

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-101
Revised February 10, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

| | | |
|--|---------------------------------------|--------------------------------|
| Operator Name and Address: BHP Petroleum (Americas) Inc. P. O. Box 977 Farmington, New Mexico 87499 | | OGRID Number 2217 |
| Property Code 2038 | Property Name Gallegos Canyon Unit | API Number 30 - 045 - 29324 |
| | | Well No. 547 |

Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| N | 27 | 29N | 12W | | 1190 | South | 1770 | West | San Juan |

Proposed Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---------|----------|-------|---------|-----------------|------------------|---------------|----------------|--------|
| 79680 | | | | | | | | | |
| Proposed Pool 1 West Kutz Pictured Cliffs 1601 | | | | | Proposed Pool 2 | | | | |

| | | | | |
|---------------------|-------------------------|------------------------------|----------------------|----------------------------------|
| Work Type Code N | Well Type Code G | Cable/Rotary R | Lease Type Code P | Ground Level Elevation 5340' |
| Multiple N | Proposed Depth 1500' | Formation Pictured Cliffs | Contractor NA | Spud Date As soon as approved |

Proposed Casing and Cement Program

| Hole Size | Casing Size | Casing weight/foot | Setting Depth | Sacks of Cement | Estimated TOC |
|-----------|-------------|--------------------|---------------|-----------------|---------------|
| 12.250 " | 9.625 " | 36 | 30' | 25 - 29.5 cf | surface |
| 8.750 " | 7.000 " | 20 | 265' | 70 - 82.6 cf | surface |
| 6.250 " | 4.500 " | 10.5 | 1500' | 220 - 273.2 cf | surface |
| | | | | | |
| | | | | | |

Describe the proposed program. If this application is to DEEPEN or PLUG BACK give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.
BHP Petroleum (Americas) Inc. proposes to spud in the Nacimiento Formation. Drill a 12 1/4" hole to 30'. Run and cement conductor casing with cement returns to surface. WOC 12 hrs. Drill an 8 3/4" hole to 265'. Run and cement surface casing with cement returns to surface. WOC 12 hrs. Pressure test casing and BOPE to 600 psi for 15 mins. Drill a 6 1/4" hole to a TD of 1500' using a fresh water mud. No abnormal pressures or poisonous gas is anticipated. Adequate weight material will be on location to control any unforeseen flows from the Farmington sands. Run logs at TD. Run and cement production casing with cement returns to surface. WOC 12 hrs. Run cased hole correlation logs, test casing to 2500 psi, perforate and stimulate Pictured Cliffs using a fresh

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: *J.C. Harris*
Printed name: J.C. Harris
Title: Operations Superintendent
Date: 12/5/95
Phone: (505) 327-1639

OIL CONSERVATION DIVISION

Approved by: *Emmett Burch* 12-11-95
Title: SUPERVISOR DISTRICT # 3
Approval Date: DEC 11 1995
Expiration Date: DEC 11 1996
Conditions of Approval:
Attached ☐

water based gel or foam system.

C-101 Instructions

Measurements and dimensions are to be in feet/inches. Well locations will refer to the New Mexico Principal Meridian.

IF THIS IS AN AMENDED REPORT CHECK THE BOX LABLED "AMENDED REPORT" AT THE TOP OF THIS DOCUMENT.

