



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

  
GARREY CARRUTHERS  
GOVERNOR

October 12, 1990

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

BHP Petroleum  
5847 San Felipe  
Suite 3600  
Houston, TX 77057

*7-28N-11W*

Attention: Chuck Williams

*Administrative Order NSP-1604(L)*

Dear Mr. Williams:

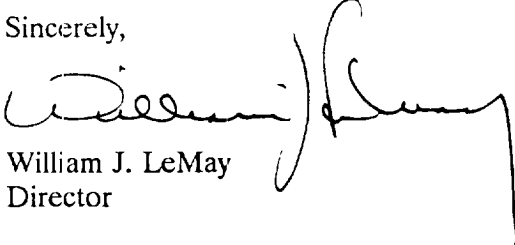
Reference is made to your application dated August 22, 1990 for a 132.99-acre non-standard gas proration unit consisting of the following acreage in either the Undesignated West Kutz Pictured Cliffs Pool or the Undesignated Fulcher Kutz Pictured Cliffs Pool:

SAN JUAN, NEW MEXICO  
TOWNSHIP 28 NORTH, RANGE 11 WEST, NMPM  
Irregular Section 7: Lots 3, 4 and 5 and the SE/4 SW/4

It is my understanding that this unit is to be dedicated to your Gallegos Canyon Unit Well No. 516 to be drilled at a non-standard gas well location 1745 feet from the South line and 950 feet from the West line (Unit L) of said Section 7.

By authority granted me under the provisions of Division General Rules 104.F.I. and 104.D.II, the above non-standard gas proration unit and unorthodox gas well location is hereby approved.

Sincerely,

  
William J. LeMay  
Director

WJL/MES/ag

cc: Oil Conservation Division - Aztec  
NM State Land Office - Santa Fe

**RECEIVED**  
OCT 17 1990  
OIL CON. DIV.  
DIST. 3



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS  
GOVERNOR

1000 RIO HAZO ROAD  
AZTEC, NEW MEXICO 87410  
(505) 334-6170

Date: 10-3-90

attn: M. Stagner

Oil Conservation Division  
P.O. Box 2088  
Santa Fe, NM 87504-2088

Re: Proposed MC \_\_\_\_\_  
Proposed DHC \_\_\_\_\_  
Proposed NSL X \_\_\_\_\_  
Proposed SWD \_\_\_\_\_  
Proposed WFX \_\_\_\_\_  
Proposed PHX \_\_\_\_\_

Gentlemen:

I have examined the application dated 9-12-90

for the B.H.P. PET. (AMERICAS) INC. G.C.U. # 516  
Operator Lease & Well No.

L-7-28N-11W and my recommendations are as follows:  
Unit, S-T-R

Approved  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours truly,

Emilio Busch

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

*Ernie Busch*  
*Attn: E. Busch*

August 22, 1990



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

RE: Unorthodox Location, Administrative Approval Request  
Gallegos Canyon Unit #516  
NW 1/4 NW 1/4 Sec. 7 T29N R11W  
San Juan County, New Mexico

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

Gentlemen:

BHP Petroleum respectfully requests that a non standard location be administratively approved to allow the GCU #516 well to be drilled 1745' FSL and 950' FWL to be completed in the Pictured Cliffs formation.

The non standard location is requested due to an irregular section. The proposed location can not be moved south to an orthodox location because of residential dwellings.

The subject location is immediately adjacent to the existing Amoco well location #138-E producing from the Dakota formation.

BHP Petroleum is the operator of all offsetting proration units.

Ernie Busch visited the subject location with J. C. Harris and myself on August 10, 1990 and concurred that the subject location was the most feasible.

For both economic and mechanical reasons BHP doesn't think that directionally drilling the proposed well to a standard location is feasible. Economically it is not feasible based on the extra expense of drilling a directional hole compared to the anticipated production. Our experience has shown that a rod pump will have to be installed to remove excess water from the well bore and a directionally drilled hole would greatly hinder or prohibit that.

