

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

API NO. (assigned by OCD on New Wells)

30-045-28170

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

2. Name of Operator

BHP Petroleum (Americas) Inc.

8. Well No.

509

3. Address of Operator

5847 San Felipe Suite #3600 Houston, Texas 77057-9972

9. Pool name or Wildcat

W. Kutz Pictured Cliffs

4. Well Location

Unit Letter

D

990

Feet From The

N

Line and

1130

Feet From The

W

Line

Section

28

Township

29N

Range

12W

NMPM

San Juan

County

10. Proposed Depth

1417'

11. Formation

Pictured Cliffs

12. Rotary or C.T.

Rotary

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

GR 5328'

14. Kind & Status Plug. Bond

Blanket

15. Drilling Contractor

Unknown

16. Approx. Date Work will start

Fall 1990

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#	±130'	50 sx(57.5cu.ft)	Surface
6 1/4"	4 1/2"	10.5	±1417'	180sx(221cu.ft)	Surface

It is proposed to drill the subject well to 1417' with the primary production anticipated in the Pictured Cliffs.

Estimated Formation Tops:

Kirtland

47'

Fruitland

908'

Basal Fruitland Coal

1210'

Pictured Cliffs

1267'

T.D.

1417'

RECEIVED  
AUG 27 1990  
OIL CON. DIV.  
DIST. 3

BOPE will consist of 2000# Reagan Bladder type B.O.P. pipe rams and blind ram B.O.P.

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

Chuck Williams

TITLE

Field Services Administrator

DATE 8/22/90

TYPE OR PRINT NAME

TELEPHONE NO.

(This space for State Use)

APPROVED BY

Chris Burch

TITLE

DEPUTY OIL & GAS INSPECTOR, DIST. #3

DATE

AUG 28 1990

CONDITIONS OF APPROVAL, IF ANY:

APPROVAL EXPIRES 2-28-91  
UNLESS DRILLING IS COMMENCED.  
SPUD NOTICE MUST BE SUBMITTED  
WITHIN 10 DAYS.

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

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

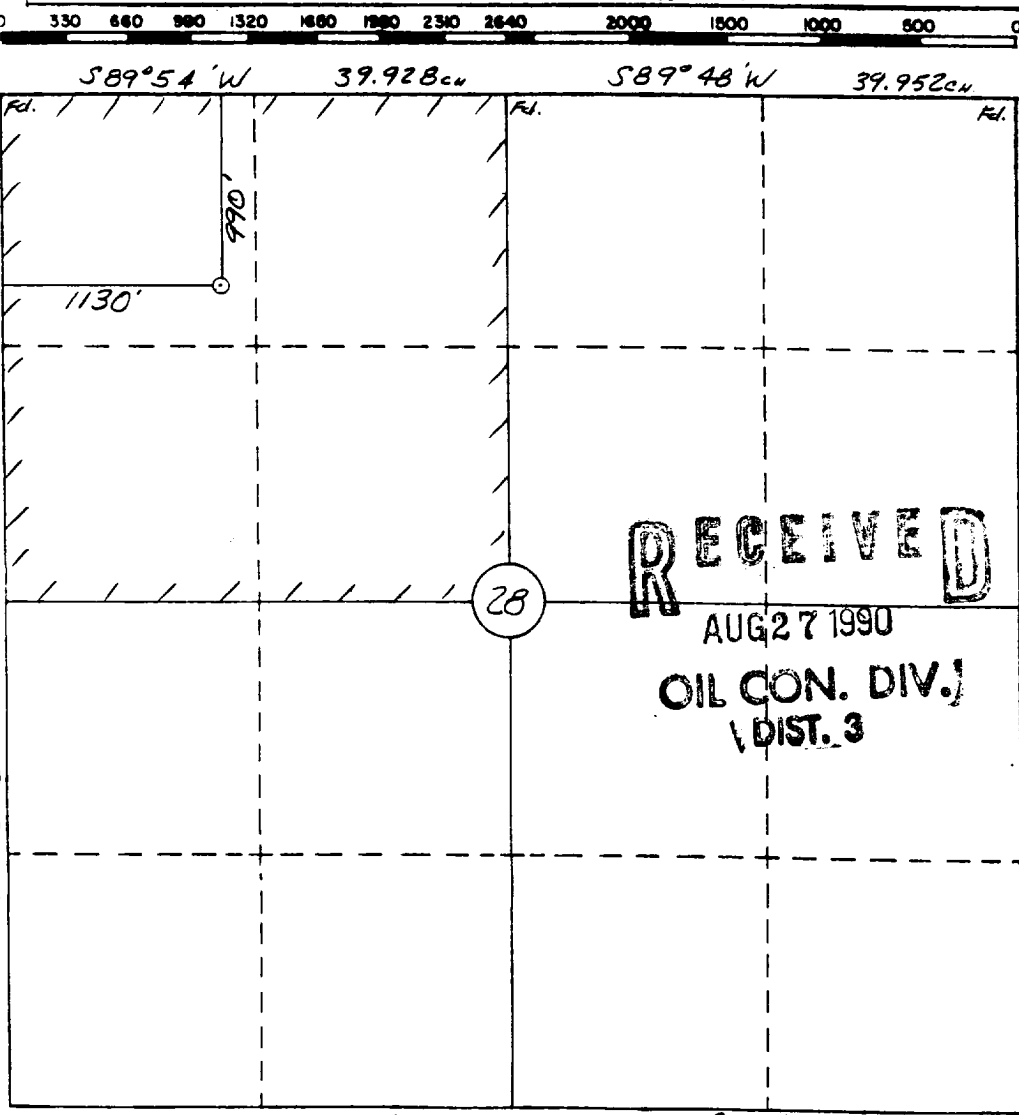
**DISTRICT II**  
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1000 Rio Brazos Rd., Aztec, NM 87410

