

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

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

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

API NO. (assigned by OCD on New Wells)
30-045-28067
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. B-9145

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK					
1a. Type of Work: DRILL <input checked="" type="checkbox"/> RE-ENTER <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>				7. Lease Name or Unit Agreement Name Gallegos Canyon Unit	
b. Type of Well: OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>				2038	
2. Name of Operator BHP Petroleum (Americas) Inc.				8. Well No. 506	
3. Address of Operator 5847 San Felipe Ste 3600 Houston TX 77057-3005				9. Pool name or Wildcat 7960 EXT W. Kutz Pictured Cliffs	
4. Well Location Unit Letter <u>I</u> : <u>1465</u> Feet From The <u>South</u> Line and <u>1095</u> Feet From The <u>West</u> Line Section <u>16</u> Township <u>29N</u> Range <u>12W</u> NMPM <u>San Juan</u> County					
10. Proposed Depth 1721'		11. Formation Pictured Cliffs		12. Rotary or C.T. Rotary	
13. Elevations (Show whether DF, RT, GR, etc.) 5593' GR		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 (57.5 cu.ft.)	surf
6 1/4"	4 1/2"	10.5#	±1721'	216 sx (267 cu.ft.)	surf

It is proposed to drill the subject well to 1721' with primary production anticipated in the Pictured Cliffs.

Estimated formation tops: Ojo Alamo 202'
Kirtland 296'
Fruitland 1300'
Basal Fruitland 1534'
Pictured Cliffs 1571'
TD 1721'

RECEIVED
AUG 2 1990
OIL CON. DIV
DIST 1

BOPE will consist of 2,000# Reagen Bladder type B.O.P., pipe rams & 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 7/26/90
Chuck Williams
TYPE OR PRINT NAME (713) 780-5448 TELEPHONE NO.

(This space for State Use)

APPROVED BY Eric Bailey DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE AUG 03 1990

CONDITIONS OF APPROVAL, IF ANY:

APPROVAL EXPIRES 2-3-91
UNLESS DRILLING IS COMMENCED.
SPUD NOTICE MUST BE SUBMITTED
WITHIN 10 DAYS.

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Fee Lease - 3 copies

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Energy, Minerals and Natural Resources Department

Form C-102
Revised 1-1-89

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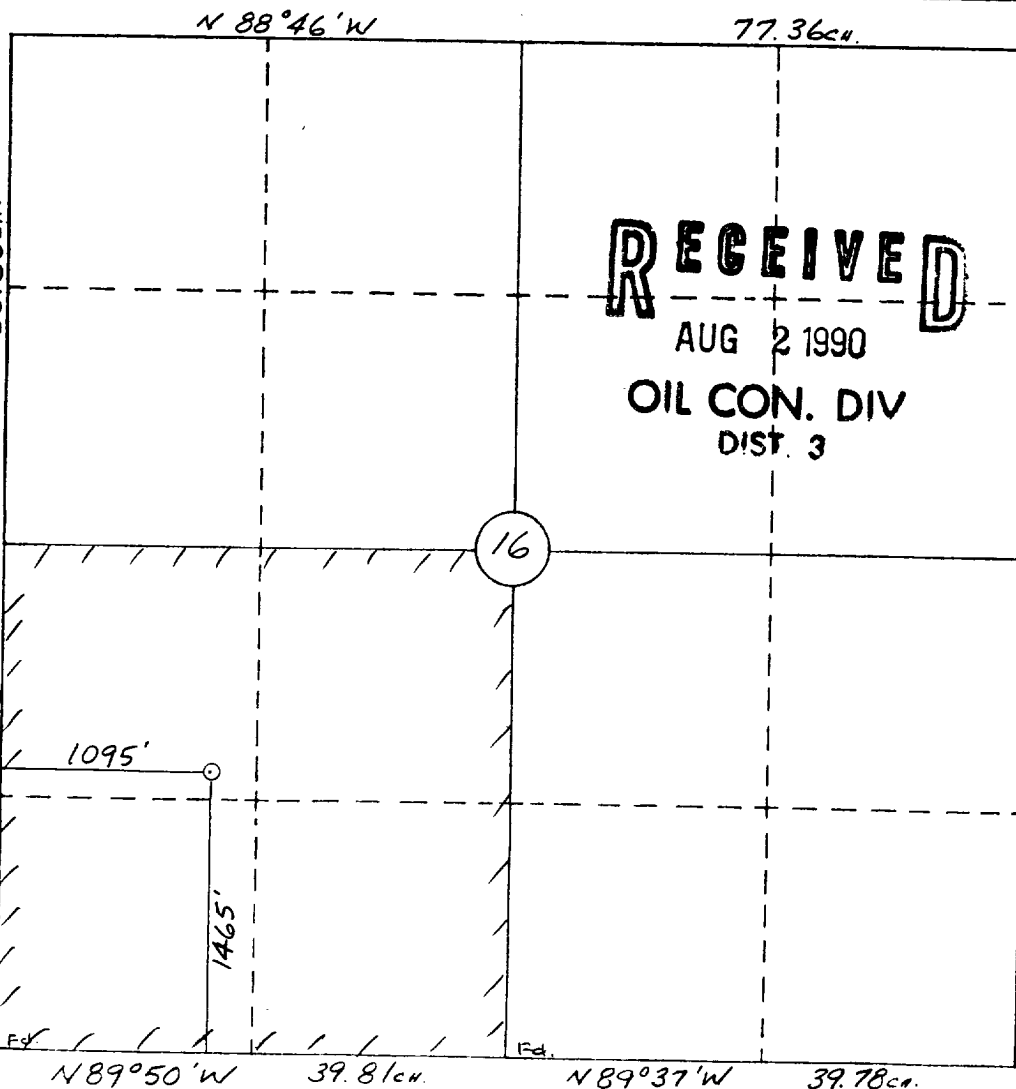
WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator BHP PETROLEUM (AMERICAS) INC.			Lease GALLEGOS CANYON UNIT		Well No. 506
Unit Letter L	Section 16	Township 29 N	Range 12 W	County San Juan	
Actual Footage Location of Well: 1465 feet from the South line and 1095 feet from the West line					
Ground level Elev. 5593	Producing Formation Pictured Cliffs		Pool W. 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 _____
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 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600



