

EXHIBIT "A"  
HAWK B-1 #27

**DRILLING PROGRAM**

I. The geological surface formation is recent Permian with quaternary alluvium and other surficial deposits.

II. Estimated Tops of Geological Markers:

| <u>FORMATION</u>     | <u>DEPTH</u> |
|----------------------|--------------|
| Quaternary alluvials | Surface      |
| Rustler              | 1280'        |
| Yates                | 2600'        |
| Grayburg             | 3800'        |
| San Andres           | 4000'        |
| TD                   | 4400'        |

III. Estimated depths at which water, oil, gas, or other mineral-bearing formations are expected to be encountered:

| <u>SUBSTANCE</u> | <u>DEPTH</u>                             |
|------------------|------------------------------------------|
| Oil              | Grayburg at 3800'<br>San Andres at 4000' |
| Gas              | None anticipated                         |
| Fresh Water      | None anticipated                         |

All fresh water and prospectively valuable minerals (as described by BLM) encountered during drilling will be recorded by depth and adequately protected. All oil and gas shows within zones of correlative rights will be tested to determine commercial potential.

IV. A. Proposed Casing Program:

| <u>HOLE</u> | <u>CASING</u> |           | <u>GRADE</u> | <u>WEIGHT</u><br><u>PER FOOT</u> | <u>DEPTH</u> | <u>SACKS</u><br><u>CEMENT</u> | <u>ESTIMATED TOC -</u>                                                                                                                            |
|-------------|---------------|-----------|--------------|----------------------------------|--------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>SIZE</u> | <u>OD</u>     | <u>ID</u> |              |                                  |              |                               | <u>REMARKS</u>                                                                                                                                    |
| 12 1/4"     | 8 5/8"        | 8.097     | J55 STC      | 24#                              | 400'         | 350                           | TOC - Surface<br>Float Collar set @ 358'/<br>9.00 PPG<br>Water-based<br>Mud;<br>83 Deg. F Est. Static<br>Temp;<br>80 Deg. F Est. Circ.<br>Temp.   |
| 7 7/8"      | 5 1/2"        | 4.892     | J55 STC      | 17#                              | 4400'        | 760                           | TOC - Surface<br>Float Collar set @ 4320'/<br>9.00 PPG<br>Water-based<br>Mud;<br>108 Deg. F Est. Static<br>Temp;<br>99 Deg. F Est. Circ.<br>Temp. |

B. Proposed Cement Program:

| <u>CASING</u> | <u>SLURRY</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>DISPLACEMENT</u>                 |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 8 5/8"        | 350 sacks Class C Cement + 2% bwoc<br>Calcium Chloride + 56.4% Fresh Water<br>269 Vol. Cu Ft<br>1.35 Vol. Factor<br>Slurry Weight (ppg) 14.8<br>Slurry Yield (cf/sack) 1.35<br>Amount of Mix Water (gps) 6.36;<br>Amount of Mix Fluid (gps) 6.36;<br>Estimated Pumping Time – 70 BC<br>(HH:MM)-2:20;<br>Free Water (mls) @ 80 Deg. F @ 90 Deg.<br>Angle: 0.00<br>Fluid Loss (cc/30 min) at 1000 psi and 80<br>deg. F: 850.0<br>Compressive Strength:<br>12 hrs @ 80 Deg. F (psi) 1600<br>24 hrs @ 80 Deg. F (psi) 2350<br>72 hrs @ 80 Deg. F (psi) 3000 | 22.9 bbls Fresh Water @<br>8.33 ppg |

| <u>8 5/8" Casing: Volume Calculations:</u> |   |              |                  |   |                       |
|--------------------------------------------|---|--------------|------------------|---|-----------------------|
| 400 ft                                     | x | 0.4127 cf/ft | with 178% excess | = | 459.0 cf              |
| 40 ft                                      | x | 0.3576 cf/ft | with 0% excess   | = | 14.3 cf (inside pipe) |
| TOTAL SLURRY VOLUME                        |   |              |                  | = | 473.3 cf              |
|                                            |   |              |                  | = | 84.3 bbls             |

