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United States Department of the Interior **RECEIVED**

GEOLOGICAL SURVEY
P. O. Drawer U
Artesia, New Mexico 88210

FEB 15 1979

O. C. C.
ARTESIA, OFFICE
February 14, 1979

Petroleum Development Corporation
9720 Candelaria NE
Albuquerque, New Mexico 87112

PETROLEUM DEVELOPMENT CORPORATION
Pedco Federal No. 1
1980 FNL 1980 FEL Sec. 27, T12S, R30E
Chaves County Lease No. NM-8947

Above Data Required on Well Sign

Gentlemen:

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 2,400 feet to test the Queen formation is hereby approved subject to compliance with the OIL AND GAS OPERATING REGULATIONS (30 CFR 221) and the following conditions:

1. Drilling operations authorized are subject to compliance with the GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL LEASES, dated July 1, 1978.
2. Prior to commencing construction of road, pad, or other associated developments, operator will provide the dirt contractor with a copy of the SURFACE USE PLAN and this approval including the GENERAL REQUIREMENTS.
3. Submit a Daily Report of Operations from spud date until the Well Completion Report (form 9-330) is filed. The progress report should be not less than 8" x 5" in size and each page should identify the well.
4. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Requirements. The color used should simulate sandstone brown (Federal Standard Color #595A, color 20318 or 30318).

Sincerely yours,

(Orig. Sgd.) **ALBERT R. STALL**

Albert R. Stall
Acting District Engineer

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐ FEB 12 1979PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☐GAS
WELL ☒

OTHER

SINGLE
ZONE ☐MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

PETROLEUM DEVELOPMENT CORPORATION

U.S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

3. ADDRESS OF OPERATOR

9720 B Candelaria NE, Albuquerque, New Mexico 87112

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)

At surface

1980' FEL, 1980' FNL,

At proposed prod. zone

5. LEASE DESIGNATION AND SERIAL NO.

NM 8947

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

PEDCO FEDERAL

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Undesignated Queen (ND)

11. SEC., T., R., M., OR BLK.
AND SURVEY OR AREA

Sec. 27, T12S, R30E

12. COUNTY OR PARISH

Chaves

13. STATE

New Mexico

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE

16 miles SW from Caprock, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any)

660'

16. NO. OF ACRES IN LEASE

320 360

17. NO. OF ACRES ASSIGNED
TO THIS WELL

160 320

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

None

19. PROPOSED DEPTH

2400'

20. ROTARY OR CABLE TOOLS

cable & rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3950' G.L.

22. APPROX. DATE WORK WILL START*

2/25/79

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
28"	20"	conductor	40'	5 yds. concrete
17-1/2"	13-3/8"	48#	500'	700 c.f.
7-7/8"	4-1/2"	9.5#	2400'	1100 c.f.

Set 13-3/8" casing at approximately 500'; circulate cement to surface; WOC 8 hrs. Test BOP and surface casing to 500# for 30 min. before drilling out. Drill 7-7/8" hole to approximately 2400'; set and cement 4-1/2" casing, bring top of cement at least back to base of surface casing.

See attached mud program.

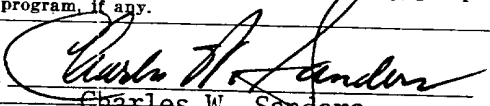
Complete by jet perforating indicated pay intervals and acidizing or fracturing, as need is indicated. A dual BOP will be used.

See attached supplemental multi-point drilling plan; mud program, Exhibit "D".
(Gas reserves from this lease are not dedicated).

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. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED


Charles W. Sanders

TITLE

Vice President

DATE

2/8/79

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

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 Petroleum Development Corp.			Lease Pedco Federal		Well No. 1
Unit Letter G	Section 27	Township 12 South	Range 30 East	County Chaves	
Actual Footage Location of Well: # 1980 feet from the North line and 1980 feet from the East line					
Ground Level Elev. 3949.8	Producing Formation Mississippian Queen	Pool Undesignated		Dedicated Acreage: 320 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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?

