

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒

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 Suite #3600 Houston, Texas 77057-9972

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

NW NW

At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

Approximately 5 miles southeast of Farmington, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

745' from
unit boundary

18. DISTANCE FROM PROPOSED LOCATION*
TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

<150'

16. NO. OF ACRES IN LEASE

2,561.19

19. PROPOSED DEPTH

1595'

17. NO. OF ACRES ASSIGNED
TO THIS WELL

160

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

5455' GR

22. APPROX. DATE WORK WILL START*

Fall 1990

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
8 3/4"	7"	20#	±130	50 sx (57.5 cu. ft)
6 1/4"	4 1/2"	10.5#	±1595	201 sx (248 cu. ft)

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. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program if any.

24.

SIGNED

Chuck Williams
Chuck Williams

TITLE Field Services Administrator

DATE 8/17/90

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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

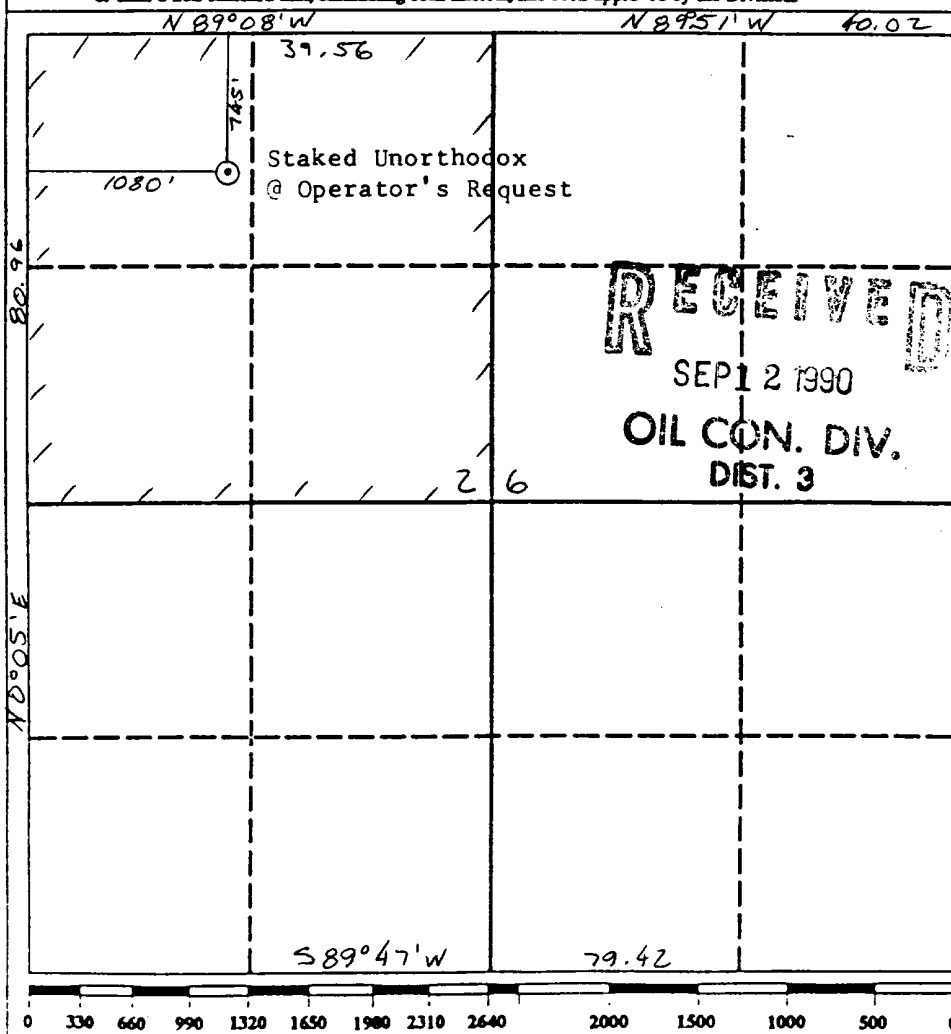
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

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. 511
Unit Letter D	Section 26	Township 29N	Range 12W	County San Juan	
Actual Footage Location of Well: 745 feet from the North line and 1080' feet from the West line					
Ground level Elev. 5455'	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.



