

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		RECEIVED NOV 22 1995 OIL CON. DIV. DIST. 3	OGRID Number 2217
Property Code 2038	Gallegos Canyon Unit		API Number 30-045-29309
			Well No. 542

7 Surface Location

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
E	27	29N	12W		1640	North	1000	West	San Juan

8 Proposed 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
Proposed Pool 1 160 West Kutz Pictured Cliffs 79680					Proposed Pool 2				

Work Type Code N	Well Type Code G	Cable/Rotary R	Lease Type Code P	Ground Level Elevation 5377
Multiple N	Proposed Depth 1550	Formation Pictured Cliffs	Contractor NA	Spud Date As soon as approved

21 Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
8.750 "	7.000 "	20	130 '	50	surface
6.250 "	4.500 "	10.5	1550 '	220	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. propose to spud in the Nacimiento Formation. Drill an 8 3/4 " hole to 130 feet. Run and cement surface casing with cement returns to surface. WOC 12 hours. Pressure test casing and BOPE to 600 psig for 15 minutes. Drill a 6 1/4" hole to a TD of 1550 feet using fresh water mud. No abnormal pressure 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 hours. Move out drilling rig and move in completion unit. Pressure test casing to 2500 psig prior to perforating. Run cased hole correlation logs. Perforate Pictured Cliffs and stimulate with fresh water base gel or foam system.

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

Signature:

Printed name:

J. C. Harris

Title:

Operations Superintendent

Date:

Phone:

505-327-1639

OIL CONSERVATION DIVISION

Approved by:

Title:

DEPUTY OIL & GAS INSPECTOR, DIST. #3

Approval

NOV 27 1995

Expiration

NOV 27 1996

Conditions of Approval:

Attached ☐

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  
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State of New Mexico  
Energy, Minerals & Natural Resources Department

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

Form C-102  
Revised February 21, 1994

Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number <i>30-045-29309</i>	Pool Code 79680	Pool Name West Kutz Pictured Cliffs
Property Code 2038	Property Name GALLEGOS CANYON UNIT	Well Number 542
OGRID No. 2217	Operator Name BHP PETROLEUM (AMERICAS) INC.	Elevation 5377