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

Sincerely,

*Chuck Williams*

Chuck Williams  
Field Services Administrator

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

SEP 12 1990

API NO. (assigned by OCD on New Wells)

5. Indicate Type of Lease

STATE ☒

FEE ☐

6. State Oil & Gas Lease No.

B-10870-15

7. Lease Name or Unit Agreement Name

Gallegos Canyon Unit

8. Well No.

516

9. Pool name or Wildcat

W. Kutz Pictured Cliffs

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 Hosuton TX 77057-3005

4. Well Location

Unit Letter L

1745

Feet From The South

Line and

950'

Feet From The West

Line

Section 7

Township 28N

Range 11W

NMPM

San Juan

County

10. Proposed Depth  
1511'

11. Formation

Pictured Cliffs

12. Rotary or C.T.  
Rotary

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

5426' GR

14. Kind & Status Plug. Bond  
Blanket

15. Drilling Contractor  
Unknown

16. Approx. Date Work will start  
Fall 1990

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#	±1511'	191 sx (235 cu.ft.)	Surface

It is proposed to drill the subject well to 1511' with primary production anticipated in the Pictured Cliffs.

Estimated Formation Tops:

Ojo Alamo 196'  
Kirtland 286'  
Fruitland 1056'  
Basal Fruitland Coal 1346'  
Pictured Cliffs 1361'  
T.D. 1511'

This is an unorthodox location due to irregular section. An unorthodox location request is being prepared for submission.

BOPE consist of 2000# 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

TYPE OR PRINT NAME

(713) 780-5448

TELEPHONE NO

(This space for State Use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form O-302  
Revised 4-1-89

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

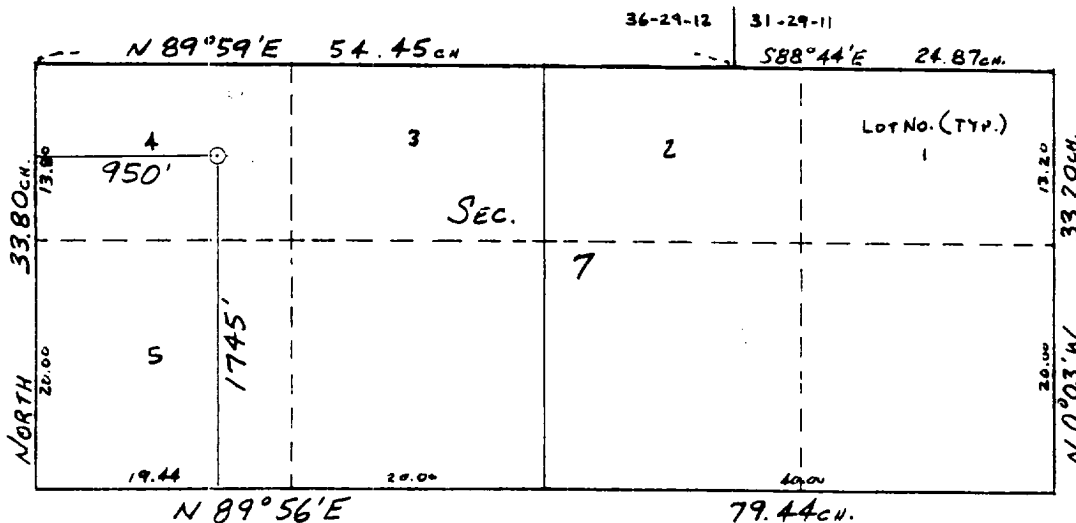
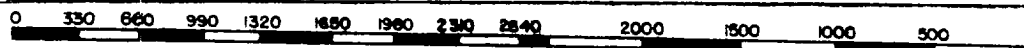
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section.