- | | |
|---|--|
| <p>1 Operator's OGRID number. If you do not have one it will be assigned and filled in by the District office.</p> <p>2 Operator's name and address</p> <p>3 API number of this well. If this is a new drill the OCD will assign the number and fill this in.</p> <p>4 Property code. If this is a new property the OCD will assign the number and fill it in.</p> <p>5 Property name that used to be called 'well name'</p> <p>6 The number of this well on the property.</p> <p>7 The surveyed location of this well New Mexico Principal Meridian NOTE: If the United States government survey designates a Lot Number for this location use that number in the 'UL or lot no.' box. Otherwise use the OCD Unit Letter.</p> <p>8 The proposed bottom hole location of this well at TD</p> <p>9 and 10 The proposed pool(s) to which this well is being drilled.</p> <p>11 Work type code from the following table: N New well E Re-entry D Drill deeper P Plugback A Add a zone</p> <p>12 Well type code from the following table: O Single oil completion G Single gas completion M Multiple completion I Injection well S SWD well W Water supply well C Carbon dioxide well</p> <p>13 Cable or rotary drilling code C Propose to cable tool drill R Propose to rotary drill</p> <p>14 Lease type code from the following table: F Federal S State P Private N Navajo J Jicarilla U Ute I Other Indian tribe</p> <p>15 Ground level elevation above sea level</p> <p>16 Intend to mutiple complete? Yes or No</p> <p>17 Proposed total depth of this well</p> | <p>18 Geologic formation at TD</p> <p>19 Name of the intended drilling company if known.</p> <p>20 Anticipated spud date.</p> <p>21 Proposed hole size ID inches, proposed casing OD inches, casing weight in pounds per foot, setting depth of the casing or depth and top of liner, proposed cementing volume, and estimated top of cement</p> <p>22 Brief description of the proposed drilling program and SOP program. Attach additional sheets if necessary.</p> <p>23 The signature, printed name, and title of the person authorized to make this report. The date this report was signed and the telephone number to call for questions about this report.</p> |
|---|--|

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State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
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Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | | | | |
|-------------------------------------|--|--|--|--|----------------------|
| 1 API Number <u>30-045-29324</u> | | 2 Pool Code 79680 | | 3 Pool Name West Kutz Pictured Cliffs | |
| 4 Property Code 2038 | | 5 Property Name GALLEGOS CANYON UNIT | | | 6 Well Number 547 |
| 7 OGRID No. 2217 | | 8 Operator Name BHP PETROLEUM (AMERICAS) INC. | | | 9 Elevation 5340 |

10 Surface Location

| UL or lot no. | Section | Township | Range | Lot Ida | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| N | 27 | 29 N | 12 W | | 1190 | South | 1770 | West | San Juan |

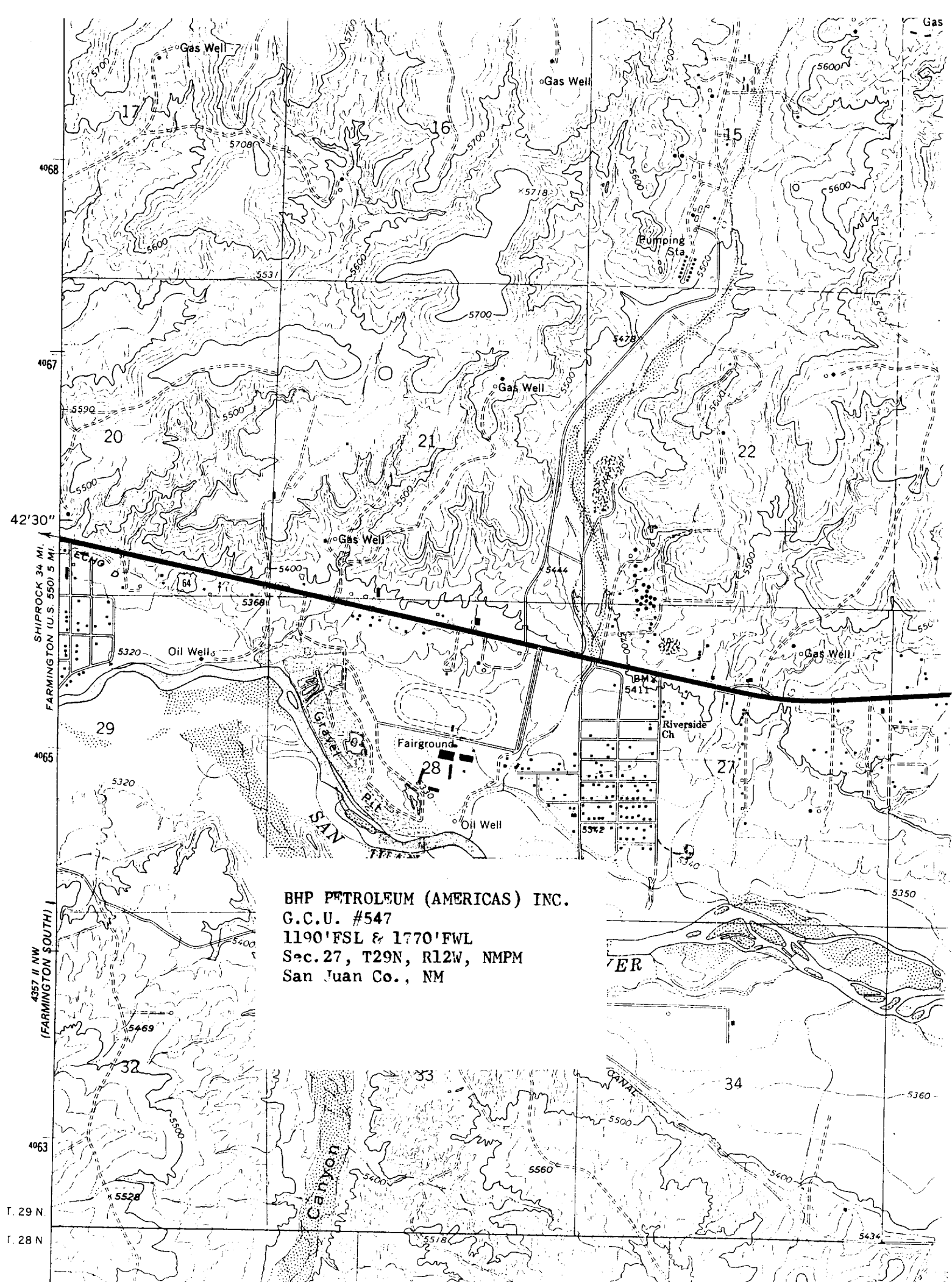
11 Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Ida | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| | | | | | | | | | |