**B. Proposed Cement Program (Continued):**

| <u>CASING</u> | <u>LEAD SLURRY</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>TAIL SLURRY</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <u>DISPLACEMENT</u>               |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 5 1/2"        | 565 sacks (35:65) Poz (Fly Ash): Class C Cement + 5 lbs/sack Sodium Chloride + 0.003 gps FP-6L + 6% bwoc Bentonite + 99% Fresh Water;<br>1091 Vol. Cu Ft<br>1.93 Vol. Factor<br>Slurry Weight (ppg) 12.7<br>Slurry Yield (cf/sack) 1.93<br>Amount of Mix Water (gps) 10.33;<br>Amount of Mix Fluid (gps) 10.33;<br>Estimated Pumping Time – 70 BC (HH:MM)-3:00;<br>Free Water (mls) @ 98 Deg. F @ 90 Deg. Angle: 1.8;<br>Fluid Loss (cc/30 min) at 1000 psi and 98 Deg. F: 950.0<br>Compressive Strength:<br>12 hrs @ 106 Deg. F (psi) 280<br>24 hrs @ 106 Deg. F (psi) 375<br>72 hrs @ 106 Deg. F (psi) 900 | 250 sacks Class C Cement + 3% bwow Potassium Chloride +0.2% bwoc CD-32 + 0.6% bwoc FL-62 + 0.2% bwoc Sodium Metasilicate + 56.6% Fresh Water<br>338 Vol. Cu Ft<br>1.35 Vol. Factor<br>Slurry Weight (ppg) 14.8<br>Slurry Yield (cf/sack) 1.35<br>Amount of Mix Water (gps) 6.38;<br>Amount of Mix Fluid(gps) 6.38;<br>Estimated Pumping Time – 70 BC (HH:MM)-2:30;<br>Free Water (mls) @ 98 Deg. F @ 90 Deg. Angle: 0.0;<br>Fluid Loss (cc/30 min) at 1000 psi and 98 Deg. F: 300.0<br>Compressive Strength:<br>12 hrs @ 106 Deg. F (psi) 1200<br>24 hrs @ 106 Deg. F (psi) 1800<br>72 hrs @ 106 Deg. F (psi) 2300 | 100.2 bbls Fresh Water @ 8.33 ppg |

5 1/2" Casing: Volume Calculations:

|                     |   |              |      |             |   |                       |
|---------------------|---|--------------|------|-------------|---|-----------------------|
| 400 ft              | x | 0.1926 cf/ft | with | 0% excess   | = | 77.0 cf               |
| 3150 ft             | x | 0.1733 cf/ft | with | 86% excess  | = | 1015.4 cf             |
| 700 ft              | x | 0.1733 cf/ft | with | 174% excess | = | 332.5 cf              |
| 80 ft               | x | 0.1336 cf/ft | with | 0% excess   | = | 10.7 cf (inside pipe) |
| TOTAL SLURRY VOLUME |   |              |      |             | = | 1435.6 cf             |
|                     |   |              |      |             | = | 255 bbls              |

All slurries will be tested prior to loading to confirm thickening times and a lab report furnished to Apache. Fluid loss will be tested and reported on slurries with fluid loss additives. Lab test report will be furnished prior to pumping cement.