Operator <b>BHP PETROLEUM (AMERICAS) INC.</b>			Lease <b>GALLEGOS CANYON UNIT</b>		Well No. <b>516</b>
Unit Letter <b>L</b>	Section <b>7</b>	Township <b>28 N</b>	Range <b>11 W</b>	County <b>San Juan</b>	
Actual Footage Location of Well: <b>1745</b> feet from the <b>South</b> line and <b>950</b> feet from the <b>West</b> line					
Ground level Elev. <b>5426</b>	Producing Formation <b>Pictured Cliffs</b>		Pool <b>W. Kutz Pictured Cliffs</b>		Dedicated Acreage: <b>132.99</b> 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 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.



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  
**7/26/90**

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.  
**7-5-90**

Date Surveyed  
**William E. M. Thnke II**

Signature & Seal of Professional Surveyor

Certificate No. **#8466**

RECEIVED

SEP 12 1990

OIL CON. DIV.  
DIST. 3

BHP PETROLEUM (AMERICAS) INC.  
**GALLEGOS CANYON UNIT NO. 516**  
 1745' FSL & 950' FWL SECTION 7 T28N-R11W  
 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	196	
Kirtland	286	
Fruitland	1056	
Basal Fruitland Coal	1346	Gas
Pictured Cliffs	1361	Gas
Total Depth	1511	

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 141 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

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

Final log following the completion of the cementing detailing the pump rate, pump pressure, slurry slurry volume for each job will be submitted in time.

Control Equipment: (See attached schematic diagrams) A 2M BOPE well control system will be utilized. The manifold will be installed and pressure tested hanging out under surface casing and then will be as to mechanical operation condition. Ram type will be tested to 70 percent of the internal yield of the casing. The annular preventor will be tested of its working pressure.

Internal blowout preventor or drill pipe safety on the drilling floor at all times and will be setting all connections.

A fresh water Low Solids, Non-Dispersed mud be used to drill this well. Sufficient materials location at all times to maintain mud properties and any unforeseen lost circulation problems or measures in the Farmington Sands of the Kirtland drilling fluids will be contained in a steel completion of drilling, the drilling fluid will to be used for another well. The remaining of solids in the pit will be dumped into a small beside the steel pit. As soon as this pit dries be covered up.

Summary is as follows:

Mud Weight (#/gal)	Viscosity (sec/qt)
8.4 or less	30 - 38
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.