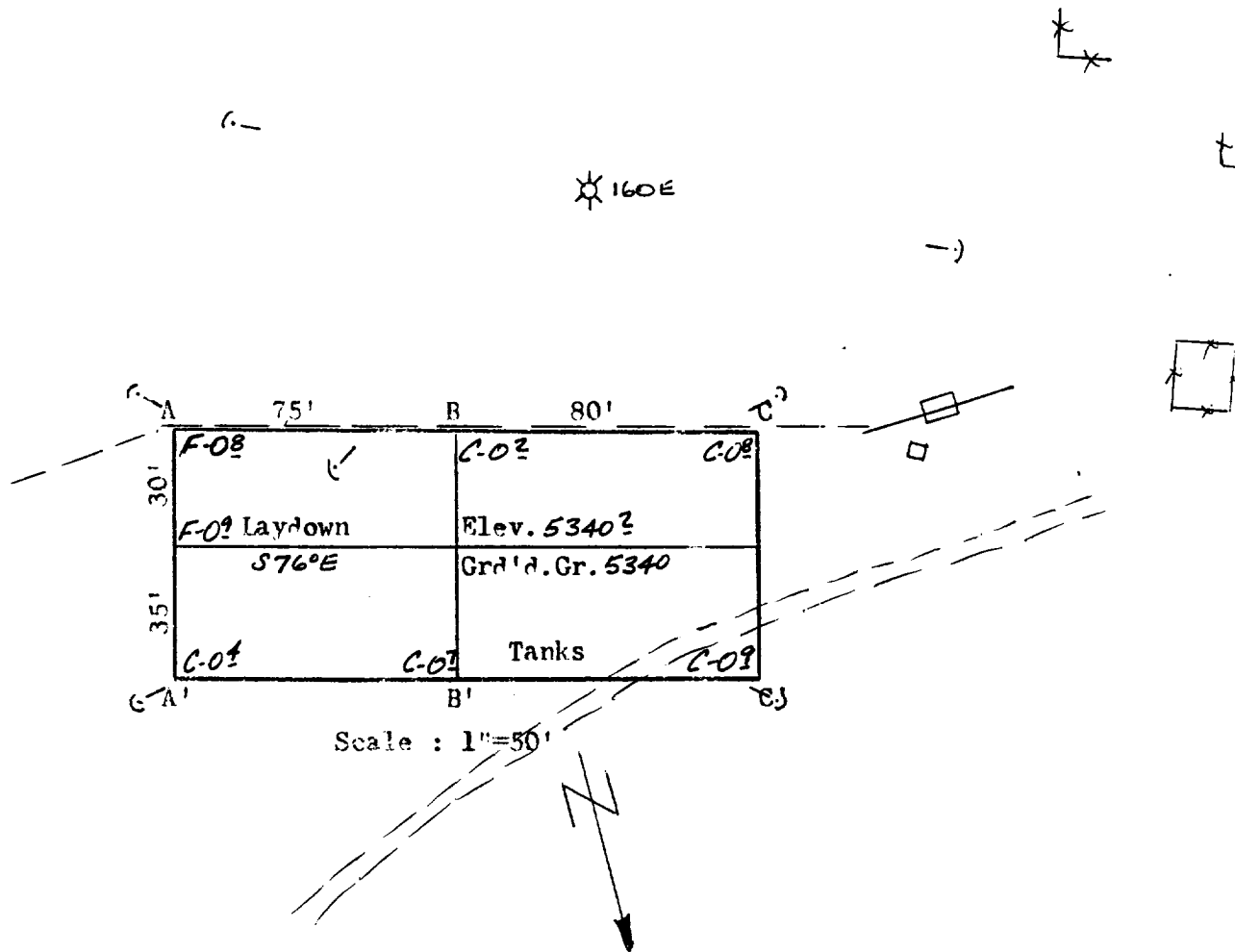
| | | | |
|------------------------------|--------------------|----------------------------|--------------|
| 12 Dedicated Acres 160.00 | 13 Joint or Infill | 14 Consolidation Code U | 15 Order No. |
|------------------------------|--------------------|----------------------------|--------------|