V. A. Proposed Mud Program

| <u>DEPTH</u>  | <u>MUD PROPERTIES</u>                                                                                                                                                                                      | <u>REMARKS</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 – 400'      | Weight: 8.6 – 9.2 ppg<br>Viscosity: 32 – 40 sec/qt<br>Plastic Viscosity: 2-10 cps<br>Yield Point: 6-15 lbs/100'<br>pH: 9-10<br>Filtrate: NC<br>Solids: <4 % volume<br>Chloride: <4,000 mg/L                | Spud with Fresh Water AQUAGEL EZ-Mud, LCM, Lime. Add AQUAGEL and LIME to Fresh Water to build desired viscosity for hole cleaning, restricting system to steel pits. Additions of Fresh Water at the flowline will aid in controlling viscosity. HY-SEAL "sweeps" as needed for extra hole cleaning, seepage and severe losses. Should total circulation loss be encountered, add up to 20 ppb. LCM (BARO-SEAL = Maxiseal); (HY-SEAL = Drilling Paper); (PLUG-GIT = Cedar Fiber) and spot in loss zone. If returns cannot be established, then "dry-drill" to set surface casing. |
| 400' – 3800'  | Weight: 9.2 ppg<br>Viscosity: 30 – 32 sec/qt<br>Plastic Viscosity: 0-1 cps<br>Yield Point: 0-1 lbs/100'<br>pH: 9-10<br>Filtrate: NC<br>Solids: <1 % volume<br>Chloride: < 30K mg/L                         | Drill out from under the intermediate casing with Fresh Water. HY-SEAL should be added at 2 bags after every 100' drilled, if you have and drag or torque on connections. Begin adding 10 # Brine 300' before drilling salt formation for 9.7 + weight. LIME applications should be continued during this interval for a pH of 9.0-10.0, in addition, to flocculate solids and to minimize corrosion. Additions of CAUSTIC SODA may be needed to maintain pH at 9-10.                                                                                                             |
| 3800' – 4400' | Weight: 9.1 – 10.3 ppg<br>Viscosity: 30 – 32 sec/qt<br>Plastic Viscosity: 3-10 cps<br>Yield Point: 4-6 lbs/100'<br>pH: 9-10<br>Filtrate: 10-15 cm/30 min<br>Solids: <2-4 % volume<br>Chloride: < 170K mg/L | From 3800' to Total Depth, it is recommended the system be restricted to the steel pits, and, with Brine, mud up as follows: while circulating through the steel pits, add 3-4 #/bbl IMPERMX (starch) to lower fluid loss below 15 cc. If lost circulation is encountered, mix a viscous pit of mud and add 15 ppb LCM (Add 5#/bbl of the following: BARASEAL, HYSEAL & PLUG-GIT) and continue to drill. Sweep the hole with a viscous pill prior to coming out of the hole to log                                                                                                |

VI. Proposed Control Equipment:

Will install on the 8 5/8" surface casing a 9" x 3000 psi WP Double Ram BOP and will test before drilling out of surface casing. As expected pressures will not exceed 2000 psi, we request a waiver of the remote control requirement on the accumulator. See Exhibit "H" for BOP layout.

VII. Auxiliary Equipment:

9" x 3000 psi double BOP/blind & pipe ram  
4 1/2" x 3000 psi Kelly valve  
9" x 3000 psi mud cross – H<sub>2</sub>S detector on production hole  
Gate-type safety valve 3" choke line from BOP to manifold  
2" adjustable chokes – 3" blowdown line

VIII A. Testing Program: None planned

B. Logging Program: The following logs may be run:

CNL, LDT, GR, CAL, DLL, MSFL, NGT from TD-2400'

