

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

OIL CONSERVATION DIVISION
RECEIVED

September 17, 1990

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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 #515
SE 1/4 NE 1/4 Sec. 35 T29N R12W
San Juan County, New Mexico

Gentlemen:

BHP Petroleum respectfully requests that a non standard location be administratively approved to allow the GCU #515 well to be drilled 1965' FNL and 700' FEL 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 cultivated fields. The proposed location is immediately adjacent to the cultivated fields edge.

The subject location is immediately adjacent to the existing Amoco well location # 169-E producing from the Dakota formation.

BHP is the operator of all offsetting proration units.

For both economical 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

OKed by E. Busch

10/9/90

cc: Ernie Busch
Fred Lowery

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

Church

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)	
5. Indicate Type of Lease	STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No.	

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"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>		
2. Name of Operator BHP Petroleum (Americas) Inc.		8. Well No. 515
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 <u>H</u> : <u>1965</u> Feet From The <u>North</u> Line and <u>700</u> Feet From The <u>East</u> Line Section <u>35</u> Township <u>29N</u> Range <u>12 W</u> NMPM San Juan County		

10. Proposed Depth 1485'		11. Formation Pictured Cliffs	12. Rotary or C.T. Rotary
13. Elevations (Show whether DF, RT, GR, etc.) 5360' 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#	±1485'	188 sx(231 cuft)	Surface

It is proposed to drill the subject well to 1485' with primary production anticipated in the pictured cliffs.

Estimated Formation Tops:	Ojo Alamo	178'
	Kirtland	223'
	Fruitland	1013'
	Basal Fruitland Coal	1320'
	Pictured Cliffs	1335'
	T.D.	1485'

B.O.P.E. will consist of 2000 # Reagan Bladder Type BOP, pipe/rams and blindram 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 Aug 2, 1990

TYPE OR PRINT NAME _____ TELEPHONE NO. _____

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Submit to Appropriate District Office
 State Leases - 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

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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

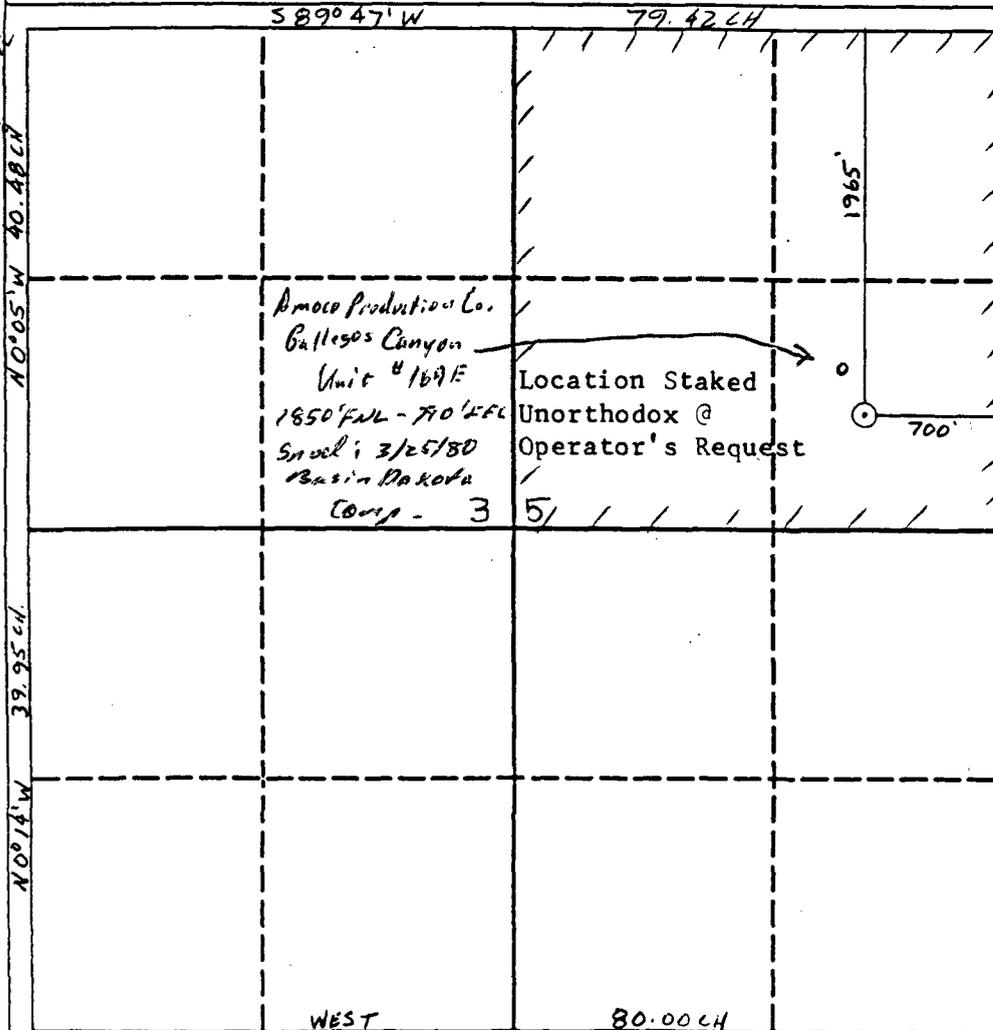
Operator BHP Petroleum (Americas) Incorporated			Lease Gallegos Canyon Unit		Well No. 515
Unit Letter H	Section 35	Township 29N	Range 12W	County NMPM San Juan	