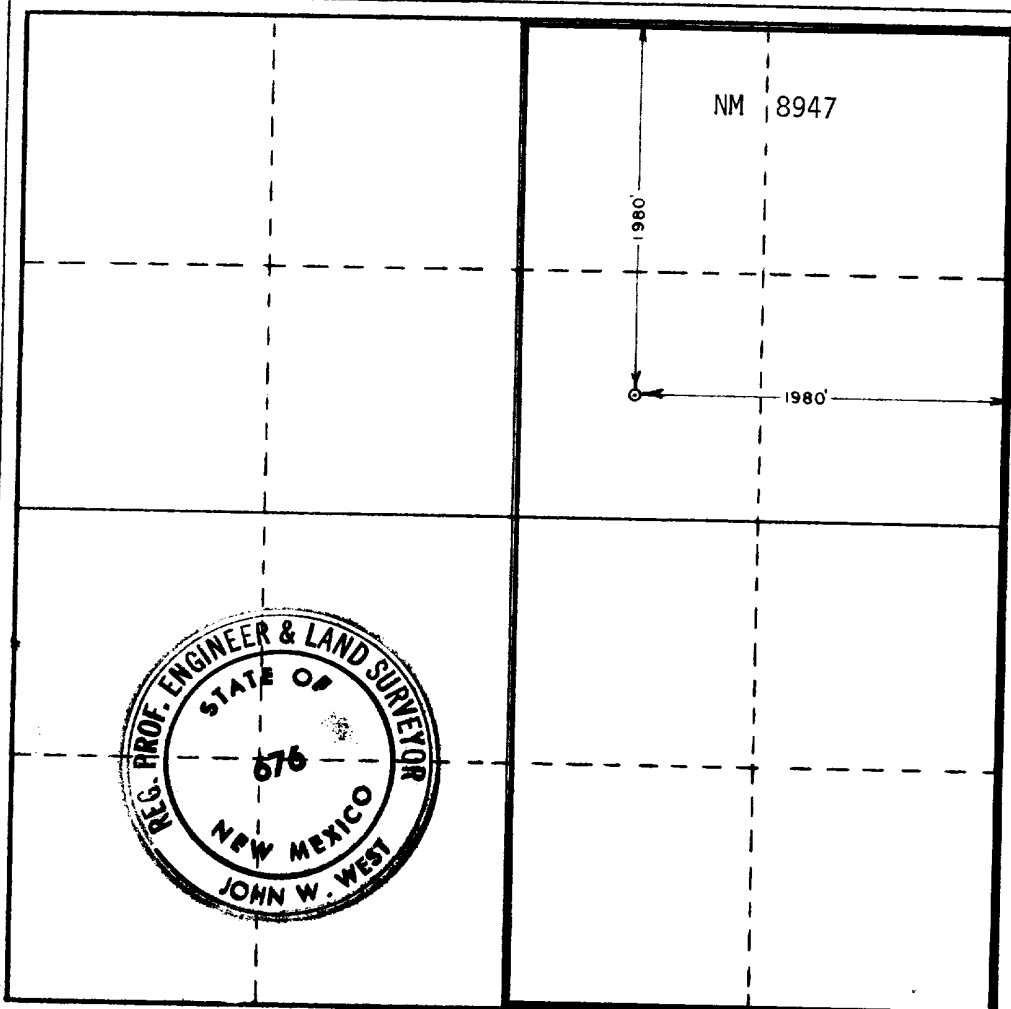
☐ Yes ☐ No If answer is "yes," type of consolidation _____

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.

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U.S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO



CERTIFICATION

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

Charles W. Sanders

Name
Charles W. Sanders
Position
Vice President
Company
Petroleum Development Corp.

Date
August 10, 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.