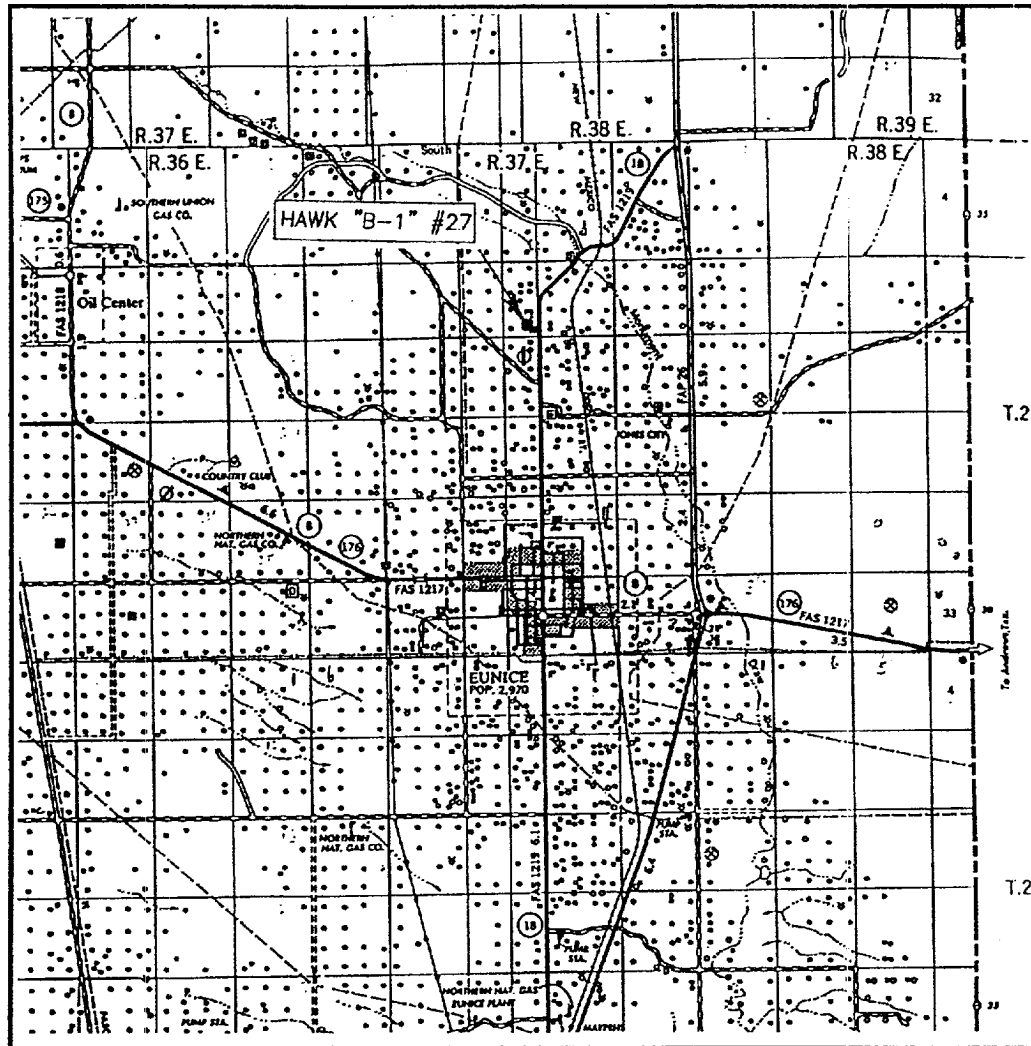
CNL, GR from TD-Surface

C. Coring Program: None planned

IX. No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, however, the proposed mud program will be modified to increase the mud-weight. The estimated maximum bottom hole pressure is 1980 psi.

EXHIBIT "E-1"

## VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 9 TWP. 21-S RGE. 37-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 800' FSL & 900' FEL

ELEVATION 3474'

