	-84.30	-3,732.54	3,733.49	0.00	0.00	0.00	
8,300.00	92.01	269.42	4,588.80	-85.31	-3,832.47	3,833.42	0.00	0.00	0.00	
8,400.00	92.01	269.42	4,585.30	-86.31	-3,932.40	3,933.35	0.00	0.00	0.00	
8,408.39	92.01	269.42	4,585.01	-86.40	-3,940.79	3,941.73	0.00	0.00	0.00	
8,408.61	92.00	269.42	4,585.00	-86.40	-3,941.01	3,941.95	3.00	-2.82	-1.04	
BHL (Bow Fed #1H)										

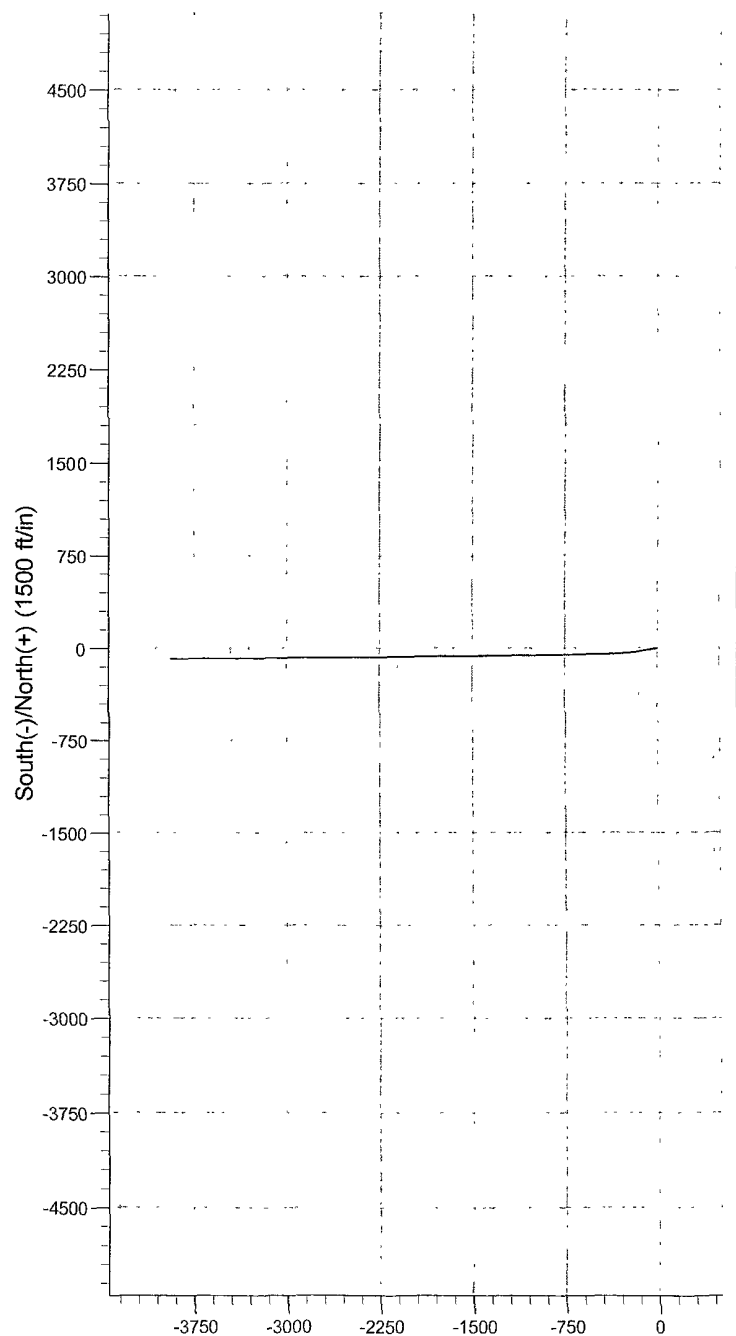
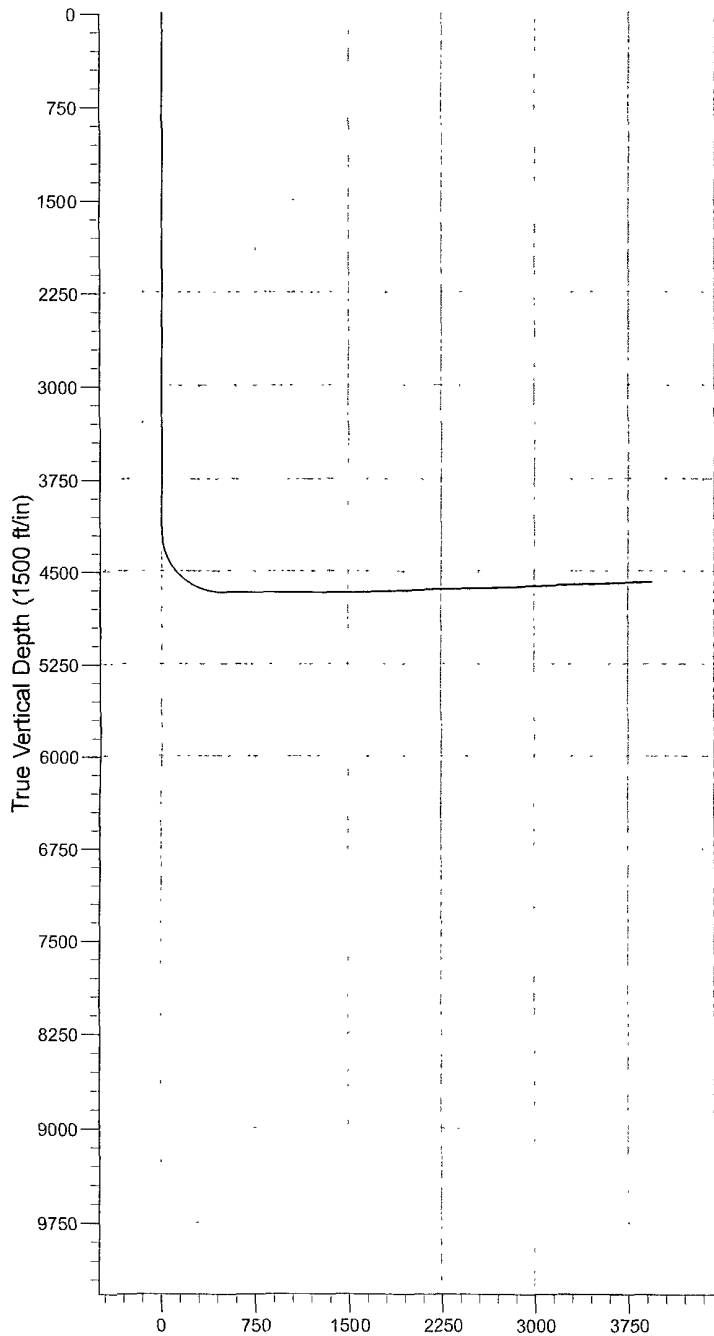
Targets										
Target Name	Hit/miss target	Dip Angle (deg)	Dip Dir (deg)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL (Bow Fed #1H)	- plan hits target center	0.00	360.00	4,585.00	-86.40	-3,941.01	624,594.40	389,100.20	32° 42' 59.718 N	104° 41' 38.084 W
	- Point									