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

| | | | | | | | |
|--|--|--|--|---|--|--|--|
| 16 <p>589°56'W 40.0300 N89°16'W 39.7300 39.7600 N0°07'W SEC. FEE 1770' 1190' N80°05'E 79.3800</p> <p>RECEIVED DEC - 7 1995 OIL CON. DIV. DIST. 3</p> | | | | 17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief Signature J. C. Harris Printed Name Operations Superintendent Title 12/5/95 Date | | | |
| 18 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 belief. Date of Survey Signature and Seal of Professional Surveyer William S. Mahnke II Certificate Number 8466 | | | | | | | |



BHP PETROLEUM (AMERICAS) INC.
 G.C.U. #547
 1190' FSL & 1770' FWL
 Sec. 27, T29N, R12W, NMPM
 San Juan Co., NM



| A-A' | Vert.: 1"=30' | | Horiz.: 1"=100' | | C/L | |
|------|---------------|--|-----------------|--|-----|--|
| 5340 | | | | | | |
| 5330 | | | | | | |
| | | | | | | |

| B-B' | Vert.: 1"=30' | | Horiz.: 1"=100' | | C/L | |
|------|---------------|--|-----------------|--|-----|--|
| 5340 | | | | | | |
| 5330 | | | | | | |
| | | | | | | |

| C-C' | Vert.: 1"=30' | | Horiz.: 1"=100' | | C/L | |
|------|---------------|--|-----------------|--|-----|--|
| 5340 | | | | | | |
| 5330 | | | | | | |
| | | | | | | |

BHP PETROLEUM (AMERICAS) INC.
GALLEGOS CANYON UNIT NO. 547
1190 ' FSL - 1770 ' FWL, Section 27, T29N, R12W
San Juan County, New Mexico

TEN POINT PROGRAM

- 1.) Surface Formation: NACIMIENTO
- 2.) Estimated Formation Tops:

| <u>Formation</u> | <u>Top</u> | <u>Expected Production</u> |
|----------------------|------------|----------------------------|
| Ojo Alamo | 40' | |
| Kirtland | 215' | |
| Fruitland | 1055' | |
| Basal Fruitland Coal | 1330' | Gas |
| Pictured Cliffs | 1350' | Gas |
| TD | 1500' | |

- 3.) Casing and Cementing Program: A string of 9 " or 9 5/8 " casing will be set at 30 ' in a 12 1/4 " hole and cemented with adequate cement to fill the annular area to surface.

