NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
*Supersedes C-128*
Effective 1-1-65

All distances must be from the outer boundaries of the Section

| Operator | Lease | Well No. |
|---|---|---|
| Petroleum Development Corp. | Sundance Fed. | 1 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| I | 28 | 12 South | 30 East | Chaves |

Actual Footage Location of Well:
1980 feet from the South line and 660 feet from the East line

| Ground Level Elev. | Producing Formation | Pool | Dedicated Acreage: |
|---|---|---|---|
| 3922.0 | Mississippian | Undesignated | 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 interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

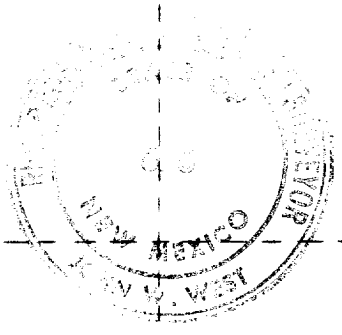
If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

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 interests, has been approved by the Commission.

RECEIVED
JAN 18 1978
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

Note: After pad is made there will be a considerable change in the elevation.

NM 15443-B



660'

1980'

0 330 660 990 1320 1650 1980 2310 2640 2000 1500 1000 500 0

CERTIFICATION

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

Name: Charles W. Sanders

Position: Vice President

Company: Petroleum Development Corp.

Date: January 14, 1978

*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.*

Date Surveyed: 1/13/78

Registered Professional Engineer and/or Land Surveyor

Certificate No. John W. West 676
Ronald J. Eidson 3239

# PETROLEUM DEVELOPMENT CORPORATION

9720-B CANDELARIA, NE
ALBUQUERQUE, NEW MEXICO 87112
TELEPHONE (505) 293-4044


## MULTI-POINT DRILLING PLAN

Petroleum Development Corporation
Sundance Federal #1
660' FEL & 1980' FSL, Sec. 28, T12S, R30E
Chaves County, New Mexico
Lease: NM 15443-B
(680' acres)

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This supplemental plan is submitted with an Application to Drill the above-described well in compliance with NTL-6 of the United States Department of the Interior.

1. The surface is composed of a fine-grained sand, quaternary in age.

2. Estimated top of primary geologic markers are:

| | | |
|---|---|---|
| Rustler | 650' | (+3290) |
| Salt | 745' | (+3195) |
| Queen | 2090' | (+1850) |
| San Andres | 2680' | (+1260) |
| Wolfcamp | 7450' | (-3510) |
| Pennsylvanian | 8250' | (-4310) |
| Mississippian | 9700' | (-5760) |

Estimated KB Elevation: 3940'

3. The estimated depths at which anticipated water, oil or gas bearing formations are to be encountered, are:

| | | |
|---|---|---|
| 0-300 | Poss. fresh water | Surface sands |
| 8300-9600 | Poss. gas | Pennsylvanian sands |
| 9725 | gas | Mississippian lime |

4. Proposed casing program: See Form 9-331C.

5. Pressure control equipment: See schematic, Exhibit "D". Before drilling the Wolfcamp formation, the BOP and related control equipment shall be pressure-tested to rated working pressures by an independent service company. The district office shall be notified in time to witness the tests. Pipe rams and the annular-type preventer shall be actuated at least once each 24 hours and the blind rams each time the drill pipe is out of the hole. Accumulators shall maintain a pressure capacity reserve at all times to provide for repeated operation of hydraulic preventers. Blowout prevention drills shall be conducted as necessary to insure that each drilling crew is properly trained to carry out emergency duties.

6. Mud program: See Exhibit "E .

7. Auxiliary equipment to be used:

   (1) Kelly cock.

   (2) Bit float

   (3) Pit volume totalizer system before reaching Wolfcamp.

   (4) Flow line flow sensor before reaching Wolfcamp.

   (5) Mud gas separator before reaching Wolfcamp.

   (6) Rotating head before reaching Wolfcamp.

   (7) Full-opening drill string safety valve on floor at all times before reaching Wolfcamp (valve in "open" position).

