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United States Department of the Interior CEIVED

GEOLOGICAL SURVEY
P. 0. Drawer U
Artesia, New Mexico 88210

FEB 1 5 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

Gentlemen:

Above Data Required on Well Sign

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:

- Drilling operations authorized are subject to compliance with the GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL LEASES, dated July 1, 1978.
- 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 RE-QUIREMENTS.
- 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 $8" \times 5"$ 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 Form 9-331 C May 1963)

1a. TYPE OF WORK

(Other instru U... ED STATES reverse st.

TH TRIPLICATE

Form approved. Budget Bureau No. 42-R1425.

5. LEASE DESIGNATION AND SERIAL NO.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

NM 8947

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

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

9. WELL NO.

PEDCO FEDERAL

10. FIELD AND POOL, OR WILDCAT Undesignated Queen /

Sec. 27, T12S, R30E

12. COUNTY OR PARISH | 13. STATE

cable & rotary 22. APPROX. DATE WORK WILL START*

2/25/79

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| APPLICATION | FOR | PERMIT | R | E | DE | IX. | <u> </u> | 1 |

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|---|---------|-----|----|------|------|
| | | | | | |

b. TYPE OF WELL OII. WELL WELL XX OTHER

DRILL XX

PEB 172 4979

PLUG BACK

MULTIPLE Zone

U.S. GEULUGICAL SERVEY 2. NAME OF OPERATOR

PETROLEUM DEVELOPMENT CORPORATION ARTESIA, NEW MEXICO

RECEIVED 9720 B Candelaria NE, Albuquerque, New Mexico 87112 4. LOCATION OF WELL (Report location clearly and in accordance with any State point A+ surface

1980' FEL, 1980' FNL,

At proposed prod. zone

O. C. C. 14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE ARTEGIA, OFFICE

16. NO. OF ACRES IN LEASE

-320360 19. PROPOSED DEPTH 24001

Chaves New Mexico NO. OF ACRES ASSIGNED TO THIS WELL

160320 20. ROTARY OR CABLE TOOLS

TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 21. ELEVATIONS (Show whether DF, RT, GR, etc.)

18. DISTANCE FROM PROPOSED LOCATION*

16 miles SW from Caprock, New Mexico 15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig, unit line, if any)

3950' G.L. $\overline{23}$.

PROPOSED CASING AND CEMENTING PROGRAM

| SIZE OF HOLE | | | | |
|--------------|----------------|------------------|---------------|--------------------|
| 28" | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
| 17-1/2" | 13-3/8" | conductor 48# | 40' | 5 yds. concrete |
| 7-7/8" | 4-1/2" | 9.5# | 2400' | 700 c.f. |
| | 1 |] 3.3" | 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

SIGNED Charles W (This space for Federal or State office use)

Vice President

APPROVAL DATE

2/8/79 DATE

TITLE

DATE _

APPROVED BY

WELL __CATION AND ACREAGE DEDICATION FLAT

All distances must be from the outer boundaries of the Section Operator Well No. Petroleum Development Corp. Pedco Federal Unit Letter Section Township Range County G 27 12 South 30 East Chaves Actual Footage Location of Well: 1980 North 1980 feet from the line and East feet from the Ground Level Elev. line **Producing Formation** Dedicated Acreage: 3949.8 Mississippian Queen <u>Undesignated</u> 320 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 If answer is "yes," type of consolidation ___ If answer is "no," list the owners and tract descriptions which have actually been consolidated No allowable will be assigned to the well until all interests have been consolidated (by companyizization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has better the CERTIFICATION NM 8947 I hereby certify that the informationscontained herein is true and complete <u>Charles W. Sanders</u> Vice President Company Petroleum Development Corp. <u>August 10, 1978</u> I hernby certify that the well location n on this plat was plotted from field of actual surveys made by me or r my supervision, and that the same true and correct to the best of my knowledge and belief. Date Surveyed August 5, 1978 Registered Professional Engineer and/or Land Surveyor 676 660 1920 1690 1960 2310 2000 1 600 1000



PETROLEUM DEVELOPMENT CORPORATION

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

MULTI-POINT SURFACE USE AND OPERATIONS PLAN RECEIVED

Petroleum Development Corporation Pedco Federal #1

FEB 1 2 1979

1980' FEL & 1980' FNL, Sec. 27, T12S, R3ARTESIA, NEW MEXICO

U.S. BEULUGICAL SURVEY

(320 acres)

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.
- Turnouts: two equally-spaced passing turnouts will be used. D.
- Drainage design: new road will have a drop of six inches from center line on each side.
- F. <u>Culverts</u>: none necessary.
- Cuts and fills: none required; only general leveling of sand rolls. G.
- Gates, cattleguards: None required Н.