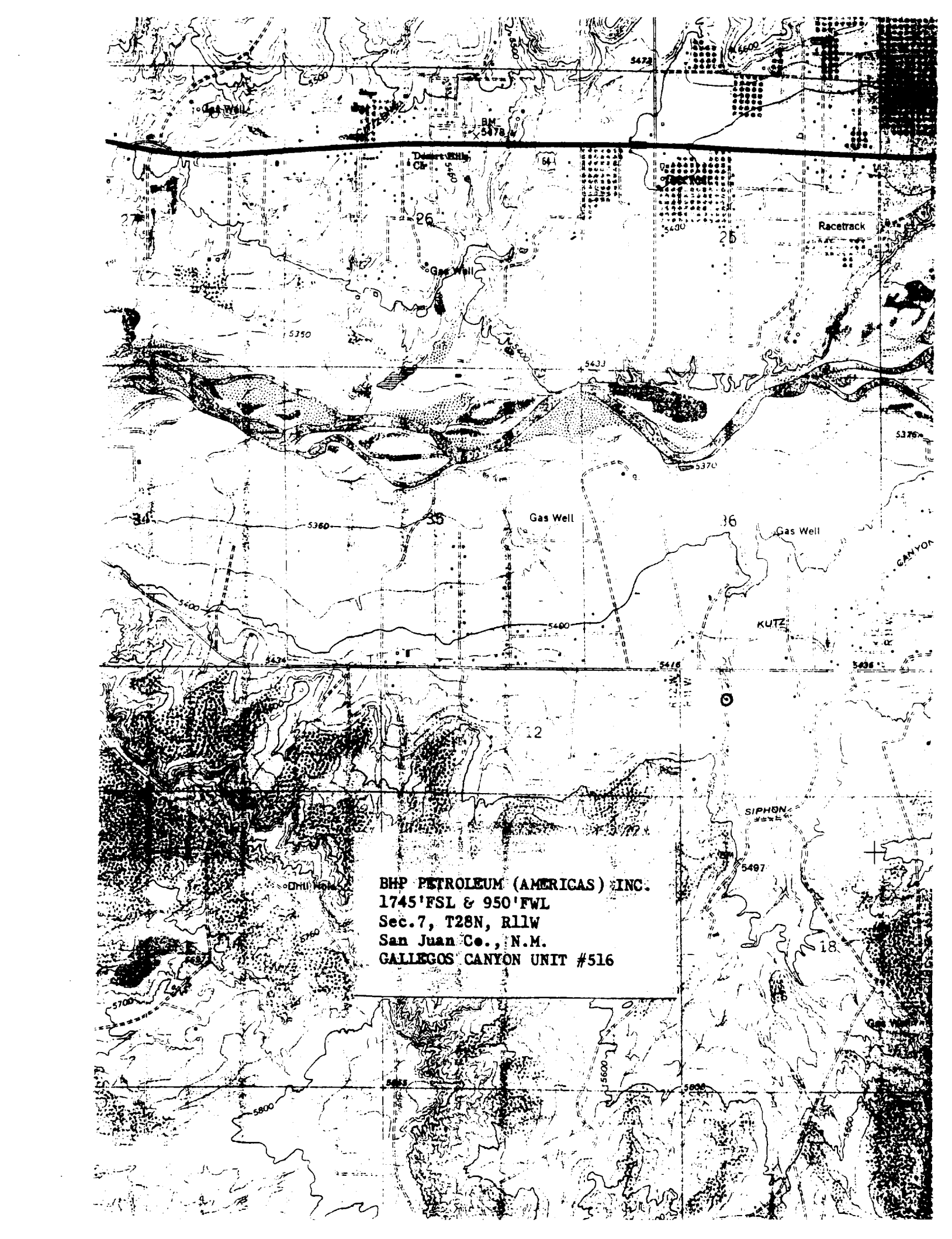
A hand-drawn site plan of a rectangular area, likely a field or plot, with dimensions and various features. The plot is bounded by points A, B, C, and A'. The top boundary is 75' long, and the left boundary is 50' long. A vertical line divides the plot into two sections. The left section contains a 'LAYDOWN' area with a bearing of 'N 30° W'. The right section contains a 'GRD'D. GR 5426' area. A horizontal line runs across the middle, labeled 'ELEV. 5425' and 'GRD'D. GR 5426'. Two rectangular structures are shown in the lower right. The first structure is 12' wide and 15' high, with a '5' DEEP' label. The second structure is 60' wide and 8' DEEP. A third structure is 50' wide and 20' high. A '3' DEEP' label is also present. Various points are labeled: F-51, F-15, F-08, F-06, F-03, and F-0. The bottom boundary is labeled A' and B'.