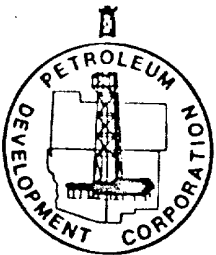
Date Surveyed
August 5, 1978

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No. **John W. West 676**
Ronald J. Eideen 3239





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
Pedco Federal #1

1980' FEL & 1980' FNL, Sec. 27, T12S, R3E
Chaves County, New Mexico
Lease: NM 8947

(320 acres)

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U.S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

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 4493' to the southwest.
- 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 4493' long. See Exhibit "A".
- 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 3/4 mile to the southwest. 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.
- 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 that 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.

Multi-Point Surface Use and Operations Plan
PETROLEUM DEVELOPMENT CORPORATION
PEDCO Federal #1, Chaves County, New Mexico

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 dunny. From an elevation of 3950' at the wellsite, the land surface slopes gently toward the west at about 40 feet per mile.
- B. Soil: Soil is 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:

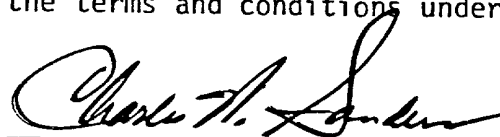
The field representatives responsible for assuring compliance with the approved surface use and operations plan are as follows:

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

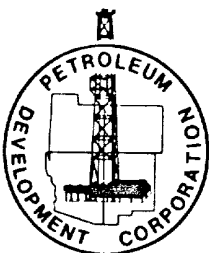
J. C. Johnson
3705 General Chennault, NE
Albuquerque, New Mexico 87111
Office Phone: (505) 293-4044
Residence: (505) 299-6029

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



PETROLEUM DEVELOPMENT CORPORATION

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

MULTI-POINT DRILLING PLAN

Petroleum Development Corporation

Pedco Federal #1
1980' FEL & 1980' FNL, Sec. 27, T12S, R30E
Chaves County, New Mexico
Lease: NM 8947
(320 acres)

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	720'	(+3425)
Salt	800'	(+3165)
Queen	2100'	(+1865)

Estimated KB elevation: 3965'.