RECEIVED
SEP 12 1990
OIL CON. DIV.
DIST. 3

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: 8/17/90

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. 8-06-90

Date Surveyed: Roy A. Rush
Signature & Seal of Professional Surveyor: *Roy A. Rush*
Certificate: 8894
Professional Land Surveyor

5847 San Felipe Suite 3600
Houston, Texas 77057
Telephone: (713) 780-5000
Fax (713) 780-5273
Telex 9108813603

OIL CONSERVATION DIVISION
RECEIVED

9/11/90
Arthur E. Busch
SEP 10 AM 9 43

September 5, 1990



State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

RECEIVED
SEP 12 1990
OIL CON. DIV.)
DIST. 3

RE: Unorthodox Location, Administrative Approval Request
Gallegos Canyon Unit #511
NW 1/4 NW 1/4 Sec. 26 T29N R12W
San Juan County, New Mexico

Gentlemen:

BHP Petroleum respectfully requests that a non standard location be administratively approved to allow the GCU #511 well to be drilled 745' FNL and 1080' FWL to be completed in the Pictured Cliffs formation.

The non standard location is requested due to topographical reasons. A standard location is not possible due to residential dwellings, a state highway and power lines going to Amoco's existing well.

The subject location is immediately adjacent to the existing Amoco well location #145-E producing from the Dakota formation.

The operator of the offsetting proration unit outside of the unit boundary is Texaco, Inc.. Texaco, Inc. has been notified of this request via certified mail, return receipt requested.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Chuck Williams

Chuck Williams *by km*
Field Services Administrator

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 511
745' FNL & 1080' FWL SECTION 26 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	259	
Kirtland	324	
Fruitland	1105	
Basal Fruitland Coal	1430	Gas
Pictured Cliffs	1445	Gas
Total Depth	1595	

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 = $1.15 \text{ ft}^3/\text{sx}$) containing 3 % CaCl_2 and $\frac{1}{4}$ #/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 4½" 10.5# K-55 casing with ST&C couplings will be run from the surface to total depth in a 6½" hole. This string will be cemented to the surface with a minimum of 151 sx of 50-50 pozmix containing 2 % gel, 0.5 % fluid loss additive and $\frac{1}{4}$ #/sx celloflake (yield = $1.26 \text{ ft}^3/\text{sx}$) followed by 50 sx of Class 'G' cement containing low fluid loss additives (yield = $1.15 \text{ ft}^3/\text{sx}$). 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.