8. Testing, coring and logging program:

   (1) All significant shows of oil or gas will be drill-stem tested. Testing procedure will involve use of dual packers, jars and safety joint. Duration of test, shut-in times, etc. will be determined by company engineer in charge.

   (2) No coring is anticipated.

   (3) The following logs will be run:

      a. CNL - density log with gamma ray.
      b. Dual laterolog with microlaterolog.

9. No abnormal pressures are expected. No abnormal temperatures or free hydrogen sulfide gases are known to exist in the area.

10. Anticipated spud date is February 10, 1978. Drilling operations will require approximately 45 days; completion operations will require additional two weeks.

# PETROLEUM DEVELOPMENT CORPORATION

9720-B CANDELARIA, NE
ALBUQUERQUE, NEW MEXICO 87112
TELEPHONE (505) 293-4044



MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Petroleum Development Corporation
Sundance Federal #1

660' FEL & 1980' FSL, Sec. 28, T12S, R30E
Chaves County, New Mexico
Lease: NM 15443-B
(680 acres)

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This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS:

   A. Exhibit "A" is a portion of the Vest Camp Quadrangle showing the location of the proposed well, as staked. NM 172 runs north-south, 7.8 miles east of the location of this well. The paved road connects with Maljamar to the south and Caprock to the north. An existing lease road serving the recently-completed Hudson-Federal #1, is 2188' to the southeast, passes 1320' south of the proposed location.

   B. Exhibit "B" is a plat showing all existing roads and wells within a one-mile radius of the wellsite and the planned access.

   C. The existing lease road is currently in use and serviceable. Periodic grading will maintain the caliche topping. See Exhibits "A" and "B".

2. PLANNED ACCESS ROADS:

   A. Length and width: The access road, from the existing lease road, will be 12' wide and 1320' long. See Exhibit "C".

   B. Surfacing material: eight inches of caliche; watered, compacted and graded.

   C. Maximum grade: two percent

   D. Turnouts: two equally-spaced passing turnouts will be used.

   E. Drainage design: new road will have a drop of six inches from center line on each side.

   F. Culverts: none necessary.

   G. Cuts and fills: none required; only general leveling of sand rolls.

   H. Gates, cattleguards: None required.

3. LOCATION OF EXISTING WELLS:

   A. Location of existing wells within a one-mile radius are shown on Exhibit "B".

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

   A. An existing tank battery is located at the Hudson Federal #1 well located approximately one-half mile to the southeast. The battery consists of two storage tanks, a low pressure separator and high pressure separator. The battery with flow lines is completely contained on the original drilling pad. The flow lines are not buried. These facilities are circled in red on Exhibit "B".

   B. If the well is productive, the tank battery and flow lines will be located on the well pad and no additional surface disturbance will occur. The battery will be similar to those described in "A" above.

5. LOCATION AND TYPE OF WATER SUPPLY:

   A. Water will be purchased and trucked to the wellsite over the existing and proposed roads shown on Exhibits "A" and "B".

6. SOURCE OF CONSTRUCTION MATERIALS:

   A. Caliche for surfacing the road and well pad will be obtained from existing pits on BLM land in Section 28.

7. METHODS OF HANDLING WASTE DISPOSAL:

   A. Drill cuttings will be disposed of in the drilling pits.

   B. Drilling fluids will be allowed to evaporate in the drilling pits until pits are dry.

   C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

   D. Current laws and regulations pertaining to the disposal of human waste will be complied with.

   E. Trash, waste paper, garbage, and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pit is shown on Exhibit "D".

   F. All trash and debris will be buried or removed from the wellsite within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES:

   A. None required.

9. WELLSITE LAYOUT:

   A. Exhibit "D" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit, and location of major rig components.

   B. Only minor leveling of the wellsite will be required. No significant cuts and fills will be necessary.

   C. The reserve pit will be plastic-lined.

   D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE:

   A. After completion of drilling and/or completion operations, all equipment and other material not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk to leave the wellsite in an aesthetically pleasing condition as possible.

   B. Any unguarded pits containing fluids will be fenced until they are filled.

   C. After abandonment of the well, any special rehabilitation and/or revegetation requirements of the surface management agency will be complied with and accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.