WELL DETAILS: Bow Fed Com #1H

+N/-S	+E/-W	Northing	Ground Level:	3943.70	Latitude	Longitude	Slot
0.00	0.00	624680.80	Easting	393041.20	32° 43' 0.703 N	104° 40' 51.958 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFac	Large	Sec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4188.00	0.00	360.00	4188.00	0.00	0.00	0.00	360.00	0.00	
3	4564.57	45.00	260.00	4527.03	-24.39	-138.30	11.95	260.00	138.80	
4	4947.21	90.00	269.41	4670.00	-51.29	-481.27	11.96	13.19	482.28	
5	55947.21	90.00	269.41	4670.00	-61.59	-1481.22	0.00	0.00	1482.21	
6	6014.09	92.01	269.42	4668.83	-62.27	-1548.08	3.00	0.35	1549.07	
7	8408.39	92.01	269.42	4585.01	-86.40	-3940.79	0.00	0.00	3941.73	
8	8408.61	92.00	269.42	4585.00	-86.40	-3941.01	0.00	0.00	3941.95	



EOG RESOURCES, INC.
BOW FED COM 1H

ATTACHMENT TO EXHIBIT #1

1. Wear ring to be properly installed in head.
2. Blow out preventer and all fittings must be in good condition, 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.

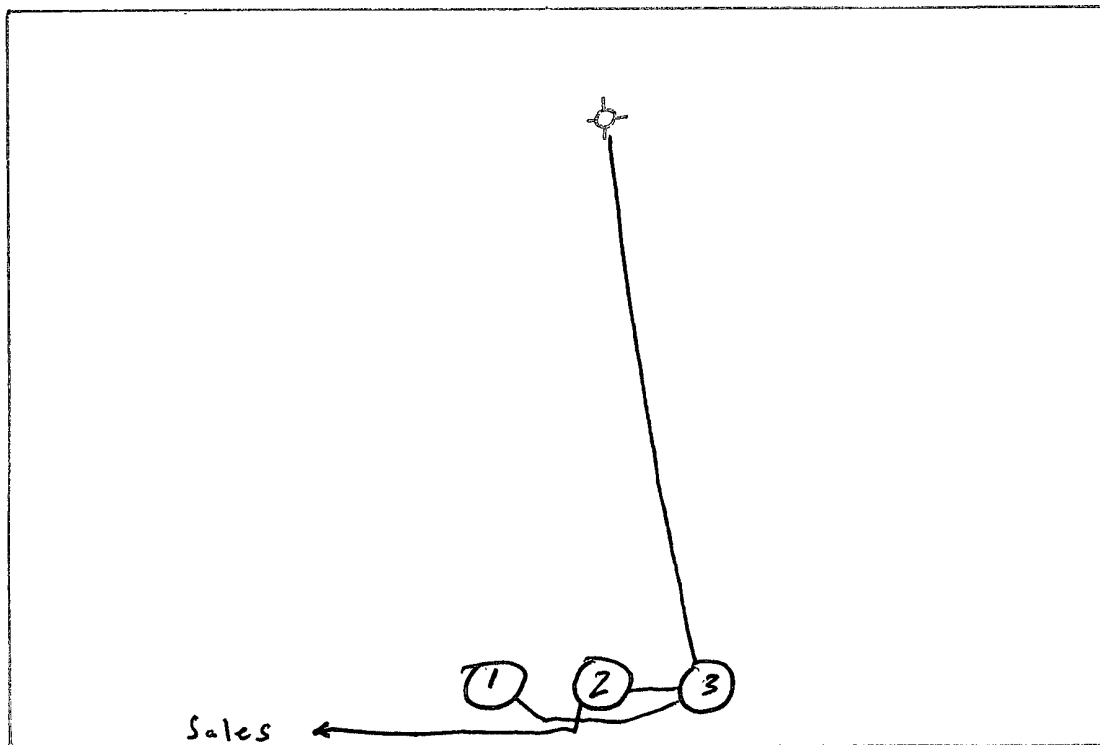
PRODUCTION FACILITY LAYOUT

WELL NAME: Bow Fed Com 1H



CLOSED LOOP
EQUIPMENT

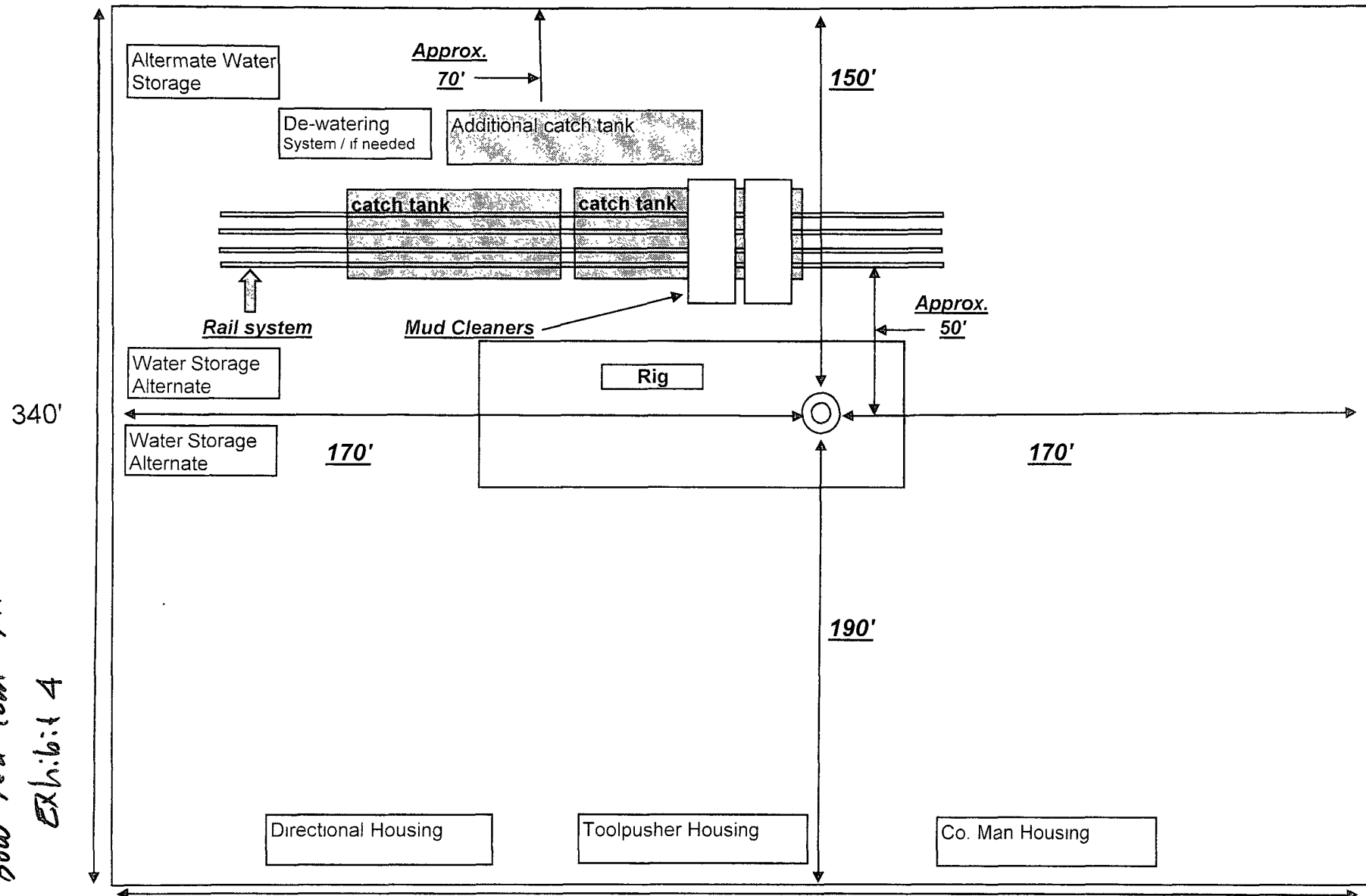
Closed Loop
EQUIPMENT



- Road
- | | |
|----|-----------|
| 1. | Tank |
| 2. | Meter |
| 3. | Separator |

