P.O Box 977
Farmington, New Mexico 87499
(505) 327-1639

NSL-3237

BHP Petroleum (Americas) Inc

March 16, 1993

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 # 410
Basin Fruitland Coal
2185' FSL & 1825' FWL NE/SW Sec.35, T29N, R12W
San Juan County, New Mexico

Gentlemen:

BHP Petroleum (Americas), Inc. respectfully requests that a non-standard location be administratively approved for the GCU #410.

This non-standard location is requested due to the following topographical reasons (Refer to Exhibit 3): 1. The existing pad of the Amoco No. 170 and BMG No. 2 wells could not be used as a location for the GCU 410 well due to existing pits, surface equipment, horse barn and animal stalls. 2. The remaining acreage within the drilling window is actively being subdivided into incompatible residential areas. This is evidenced by the Greene Acres Subdivision to the west with 4 - 4 acre subdivided tracts with accompany housing, occupying the west half of the window.

The East half of the window, presently in cultivation, is planned for future subdivision into incompatible residential tracts. There are two Bureau of Reclamation Underground drainage systems within this area and an utility easement where electric, gas and water lines are installed. Crossing beneath the BOR drainage easements would hamper the practicality of bringing a pipeline north out of this area to our West Hammond Gathering System.

As shown on the Land Plat, Exhibit 1, BHP is the operator of all offsetting production units.

A close examination of Exhibit 3 will show that the location, as selected, is as close to the drilling window as practical due to

Attn: E. Busch - Please call me when your ready to go w/ this one. Thanks. M. Stogner

the surface conditions present. A 20' wide, 7' deep drainage canal runs east and west 150' south of the location and a horse barn is located 160' south of the canal.

For both economical and mechanical reasons BHP does not 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. Mechanically, 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 this necessity.

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

Sincerely,

Fred Lowery

Fred Lowery
Operations Superintendent

Submit to Appropriate District Office
State Lease – 6 copies
Fee Lease – 5 copies

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-101
Revised 1-1-89

OIL CONSERVATION DIVISION

310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

API NO. (assigned by OCD on New Wells) 30-045-28734

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.
410 3/220

3. Address of Operator
5847 San Felipe, Ste. 3600, Houston, Texas 77057

9. Pool name or Wildcat
Basal Fruitland Coal

4. Well Location
Unit Letter K : 2185 Feet From The South Line and 1825 Feet From The West Line

Section 35 Township 29N Range 12W NMPM San Juan County

10. Proposed Depth	11. Formation	12. Rotary or C.T.
1525'	Fruitland Coal	Rotary

13. Elevations (Show whether DF, RT, GR, etc.)	14. Kind & Status Plug. Bond	15. Drilling Contractor	16. Approx. Date Work will start
5360' GR	Blanket	Unknown	As soon as approved

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#	+- 140'	50	surface
6-1/4"	4½"	10.5#	1525'	180	surface

It is proposed to drill the subject well to 1750' with the primary production anticipate in the Fruitland Coal Formation.

Estimated Formation Tops:

Ojo Alamo	48'
Kirtland	223'
Fruitland	1014'
Upper Fruitland Coal	1165'
Basal Fruitland Coal	1302'
Pictured Cliffs	1325'
TD	1525'

APPROVAL EXPIRES 2-3-93
UNLESS DRILLING IS COMMENCED.
SPUD NOTICE MUST BE SUBMITTED
WITHIN 10 DAYS

RECEIVED
JUL 30 1992
OIL CON. DIV.
DIST. 3

B.O.P.E. will consist of a 2000# Reagan bladder type preventor, pipe rams and blind ram B.O.P.E.

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 Carl Kolbe TITLE Regulatory Affairs Coordinator DATE 7/28/92

TYPE OR PRINT NAME Carl Kolbe TELEPHONE NO. 713/780-5301

(This space for State Use)

APPROVED BY [signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE AUG 03 1992

CONDITIONS OF APPROVAL, IF ANY:

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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-102
Revised 1-1-89

WELL LOCATION AND ACREAGE DEDICATION PLAT
All Distances must be from the outer boundaries of the section

Operator	Lease	Well No.
BHP PETROLEUM (AMERICAS) INC.	GALLEGOS CANYON UNIT	410

Unit Letter	Section	Township	Range	County
K	35	29 N	12 W NMPM	San Juan

Actual Footage Location of Well:
2185 feet from the South line and 1825 feet from the West line

Ground level Elev.	Producing Formation	Pool	Dedicated Acreage
5360	Fruitland Coal	Basal Fruitland Coal	320 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