A string of 7 ", 20 ppf, K - 55, ST & C casing will be set at 265 '± in an 8 3/4 " hole and cemented to the surface in a single stage with 70 sacks of Class B cement (yield = 1.18 cf/sk) containing 3 % CaCl₂ and ¼ lb/sk celloflake. Slurry volume assumes 100 % excess over calculated hole volume. If the cement does not circulate to surface, cement will be topped off through 1 " pipe run in the 8 3/4 X 7 " annulus. Centralizers will be run on the bottom two joints if boulders are not encountered while drilling the surface hole. If boulders are encountered, no centralizers will be run. Minimum clearance between the couplings and the hole is 1.094 ". Safety factors used in the casing design were: Burst = 1.1; Collapse = 1.125; and Tension = 1.80 or 100,000 lb overpull, whichever is greater.

A production string of 4 ½ ", 10.5 ppf, K - 55, ST & C casing will be run from surface to total depth in a 6 ½ " hole. This string will be cemented to the surface with a minimum of 170 sacks of 50 - 50 Pozmix containing 2 % gel, 10 % salt, and ¼ lb/sk celloflake (yield = 1.26 cf/sk) followed by 50 sacks Class B containing fluid loss additive (yield = 1.18 cf/sk). Slurry volume assumes 50 % excess over calculated hole volume. The cement volume is subject to change after review and recalculation of the hole volume from the open hole caliper logs. If the cement does not circulate to the surface a cement bond log will be run to determine the top of the cement. A decision to squeeze cement to surface will be made at that time. 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 below the base and another into the base of the Ojo Alamo. Minimum clearance between the couplings and the hole is 1.25 ". Safety factors used in the casing design were: Burst = 1.1; Collapse = 1.125; and Tension = 1.8 or 100,000 lb overpull, whichever is greater.

A sundry notice with details of the casing run and the cement volumes and densities will be submitted following each job.

The production casing will be pressure tested to a minimum of 2500 psig prior to perforating.

- 4.) Pressure Control Equipment: (See attached schematic diagram) A minimum of 2000 psi working pressure BOP well control system will be utilized. BOP's, rotating head, and choke manifold will be installed and pressure tested to 600 psig for 15 minutes before drilling out the surface casing shoe. The pipe rams will be operated daily and the blind rams on each trip to insure proper mechanical function.

A joint of pipe capable of holding a stripping rubber, with a side outlet for flow diversion, will be installed on the conductor casing prior to drilling the surface hole. The diverter line will be connected to the steel pits to handle any water flow encountered in the Ojo Alamo. No gas is anticipated.

A full opening internal blowout preventer or drill pipe safety valve will be on the drill floor at all times and will be capable of fitting all connections of the drill string in use.

- 5.) 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 control any unforeseen lost circulation problems or abnormal pressure in the Farmington sands within the Kirtland Formation. All drilling fluids will be contained in a lined earthen pit or steel tanks if the wellsite location dictates a closed system is necessary. At completion of the drilling operation, the drilling fluid will be hauled off to be used in another well. The remaining solids accumulation will be allowed to dry and then covered.

| <u>Interval - ft.</u> | <u>Mud Weight - ppq</u> | <u>Viscosity - sec/qt.</u> |
|-----------------------|-------------------------|----------------------------|
| 0 -1000 ' | 8.4 - 8.6 or less | 30 - 38 |
| 1000' - TD | 9.3 or less | 40 - 55 |

- 6.) 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.
- 7.) Logging Program: SP - DIL and GR - FDC - CNL logs will be run from TD to the surface casing shoe depth.
- 8.) Coring Program: No cores are planned.

Testing Program: No tests are planned.

Stimulation Program: Perforate Pictured Cliffs with 4 JSPF and fracture stimulate with approximately 3000 lbs. of frac sand per foot of perforated interval in either a 70 quality nitrogen foam or a cross - linked gel water system.

- 9.) Abnormal Pressures: Although not expected, abnormal pressures are possible in the Farmington sands of the Kirtland Formation.

Water Flows: Water flow may be encountered in the Ojo Alamo.