"NOT TO SCALE"

Bow Fed Com / H
Exhibit 4



EOG Resources / Closed Loop Location Design Plan

340'

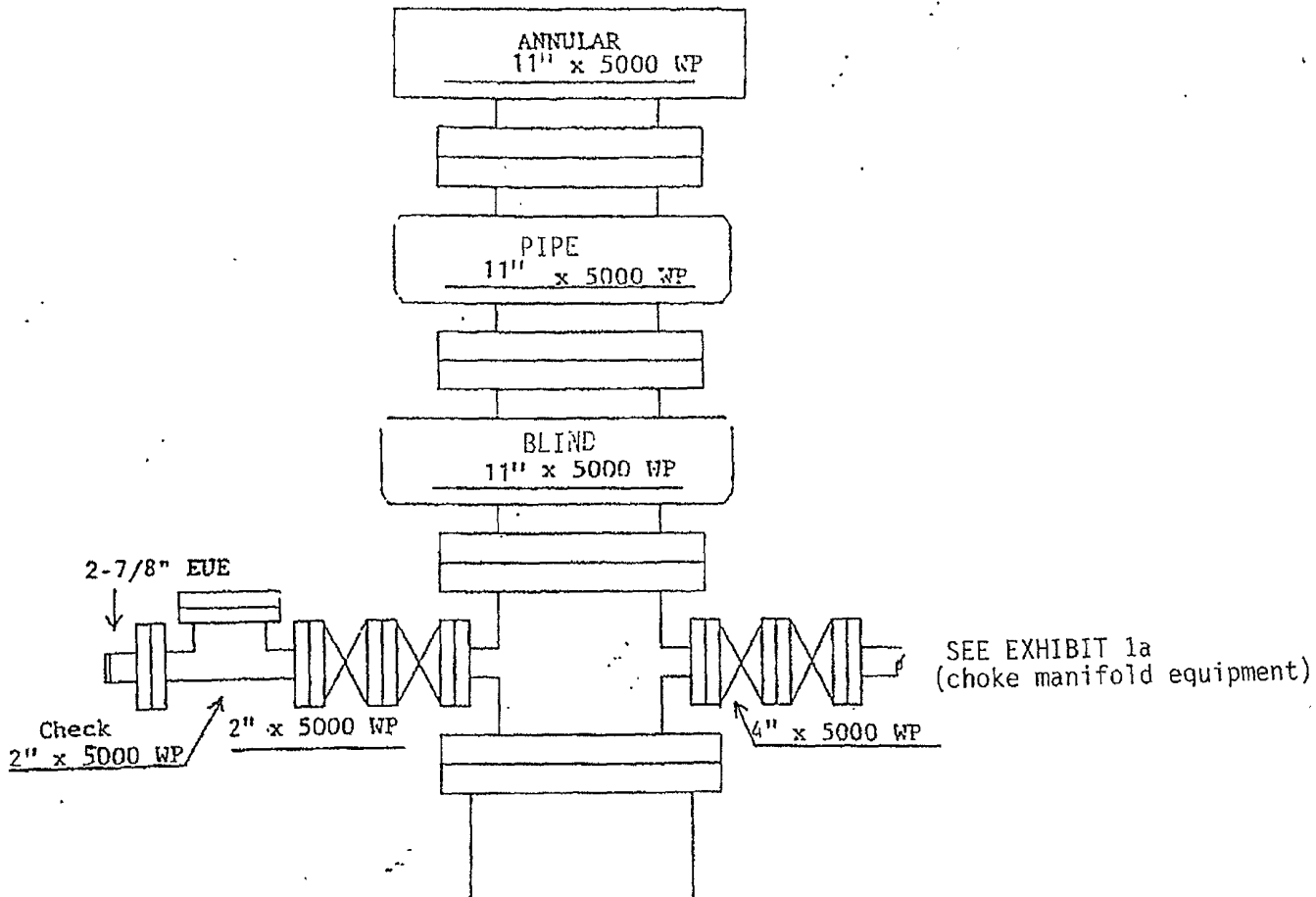
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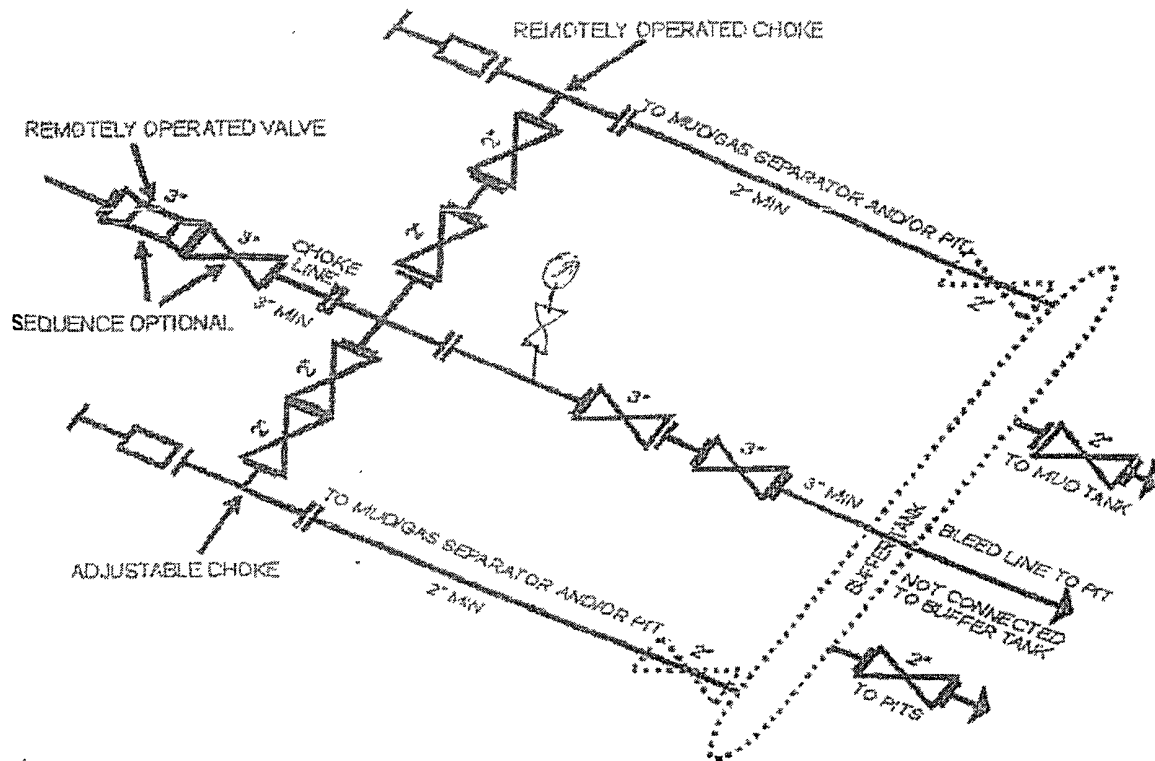
6/30/2008