C/L

DATE	VEN. 1 - 50	VEN. 2 - 50	C/L
5430			
5420			

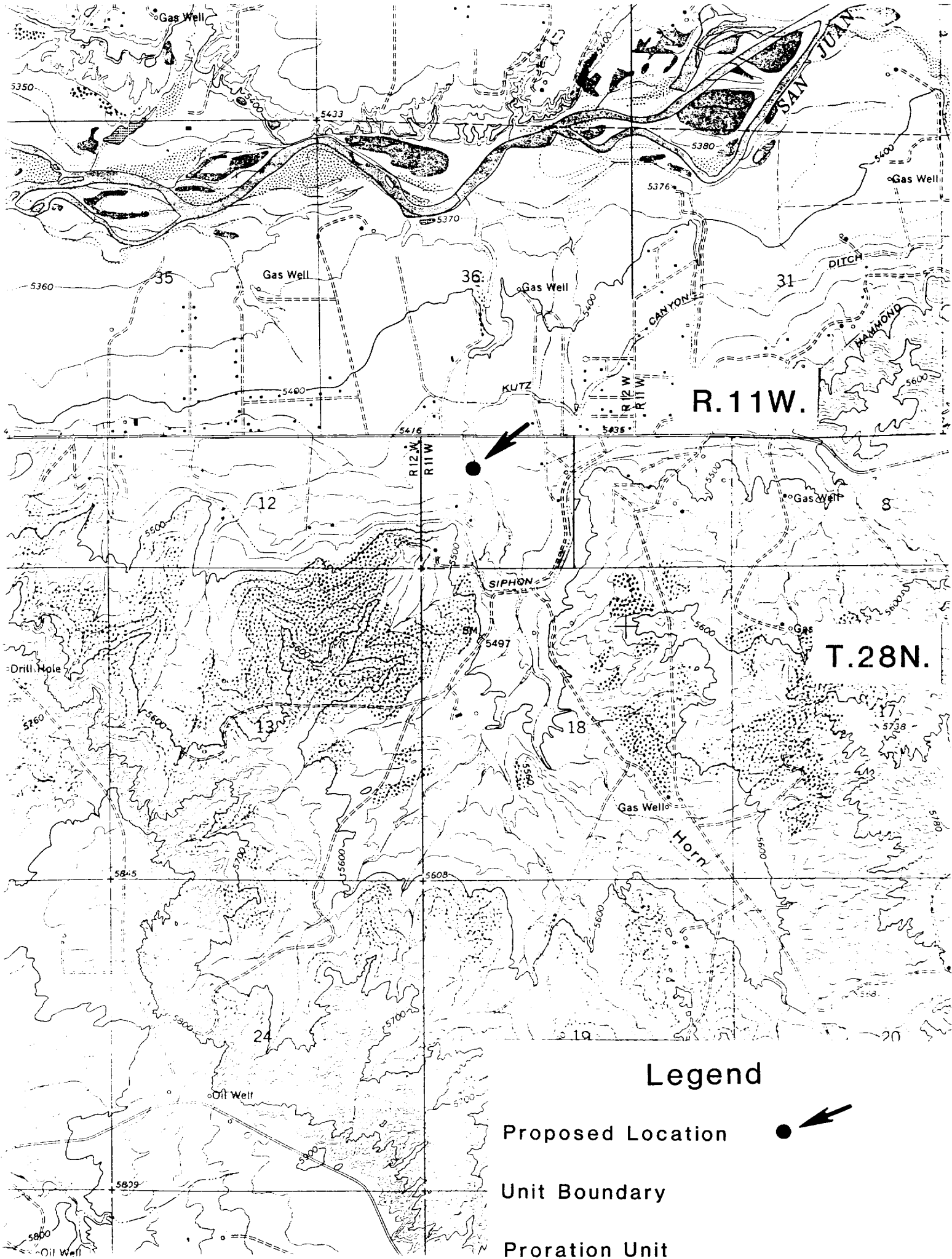
5430					
5420					

5430						
5420						



A detailed topographic map of a desert landscape. The map features numerous contour lines indicating elevation, with labels such as 5472, 5400, 5350, 5370, 5430, 5400, 5416, 5497, 5600, and 5800. Several gas wells are marked with dots and labeled "Gas Well". A racetrack is shown in the upper right quadrant. A prominent road or boundary line runs horizontally across the middle of the map. The terrain is rugged with various peaks and valleys. A text box is overlaid on the lower right portion of the map.

BHP PETROLEUM (AMERICAS) INC.  
1745'FSL & 950'FWL  
Sec.7, T28N, R11W  
San Juan Co., N.M.  
GALLEGOS CANYON UNIT #516



Legend

Proposed Location

Unit Boundary

Proration Unit