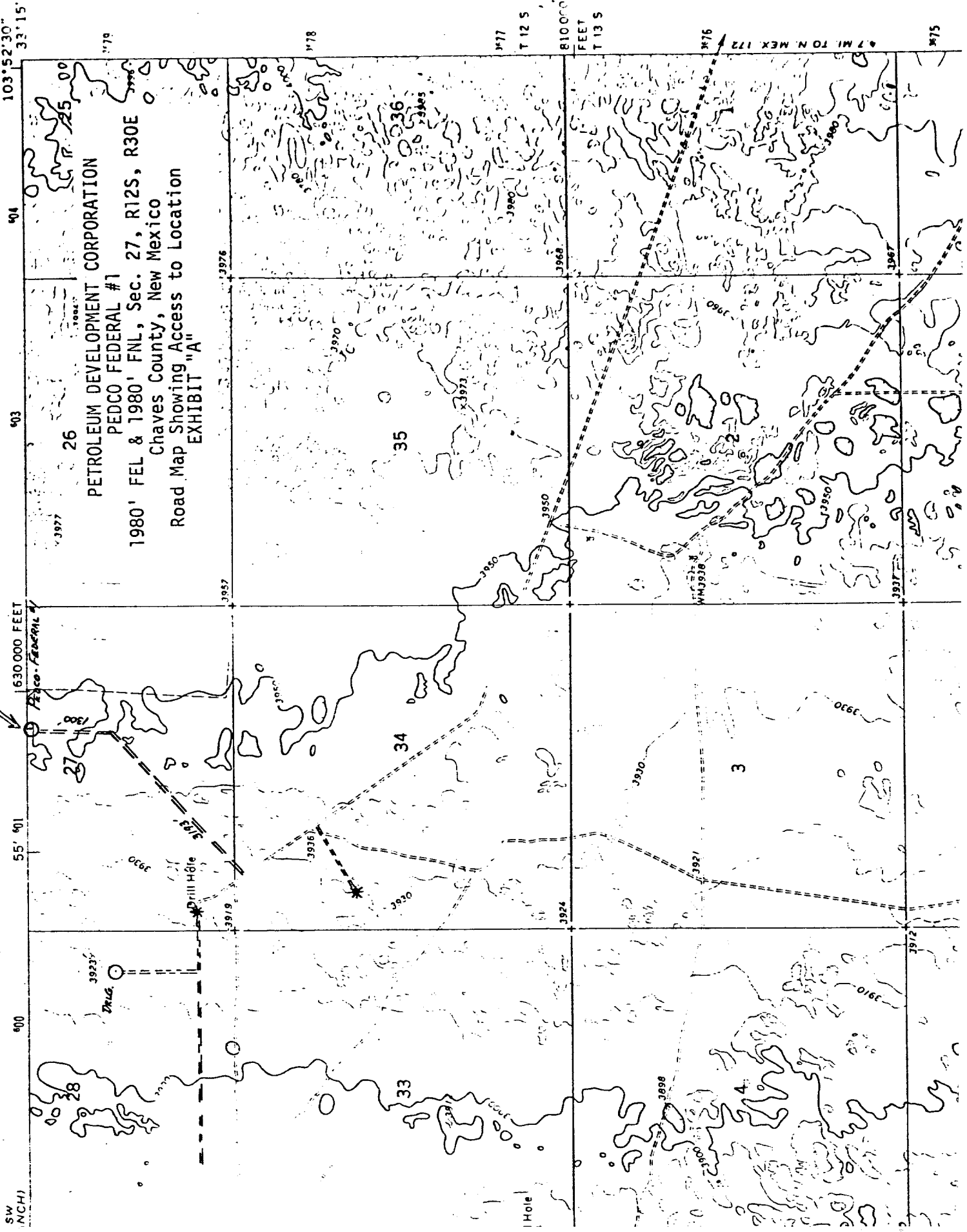
3. The estimated depths at which anticipated water, oil or gas-bearing formations are to be encountered are:

0-300'	poss. fresh water	surface sand
2200'- 2400'	poss. gas	Queen sands

4. Proposed casing program: see Form 9-331C.
5. Pressure control equipment: Dual BOP. Pipe rams 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 "D".

7. Auxiliary equipment to be used:
None
8. Testing coring and logging program:
 - (1) No coring or testing is anticipated.
 - (2) 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 25, 1979.
Drilling operations will require approximately 10 days;
completion operations will require an additional one week.

Location



PETROLEUM DEVELOPMENT CORPORATION

PEDCO FEDERAL #1

1980' FEL & 1980' FNL, Sec. 27, R12S, R30E

Chaves County, New Mexico

Road Map Showing Access to Location

EXHIBIT "A"

SW (NCH)

Hole

177

T 12 S

8100.0

FEET

T 13 S

176

4.7 MI. TO N. MEX. 172

175

403

404

103°52'30"

33°15'

630,000 FEET

55' 40"

