

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

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DEC 1 1993

API NO. (assigned by OCD on New Wells)

30-045-29033

5. Indicate Type of Lease

STATE ☐

FEE ☒

6. State Oil & Gas Lease No.

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

2038

2. Name of Operator

BHP Petroleum (America's) Inc. 2217

8. Well No.

527

(160)

3. Address of Operator

P.O. Box 977 Farmington, NM 87499

9. Pool name or Wildcat

W Kutz Pictured Cliffs

4. Well Location

Unit Letter P : 975 Feet From The South Line and 1150 Feet From The East Line

Section 27 Township 29N Range 12W NMPM San Juan County

10. Proposed Depth

1492'

11. Formation

Pictured Cliffs

12. Rotary or C.T.

Rotary

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

5345' 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	130'	35	surface
6-1/4"	4 1/2"	10.5#K-55	1492'	190	surface

It is proposed to drill the subject well to 1492' with the primary production anticipated in the Pictured Cliff Formation.

Estimated Formation Tops:

This Approval

Expires 12-3-94

And Will Not Be

Extended

Ojo Alamo

40'

Kirtland

215'

Fruitland

1055'

Basal Fruitland Coal

1332'

Pictured Cliffs

1350'

TD

1492

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 11/29/93

TYPE OR PRINT NAME Fred Lowery TELEPHONE 827-1639

(This space for State Use)

APPROVED BY Eunice L. Burch TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE 12-3-93  
DEC 03 1993

CONDITIONS OF APPROVAL, IF ANY:

Submit to Appropriate  
District Office  
State Lease - 4 copies  
Fee Lease - 3 copies

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

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1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator <b>BHP PETROLEUM (AMERICAS) INC.</b>			Lease <b>GALLEGOS CANYON UNIT</b>		Well No. <b>527</b>
Unit Letter <b>P</b>	Section <b>27</b>	Township <b>29 N</b>	Range <b>12 W</b>	County <b>San Juan</b>	
Actual Footage Location of Well: <b>975</b> feet from the <b>South</b> line and <b>1150</b> feet from the <b>East</b> line					
Ground level Elev. <b>5345</b>	Producing Formation <b>PICTURED CLIFFS</b>		Pool <b>WEST KUTZ PICTURED CLIFFS</b>		Dedicated Acreage: <b>160 Acres</b>

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communization, 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.)

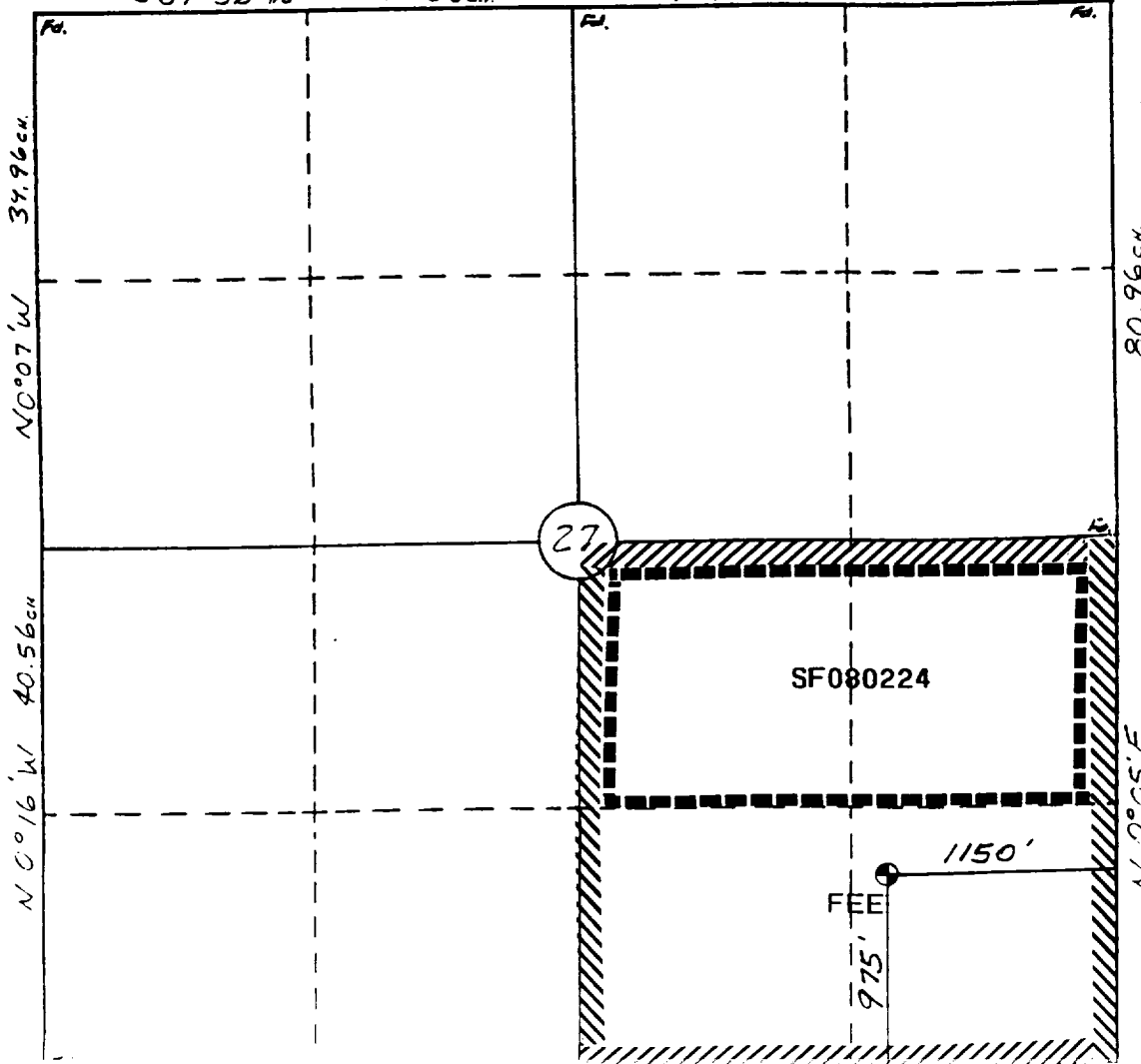
No allowable will be assigned to the well until all interests have been consolidated (by communization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.