**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>509</b>
Unit Letter <b>D</b>	Section <b>28</b>	Township <b>29 N</b>	Range <b>12 W</b>	County <b>San Juan</b>
Actual Footage Location of Well: <b>990</b> feet from the <b>North</b> line and <b>1130</b> feet from the <b>West</b> line				
Ground level Elev. <b>5328</b>	Producing Formation <b>Pictured Cliffs</b>	Pool <b>W. Kutz Pictured Cliffs</b>	Dedicated Acreage: <b>160</b> Acres	
<p>1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.</p> <p>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).</p> <p>3. 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.? <input type="checkbox"/> Yes <input type="checkbox"/> No If answer is "yes" type of consolidation _____ 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.</p>				



**OPERATOR CERTIFICATION**

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

Signature  
*Chuck Williams*  
Printed Name  
**Chuck Williams**  
Position  
**Field Services Administrator**  
Company  
**BHP Petroleum (Americas) Inc.**  
Date  
**8/22/90**

**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.  
**8-16-90**

Date Surveyed  
**William E. Mahnke II**  
Signature & Seal of Professional Surveyor  
  
Certification No. **8466**

BHP PETROLEUM (AMERICAS) INC.  
**GALLEGOS CANYON UNIT NO. 509**  
 990' FNL & 1130' FWL SECTION 28 T29N-R12W  
 SAN JUAN COUNTY, NEW MEXICO  
**TEN POINT PROGRAM**

1. **Surface Formation:** Ojo Alamo

2 &

3. **Estimated Formation Tops:**

<u>Formation</u>	<u>Top</u>	<u>Expected Production</u>
Kirtland	47	
Fruitland	908	
Basal Fruitland Coal	1210	Gas
Pictured Cliffs	1267	Gas
Total Depth	1417	

4. **Casing and Cementing Program:** A string of 7" 20# K-55 casing with ST&C couplings is to be set at  $\pm 130'$  in an 8 3/4" hole and cemented to the surface in a single stage with 50 sx Class 'H' cement (yield = 1.15 ft<sup>3</sup>/sx) containing 3 % CaCl<sub>2</sub> and 1/4 #/sx celloflake. Slurry volume assumes a 100 percent excess over calculated hole volume. Centralizers will be run on the bottom two joints as long as boulders are not encountered while drilling the surface hole. If boulders are encountered while drilling the surface hole, no centralizers will be run as it has been BHP P(A)'s experience centralizers have a tendency to knock off boulders and hang up the casing while running in the hole. Minimum clearance between collars and hole is 1.094". Prior to drilling out shoe, casing and BOPE will be tested to a minimum of 2000 psi. Safety factors utilized in the design of this casing string were: Burst = 1.1, Collapse = 1.125, and Tension = 1.8 or 100,000# overpull whichever was greater.

A production string of 4 1/2" 10.5# K-55 casing with ST&C couplings 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 130 sx of 50-50 pozmix containing 2 % gel, 0.5 % fluid loss additive and 1/4 #/sx celloflake (yield = 1.26 ft<sup>3</sup>/sx) followed by 50 sx of Class 'G' cement containing low fluid loss additives (yield = 1.15 ft<sup>3</sup>/sx). Slurry volume assumes a 50 percent excess over calculated hole volume. Cement volume is subject to change after review and recalculation of

hole volume from the open hole calipers. Centralizers will be spaced such that a minimum of two are located above and two are located below the Basal Fruitland Coal; and, if any Ojo Alamo is present in the open hole section at the top of the hole, a minimum of one centralizer will be run just below the base and another into the base of Ojo Alamo. Minimum clearance between collars and hole is 1.25". Prior to perforating the casing for any attempted completion, the casing will be tested to a minimum of 2500 psi. Safety factors utilized in the design of this casing string were: Burst = 1.1, Collapse = 1.125, and Tension = 1.8 or 100,000# overpull whichever was greater.