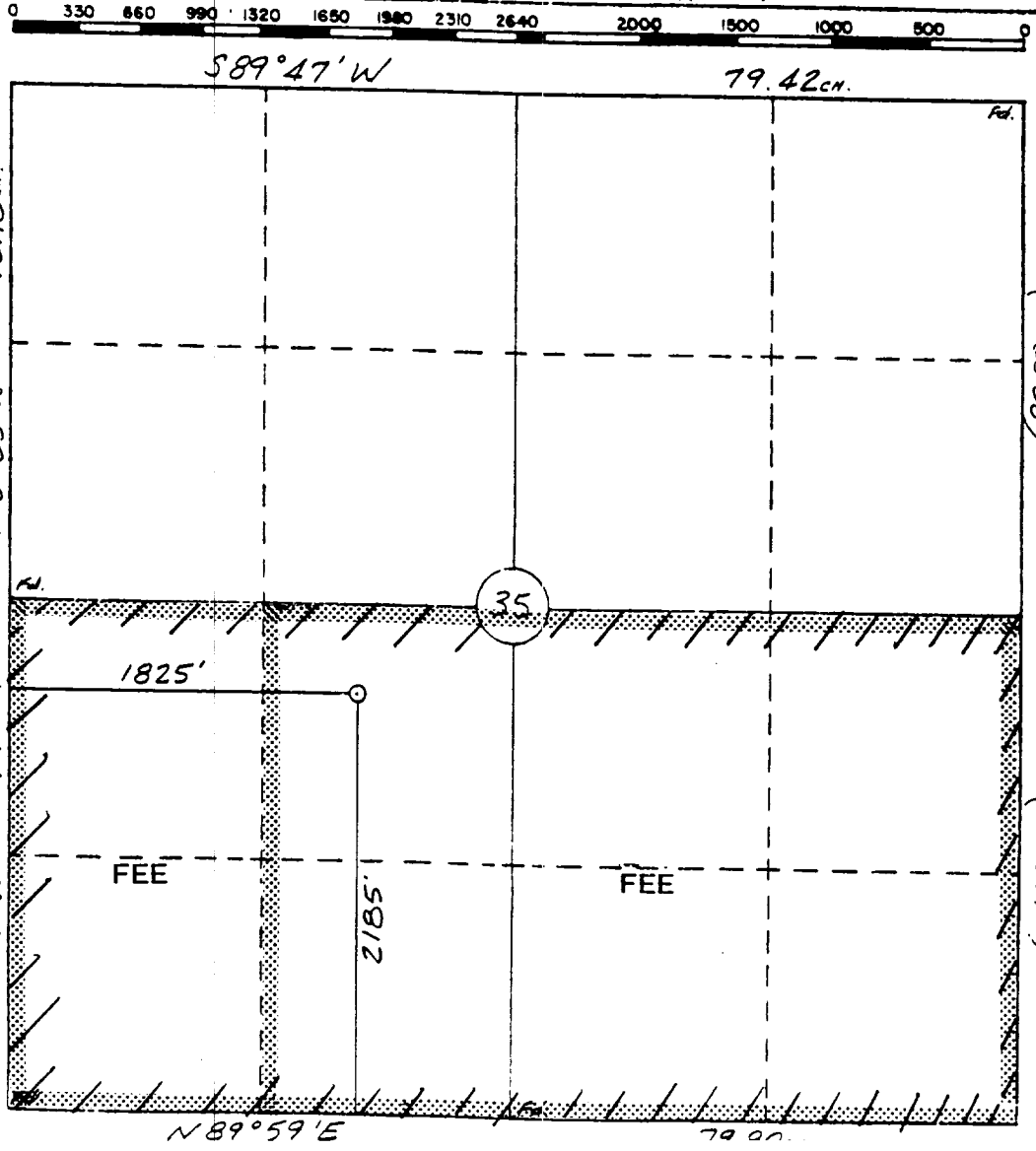
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.?

[X] Yes [ ] No If answer is "yes" type of consolidation Unitization

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 informat contained herein in true and complete to best of my knowledge and belief.

