

Submit to Appropriate
District Office
State Lease - 6 copies
Fee Lease - 5 copies

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-101
Revised 1-1-89

OIL CONSERVATION DIVISION

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

Santa Fe, New Mexico 87508-2038

RECEIVED
FEB - 9 1994

API NO. (assigned by OCD on New Wells)

30-045-29077 ✓

5. Indicate Type of Lease

STATE ☒

FEE ☐

6. State Oil & Gas Lease No.

E5462

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work:

DRILL ☒

RE-ENTER ☐

DEEPEN ☐

PLUG BACK ☐

b. Type of Well:

OIL
WELL ☐

GAS
WELL ☒

OTHER ☐

SINGLE
ZONE ☒

MULTIPLE
ZONE ☐

7. Lease Name or Unit Agreement Name

Gallegos Canyon Unit

8. Well No.

528

3. Address of Operator

P.O. Box 977 Farmington, NM 87499

9. Pool name or Wildcat

West Kutz Pictured Cliffs

4. Well Location

Unit Letter E : 1676 Feet From The North Line and 790 Feet From The West Line

Section 36

Township 29N

Range 12W

NMPM San Juan

County

10. Proposed Depth

1545'

11. Formation

Pictured Cliffs

12. Rotary or C.T.

Rotary

13. Elevations (Show whether DF, RT, GR, etc.)

5372 GR ✓

14. Kind & Status Plug. Bond

Blanket

15. Drilling Contractor

Aztec

16. Approx. Date Work will start

As soon as approved

17.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8-3/4"	7"	20#K-55	285'	75	surface
6-1/4"	4 1/2"	10.5#K-55	1545'	195	surface

It is proposed to drill the subject well to 1545' with the primary production anticipated in the Pictured Cliff Formation.

Estimated Formation Tops:

This Approval	Ojo Alamo	75'
Expires <u>2-10-95</u>	Kirtland	245'
And Will Not Be	Fruitland	1065'
Extended	Basal Fruitland Coal	1350'
	Pictured Cliffs	1368'
	TD	1545'

B.O.P.E. will consist of a 2000# Reagan bladder type preventor, pipe rams and blind ram B.O.P.E.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Fred Lowery TITLE Operations Superintendent DATE 02/07/94

TYPE OR PRINT NAME Fred Lowery TELEPHONE NO. 327-1639

(This space for State Use)

APPROVED BY Eric Bush DEPUTY OIL & GAS INSPECTOR, DIST. #3

DATE FEB 10 1994

CONDITIONS OF APPROVAL, IF ANY:

OIL CONSERVATION DIVISION

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

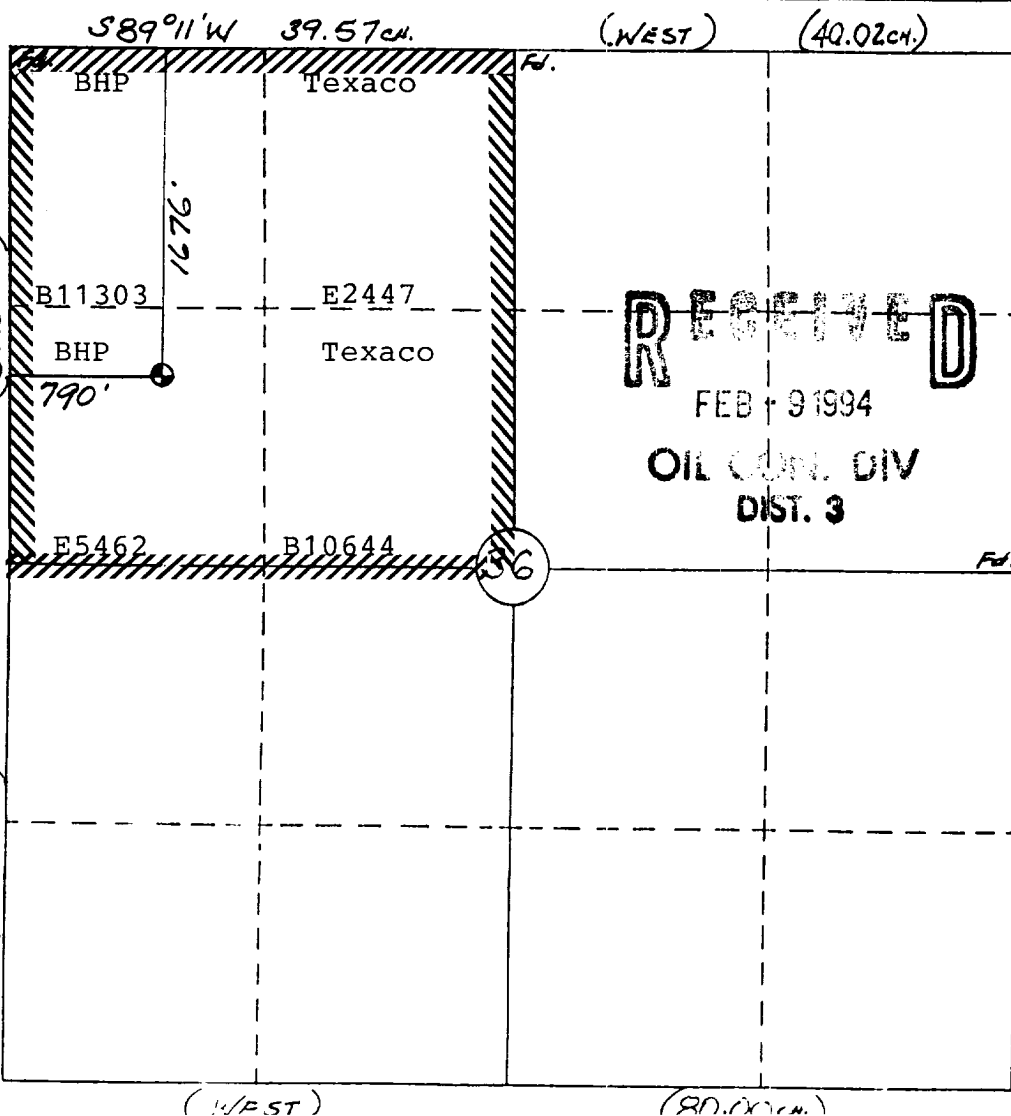
WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator BHP PETROLEUM (AMERICAS) INC.			Lease GALLEGOS CANYON UNIT		Well No. 528
Unit Letter E	Section 36	Township 29 N	Range 12 W	County San Juan	
Actual Footage Location of Well: 1676 feet from the North line and 790 feet from the West line					
Ground level Elev. 5372	Producing Formation Pictured Cliffs		Pool West Kutz Pictured Cliffs	Dedicated Acreage: 160 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc?
☒ Yes ☐ No If answer is "yes" type of consolidation Unitization
If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.

0 330 660 990 1320 1650 1980 2310 2640 2000 1500 1000 500 0



OPERATOR CERTIFICATION

I hereby certify that the information contained herein in true and complete to the best of my knowledge and belief.

Signature

FRED LOWERY

Printed Name

FRED LOWERY

Position

OPERATION SUPT.

Company

BHP PETROLEUM

Date

01/24/94

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 knowledge and belief.

21 Jan., 1994

Date Surveyed

William E. Mahneke II

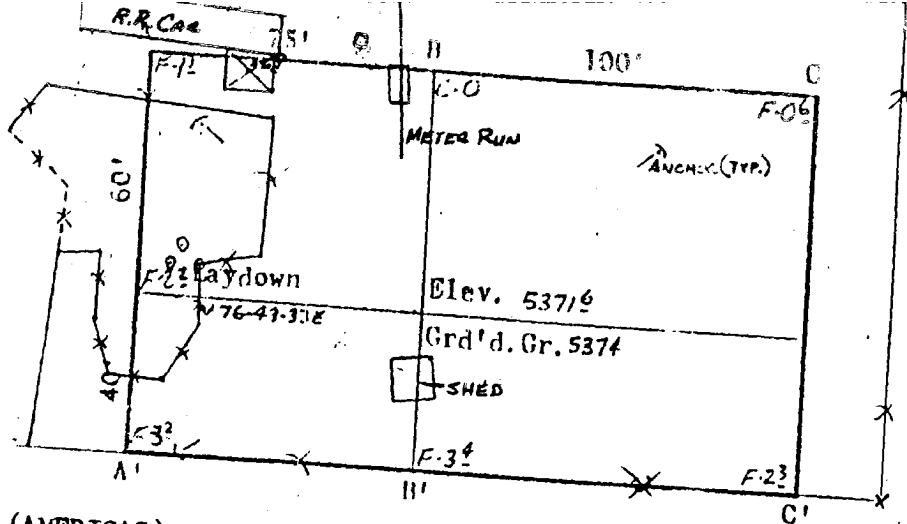
Signature & Seal
Professional Surveyor

WILLIAM E. MAHNEKE II

#8466

REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. 8466



BHP PETROLEUM (AMERICAS) INC.
 G.C.U. #528
 1676' FNL & 790' FWL
 Sec. 36, T29N, R12W
 San Juan Co., N.M.