600

26

35

34

33

3

3977

3980

3923

3928

3957

3976

178

3970

3936

3923

3965

3973

3930

3900

3960

3950

3924

3898

3968

3950

3921

3900

3960

3950

3930

3900

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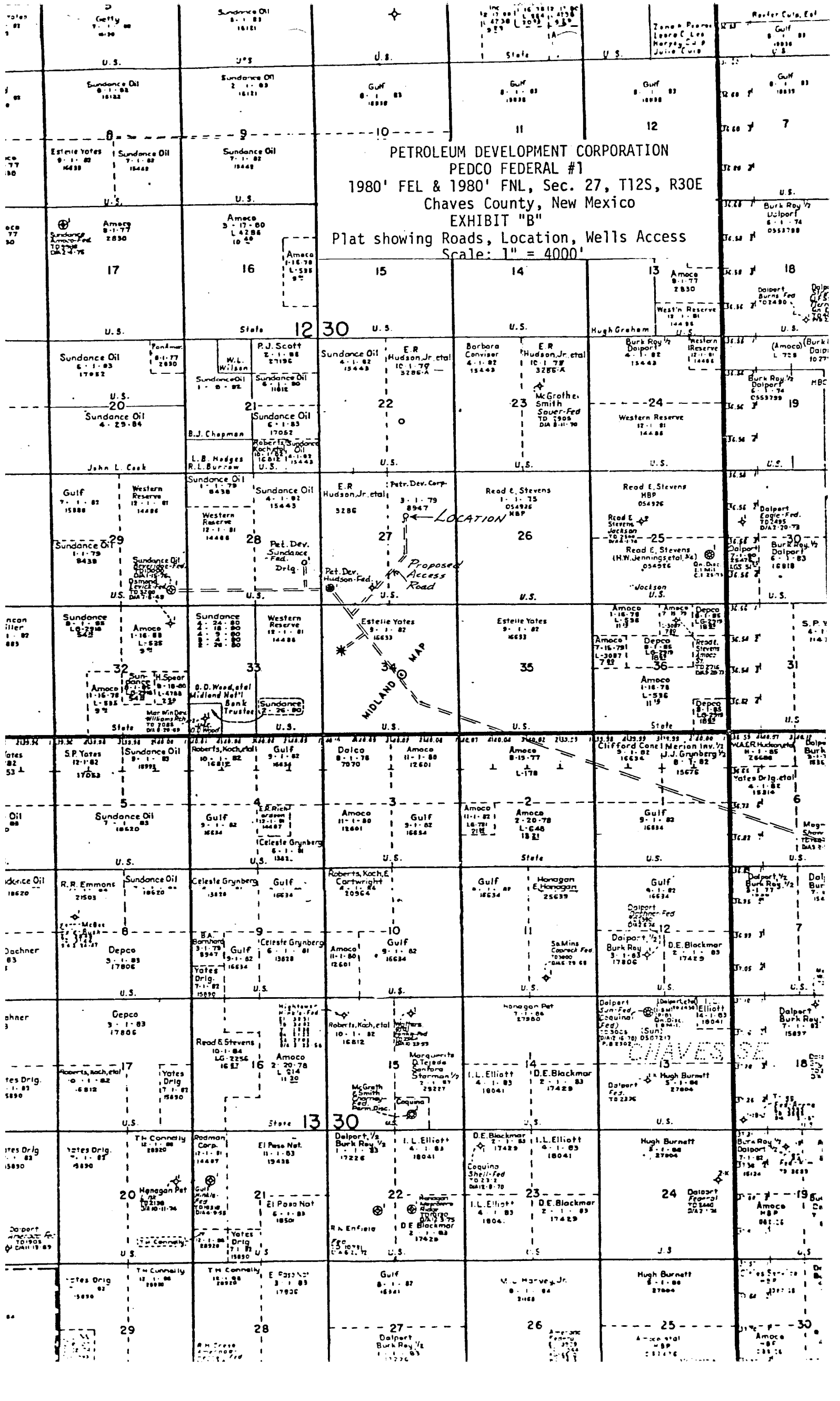
3900

3960

3950

3930

3900



PETROLEUM DEVELOPMENT CORPORATION
PEDCO FEDERAL #1
1980' FEL & 1980' FNL, Sec. 27, T12S, R30E
Chaves County, New Mexico
EXHIBIT "B"
Plat showing Roads, Location, Wells Access
Scale: 1" = 4000'

PETROLEUM DEVELOPMENT CORPORATION
PEDCO FEDERAL #1
1980' FEL & 1980' FNL, Sec. 27, T12S, R30E
Chaves County, New Mexico

SCALE: 1" = 50'