Actual Footage Location of Well:
 1065 feet from the North line and 700 feet from the East line

Ground level Elev. 5360'	Producing Formation Pictured Cliffs	Pool W. Kutz Pictured Cliffs	Dedicated Acreage: 160 Acres
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1. Outline the acreage dedicated to the subject well by colored pencil or hachure 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.

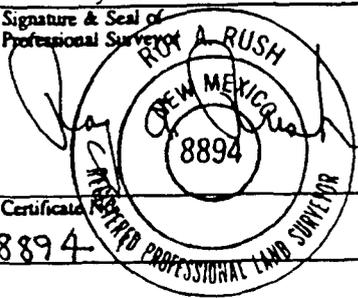
640 acre Section



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 Service 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.
 Date Surveyed: 7-11-90
 Signature & Seal of Professional Surveyor: Roy A. Rush
 Certificate No.: 8894
 8894



BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 515
 1965' FNL & 700' FEL SECTION 35 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	178	
Kirtland	223	
Fruitland	1013	
Basal Fruitland Coal	1320	Gas
Pictured Cliffs	1335	Gas
 Total Depth	 1485	

4. Casing and Cementing Program: A string of 7" 20# K-55 casing with ST&C couplings is to be set at ±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 ¼ #/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 138 sx of 50-50 pozmix containing 2 % gel, 0.5 % fluid loss additive and ¼ #/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.

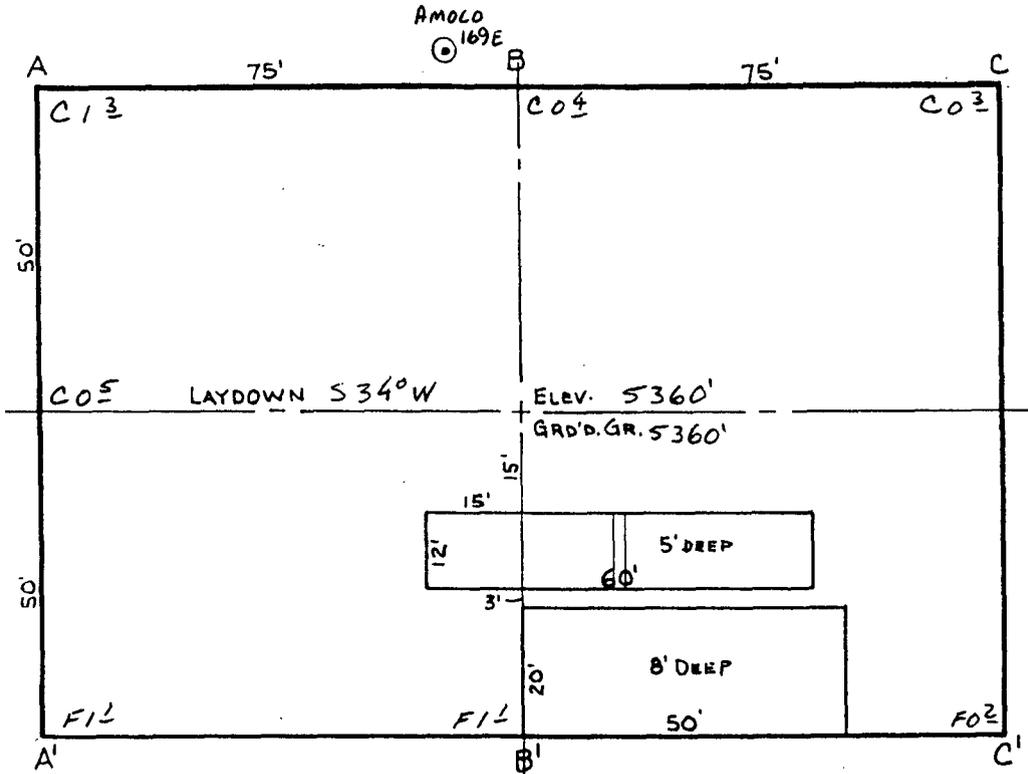
9. **Abnormal Pressure:** Although not expected, abnormal pressures are possible in the Farmington Sands of the Kirtland Formation.

Estimated Bottom Hole Pressure: 400 psi.