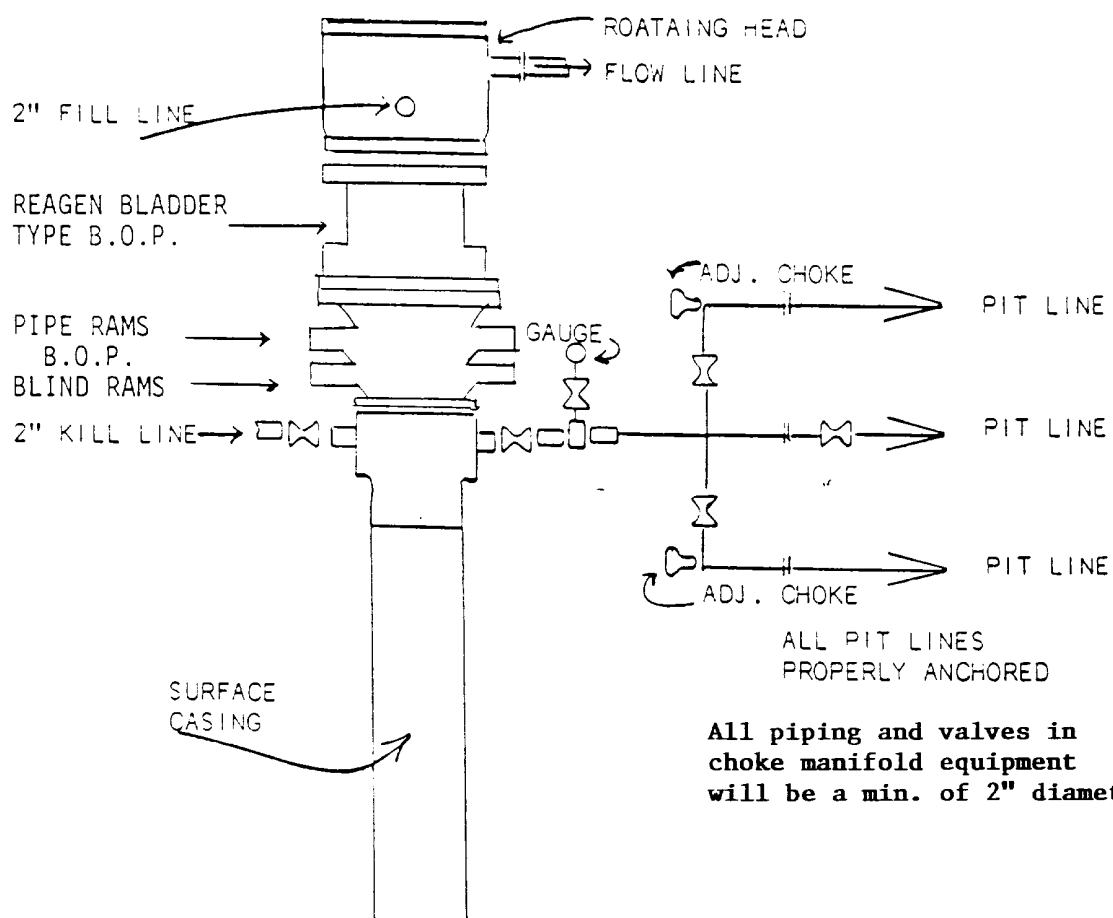
9. **Abnormal Pressure:** Although not expected, abnormal pressures are possible in the Farmington Sands of the Kirtland Formation.

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



SURFACE USE & OPERATIONS PLAN

WELL NAME AND NO.: Gallegos Canyon Unit Well No. 511

LOCATION: 745' FNL 1080' FWL (NW/NW) Section 26, T29N-R12W

LEASE NO.: SF 079907

1) **EXISTING ROADS:**

- A. See Attached map.
- B. Travel east Highway 64 from stoplight at Browning Parkway for 5.6 miles, turn left into a private driveway, well is on left side of private road adjacent to Amoco Production Company's #145-E well.
- C. Access Roads to Location: See map
- D. Exploratory well: N/A
- E. Development Well: For all applicable access roads within a one (1) mile radius, see attached map.
- F. Plans for Improvement and/or Maintenance: BHP Petroleum, Amoco, and El Paso Natural Gas Company currently maintain the non-county, state or Irrigation Project roads. Maintenance is conducted on an as-needed basis.

2) **PLANNED ACCESS ROADS:**

- A. No new road is required.

3) **LOCATION OF EXISTING WELLS:**

- A. Water Wells: None
- B. Abandoned Wells: None
- C. Temporarily Abandoned Wells: None
- D. Disposal Wells: Gallegos Canyon Unit #328 is the nearest disposal well.
- E. Drilling Wells: None presently.
- F. Producing Wells: Amoco #145-E is the nearest well, approximately 100' away. For additional wells see map.
- G. Shut-in Wells: None.
- H. Injection Wells: None.
- I. Monitoring or Observation Wells: None.