EXHIBIT 1

EOG Resources, Inc.

Bow. Fed Com 1H





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

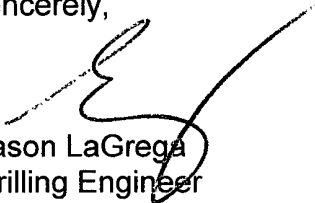
September 10, 2008

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 H₂S Contingency Plan for the Bow Fed Com #1H. The current plan is to complete this well in the Wolfcamp, which is sweet, and I do not anticipate encountering any H₂S bearing formations during drilling operations.

Sincerely,



Jason LaGrega
Drilling Engineer

**EOG RESOURCES, INC.
BOW FED COM 1H**

SURFACE USE PLAN OF OPERATION

SHL: 1969' FSL & 1959' FWL, Unit K, Section 27, T18S-R23E, N.M.P.M., Eddy, NM
BHL: 1880' FSL & 1980' FEL, Unit J, Section 28, 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 Armstrong for 9.1 miles, then turn left and go east on Eddy County Road #21 (Rockin R Red) for 1.7 miles, turn north on lease road and go 2.3 miles, turn right for 0.3 miles, turn left 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 will be an upgraded two-track which appears to be an old lease road. The access road will most likely enter the location from the south onto the SW corner of location pad.
- 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 Bow Fed Com 1H battery would be utilized and the necessary production equipment will be installed at the well site. See Production Facilities Layout diagram.
- b. All flow lines will adhere to API standards. Operator will construct a buried pipeline to tie into existing pipeline at operator's Pembina A State #1H as depicted on Exhibit 5.
- c. If the well is productive, rehabilitation plans are as follows:

EOG RESOURCES, INC.
BOW FED COM 1H

- i. Within 60 days after drilling and completion of the well, the location shall be reduced as determined by operator to the minimum area necessary to safely and effectively operate the well.
- ii. The original topsoil from the well site will be returned to the location. The location 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 & 2a. 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 shall be secured. If poly pipeline is used to transport fresh water to the location, proper authorization shall be secured by the contractor.