A chronological log following the completion of the cementing operations detailing the pump rate, pump pressure, slurry density, and slurry volume for each job will be submitted in a Sundry Notice.

5. **Pressure Control Equipment:** (See attached schematic diagrams) A minimum of a 2M BOPE 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 70 percent of the internal yield pressure of the casing. The annular preventor will be tested to 50 percent of its working pressure.

A full opening internal blowout preventor or drill pipe safety valve will be on the drilling 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 properties and to control any unforeseen lost circulation problems or abnormal pressures in the Farmington Sands of the Kirtland Formation. All drilling fluids will be contained in a steel 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 dumped into a small earthen pit beside the steel pit. As soon as this pit dries up, it will be covered up.

Mud program summary is as follows:

<u>Interval</u> <u>(feet)</u>	<u>Mud Weight</u> <u>(#/gal)</u>	<u>Viscosity</u> <u>(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 will be utilized. At a minimum, a flow sensor will be installed in the system and the mud volume constantly be visually monitored.

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

**Coring Program:** No cores are planned.

**Testing Program:** No tests are planned.

**Stimulation Program:** Perf the Basal Fruitland Coal with 2 JSPF and frac with 50,000 gals of either a 70 quality nitrogen foam or a crosslinked-gelled water containing a minimum of 50,000 lbs of 20-40 mesh sand.

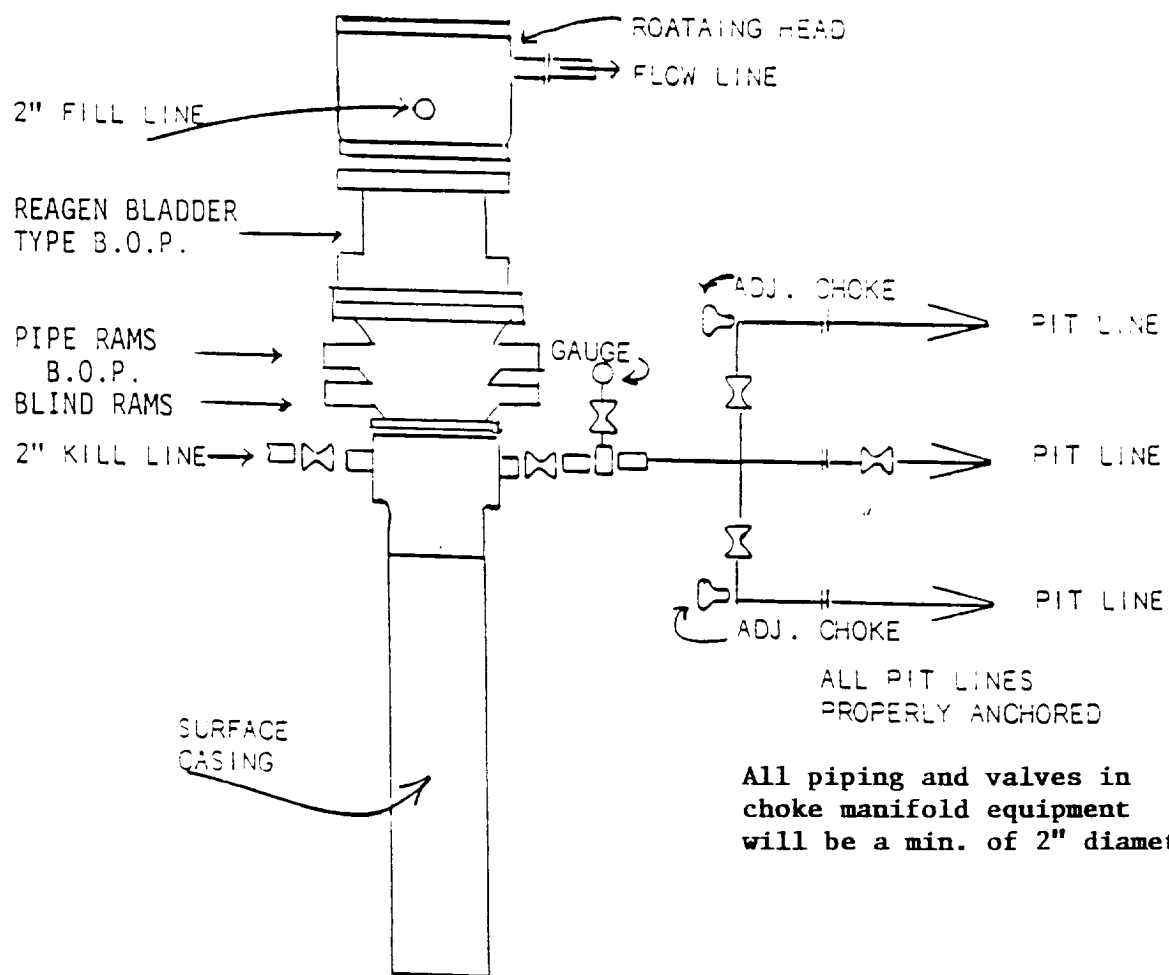
9. **Abnormal Pressure:** Although not expected, abnormal pressures are possible in the Farmington Sands of the Kirtland Formation.