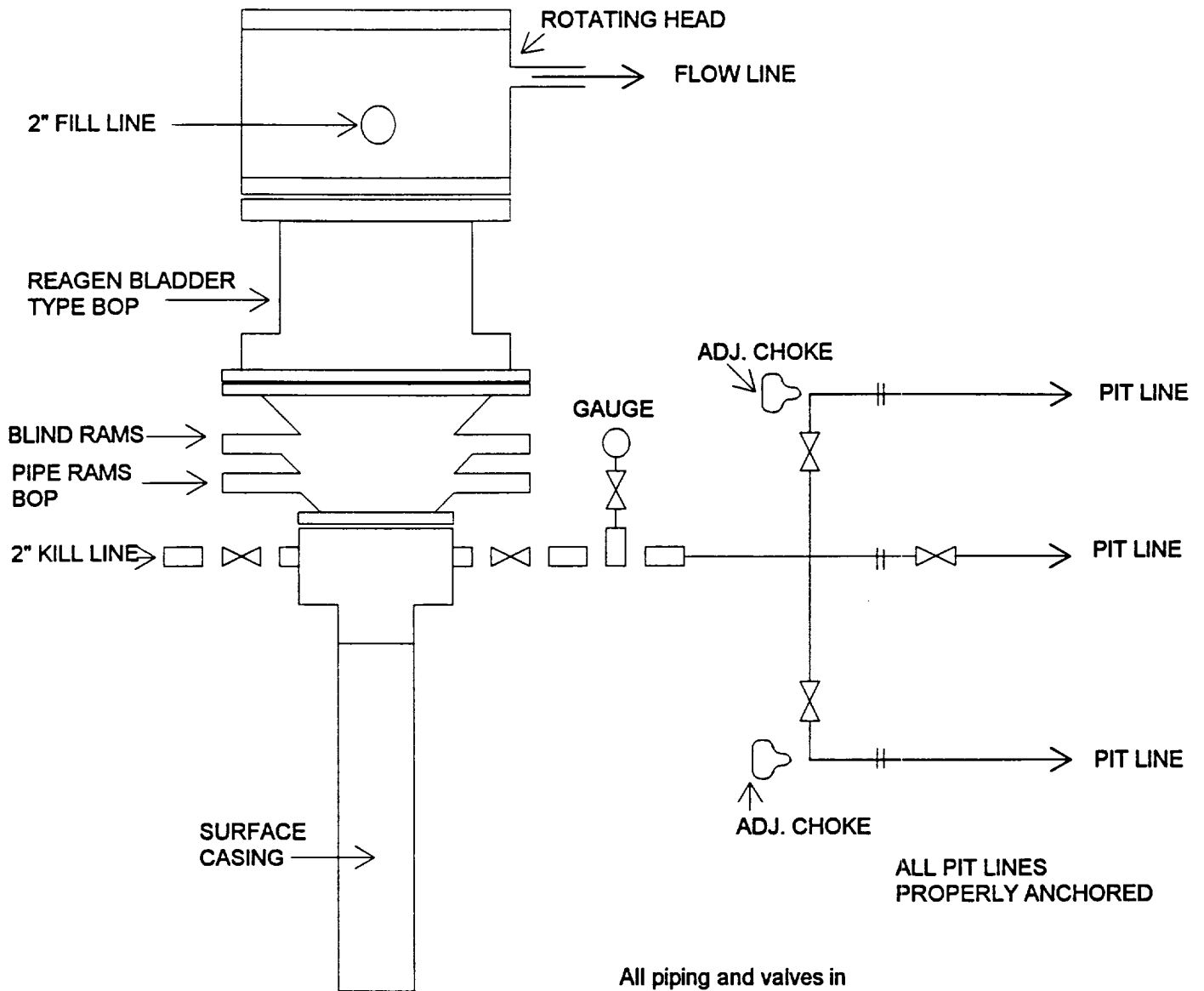
Estimated Bottom Hole Pressure: 400 psig.

GALLEGOS CANYON UNIT NO. 547
TEN POINT PROGRAM
Page Three

- 10.) Anticipated Starting Date: As soon as all necessary approvals are received.

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

2M SYSTEM



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