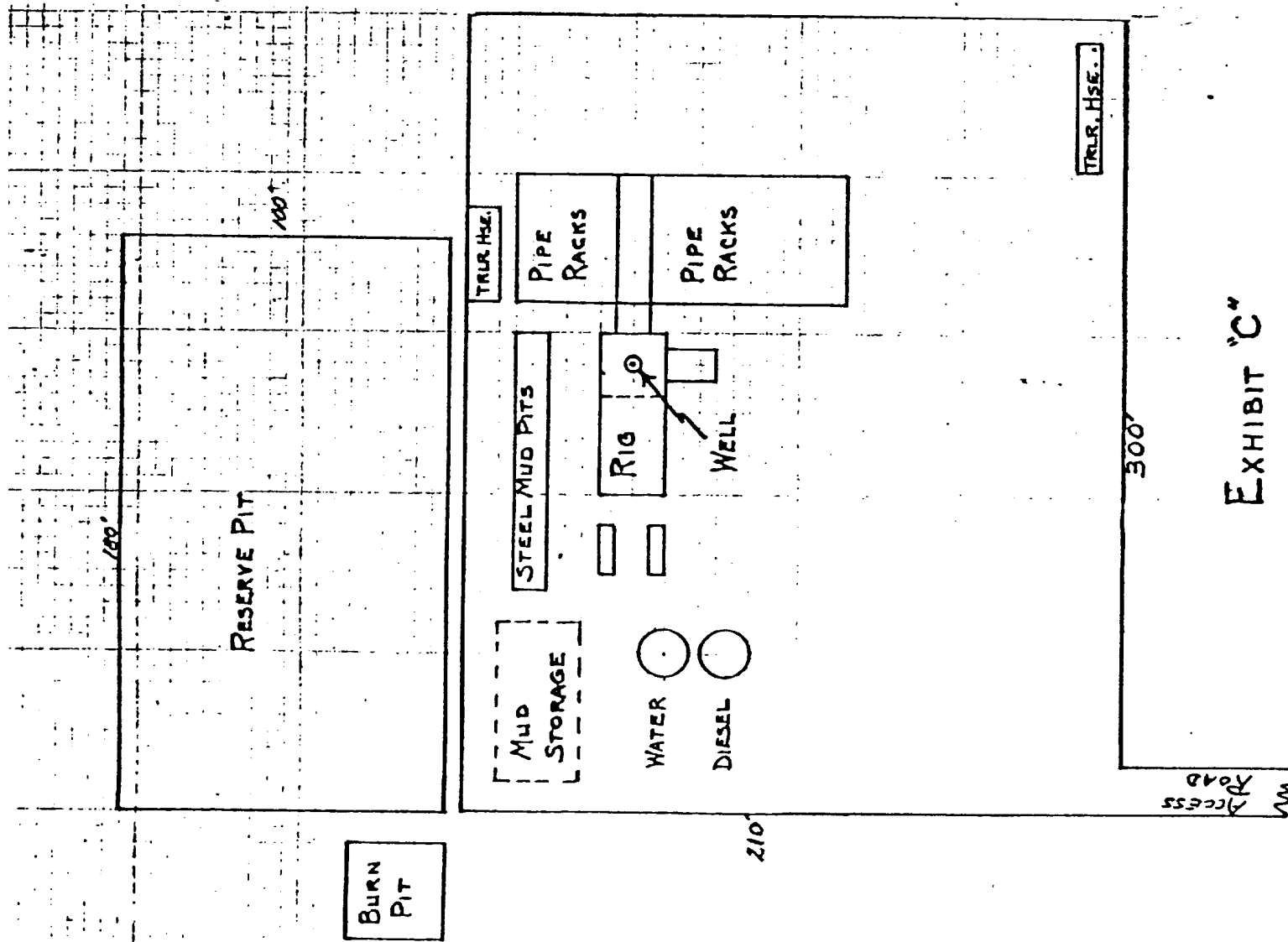


EXHIBIT "C"

EXHIBIT "D"

PETROLEUM DEVELOPMENT CORPORATION
Pedco-Federal #1
1980' FEL & 1980' FNL, Sec. 27, T12S, R30E
Chaves County, New Mexico
Lease: NM 8947
(320 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 build-up. 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.