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

S 89° 56' W 40.03 ch.

N 89° 16' W

39.73 ch.



OPERATOR CERTIFICATION

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

Signature

Printed Name

**FRED LOWERY**

Position  
**OPERATIONS SUPT.**

Company  
**BHP PETROLEUM**

Date  
**11/29/93**

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes actual surveys made by me or under supervision, and that the same is true and correct to the best of my knowledge and belief.

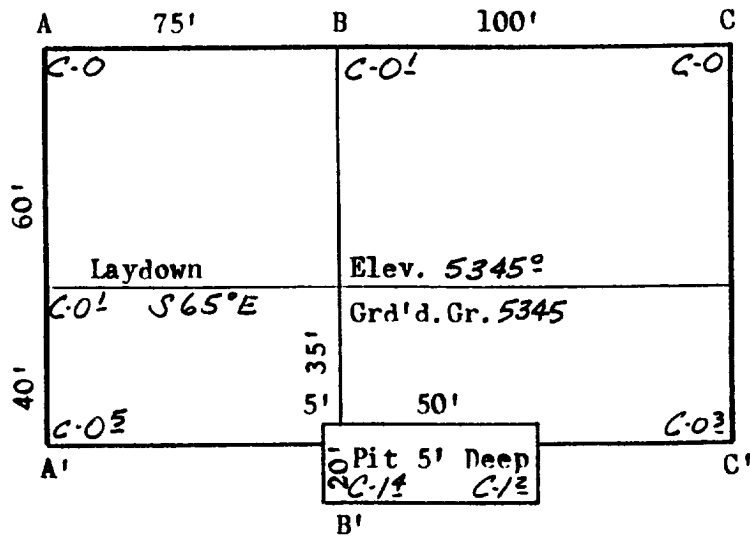
19 Nov., 1993

Date Surveyed  
**William E. Mahnke II**

Signature & Seal of  
Professional Surveyor

Certificate No.  
**9466**

BHP PETROLEUM (AMERICAS) INC.  
 G.C.U. #527  
 975' FSL & 1150' FEL  
 Sec. 27, T29N, R12W  
 San Juan Co., N.M.