4) **LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED AND/OR CONTROLLED BY BHP:**

- A. Existing facilities: BHP Petroleum currently operates the Pictured Cliffs participating area within the Gallegos Canyon unit.
 - 1. Tank Batteries: No oil or condensate is currently produced from BHP wells in the unit.
 - 2. Production: All wells produce natural gas.
Facilities: Some wells are equipped with rod pumps to remove excess water. Wells are normally equipped with a two (2) phase separator. El Paso Natural Gas Company has a glycol dehy unit upstream of the sales meter.
 - 3. Oil Gathering Lines: N/A
 - 4. Gas Gathering Lines: El Paso Natural Gas Company purchases all gas produced by BHP in this unit. There are two (2) systems in which our wells are introduced depending on the initial wellhead pressure.
 - 5. Injection Lines: N/A
 - 6. Disposal Lines: Each well which produces water is tied into one of four (4) disposal systems.

- B. New Production Facilities:
1. Proposed Tank Battery: None
 2. Dimensions of Facilities: All new facilities are restricted to the existing pad area. New facilities will consist of a separator, dehy unit, meter house and two small earthen pits, unless the well requires a disposal line to remove excess water, in which case a pumping unit will be installed and the separator pit eliminated. All surface equipment to be painted tan. If water disposal pipelines are need, they will be applied for at a later date.
 3. Construction Methods and Materials: The site will be leveled with a crawler type dozer. Native soils will be used. Any foundation material such as gravel will be purchased and trucked to the site if a pumping unit is needed.
 4. Protective Measures and Devices: Any pits will be fenced to prevent entry by livestock or wildlife.
- 5) **LOCATION AND TYPE OF WATER SUPPLY:**
- A. Location: City of Farmington - Sales point
 - B. Method of Transportation: Water will be hauled by truck over existing roads.
 - C. Water Wells to be Drilled: N/A
- 6) **SOURCE OF CONSTRUCTION MATERIALS:**
- A. Location: Only native materials are necessary for the construction of drill site and related facilities.
 - B. From Federal or Indian Lands: N/A
 - C. Additional Materials: It may be necessary to haul gravel for a pumping unit base. If needed it will be hauled from Farmington.
 - D. Access Roads on Federal or Indian Lands: None
- 7) **METHODS OF HANDLING WASTE DISPOSAL:**
- A. Cuttings and drilling fluids will be placed in the reserve pit.
 - B. Same as listed above.
 - C. Produced fluids (water) will be placed in the reserve pit during testing.
 - D. Sewage will be contained in a portable chemical toilet.
 - E. Garbage and other water material will be place in a small trash cage and disposed of in an approved sanitary landfill.
 - F. Upon completion of the well the reserve pit will be backfilled.
- 8) **ANCILLARY FACILITIES:**
- A. None are planned.
 - B. Location and Pits and Stock Piles: For location of mud tanks, reserve pit, and pipe rack see attached diagram.
 - C. Pad Orientation: For rig orientation and access roads, see attached diagram.
 - D. Lining of Pits: It is not planned to line the reserve pit.
 - E. O.S.H.A. Requirements: The disturbed area requested is sufficient to allow fracturing operations in a safe manner and in accordance with O.S.H.A. standards.
- 9) **PLAN FOR RESTORATION OF THE SURFACE:**
- A. Revegetation will be in accordance with BLM stipulations.
- 10) **OTHER INFORMATION:**
- A. Topography, Soil Characteristics, Geologic Features, Flora and Fauna:

The Gallegos Canyon Unit area topography varies considerably throughout the participating area. The southwest portion is primarily highly eroded sandstone with deep channels and rock outcroppings. The southeast portion is separated by the Gallegos Wash and is mostly within the NAPI farming area. The north portion is separated by the San Juan River. Most

all of the area north of the river is private land consisting of rural business and small farms and residences.

This site is on an existing well pad serving Amoco well #145-E. No significant additional disturbance will be required.