<sup>10</sup> Surface Location

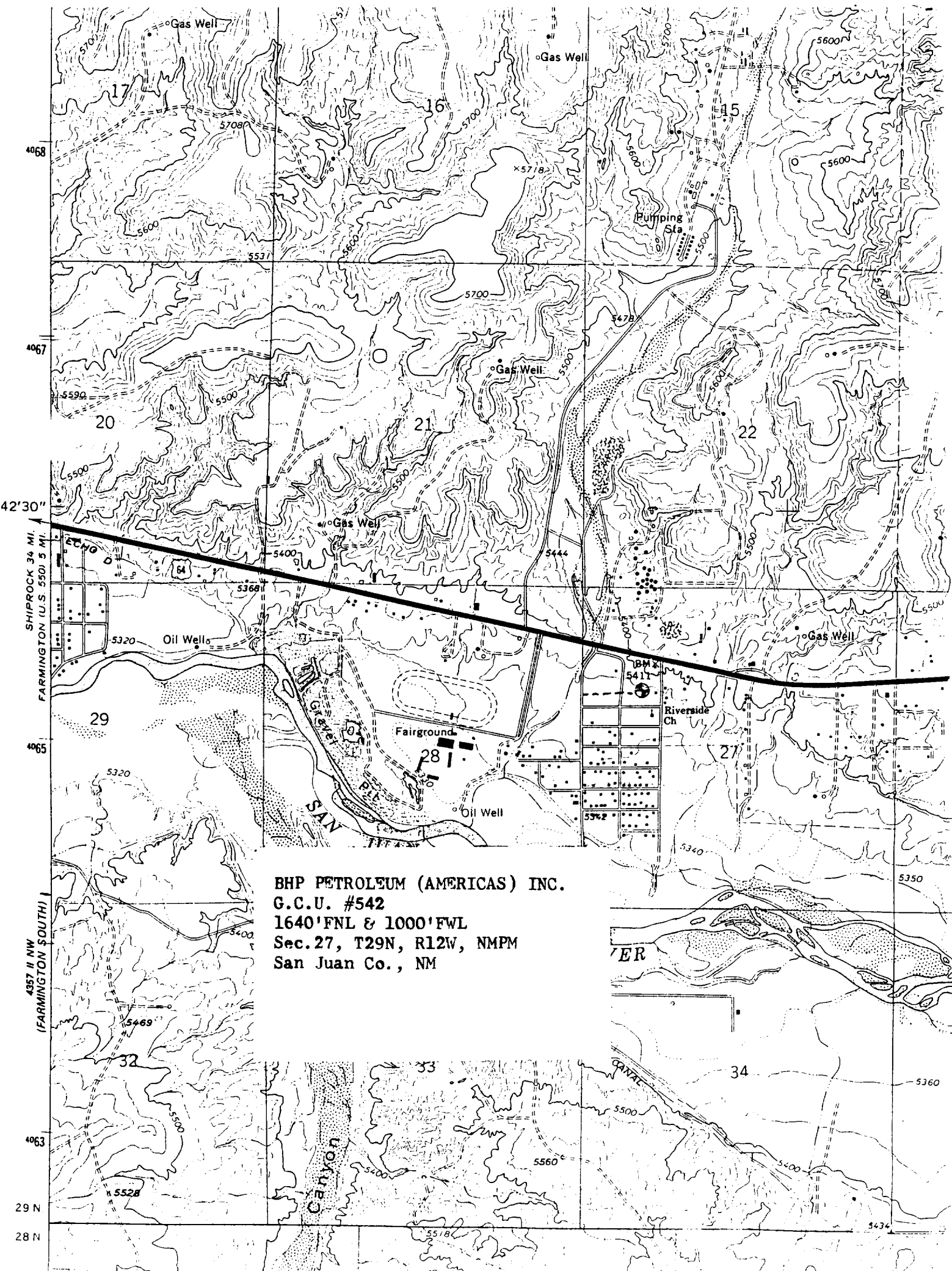
UL or lot no. E	Section 27	Township 29 N	Range 12 W	Lot Idn	Feet from the 1640	North/South line North	Feet from the 1000	East/West line West	County San Juan
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<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<sup>12</sup> Dedicated Acres 160	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code U		<sup>15</sup> Order No.					