11. OTHER INFORMATION:

   A. Topography: Land surface is undulating to gently rolling and duny. From an elevation of 3922' at the wellsite, the land surface slopes gently toward the west at about 40 feet per mile.

   B. Soil: Soil is a deep fine sand and underlain by caliche.

   C. Flora and Fauna: The vegetative cover is generally sparse and consists of mesquite, yucca, shinnery oak, sandsage and perennial native range grasses. Wildlife in the area is that typical of semi-arid desert land and includes coyotes, rabbits, rodents, reptiles, dove, quail and an occasional antelope.

   D. Ponds and Streams: There are no rivers, streams, lakes or ponds in the area.

11. OTHER INFORMATION (continued):

E. Residences and Other Structures: There are no nearby structures of any kind, except the production facilities mentioned in 4. A.

F. Archeological, Historical and Cultural Sites: None observed in the area.

G. Land Use: Grazing and hunting in season.

H. Surface Ownership: Wellsite and all roads are on Federal Surface with exception of entrance from NM 172 which is on Fee Land (Larry Williams Ranch).

12. OPERATOR'S REPRESENTATIVES:

The field representatives responsible for assuring compliance with the approved surface use and operations plan are as follows:

Charles W. Sanders
3204 Candlelight Drive, NE
Albuquerque, New Mexico 87111
Office Phone: (505) 293-4044
Residence: (505) 294-7538

J. C. Johnson
3705 General Chennault, NE
Albuquerque, New Mexico 87111
Office Phone: (505) 293-4044
Residence: (505) 299-6029

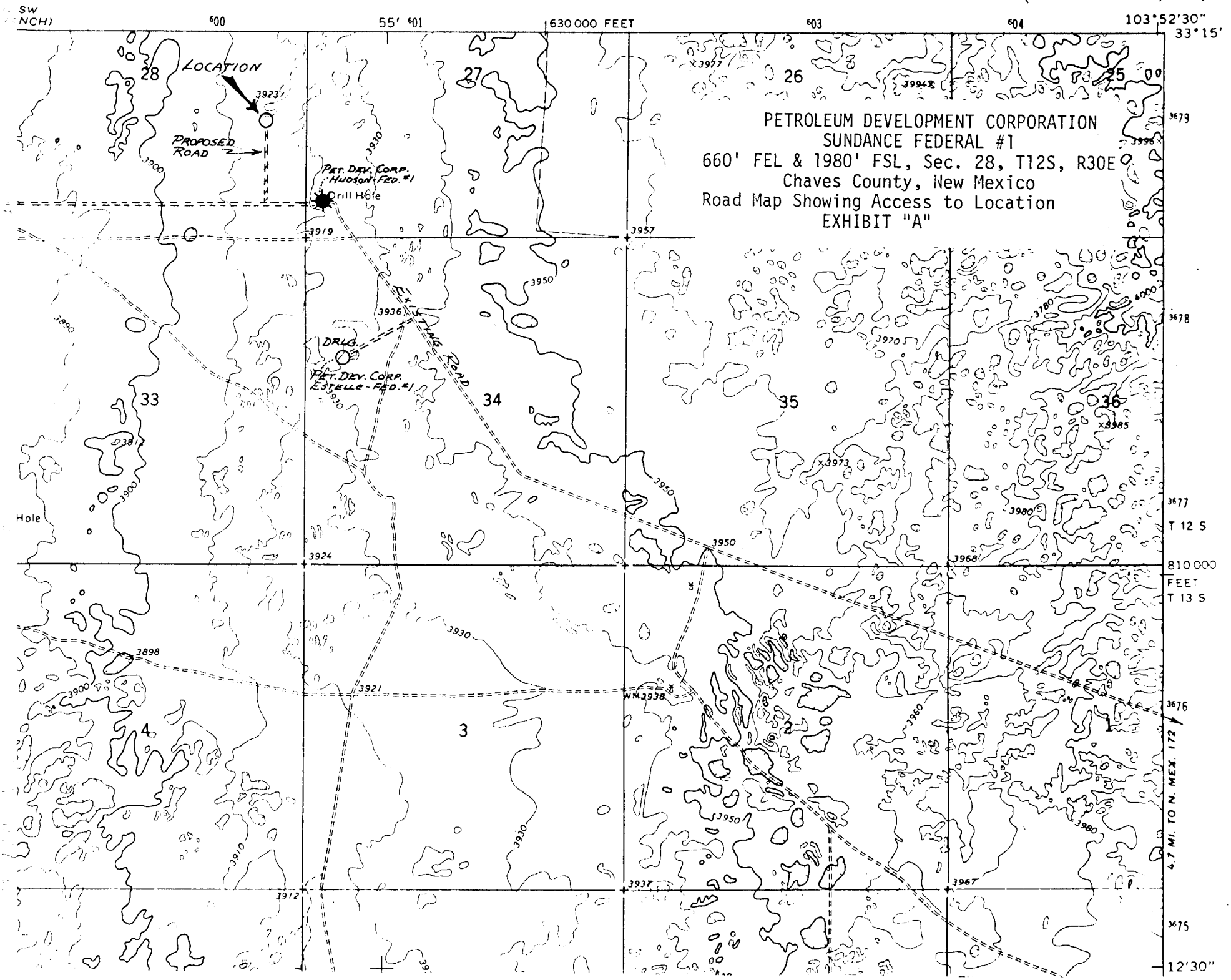
13. CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed in conformity with this plan and the terms and conditions under which it is approved.