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
July 26, 1990

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.

7-2-90

Date Surveyed
William B. Mahanke II

Signature & Seal of Professional Surveyor
William B. Mahanke II

Professional Surveyor
WILLIAM B. MAHANKE II
#8466

Certificate No.
8466

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 506
1465' FSL & 1095' FWL SECTION 16 T29N-R12W
SAN JUAN COUNTY, NEW MEXICO
TEN POINT PROGRAM

1. Surface Formation: Nacimiento or valley fill

2 &

3. Estimated Formation Tops:

<u>Formation</u>	<u>Top</u>	<u>Expected Production</u>
Ojo Alamo	202	
Kirtland	296	
Fruitland	1300	
Basal Fruitland Coal	1534	Gas
Pictured Cliffs	1571	Gas
Total Depth	1721	

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 ft³/sx) containing 3 % CaCl₂ 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 166 sx of 50-50 pozmix containing 2 % gel, 0.5 % fluid loss additive and 1/4 #/sx celloflake (yield = 1.26 ft³/sx) followed by 50 sx of Class 'G' cement containing low fluid loss additives (yield = 1.15 ft³/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, 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.

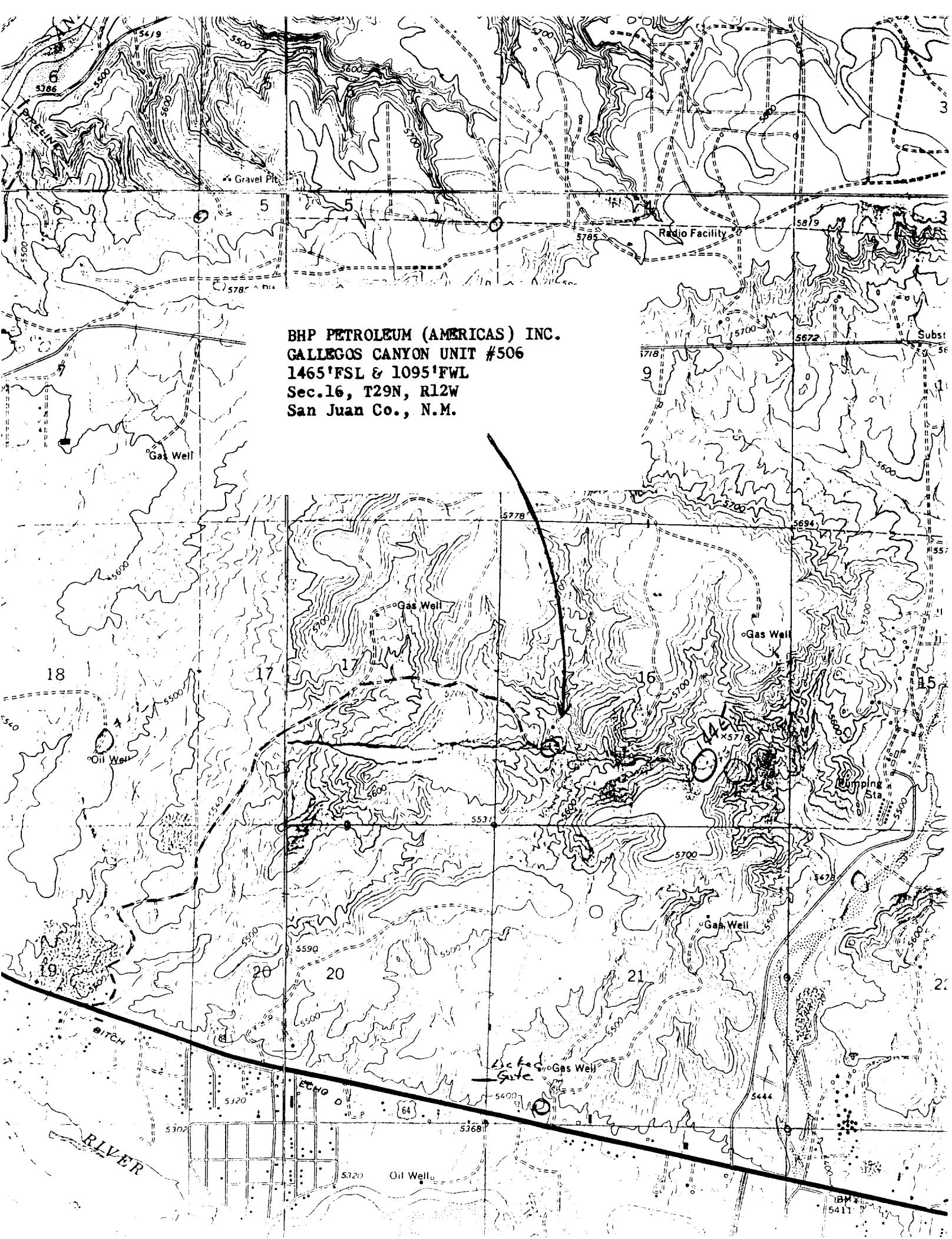
9. **Abnormal Pressure:** Although not expected, abnormal pressures are possible in the Farmington Sands of the Kirtland Formation.