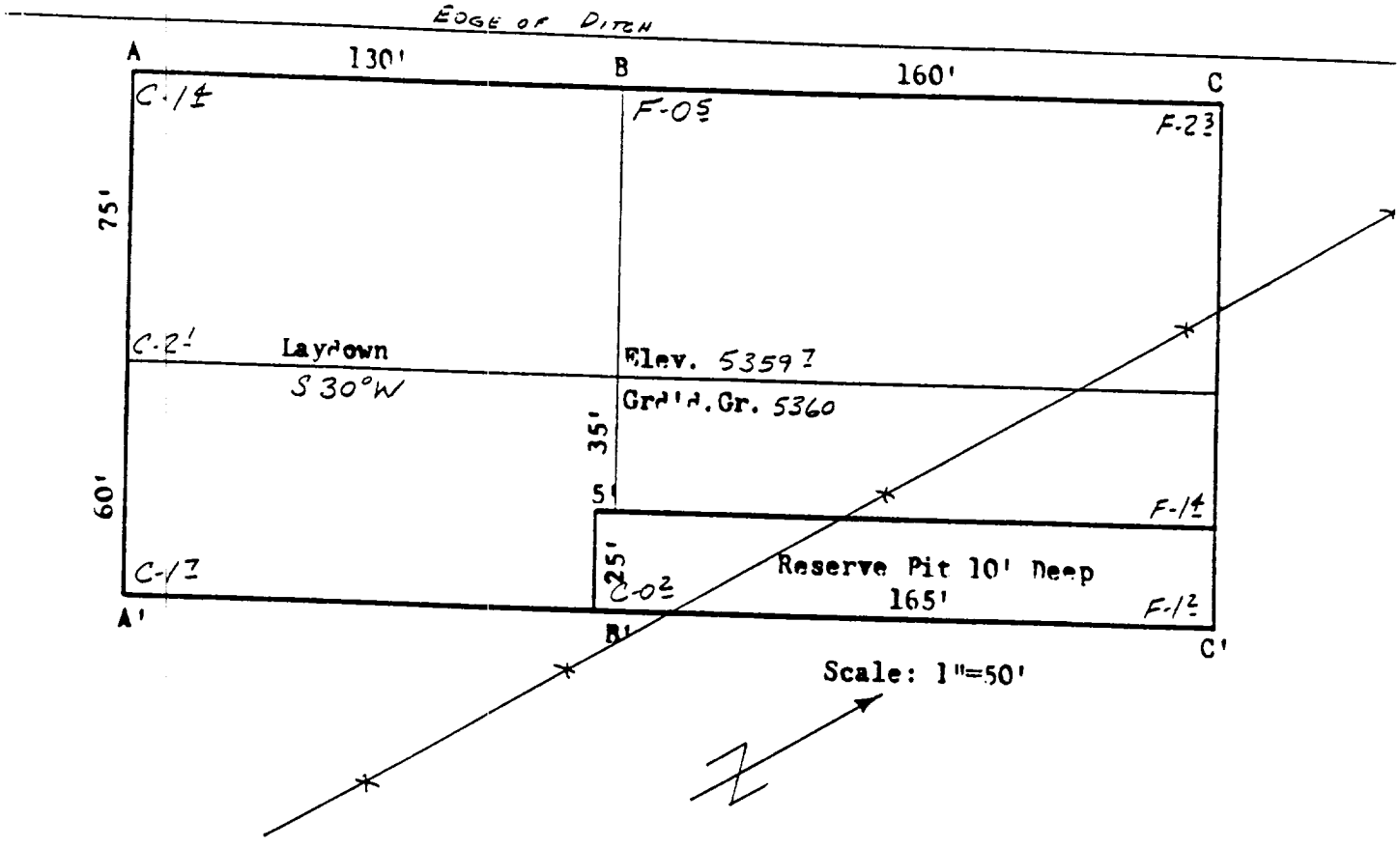
Signature: Carl Kolbe
Printed Name: Carl Kolbe
Position: Reg. Affairs Coordinator
Company: BHP Petroleum (Americas)
Date: 7/28/92

