

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

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

OIL CONSERVATION DIVISION

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

API NO. (assigned by OCD on New Wells)

30-045-28596

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.

523

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 E : 1875 Feet From The North Line and 885 Feet From The West Line

Section 35

Township 29N

Range 12W

NMPM

San Juan

County

10. Proposed Depth

1500'

11. Formation

Pictured Cliffs

12. Rotary or C.T.

Rotary

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

5346 GR

14. Kind & Status Plug Bond

Blanket

15. Drilling Contractor

Unknown

16. Approx. Date Work will start

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"	4 1/2"	10.5#	1500'	230	Surface

It is proposed to drill the subject well to 1750' with the primary production anticipated in the Pictured Cliffs formation:

Estimated Formation Tops:

Ojo Alamo 23'  
Kirtland Sh 189'  
Fruitland Fm 1034'  
Upper Fruitland Coal 1169'  
Basal Fruitland Coal 1328'  
Pictured Cliffs 1330'  
TD 1500'

APPROVAL EXPIRES 3-23-92  
UNLESS DRILLING IS COMMENCED  
SPUD NOTICE MUST BE SUBMITTED  
WITHIN 10 DAYS.

RECEIVED  
SEP 19 1991.  
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 9/17/91

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

CONDITIONS OF APPROVAL, IF ANY:

SEP 23 1991

Submit to Appropriate  
District Office  
State Lease - 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

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

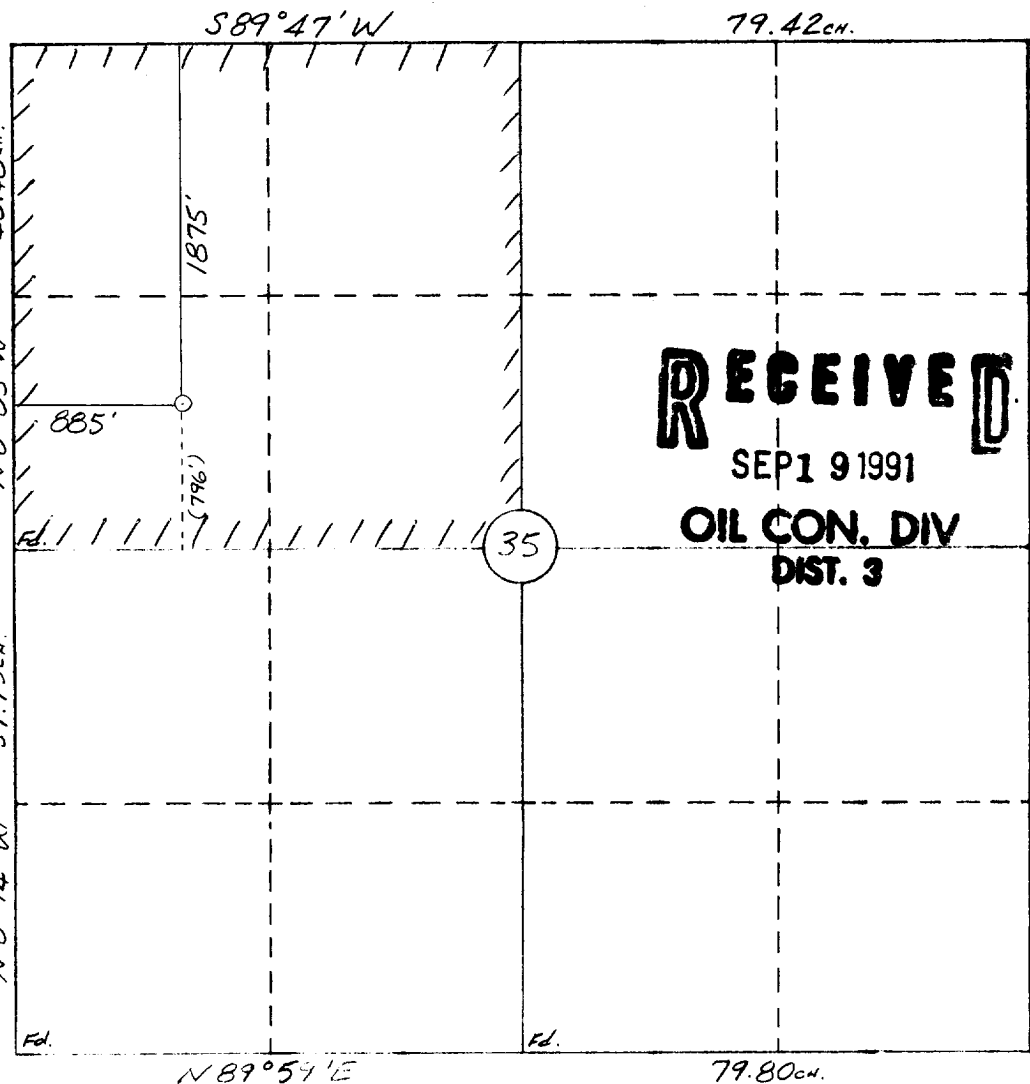
DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

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>523</b>
Unit Letter <b>E</b>	Section <b>35</b>	Township <b>29 N</b>	Range <b>12 W</b>	County <b>San Juan</b>	
Actual Footage Location of Well: <b>1875</b> feet from the <b>North</b> line and <b>885</b> feet from the <b>West</b> line					
Ground level Elev. <b>5346</b>	Producing Formation <b>Pictured Cliffs</b>		Pool <b>W. Kutz Pictured Cliffs</b>	Dedicated Acreage: <b>160</b> Acres	
<p>1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.</p> <p>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).</p> <p>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.? <input type="checkbox"/> Yes <input type="checkbox"/> No If answer is "yes" type of consolidation _____</p> <p>If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____</p> <p>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.</p>					