Estimated Bottom Hole Pressure: 400 psi.

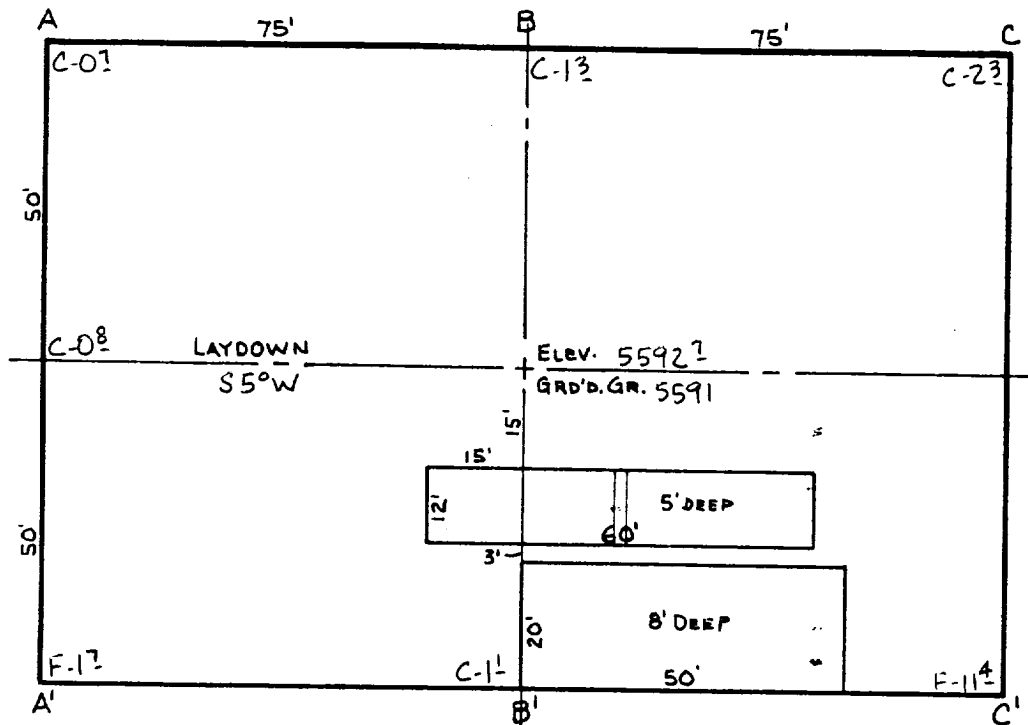
10. **Anticipated Starting Date:** As soon as all required approvals are received.

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

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT #506
1465' FSL & 1095' FWL
Sec. 16, T29N, R12W
San Juan Co., N.M.



BHP PETROLEUM (AMERICAS) INC.
 GALLEGOS CANYON UNIT #506
 1465' FSL & 1095' FWL
 Sec. 16, T29N, R12W
 San Juan Co., N.M.



SCALE: 1" = 30'

A-A'		Vert.: 1" = 30'	Horiz.: 1" = 50'	C/L
5590				
5580				
B-B'				
5590				
5580				
C-C'				
5590				
5580				

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