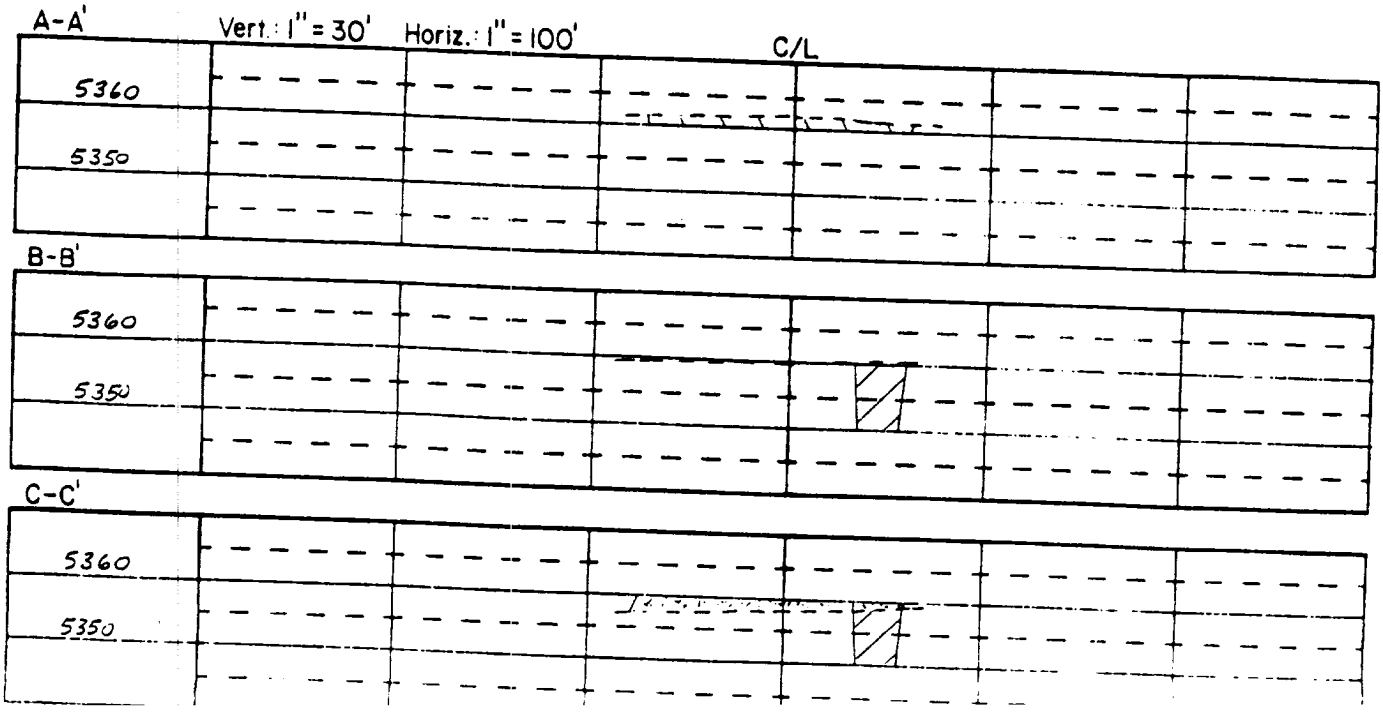
SURVEYOR CERTIFICATION

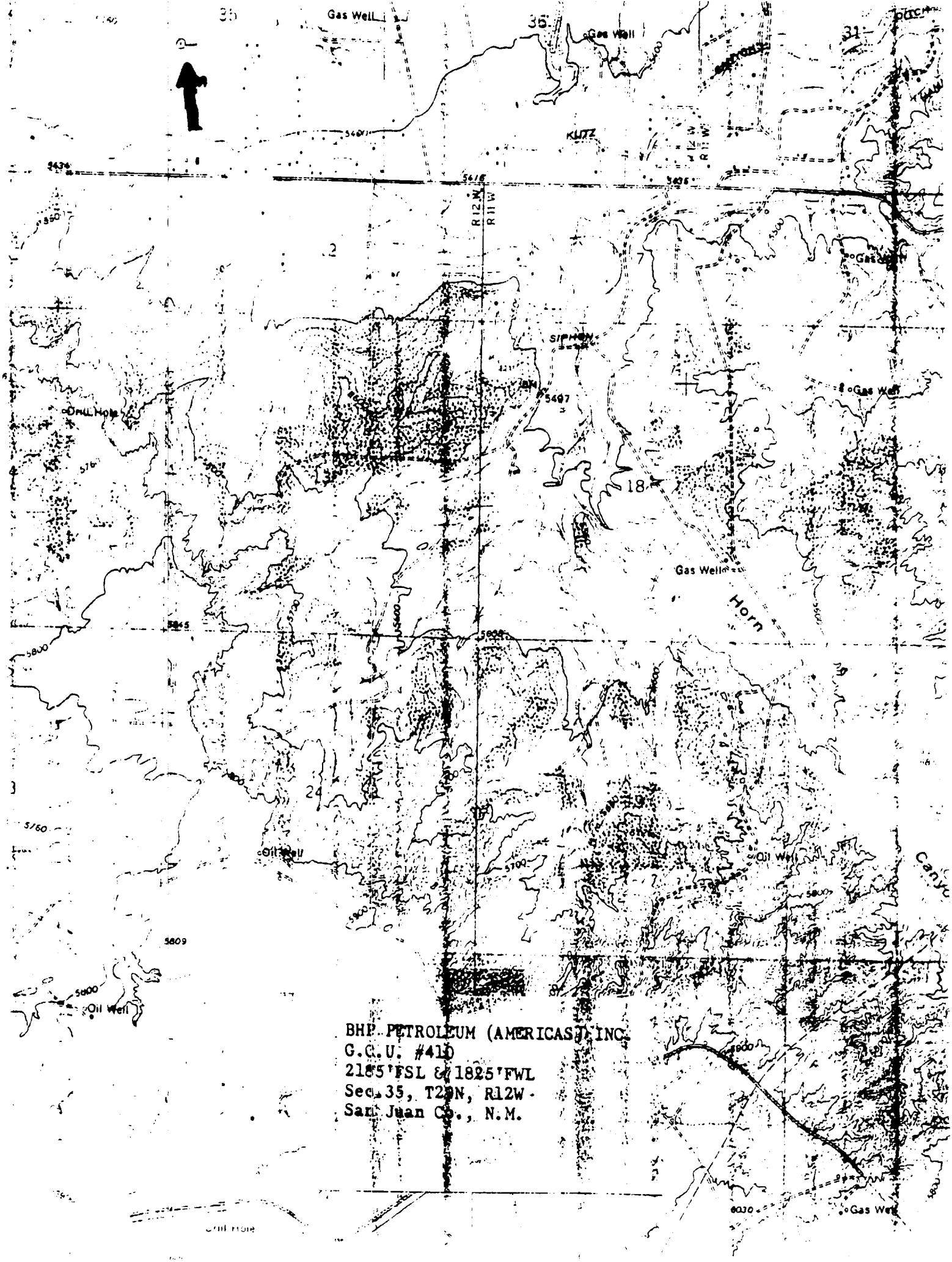
I hereby certify that the well location sho on this plat was plotted from field notes actual surveys made by me or under supervison, and that the same is true a correct to the best of my knowledge a belief.