Page 2
Multi-Point Surface Use Operations Plan
PETRULEUM DEVELOPMENT CORPORATION
PEDCO Federal #1, Chaves County, New Mexico

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 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.

Page 3
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. <u>Topography</u>: Land surface is undulating to gently rolling and duny. 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 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. <u>Ponds and Streams</u>: There are no rivers, streams, lakes or ponds in the area.

Page 4 Multi-Point Surface Use and Operations Plan Petroleum Development Corporation PE D C O Federal #1, Chaves County, New Mexico

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. <u>Surface Ownership</u>: 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



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

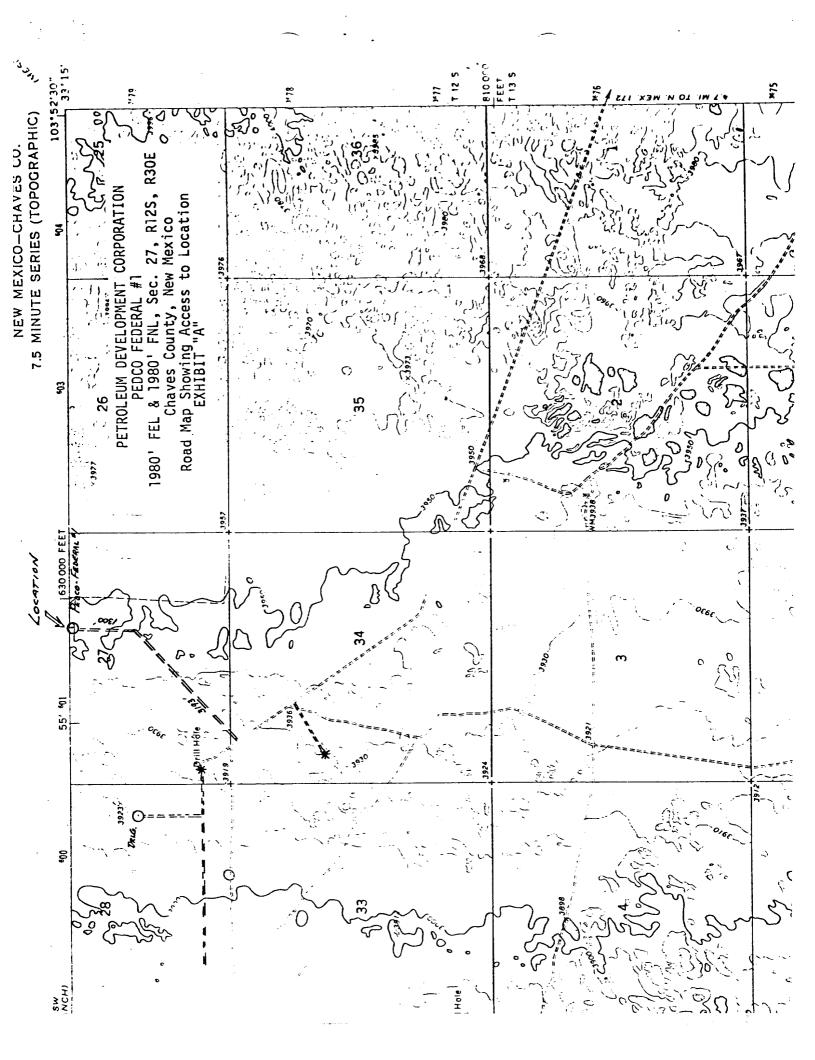
- 4. Proposed casing program: see Form 9-331C.
- 5. Pressure control equipment: Dual BOP. Pipe rams shall be actuated at least once each 24 hours and the blind rams each time the drill pipe is out of the hole. Accumulators shall maintain a pressure capacity reserve at all times to provide for repeated 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".

Page 2
Multi-Point Drilling Plan
Petroleum Development Corporation
Pedco-Federal #1, Chaves County, New Mexico

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 rayb. 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.



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TR.R. HSE. RACKS PIPE RACKS TRUR HSE. PIPE EXHIBIT C. STEEL MUD PITS Rig RESERVE PIT STORAGE WATER DIESEL Aup 210

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

Burn

SCALE: 1" : 50'

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-

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.