6. CONSTRUCTION MATERIALS

All caliche utilized for the drilling pad and proposed access road shall be obtained from an existing BLM approved pit or, the fee surface owner or from prevailing deposits found under the location. All roads shall be constructed of rolled and compacted caliche. Operator 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 shall be disposed of in a steel cuttings bin (catch tanks) on the drilling pad (behind the steel mud tanks). The bin and cuttings shall be hauled to an approved cuttings dumpsite.
At the site, the cuttings shall be removed from the bin & the bin shall be returned to the drilling site for reuse.
- b. All trash, junk, and other waste material shall be contained in trash cages or trash bins to prevent scattering. When a job is completed, all contents shall be removed and disposed of in an approved landfill.
- c. The supplier, including broken sacks, shall pick up salts remaining after completion of well.
- d. If necessary, a porto-john shall be provided for the rig crews. This equipment shall be properly maintained during the drilling and completion operations and shall be removed when all operations are complete.
- e. Remaining drilling fluids shall be hauled off by transports to a state approved disposal site. Water produced during completion shall be put in storage tanks and disposed of in a state approved disposal. Oil and condensate produced shall be put in a storage tank and sold.
- f. Disposal of fluids to be transported by the following companies:
 - i. RGB TRUCKING

EOG RESOURCES, INC.
BOW FED COM 1H

- ii. LOBO TRUCKING
- iii. I & W TRUCKING
- iv. CRANE HOT OIL & TRANSPORT
- v. JWS
- vi. QUALITY TRUCKING

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 and living facilities.
- b. Mud pits in the active circulating system shall be steel pits and the catch tanks shall be steel tanks set in shallow sumps behind the steel circulating tanks and sumps.
- c. The area where the catch tanks are placed shall 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 shall be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road shall be reclaimed as directed by the BLM. The catch tank area shall be broken out and leveled after drying to a condition where these are feasible. The original topsoil shall again be returned to the pad and contoured, as close as possible, to the original topography.
- b. The location and road shall be reclaimed as recommended by the BLM.
- c. If the well is deemed commercially productive, the catch tank area shall 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 shall be reclaimed. The original top soil shall be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad shall be contoured, as close as possible, to match the original topography.

**EOG RESOURCES, INC.
BOW FED COM 1H**

11. SURFACE OWNERSHIP

The surface is owned by the Bureau of Land Management.

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 mile of location.
- c. There is no permanent or live water within 2 mile 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 11th day of September 2008.

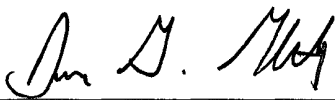
Name: Donny G. Glanton

Position: Sr. Lease Operations ROW Representative

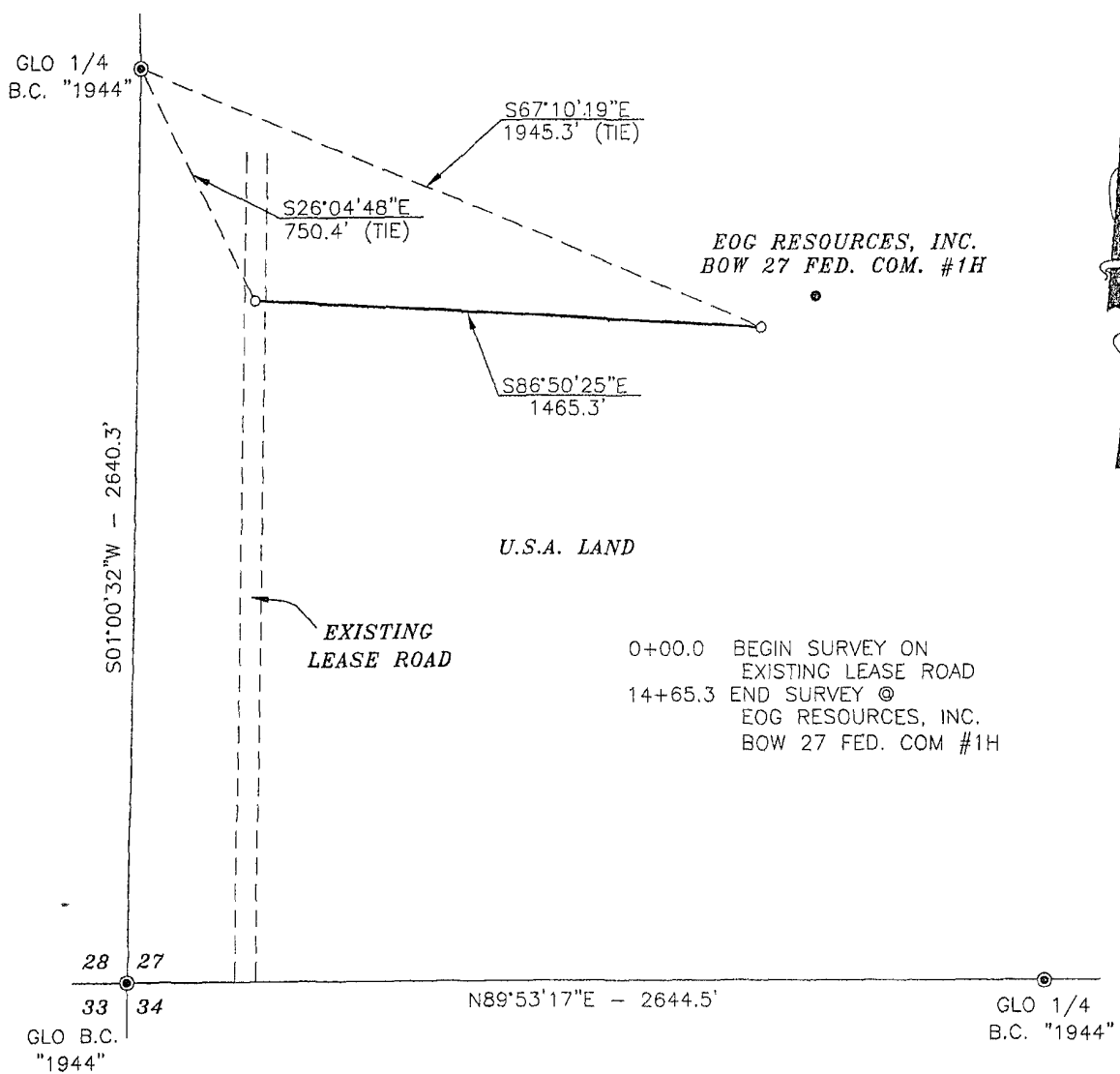
Address: P.O. Box 2267 Midland, TX 79705