6-16-92
Date Surveyed
William E. Mahnke II
Signature & Seal of Professional Surveyor
WILLIAM E. MAHNKE II NEW MEXICO #8466 REGISTERED PROFESSIONAL LAND SURVEYOR
Certificate No. 8466

BHP PETROLEUM (AMERICAS) INC.
G.C.U. #410
2185'FSL & 1825'FWL
Sec.35, T29N, R12W
San Juan Co., N.M.







BHP PETROLEUM (AMERICAS) INC.
G.C.U. #410
2185'FSL & 1825'FWL
Sec. 35, T29N, R12W
San Juan Co., N.M.

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO.410
2185'FSL & 1825'FWL SECTION 35 T29N-R12W
SAN JUAN COUNTY, NEW MEXICO

TEN POINT PROGRAM

1. **Surface Formation:** Nacimiento or valley fill

2. &
3. **Estimated Formation Tops:**

Formation	Top	Expected Production
Ojo Alamo	48'	
Kirtland	223'	
Fruitland	1014'	
Upper Fruitland Coal	1165'	Gas
Basal Fruitland Coal	1302'	Gas
Pictured Cliffs	1325'	Gas
Total Depth	1525'	

4. **Casing and Cementing Program:** A string of 7" 20# K-55 ST&C casing will be set at ±140' in an 8-3/4" hole and cemented to the surface in a single stage with 50 sx Class "B" cement (yield 1.18 cf/sk) containing 3% $CaCl_2$ and 1/4 lb/sk celloflake. Slurry volume assumes 100% excess over calculated hole volume. If the cement job does not circulate to surface, cement will be topped off using 1" pipe down the 8-3/4" by 7" annulus. Centralizers will be run on the bottom two joints as long as boulders were not encountered while drilling the surface hole. If boulders are encountered while drilling the surface hole, no centralizers will be run. Minimum clearance between couplings and hole is 1.094". Prior to drilling out the 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 lb overpull, whichever is greater.

A production string of 4-1/2", 10.5# K-55 ST&C casing 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 180 sx of 50-50 pozmix containing 2% gel, 10% salt and 1/4 lb/sk celloflake (yield = 1.26 cf/sk) followed by 50 sx of Class "B" cement containing fluid loss additive (yield = 1.18 cf/sk). Slurry volume assumes a 50% excess over calculated hole volume. Cement volume is subject to change after review and recalculation of hole volume from the open hole calipers. If the primary cement job does not circulate to surface, the cement will be topped off using 1" pipe down the 6-1/4" by 4-1/2" annulus. Centralizers will be spaced such that a minimum of two are located above and two are located below the Basal Fruitland Coal; and, a minimum of one centralizer will be run just below the base and another into the base of the Ojo

Alamo. Minimum clearance between couplings 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 lb overpull, whichever is greater.

Following the completion of the cementing operations, a sundry notice detailing the cement volumes and densities for each job will be submitted.

5. **Pressure Control Equipment:** (See attached schematic diagrams.) A minimum of a 2M psi BOP 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 2M psi. The annular preventor will be tested to 50% of its working pressure.

A full opening internal blowout preventor or drill pipe safety valve will be on the drill 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 within the Kirtland formation. All drilling fluids will be contained in an earthen 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 allowed to dry out and the pit will be covered up.

Mud program is as follows:

Interval (ft)	Mud Weight (ppg)	Viscosity (sec/qt)
0 - 1000	8.4 or less	30 - 38
1000 - TD	9.3 or less	40 - 55

7. **Auxiliary Equipment:** An upper kelly cock with handle available will be utilized. At a minimum, a flow sensor will be installed in the system and the mud volume will be visually monitored constantly.

8. **Logging Program:** SP-DIL and GR-FDC-CNL logs will be run from TD to surface casing shoe depth.

Coring Program: No cores are planned.

GALLEGOS CANYON UNIT #
TEN POINT PROGRAM, continued

Testing Program: No tests are planned.