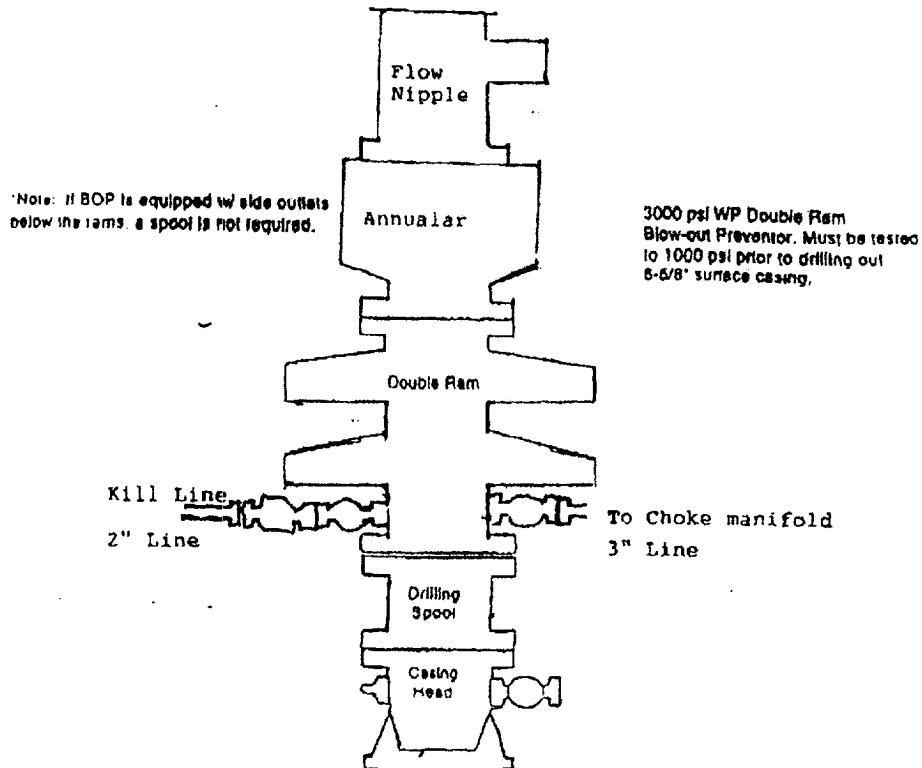
OPERATOR APACHE CORPORATION

LEASE HAWK "B-1"

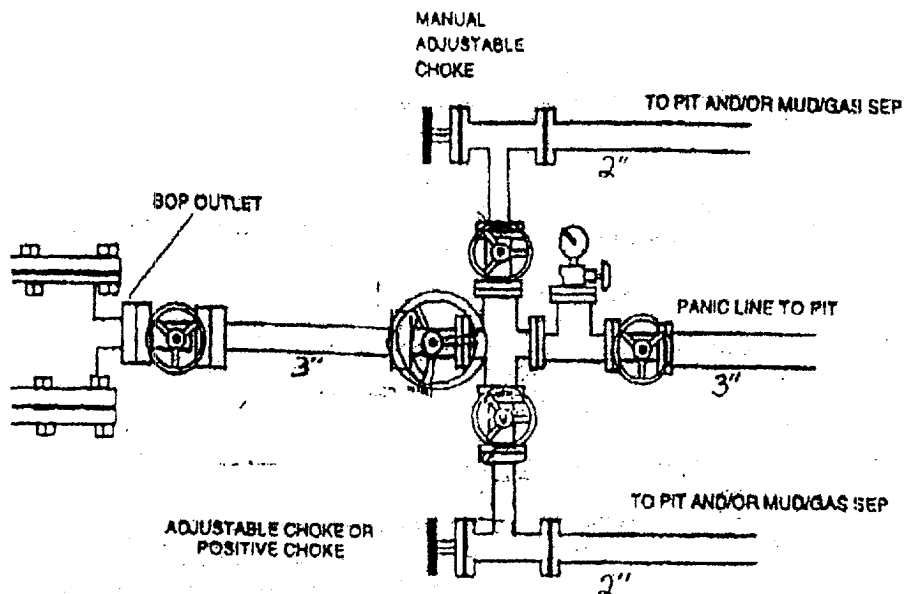
JOHN WEST SURVEYING  
HOBBS, NEW MEXICO  
(505) 393-3117

**BOP SCHEMATIC**  
**9" X 3000 psi**

EXHIBIT "H"



### Choice Manifold Schematic



ABOVE DATE DOES NOT  
INDICATE WHEN  
CONFIDENTIAL LOGS  
WILL BE RELEASED

ELF

4/14/02