**Estimated Bottom Hole Pressure:** 400 psi.

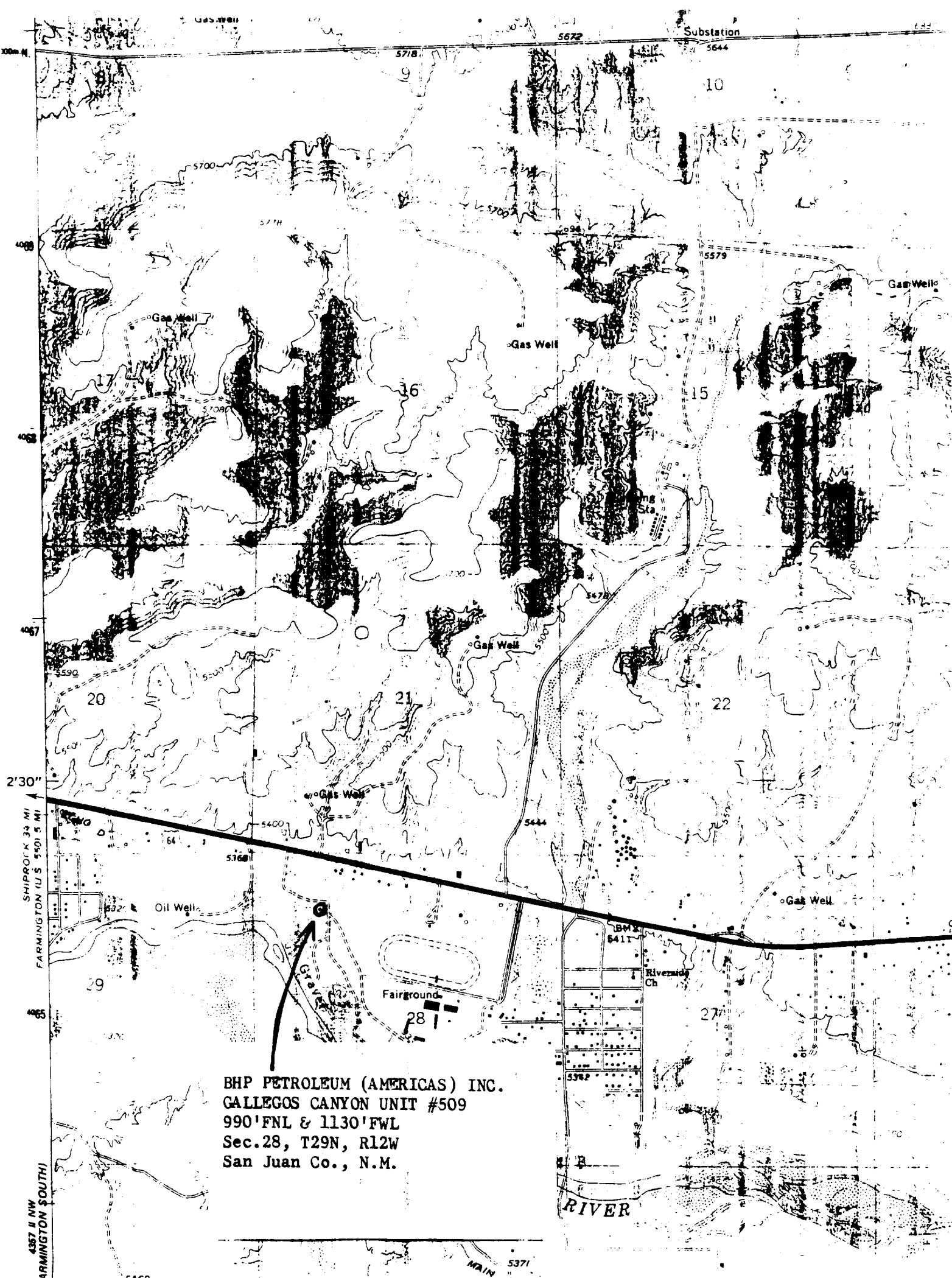
10. **Anticipated Starting Date:** As soon as all required approvals are received.

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

## 2M SYSTEM



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



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