Stimulation Program: Perforate the Basal Fruitland Coal with 4 JSPF and fracture stimulate with a minimum of 30,000 Bbls of 20/40 mesh sand in either a 70 quality nitrogen foam system or a cross-linked gelled water system.

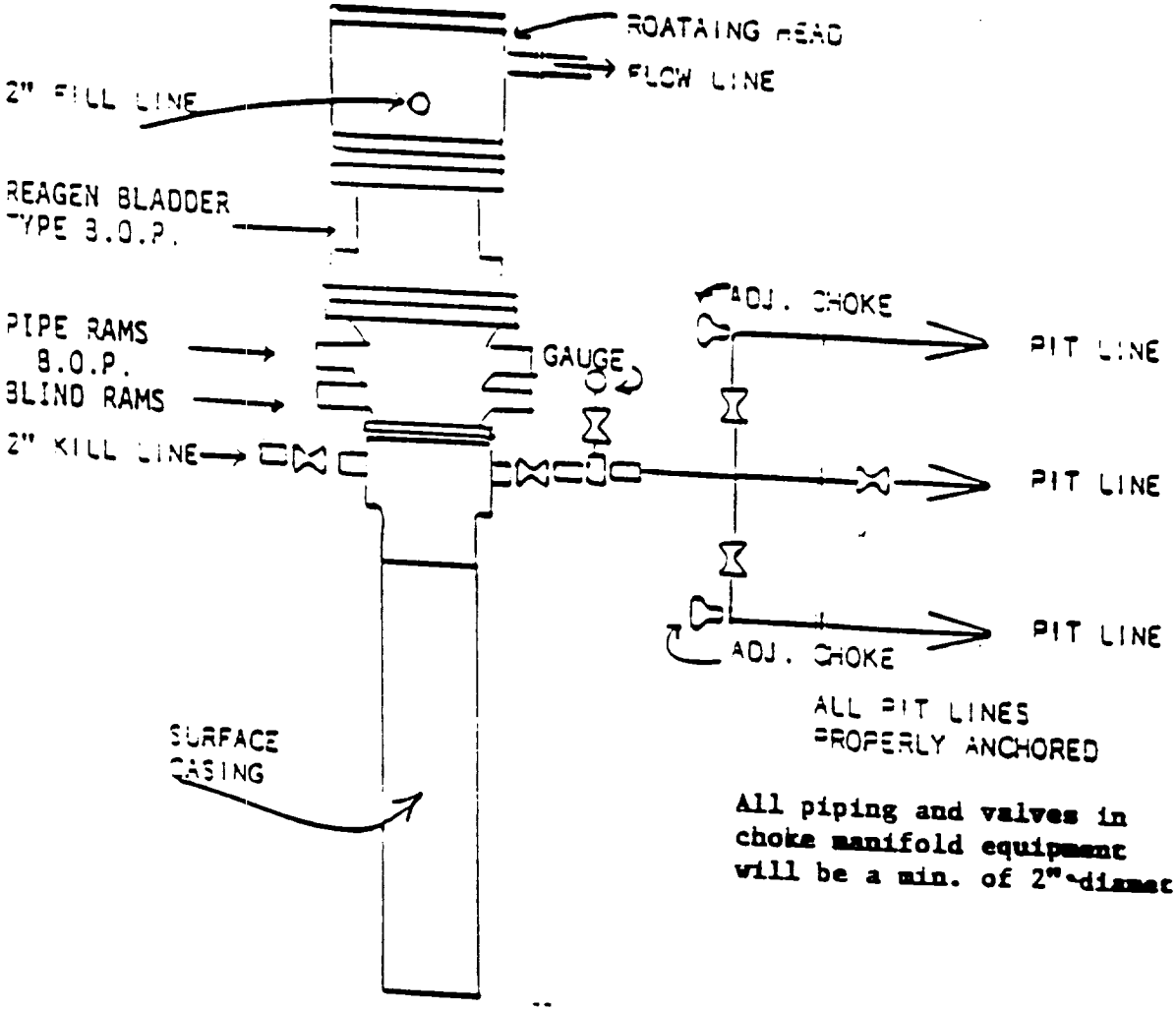
9. **Abnormal Pressure:** Although not expected, abnormal pressures are possible in the Farmington sands of the Kirtland formation.

Estimated Bottom Hole Pressure: 600 psi

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

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

CM SYSTEM



ALL PIT LINES
PROPERLY ANCHORED

All piping and valves in choke manifold equipment will be a min. of 2" diamet

PROPERTY MANAGEMENT & CONSULTING, INC.
P. O. BOX 2596
FARMINGTON, NEW MEXICO 87499-2596
(505) 325-5220

Mr. Fred Lowery
BHP Petroleum (Americas), Inc.
P.O. Box 977
Farmington, NM 87499

Dear Fred,

Property Management & Consulting, Inc. conducted an onsite inspection of the potential locations for your GCU No. 410 well.

