

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-101
Revised 1-1-89

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

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

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

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

API NO. (assigned by OCD on New Wells)

30-045-28119

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.

502

158.16

3. Address of Operator

5847 San Felipe Suite #3600 Houston, Texas 77057

9. Pool name or Wildcat

W. Kutz Pictured Cliffs ☒

4. Well Location

Unit Letter E : 1580 Feet From The North Line and 980 Feet From The West Line

Section 18

Township 29N

Range 12W

NMPM San Juan

County

10. Proposed Depth
1583'

11. Formation
Pictured Cliffs

12. Rotary or C.T.
Rotary

13. Elevation (Show whether DP, RT, GR, etc.)

5503' 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)	Surface
6 1/4"	4 1/2"	10.5#	±1583'	200 sx (247 cu ft)	Surface

It is proposed to drill the subject well to 1583' with primary production anticipated in the Pictured Cliffs.

The proposed well is within 1 mile of the city limits of Farmington, NM. In a spirit of cooperation BHP intends to comply with the city's request that we obtain the same city permits required to drill within the city limits.

Estimated Formation Tops

Ojo Alamo

53'

BOPE will consist of

Kirkland

153'

2000 # Reagan Bladder

Fruitland

1089'

type B.O.P. pipe rams

Basal Fruitland Coal

1403'

and blind ram B.O.P..

Pictured Cliffs

1433'

T.D.

1583'

RECEIVED

AUG 13 1990

IN ABOVE SPACE, GIVE 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

TYPE OR PRINT NAME

Chuck Williams

TELEPHONE NO. (713)780-5448

(This space for State Use)

APPROVED BY Original Signed by FRANK T. CHAVEZ

TITLE

SUPERVISOR DISTRICT III

DATE AUG 13 1990

CONDITIONS OF APPROVAL, IF ANY:

APPROVAL EXPIRES 2-13-91
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

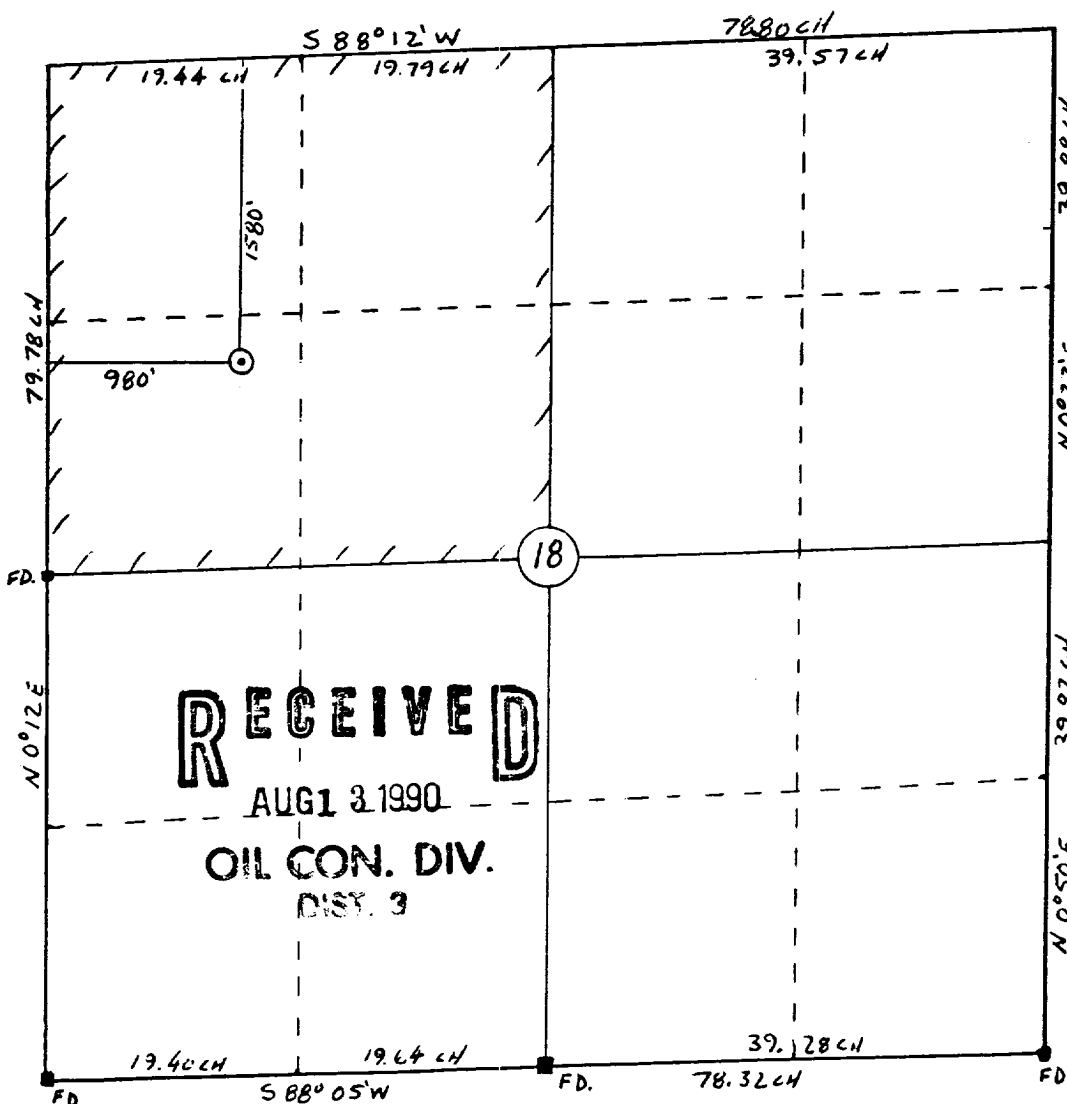
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
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 BHP Petroleum (Americas) Incorporated			Lease Gallegos Canyon Unit		Well No. 502
Unit Letter E	Section 18	Township 29N	Range 12W	County NMPM	San Juan
Actual Footage Location of Well: 1580 feet from the North line and 980 feet from the West line					
Ground level Elev. 5503'	Producing Formation Pictured Cliffs		Pool W. Kutz Pictured Cliffs		Dedicated Acreage: 160 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 _____</p> <p>If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary. _____)</p> <p>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
July 31, 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. 6-28-90

Date Surveyed
Roy A. Rush

Signature & Seal of
Professional Surveyor
ROY A. RUSH
NEW MEXICO
8894
CERTIFIED PROFESSIONAL LAND SURVEYOR

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 502
 1580' FNL & 980' FEL SECTION 18 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	53	
Kirtland	153	
Fruitland	1089	
Basal Fruitland Coal	1403	Gas
Pictured Cliffs	1433	Gas
Total Depth	1583	

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 150 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, 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.