Telephone: 432-686-3642

Email: donny_glanton@eogresources.com

Signed: 

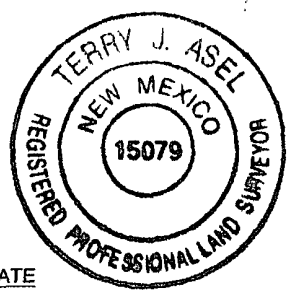
SECTION 27, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M.,
EDDY COUNTY
NEW MEXICO



Basis of Bearings - GPS Geodetic Measurements
NM East Zone (83) North American Datum of 1983

DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 1465.3 FEET OR 0.278 MILES IN LENGTH CROSSING U.S.A. LAND IN SECTION 27, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.



Bureau of Land Management
RECEIVED
SEP 25 2008
Carlsbad Field Office
Carlsbad, NM

LEGEND

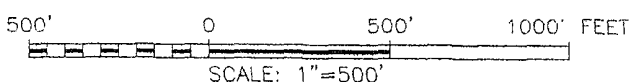
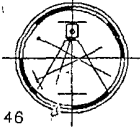
⊙ - DENOTES FOUND MONUMENT AS NOTED

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 9/22/2008
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 SECTION 27, TOWNSHIP 18 SOUTH, RANGE 23 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO		
Survey Date: 09/12/08	Sheet 1 of 1 Sheets	
W.O. Number: 080912RD	Drawn By: KA	
Date: 09/22/08	080912RD DWG	Scale: 1"=500'

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG Resources
LEASE NO:	NM97850
WELL NAME & NO:	Bow Fed Com 1H
SURFACE HOLE FOOTAGE:	1969' FSL & 1959' FWL
LOCATION:	Section 27, T. 18 S., R. 23 E., NMPM
BOTTOM HOLE FOOTAGE:	1880' FSL & 1980' FEL
LOCATION:	Section 28, T. 18 S., R. 23 E., NMPM

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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Aplomado Falcon
 - Hydrology
- ☒ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
 - Re-entry
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- ☒ **Closed Loop System/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

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, the standard stipulation for permanent resource roads, and some standard stipulation for sink holes next to the proposed well location.

In order to help protect the nearby sink holes the entire well pad will need to have a berm placed around the location. This will prevent any run off from the caliche pad entering the nearby sink holes.

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

Bow Federal Com. # 1H: Pit North V-Door East

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 shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. Closed Loop Sytem

Bow Federal Com. # 1H: Pit North V-Door East

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

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

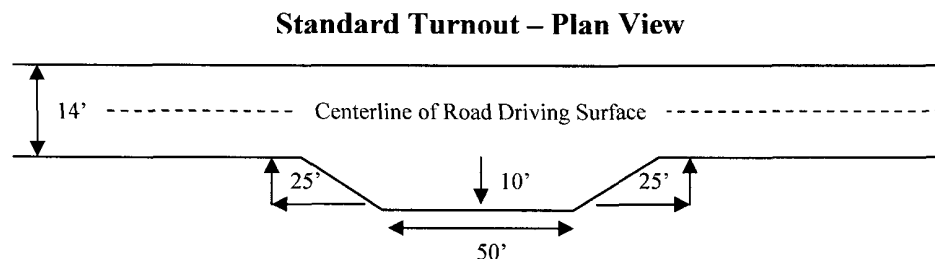
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

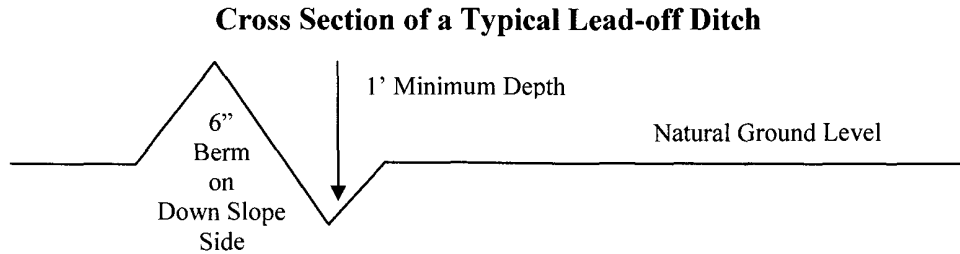
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing 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.



