

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

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

OIL CONSERVATION DIVISION

P.O. Box 8350, Santa Fe, New Mexico 87506-2083

AUG 06 1990

OIL CON. DIV
DIST. 3

API NO. (assigned by OCD on New Wells)

30-045-28066

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name
Gallegos Canyon Unit

8. Well No.
391

9. Pool name or Wildcat
Basin Fruitland Coal 71629

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 ☐

2. Name of Operator

BHP Petroleum (Americas) Inc.

3. Address of Operator

5847 San Felipe Ste 3600 Houston TX 77057-3005

4. Well Location

Unit Letter A : 975 Feet From The North Line and 870 Feet From The East Line

Section 23 Township 29N Range 13W NMPM San Juan County

10. Proposed Depth 1330'
11. Formation Fruitland Coal
12. Rotary or C.T. Rotary

13. Elevations (Show whether DP, RT, GR, etc.) 5323 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#	±1330'	169 sx (207 cu.ft.)	Surf

It is proposed to drill the subject well to 1330' with primary production anticipated in the Fruitland Coal

Estimated Formation Tops: Kirtland 30'
Fruitland 811'
Basal Fruitland Coal 1141'
Pictured Cliffs 1180'
TD 1330'

The proposed well is within the city limits of Farmington, New Mexico. BHP will obtain the required City Permits.

BOPE will consist of 2,000# Reagan Bladder type BOP, 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 08/01/90

TYPE OR PRINT NAME

TELEPHONE NO.

(This space for State Use)

APPROVED BY Ernie Bush DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE AUG 06 1990

CONDITIONS OF APPROVAL, IF ANY:

R-4584

Hold C-104 For City Approval

APPROVAL EXPIRES 2-6-91
UNLESS DRILLING IS COMMENCED.
SPUD NOTICE MUST BE SUBMITTED
WITHIN 10 DAYS.

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-302
Revised 2-1-89

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

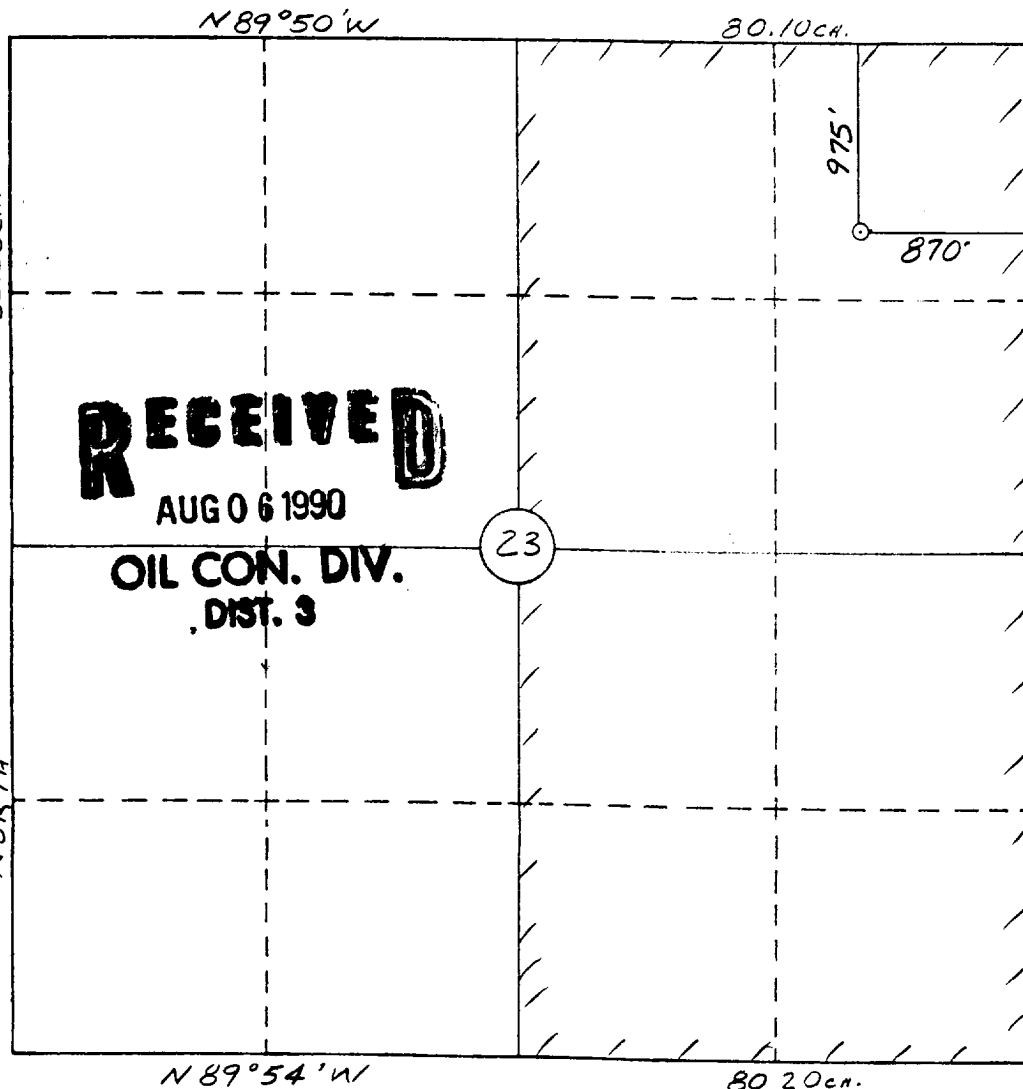
WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator BHP PETROLEUM (AMERICAS) INC.			Lease GALLEGOS CANYON UNIT		Well No. 391
Unit Letter A	Section 23	Township 29 N	Range 13 W	County San Juan	
Actual Footage Location of Well: 975 feet from the North line and 870 feet from the East line					
Ground level Elev. 5323	Producing Formation Fruitland Coal		Pool Basin Fruitland Coal		Dedicated Acreage: 320 Acres

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 _____
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



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

08/01/90

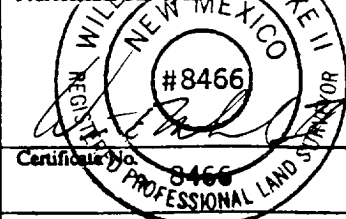
SURVEYOR CERTIFICATION

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. 7-6-90

Date Surveyed

William E. Mahnke II

Signature & Seal of Professional Surveyor



Certificate No.

8466

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 391
975' FNL & 870' FEL SECTION 23 T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
TEN POINT PROGRAM

1. **Surface Formation:** Ojo Alamo or valley fill

2 &

3. **Estimated Formation Tops:**

<u>Formation</u>	<u>Top</u>	<u>Expected Production</u>
Kirtland	30	
Fruitland	811	
Basal Fruitland Coal	1141	Gas
Pictured Cliffs	1180	Gas
Total Depth	1330	

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 119 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.