- B. Surface Use: Private Garden.
- C. Surface Ownership: Surface is privately owned.
- D. Proximity of Water, Dwellings, Archaeological, Historical Sites: Closest live water is the San Juan River approximately 1 mile south of the proposed location.
- E. There are 2 occupied dwellings within close proximity to the proposed location.

Archaeology

- F. A cultural inventory report will be mailed directly to the Farmington BLM office.

11) **LESSEE'S OR OPERATOR'S FIELD REPRESENTATIVE:**

BHP Petroleum (Americas) Inc.
Post Office Box 977
Farmington, New Mexico
c/o Fred Lowery

(505) 327-1639 (24 hour answering service)

BHP Petroleum (Americas) Inc.
5847 San Felipe, Suite 3600
Houston, Texas 77057
c/o Chuck Williams

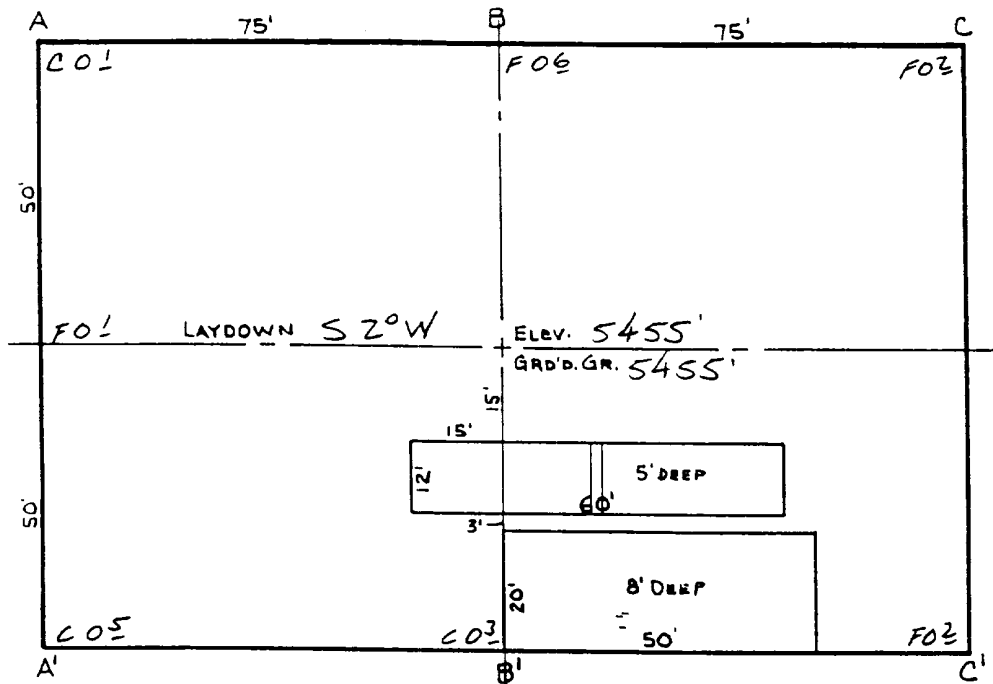
(713) 780-5448

12) **CERTIFICATION:**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge true and correct; and that the work associated with the operations proposed herein will be performed by BHP Petroleum (Americas) Inc. and its contractors in conformity with this plan and the terms and conditions under which it is approved.


Signed

BHP Petroleum Inc.
 Gallegos Canyon Unit #511
 745' FNL & 1080' FWL
 Sec. 26, T29N, R12W
 San Juan Co. NM



SCALE: 1" = 30'

Z

A-A' Vert.: 1" = 30' Horiz.: 1" = 50'

C/L

5460'	---	---	---	---	---	---
5450'	---	---	---	---	---	---
	---	---	---	---	---	---

B-B'

5460'	---	---	---	---	---	---
5450'	---	---	---	---	---	---
	---	---	---	---	---	---

C-C'

5460'	---	---	---	---	---	---
5450'	---	---	---	---	---	---
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