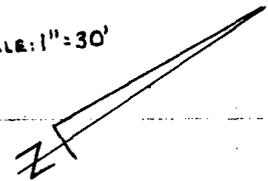
10. **Anticipated Starting Date:** As soon as all required approvals are received.

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

BHP Petroleum Inc.
 Gallegos Canyon Unit #515
 1965' FNL & 700' FEL
 Sec. 35, T29N, R12W
 San Juan Co. NM



SCALE: 1" = 30'



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

5370'	-----	-----	-----	-----	-----
5360'	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----

B-B'

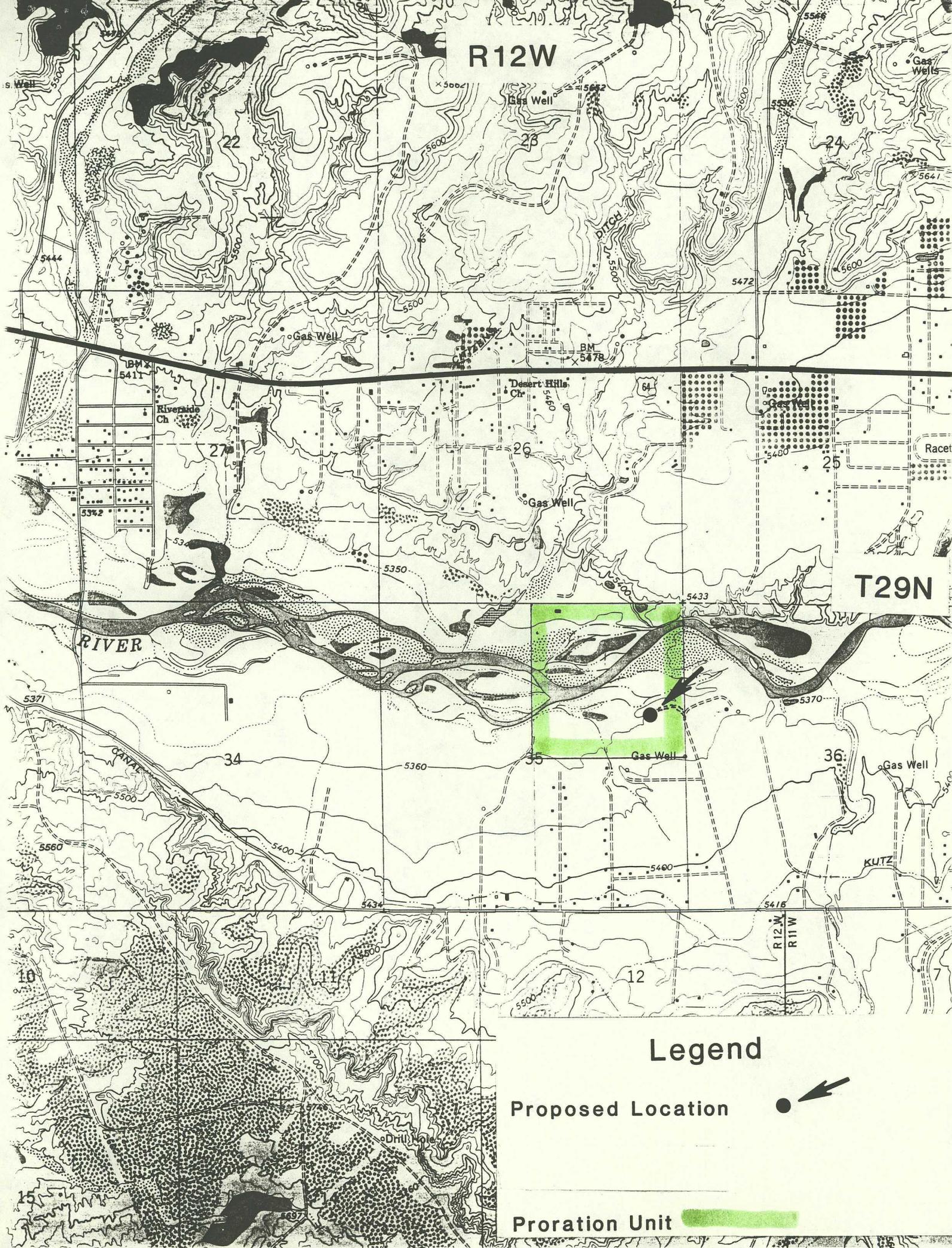
5370'	-----	-----	-----	-----	-----
5360'	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----

C-C'

5370'	-----	-----	-----	-----	-----
5360'	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----

BHP Petroleum Inc.
Gallegos Canyon Unit #515
1965' FNL & 700' FEL
Sec. 35, T29N, R12W
San Juan Co. NM





R12W

T29N

RIVER

Gas Well

Proposed Location

Proration Unit

Legend