Scale: 1" = 50'



A-A' Vert.: 1" = 30' Horiz.: 1" = 100' C/L

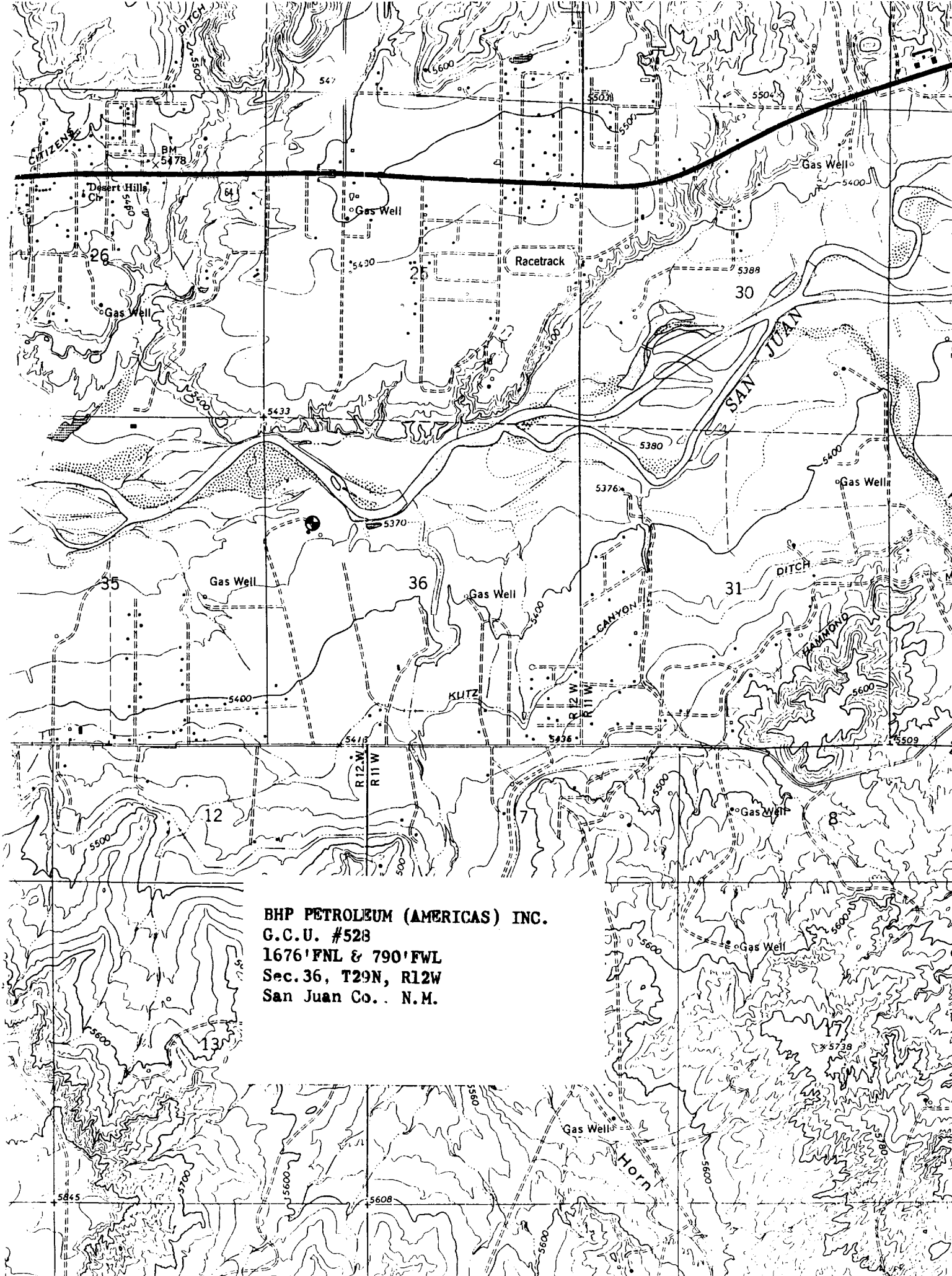
5380	---	---	---	---	---	---
5370	---	---	---	---	---	---
	---	---	---	---	---	---

B-B'

5380	---	---	---	---	---	---
5370	---	---	---	---	---	---
	---	---	---	---	---	---

C-C'

5380	---	---	---	---	---	---
5370	---	---	---	---	---	---
	---	---	---	---	---	---



BHP PETROLEUM (AMERICAS) INC.
G.C.U. #528
1676' FNL & 790' FWL
Sec. 36, T29N, R12W
San Juan Co., N.M.