Scale: 1"=50'



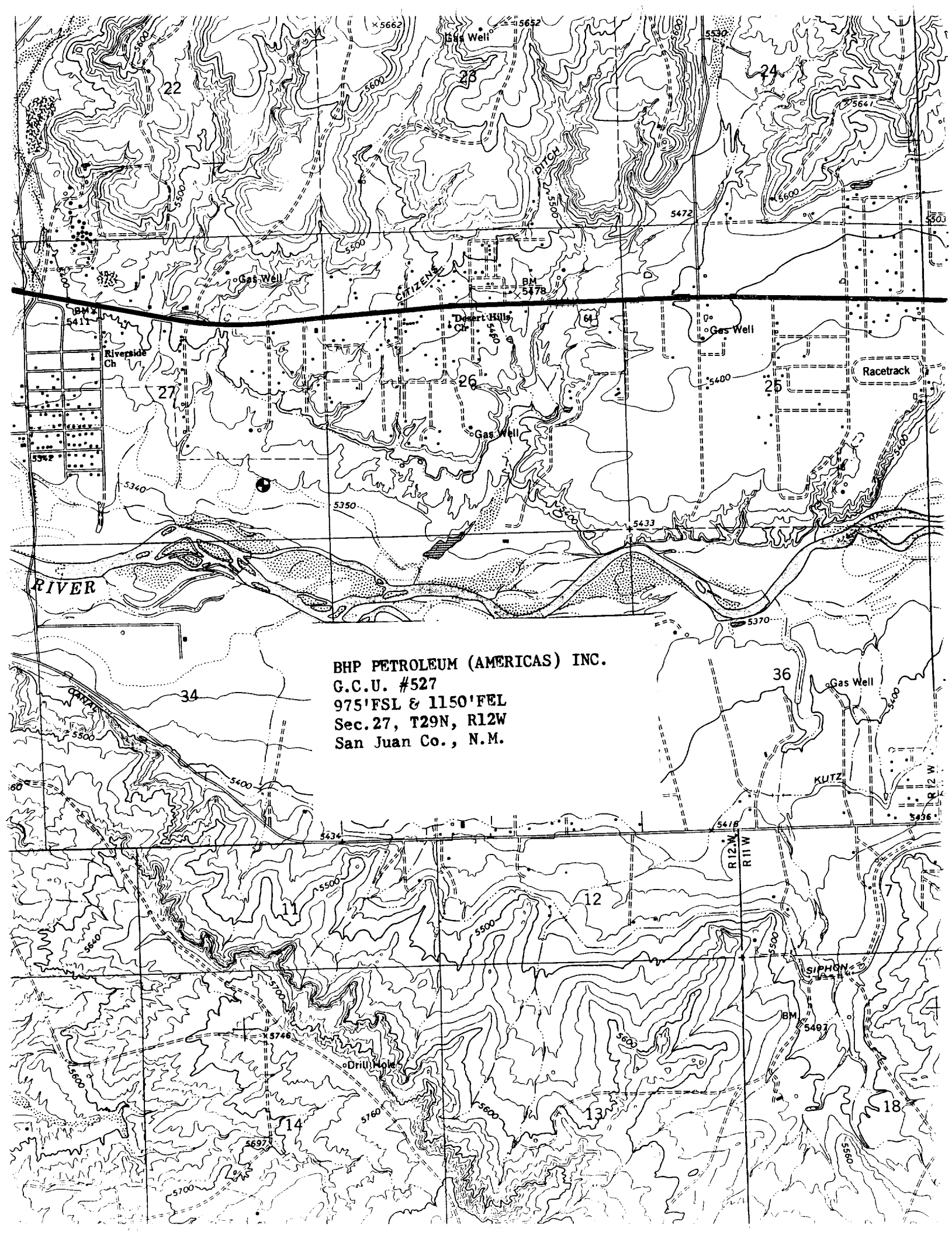
A-A'	Vert.: 1"=30'	Horiz.: 1"=100'	C/L			
5350						
5340						

B-B'						
5350						
5340						

C-C'						
5350						
5340						



BHP PETROLEUM (AMERICAS) INC.  
G.C.U. #527  
975' FSL & 1150' FEL  
Sec. 27, T29N, R12W  
San Juan Co., N.M.

BHP PETROLEUM (AMERICAS) INC.  
GALLEGOS CANYON UNIT #527  
975'FSL & 1150'FEL  
Section 27 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	40'	
Kirtland	215'	
Fruitland	1055'	
Basal Fruitland Coal	1332'	GAS
Pictured Cliffs	1350'	GAS
TOTAL DEPTH	1492'	

4. Casing and Cementing Program: A string of 7" 20# K-55 ST&C casing will be set at +/-130 in an 8 3/4" hole and cemented to the surface in a single stage with 35 sx of Class "B" cement (yield=1.18 cf/sk) containing 3% CaCl<sub>2</sub> 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 two joints as long as boulders were not encountered while drilling the surface hole. 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 140 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 off 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; and, a minimum of one centralizer will be run just below the base and another into the base of the Ojo Alamo. Minimum clearance between couplings and hole is 1.25"

**GALLEGOS CANYON UNIT #527**  
**TEN POINT PROGRAM, continued**

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 - 1000	8.4 or less	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

**GALLEGOS CANYON UNIT #527**  
**TEN POINT PROGRAM, continued**

**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:** Although not expected, abnormal pressures are possible in the Farmington sand of the Kirtland formation.