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:

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

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

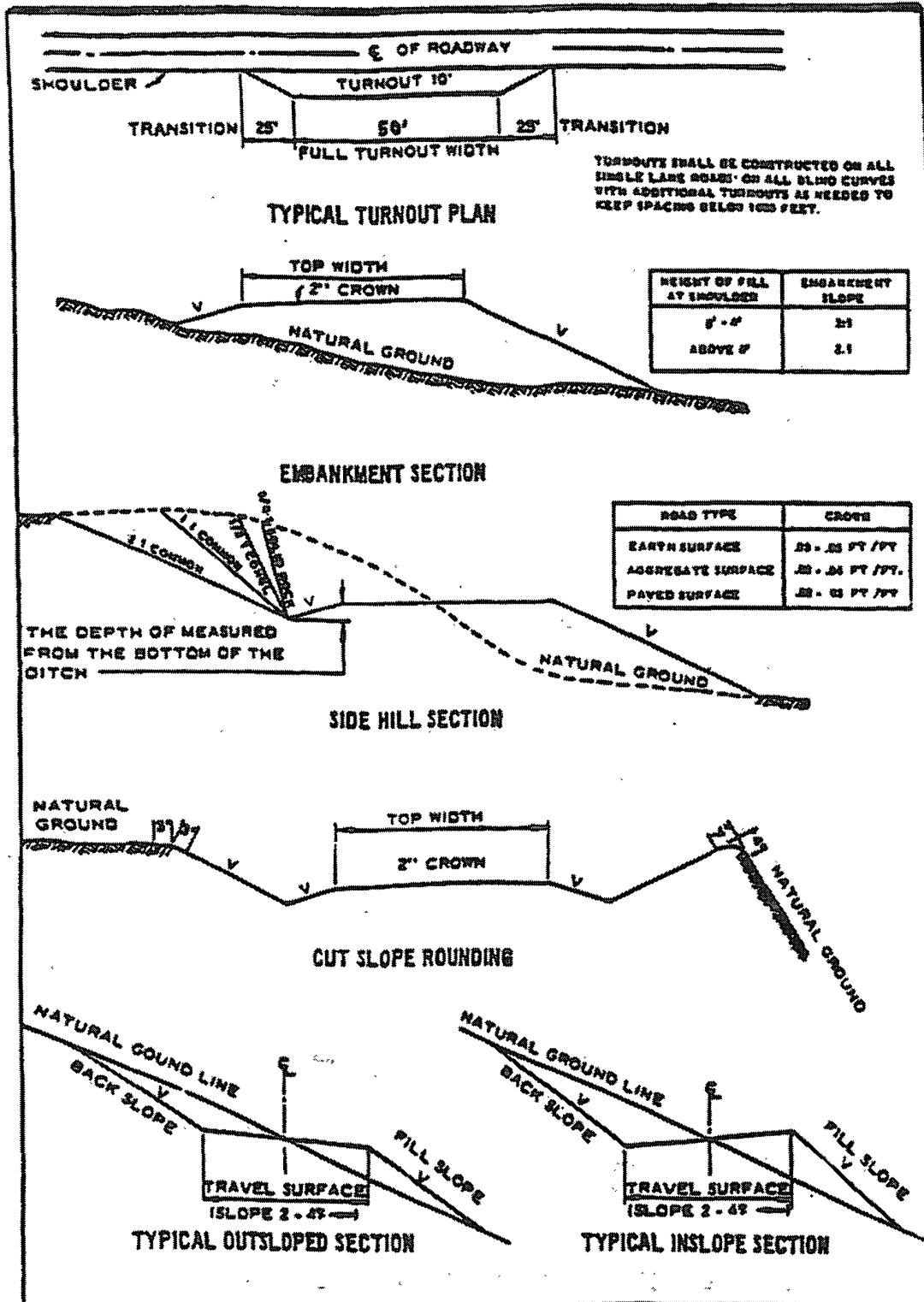
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 – RE-ENTRY

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 – RE-ENTRY

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.

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

Medium cave/karst.

Possible lost circulation in the San Andres, Glorietta and Wolfcamp formations.

Possible high pressure gas bursts in the Wolfcamp.

1. **The 13-3/8" surface casing is set at 341' and cemented to surface.**
2. **The 8-5/8" intermediate casing is set at 1810' and cemented to surface with primary and one inch cement jobs.**

A CIT is to be performed on the 8-5/8" casing per Onshore Oil and Gas Order 2.III.B.1.h prior to drilling the plug at 1150'. Notify BLM for witness of test.

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

3. 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.
4. 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. **Operator installing a 5M system and testing as a 3M system – approved.**
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.

WWI 100608

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

A buried Pipeline was applied for within the APD. However, do to problems with getting approval through archeology. We are unable to grant permission to construct the pipeline under the APD and these Conditions of Approval. A Rights-of Way will have to be applied for in order to ensure approval of the buried pipeline to this well location.

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.

The 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.

Aplomado Falcon Habitat Seed Mixture

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

X. 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.