The pad area around Amoco's GCU No. 170 and BMG No.2 well was eliminated due to existing pits, surface production equipment, and the presence of a horse barn and related stalls.

All areas in the west half of the drilling window were eliminated due to incompatibility. This area is subdivided into 4-4 acre residential tracts with accompanying housing. There is an underground drainage system crossing the northwest corner.

The east half of the drilling window is presently in cultivation. According to Mr. Earl Hickam, surface owner, this area is planned for future subdivision into incompatible residential tracts. There is a utility easement on the east side of the north-south main road, which approximately defines the west boundary for the east half of the drilling window, where gas, water, and electric lines are buried. The Hammond Conservancy District office Bureau of Reclamation provided us with plats of BOR drainage systems (2) underlying this area. They have a permanent 30' wide ROW associated with each of the drainage lines which were buried approximately 7' deep at the time of installation. It is supposed that this depth defines the top of the water table. Crossing beneath these easements would hamper the practicality of bringing a pipeline north out of this area to your West Hammond Gathering System. In addition, the pipeline would have to cross the open 7' deep drainage canal running east-west approximately 150' north of the drilling window. Since the pipeline would need to be buried 3-4' below the canal, to allow for frequent dredging, this would, also, hamper the practicality of a pipeline.

Our recommendation is that, due to the topographical reasons discussed, the GCU No. 410 well be located as close to the drilling window as possible north of the open canal and east of the point where the canal turns north.