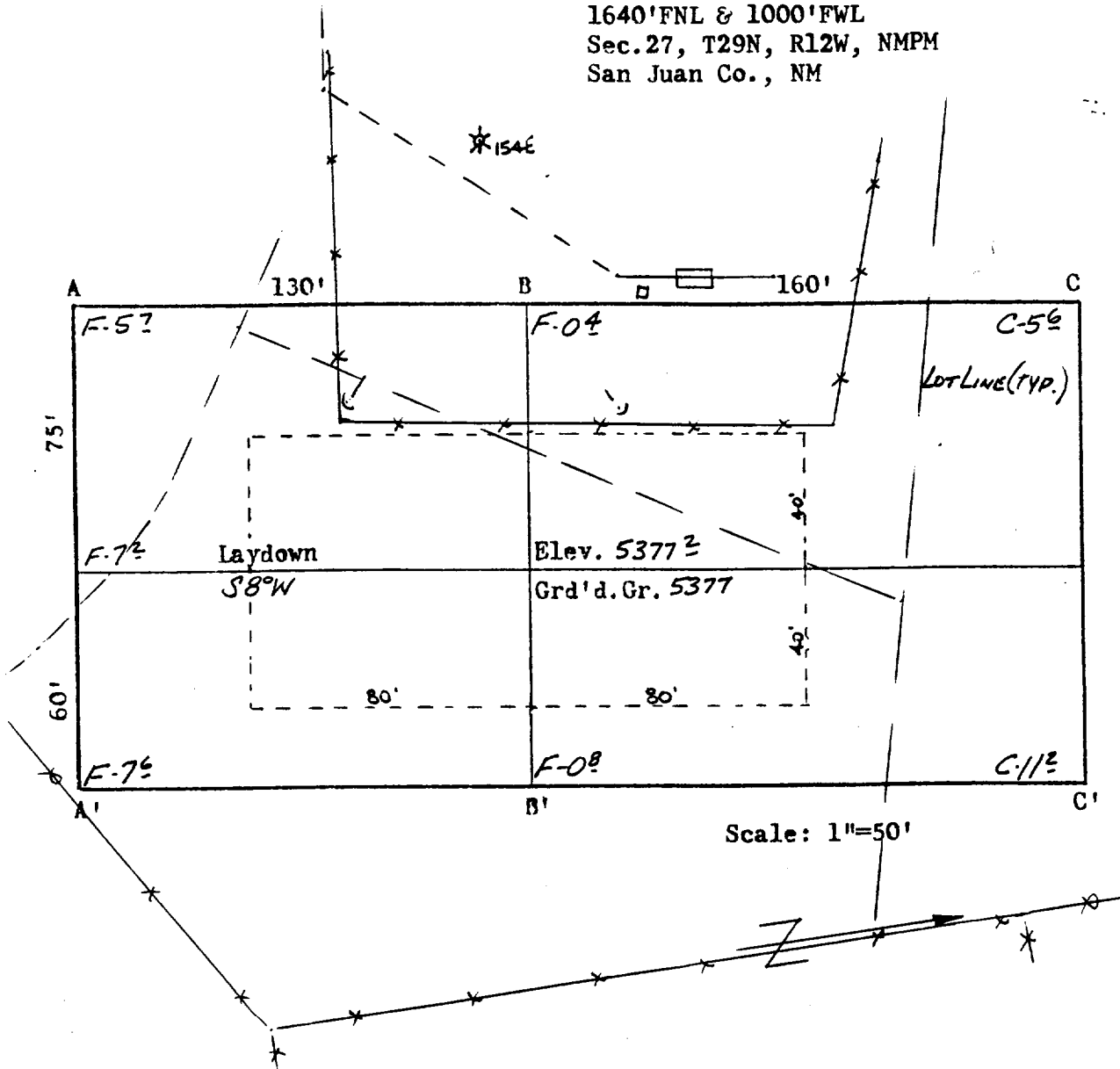
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

				<b>17 OPERATOR CERTIFICATION</b> 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 Date	
<b>27</b> <b>RECEIVED</b> NOV 22 1995 OIL CON. DIV. DIST. 3				<b>18 SURVEYOR CERTIFICATION</b> 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.  16 Oct. 1995 Date of Survey Signature and Seal of Professional Surveyer  William E. Mahanke II Certificate Number 8466	



BHP PETROLEUM (AMERICAS) INC.  
G.C.U. #542  
1640'FNL & 1000'FWL  
Sec.27, T29N, R12W, NMPM  
San Juan Co., NM

ENH PETROLEUM (AMERICAS) INC.  
 G.C.U. #542  
 1640'FNL & 1000'FWL  
 Sec.27, T29N, R12W, NMPM  
 San Juan Co., NM



A-A' Vert.: 1"=30' Horiz.: 1"=100'

A-A'		C/L	
5380			
5370			

B-B'

5380			
5370			

C-C'

5380			
5370			

BHP PETROLEUM (AMERICAS) INC.  
GALLEGOS CANYON UNIT NO. 542  
1640 ' FNL - 1000 ' FEL, 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	90'	
Kirtland	240'	
Fruitland	1110'	
Basal Fruitland Coal	1340'	Gas
Pictured Cliffs	1350'	Gas
TD	1550'	

3.) Casing and Cementing Program: A string of 7 ", 20 ppf, K - 55, ST & C casing will be set at 130 '± in an 8 3/4 " hole and cemented to the surface in a single stage with 50 sacks of Class B cement (yield = 1.18 cf/sk) containing 3 % CaCl<sub>2</sub> 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.

GALLEGOS CANYON UNIT NO. 542  
TEN POINT PROGRAM  
Page Two

- 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 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 - ppg</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.