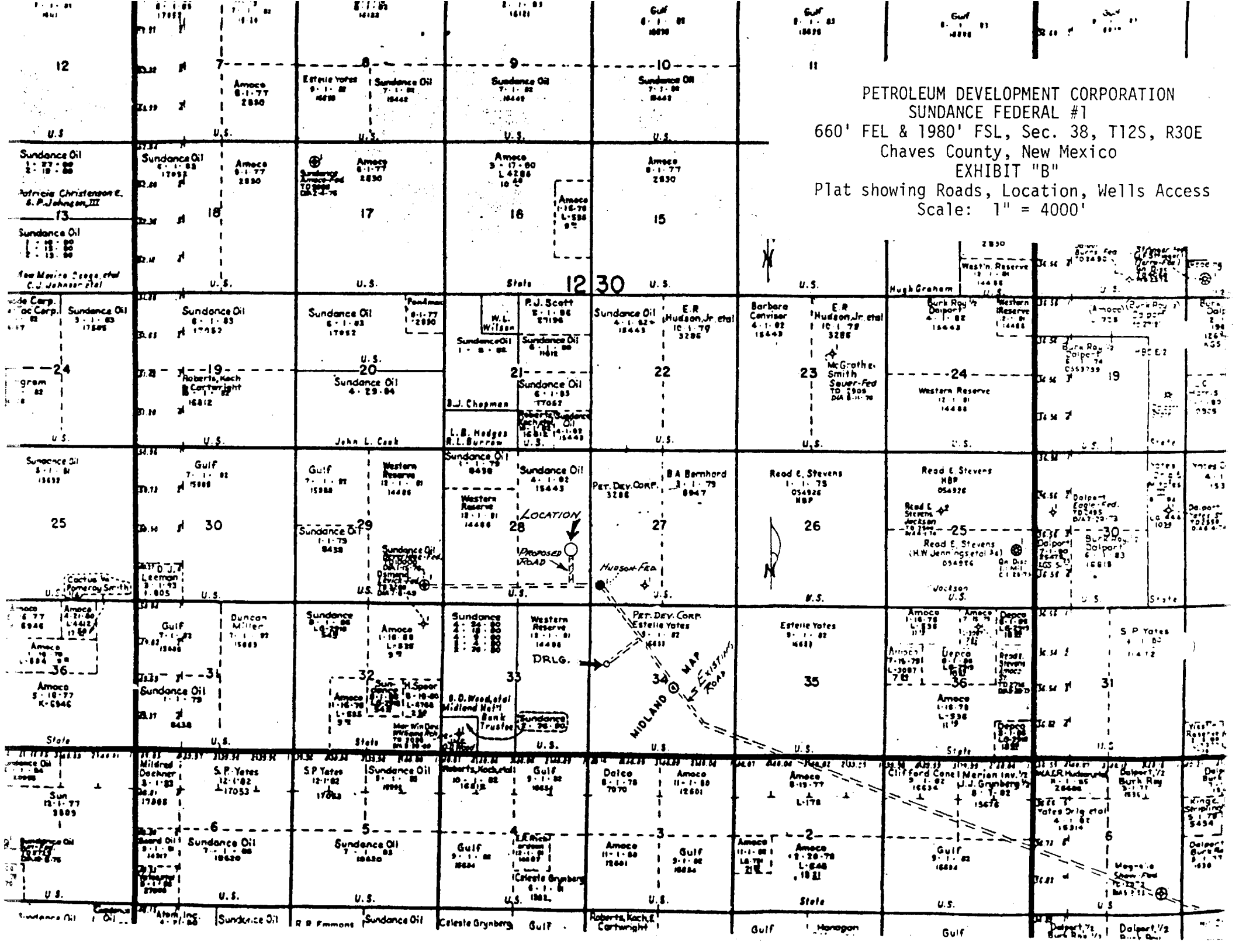
Charles W. Sanders
Vice President

CWS/pb

NEW MEXICO—CHAVES CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



PETROLEUM DEVELOPMENT CORPORATION
SUNDANCE FEDERAL #1
660' FEL & 1980' FSL, Sec. 38, T12S, R30E
Chaves County, New Mexico
EXHIBIT "B"
Plat showing Roads, Location, Wells Access