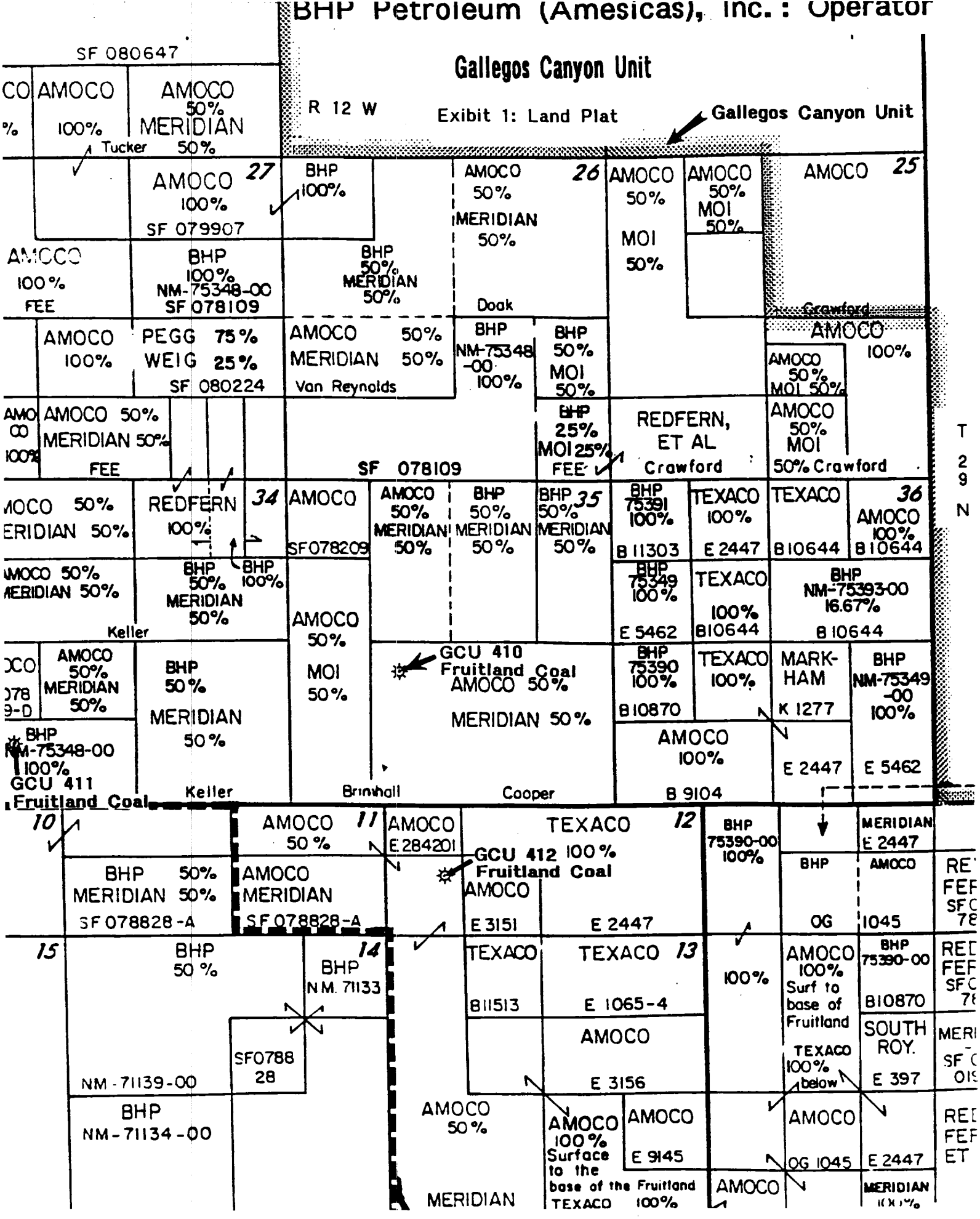
Sincerely,

Charles Neeley
Petroleum Engineer

BHP Petroleum (Amesicas), Inc.: Operator

Gallegos Canyon Unit

Exibit 1: Land Plat

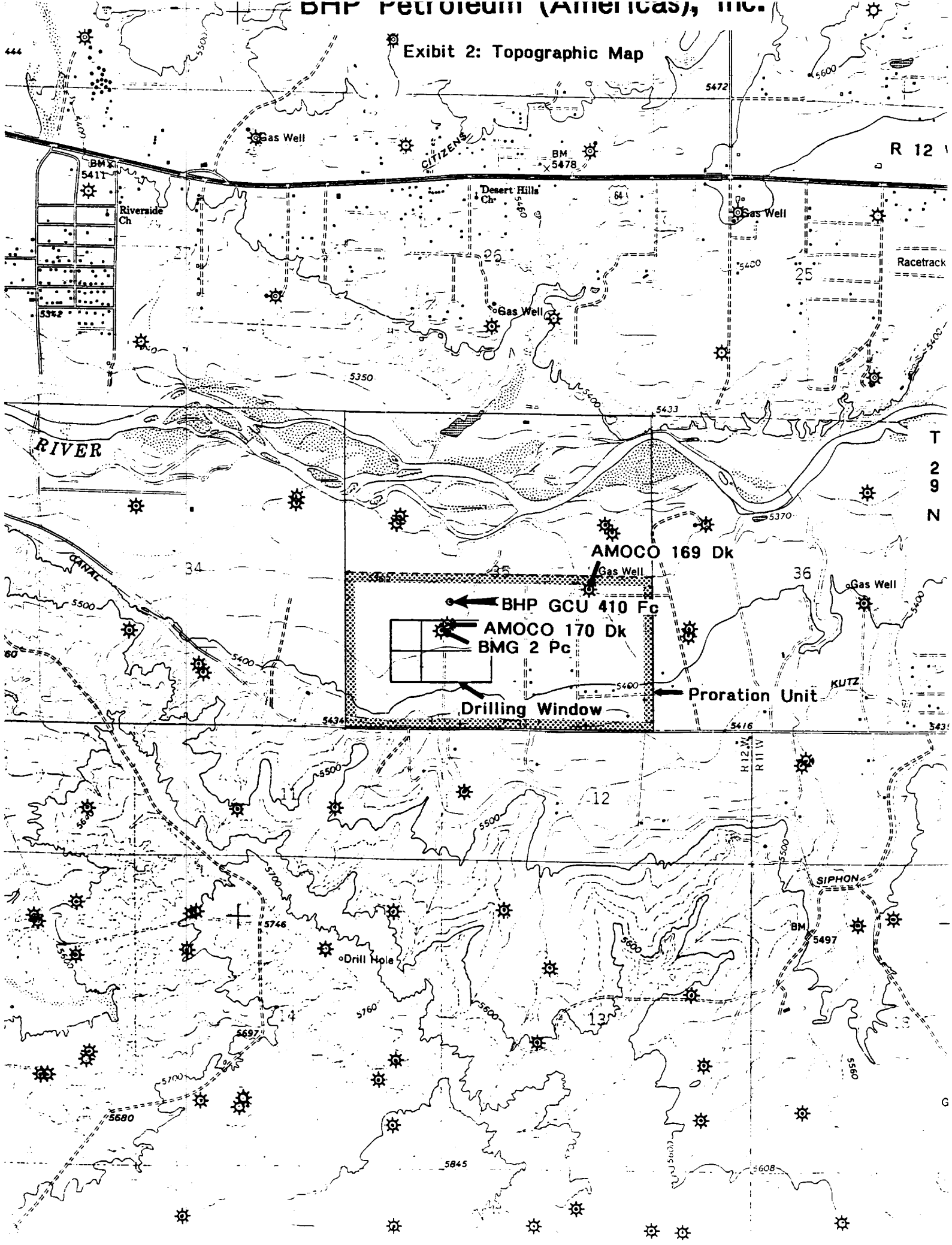


To the best of my knowledge, this information is current and correct.

Signed: BHP Petroleum (Americas) Inc.

BHP Petroleum (Americas), Inc.

Exibit 2: Topographic Map



BHP Petroleum (Americas), Inc.

Exibit 3: Enlarged Topo Map