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT #528
1676' FNL & 790' FWL
Section 36 T29N R12W
SAN JUAN COUNTY, NEW MEXICO

TEN POINT PROGRAM

1. **Surface Formation:** NACIMIENTO

2. &

3. **Estimated Formation Tops:**

<u>Formation</u>	<u>Top</u>	<u>Expected Production</u>
Ojo Alamo	75'	
Kirtland	245'	
Fruitland	1065'	
Basal Fruitland Coal	1350'	GAS
Pictured Cliffs	1363'	GAS
 TOTAL DEPTH	 1545'	

4. **Casing and Cementing Program:** A string of 7" 20# K-55 ST&C casing will be set at \pm 285' in an 8 3/4" hole and cemented to the surface in a single stage with 75 sx of Class "B" cement (yield=1.18 cf/sk) containing 3% CaCl₂ and 1/4 lb/sk celloflake. Slurry volume assumes 100% excess over calculated hole volume. If the cement job does not circulate to surface, cement will be topped off using 1" pipe down the 8-3/4" by 7" annulus. Centralizers will be run on the bottom four joints across the Ojo Alamo. If boulders are encountered while drilling the surface hole, no centralizers will be run. Minimum clearance between couplings and hole is 1.094". Prior to drilling out the shoe, casing and BOPE will be tested to a minimum of 2000 psig. Safety factors utilized in the design of this casing string were: burst=1.1; collapse=1.125; and tension=1.8 or 100,000 lb overpull, whichever is greater.

A production string of 4-1/2", 10.5# K-55 ST&C casing will be run from the surface to total depth in a 6-1/4" hole. This string will be cemented to the surface with a minimum of 145 sx of 50-50 pozmix containing 2% gel, 10% salt and 1/4 lb/sk celloflake (yield=1.26 cf/sk) followed by 50 sx of Class "B" cement containing fluid loss additive (yield=1.18 cf/sk). Slurry volume assumes a 50% excess over calculate hole volume. Cement volume is subject to change after review and recalculation of hole volume from the open hole calipers. If the primary cement job does not circulate to surface, the cement will be topped of using 1" pipe down the 6-1/4" by 4 1/2" annulus. Centralizers will be spaced such that a minimum of two are located above and two are located below the Basal Fruitland Coal. Minimum clearance between couplings and hole is 1.25"

Prior to perforating the casing for any attempted completion, the casing will be tested to a minimum of 2500 psig. Safety factors utilized in the design of this casing string were: burst=1.1; collapse=1.125; and tension=1.8 or 100,000 lb overpull, whichever is greater.

Following the completion of the cementing operations , a sundry notice detailing the cement volummes and densities for each job will be submitted.

5. **Pressure Control Equipment:** (See attached schematic diagram.) A minimum of a 2M psi BOP well control system will be utilized. BOP's and choke manifold will be installed and pressure tested before drilling out under surface casing and then will be checked daily as to mechanical operation condition. Ram type preventors will be tested to 2M psi. The annular preventor will be tested to 50% or its working pressure.

A full opening internal blowout preventor or drill pipe safety valve will be on the drill floor at all times and will be capable of fitting all connections.

6. **Mud Program:** A fresh water low solids, non-dispersed mud system will be used to drill this well. Sufficient materials will be on location at all times to maintain mud propertied and to control any unforeseen lost circulation problems or abnormal pressures in the Farmington sands within the Kirtland formation. All drilling fluids will be contained in an earthen pit. At the completion of drilling, the drilling fluid will be hauled off to be used for another well. The remaining accumulation of solids in the pit will be allowed to dry and then covered.

Mud program is as follows:

<u>Interval (ft)</u>	<u>Mud Weight (ppg)</u>	<u>Viscosity (sec/qt)</u>
0 - 285	9.0+	40 - 50
285 - 1000	8.4+	30 - 38
1000 - TD	9.3 or less	40 - 55

7. **Auxiliary Equipment:** An upper kelly cock with handle available will be utilized. At a minimum, a flow sensor will be installed in the system and the mud volume will be visually monitored constantly.

8. **Logging Program:** SP-DIL and GR-FDC-CNL logs will be run form TD to surface casing shoe depth.

Coring Program: No cores are planned

Testing Program: No tests are planned.

Stimulation Program: Perforate the Pictured Cliffs with 4 JSPF and fracture stimulate with approximately 3000 lbs of frac sand per foot of perforated interval in either a 70 quality nitrogen foam system or a cross-linked gelled water system.

9. **Abnormal Pressure:** A possible water flow is expected in the Ojo Alamo. Although not expected, abnormal pressures are possible in the Farmington sand of the Kirtland formation.

Estimated Bottom Hole Pressure: 600 psig.

10. **Anticipated Starting Date:** As soon as all required approvals are received.

Duration of Operation: It is estimated that a total of 4 days will be required for drilling operations and 5 days for completion operations.

Joan Lowry