STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

BEFORE EXAMINER Stogner
OIL CONSERVATION DIVISION
PHILLIPS PETROLEUM COMPANY
EXHIBIT NO. 5
CASE NO. 9765

# APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☒ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no

II. Operator: PHILLIPS PETROLEUM COMPANY

Address: 4001 PENBROOK; ODESSA, TEXAS 79762

Contact party: L. M. SANDERS Phone: (915) 367-1488

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

• VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

•VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

• X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

• XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: William J. Mueller Title Principle Resv. Engr.; Vacuum Area

Signature: William J. Mueller Date: 10 May 90

• If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells:

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

---

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

# Application for Authorization to Inject

**PHILLIPS PETROLEUM COMPANY**
**LEAMEX WELL NO. 26**

III. **WELL DATA**
(See Attachment No. 2)

| | | |
|---|---|---|
| A. 1. | Name and Location: | Leamex Well Number 26<br>660' FSL and 990' FWL<br>Section 22, T-17-S, R-33-E<br>Lea County, New Mexico |
| 2. | Casing<br>Surface: | 14" conductor pipe set at 30', and cemented with 3 yards ready mix cement; TOC at surface (circ.) |
| | Intermediate: | 8-5/8" OD, 24#, K-55, ST&C casing set at 1500' in a 11" hole; cemented with 600 sacks; TOC at surface (circ.) |
| | Production: | 4-1/2" OD, 11.6#, N-80, LT&C casing set at 6290' in a 7-7/8" hole; cemented with 2000 sacks; TOC at surface (circ.) |
| 3. | Tubing: | 2-3/8" OD, 4.7#, J-55 set at 5930' (internally plastic coated) |
| 4. | Packer: | Baker Loc-Set Retrievable Packer with Baker Model "FL" On/Off Tool, or equivalent, set at 5930' |
| B. 1. | Injection Formation: | Leamex-Paddock |
| 2. | Perforated<br>Injection Interval: | 6031'-6063'<br>-6031'-6042' perforated at 2 SPF for a total of 11' and 22 shots<br>-6058'-6063' perforated at 2 SPF for a total of 5' and 10 shots |

# Application for Authorization to Inject

**PHILLIPS PETROLEUM COMPANY**
**LEAMEX WELL NO. 26**

III. **WELL DATA (con't):**

B. 3. Original Intent: Well was drilled for oil production.

4. Productive Zones
Higher: Maljamar-Grayburg/San Andres at 4100'

Lower: Leamex-Penn at 11600' (2160' to the east)

VI. **WELLS WITHIN AREA OF INTEREST**
(see page 4)

V. **AREA OF REVIEW**
(See Attachment No. 1)

VII. **PROPOSED $CO_2$ INJECTION OPERATIONS**

1. Rates: Estimated Average-380 mcfpd
Estimated Maximum-1000 mcfpd

2. System: Closed

3. Pressures: Average - 1720 psi
Maximum - 1800 psi

4. Fluid: $CO_2$ Source from McElmo Dome in Colorado; transported by Shell in the Cortez line and by Big Three in the Llano pipeline.

VIII. **GEOLOGICAL DATA**

A. Injection zone: Injection will be into the Paddock Formation, a member of the Yeso Group. Although the Paddock is approximately 400' thick, the injection

# Application for Authorization to Inject

**PHILLIPS PETROLEUM COMPANY**
**LEAMEX WELL NO. 26**

VIII. GEOLOGICAL DATA (con't):

A. interval is the upper 60'. The lithology of the Paddock is primarily dolomite with occasional shales. The pay intervals are porous dolomites.

B. Fresh Water Sources: Ogallala - base at 202'
Santa Rosa - base at 1285'

IX. PROPOSED STIMULATION PROGRAM

The injection perforations will be treated with 4500 gallons of 15% NEFE HCl. The treating rate for this job will be 2-4 bpm.

X. LOGGING DATA

Well logs were submitted after the well's completion in 1980; the well name has not changed since that time.