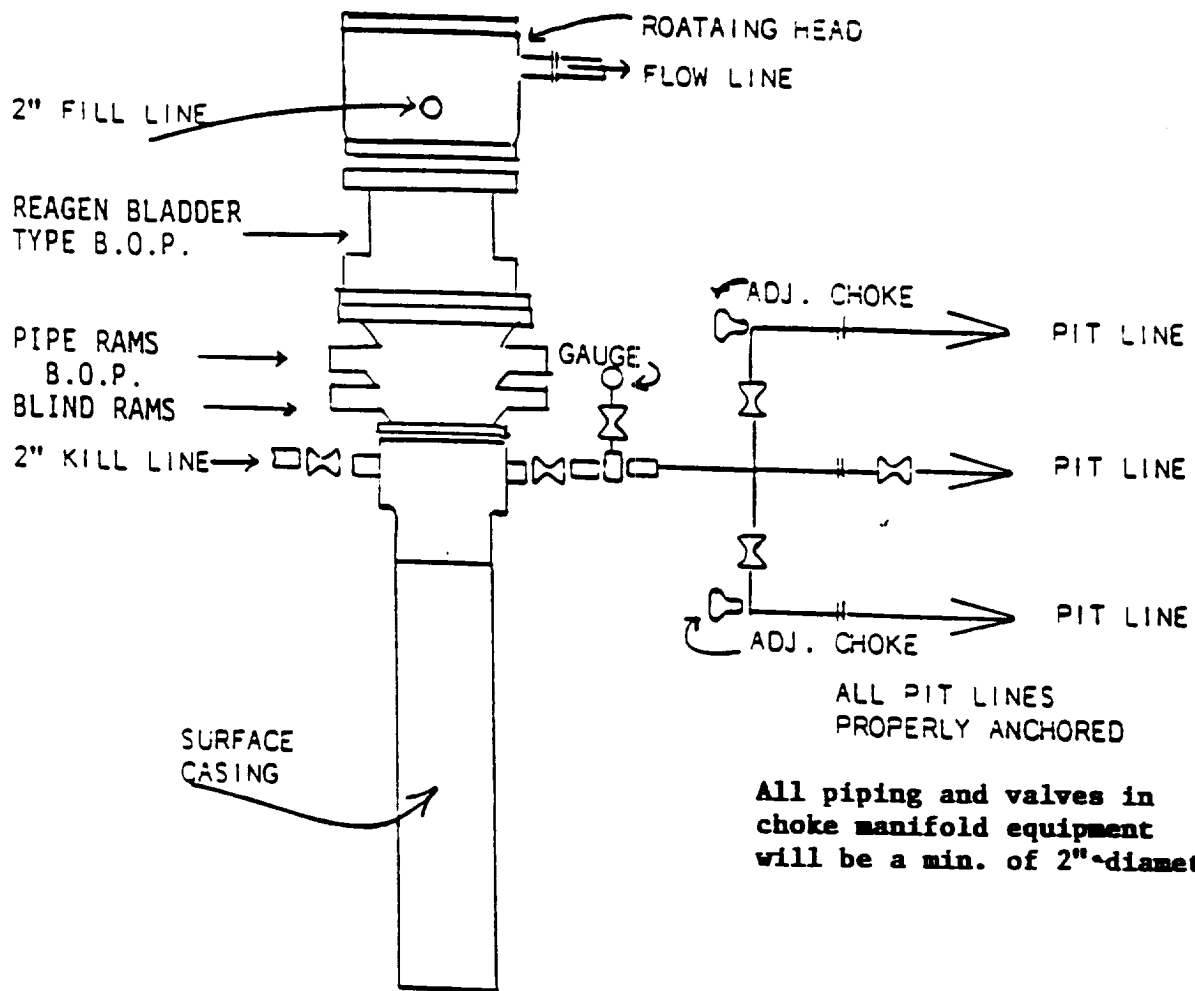
**Estimated Bottom Hole Pressure:** 600 psig.

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.

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# 2M SYSTEM



ALL PIT LINES  
PROPERLY ANCHORED

**All piping and valves in  
choke manifold equipment  
will be a min. of 2" diameter.**