Scale: 1" = 4000'



PETROLEUM DEVELOPMENT CORPORATION
SUNDANCE FEDERAL #1
660' FEL & 1980' FSL, Sec. 28, T12S, R3[illegible]
Chaves County, New Mexico

EXHIBIT "C"

Proposed Location of Drilling Fac
& Access Road

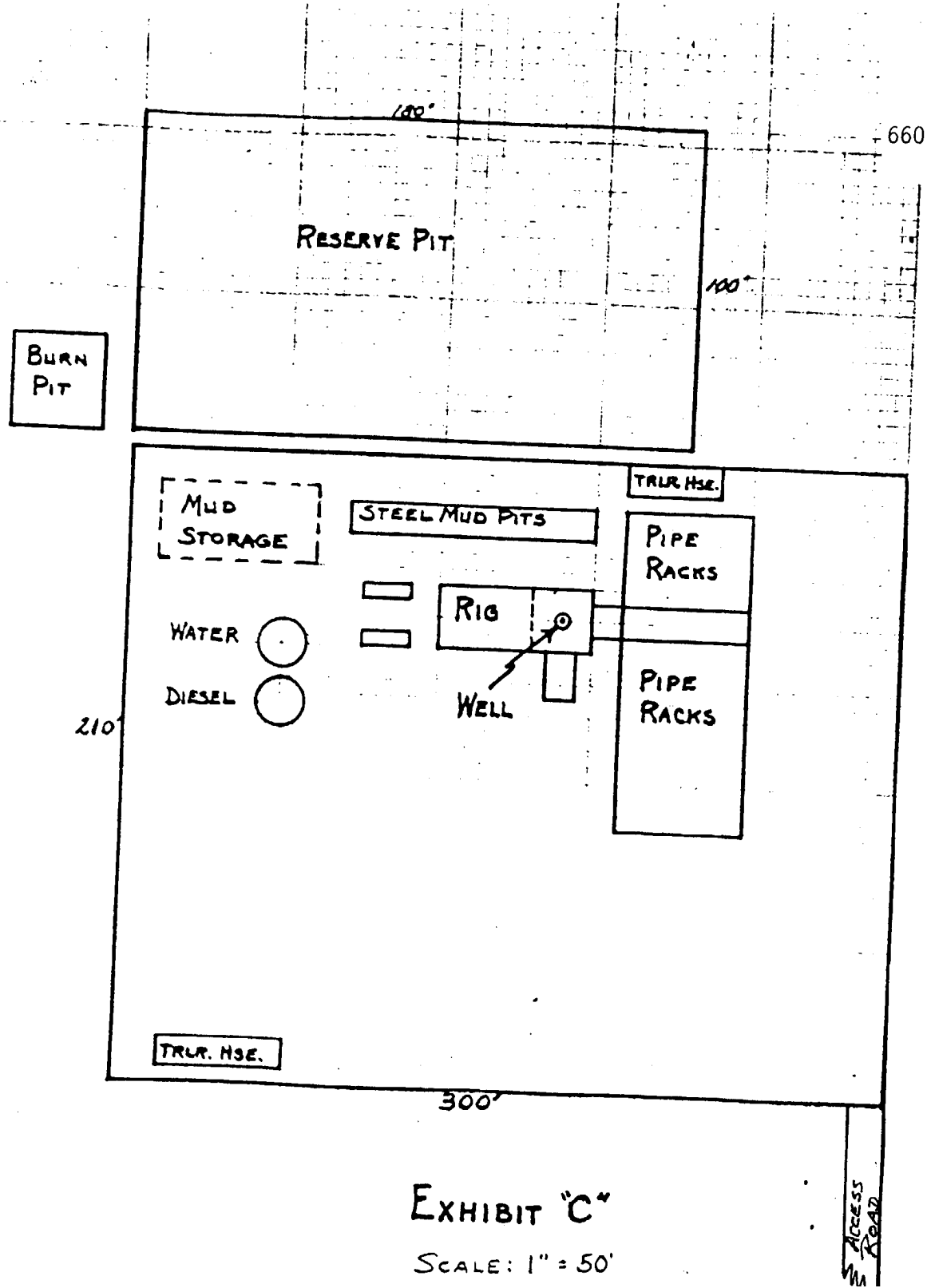
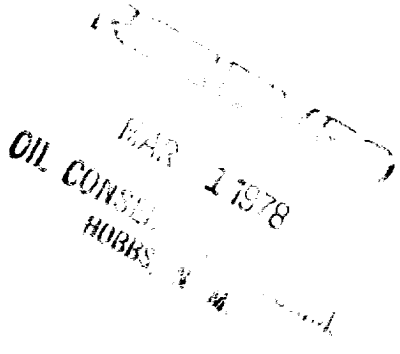