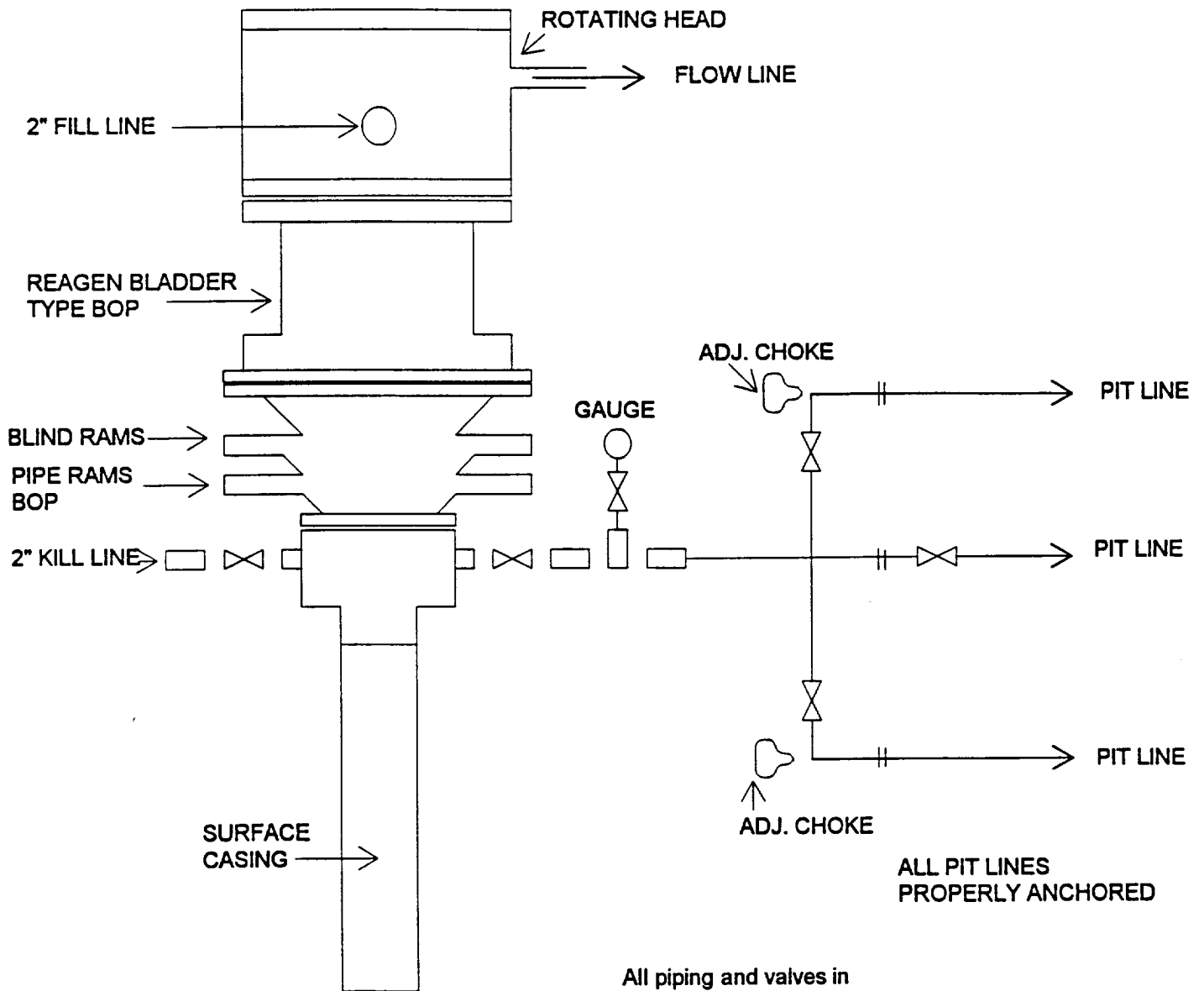
- 9.) Abnormal Pressures: Although not expected, abnormal pressures are possible in the Farmington sands of the Kirtland Formation.

Estimated Bottom Hole Pressure: 400 psig.

- 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