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600



OPERATOR CERTIFICATION

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

Signature Carl Kolbe  
Printed Name Carl Kolbe  
Position Regulatory Affairs Coordinator  
Company BHP Petroleum (Americas), Inc  
Date 09/17/91

SURVEYOR CERTIFICATION

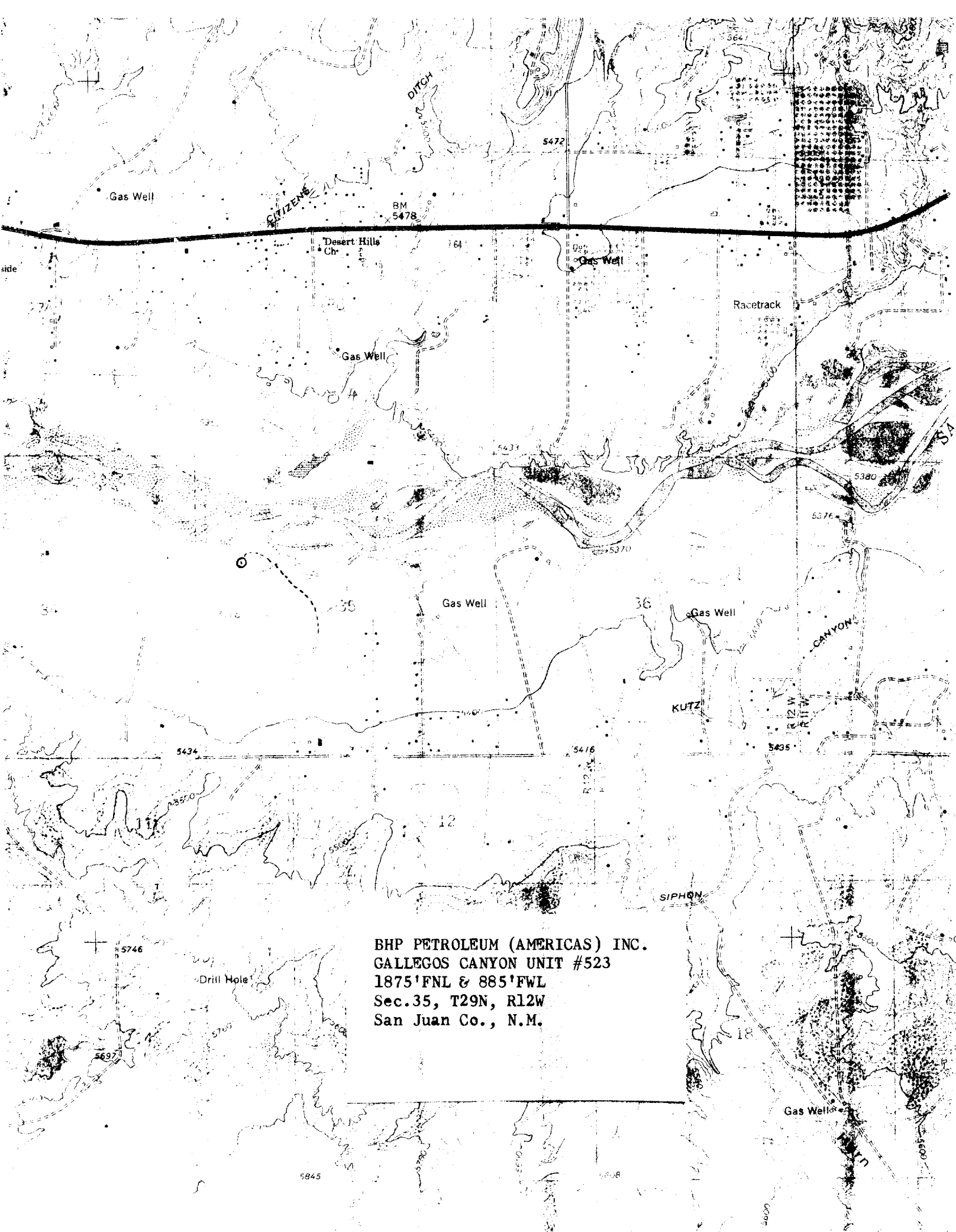
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

8-27-91

Date Surveyed William E. Mahnke II

Signature of Professional Surveyor William E. Mahnke II

Professional Land Surveyor  
#8466  
Certificate No. 8466



BHP PETROLEUM (AMERICAS) INC.  
GALLEGOS CANYON UNIT #523  
1875'FNL & 885'FWL  
Sec.35, T29N, R12W  
San Juan Co., N.M.

BHP PETROLEUM (AMERICAS) INC.  
GALLEGOS CANYON UNIT NO. 523  
NW 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	23'	
Kirtland Sh	189'	
Fruitland Fm	1034'	
Upper Fruitland Coal	1169'	Gas
Basal Fruitland Coal	1328'	Gas
Pictured Cliffs	1330'	Gas
Total Depth	1500'	

4. **Casing and Cementing Program:** A string of 7" 20# K-55 ST&C casing will be set at  $\pm 140'$  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%  $\text{CaCl}_2$  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 are 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

**GALLEGOS CANYON UNIT #523**  
**TEN POINT PROGRAM, continued**

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 summary is as follows:

<u>Interval(ft)</u>	<u>Mud Weight(ppg)</u>	<u>Viscosity(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 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.

**GALLEGOS CANYON UNIT #523**  
**TEN POINT PROGRAM, continued**

**Coring Program:** No cores are planned.

**Testing Program:** No tests are planned.

**Stimulation Program:** Perforate the Pictured Cliffs Sand with 4 JSPF and fracture stimulate with a minimum of 30,000 lbs 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.

# ZM SYSTEM