EXHIBIT "C"

SCALE: 1" = 50'


MAR 1 1978
OIL CONSE
HOBBS

PETROLEUM DEVELOPMENT CORPORATION

SUNDANCE FEDERAL #1
660' FEL & 1980' FSL, Sec. 28, T12S, R30E

Chaves County, New Mexico

# B.O.P. & Choke Manifold Schematic
## Series 1500
## To meet Specs. of API Bul. D-13

NOT TO SCALE

EXHIBIT "D"

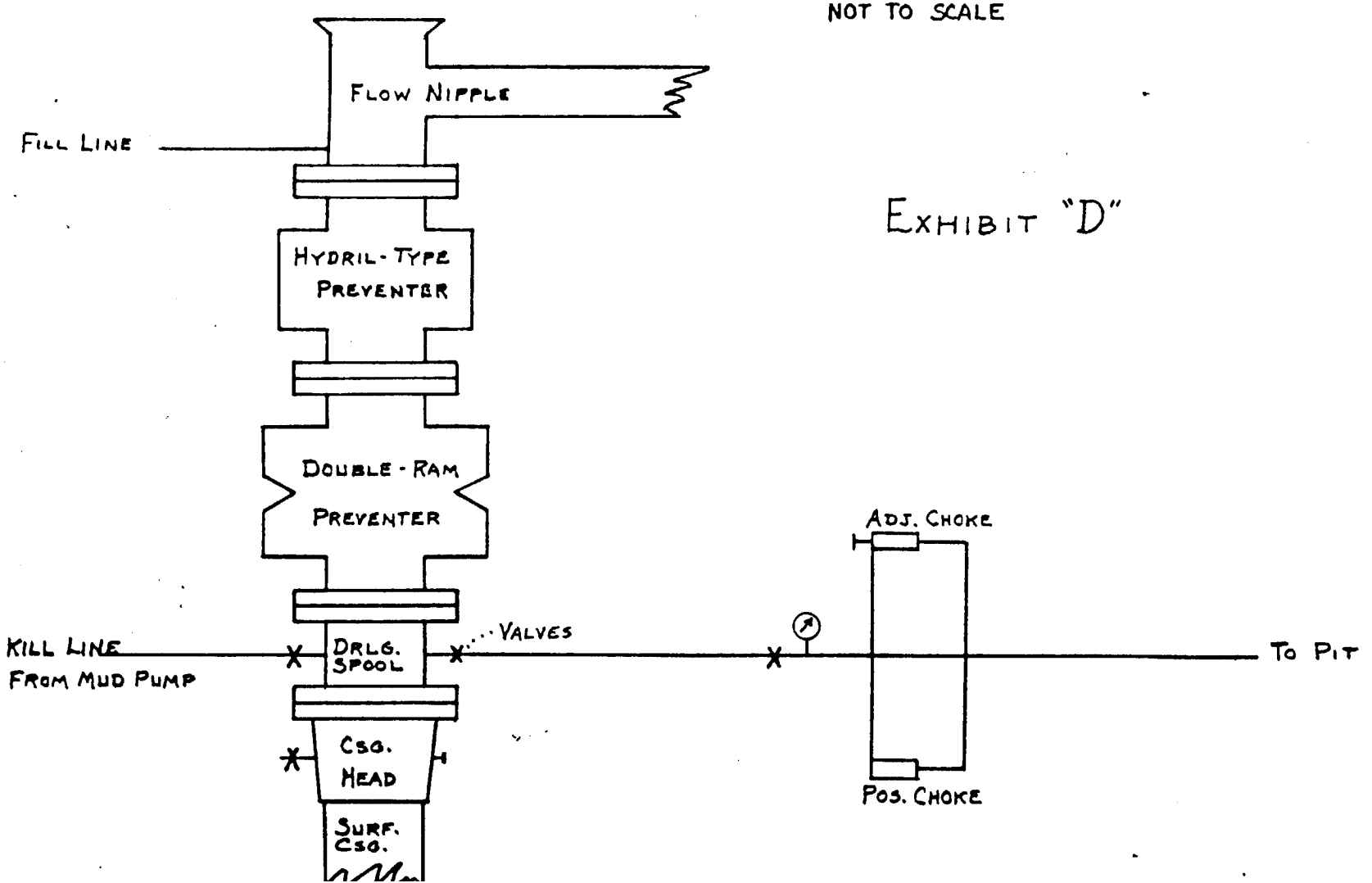


EXHIBIT "E"

PETROLEUM DEVELOPMENT CORPORATION
Sundance Federal #1
660' FEL & 1980' FSL, Sec. 28, T12S, R30E
Chaves County, New Mexico
Lease: NM 15443-B
(680 acres)

MUD PROGRAM

0-500 Gel and lime spud mud. No problems anticipated.

500-2800 Drill out below surface casing with the "Spud mud" used in the surface hole, converting to a native mud as drilling progresses.

Natural salt will increase weight to 10-10.4 #/gal. Maintain a 33-35 sec. viscosity, staying in steel pits. Below 800' add about 3 sacks of paper per tour to help control filter-cake buildup. Add 3 to 4% oil to system below 1200'.

For any unanticipated hole trouble, or testing, fluid loss should be reduced to 15 cc or less, and viscosity should be increased to 34-37 sec. Before logging the intermediate hole, flush hole with a viscous sweep.

2800-6150 Fresh water with Caustic for pH control. Flush the hole with a viscous sweep prior to any DST. The probable occurrence of salt stringers in the San Andres will preclude keeping weight low and, in the lower portions of the hole after mudding up, mud weight will approach 10 #/gal. Circulate reserve pit for this interval.

6150-8200 Mud up in steel pits for control of Abo shale section with a low solids salt gel, oil-type mud having the following characteristics:

| | |
|---|---|
| Weight: | 8.9-10 #/gal. |
| Viscosity: | 38-40 sec. |
| Water loss: | No control |
| Oil Content: | 5% to 7% |

(Note: About 80 bbls. oil needed at 6150, add 10-15 bbls. every other day).

8200-9800 Take water loss control (10 cc or less) for drilling the Pennsylvanian sands section. Otherwise, the fluid will be the same as for drilling the Abo shale section. This fluid should be sufficient to drill, test and log to a depth of 9800'.