XI. **FRESH WATER ANALYSES**
(No fresh water wells within 1 mile radius)

Fresh Water Well Locations -- See Attachment No. 10
Fresh Water Analyses -- See Attachments No. 11 & 12

APPLICATION FOR AUTHORIZATION TO INJECT

PHILLIPS PETROLEUM COMPANY
LEAMEX WELL NO 26

VI. WELLS WITHIN THE AREA OF INTEREST
(radius of investigation = +1/2 mile)

| Operator | Well Name | Location | Date Completed (orig. intent) | Original TD / Present TD | Surface Casing Size (in) | Surface Casing Depth (ft) | Surface Casing Cement (sx) | Intermediate Casing Size (in) | Intermediate Casing Depth (ft) | Intermediate Casing Cement (sx) | Production Casing Size (in) | Production Casing Depth (ft) | Production Casing Cement (sx) | TOC (ft) | Initial Completion (zone) | Current Completion (zone) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHILLIPS PETR. COMPANY | Devon State #2 | 660' FSL & 2130' FEL Section 22-17S-33E Lea County, NM | 06 Jan. 1975 (oil) | 11618' / 6075' | 13-3/8 | 431 | 450 | 9-5/8 | 4260 | 550 | 5-1/2 | 11618 | 400 | 2500 * (S) | 11220'-11275' Leamex-Penn | 6038'-6053 Leamex-Paddock (Attachment No. 3) |
| | Devon State #3 | 1710' FSL & 2300' FEL Section 22-17S-33E Lea County, NM | 06 March 1977 (oil) | 6247' / Plugged | 13-3/8 | 30 | 3 Yds | 8-5/8 | 1476 | 690 | None | | | | Dry Hole | Dry Hole (Attachment No. 4) |
| | Leamex #21 | 660' FSL & 2310' FWL Section 22-17S-33E Lea County, NM | 04 May 1979 (oil) | 6309' / 6260' | 8-5/8 | 1500 | 965 | None | | | 4-1/2 | 6309 | 1550 | 825 (S) | 6058'-6072' Leamex-Paddock | 6058'-6116' Leamex-Paddock |
| | Leamex #30 | 660' FSL & 660' FEL Section 21-17S-33E Lea County, NM | 24 July 1981 (oil) | 6200' / 6028' | 8-5/8 | 1522 | 900 | None | | | 4-1/2 | 6188 | 2175 | Surface (Circ) | 6086'-6092' Leamex-Paddock | 4282'-4540' Maljamar-GB/SA (Attachment No. 5) |
| | Leamex #34 | 1980' FSL & 990' FWL Section 22-17S-33E Lea County, NM | 02 July 1983 (oil) | 6400' / 6362' | 8-5/8 | 1456 | 550 | None | | | 4-1/2 | 6400 | 1500 | Surface (Circ) | 4181'-4511' Maljamar-GB/SA | No Change |
| | Leamex #35 | 2130' FSL & 1980' FWL Section 22-17S-33E Lea County, NM | 19 Jan 1983 (oil) | 6300' / 4845' | 8-5/8 | 1496 | 550 | None | | | 4-1/2 | 6298 | 1300 | 950 (S) | 6242'-6251' Leamex-Paddock | 4202'-4597' Maljamar-GB/SA (Attachment No. 6) |
| | Philmex #13 | 330' FNL & 1980' FEL Section 27-17S-33E Lea County, NM | 20 May 1979 (oil) | 6300' / 5960' | 8-5/8 | 1500 | 840 | None | | | 4-1/2 | 6300 | 1650 | Surface (Circ) | 6024'-6105' Leamex-Paddock | 4390'-4579' Maljamar-GB/SA (Attachment No. 7) |
| | Philmex #15 | 660' FNL & 660' FEL Section 28-17S-33E Lea County, NM | 14 Aug. 1981 (oil) | 6200' / 4850' | 8-5/8 | 1490 | 750 | None | | | 4-1/2 | 4890 | 1200 | 900 (S) | 4692'-4698' Maljamar-GB/SA | 4224'-4698' Maljamar-GB/SA (Attachment No. 8) |

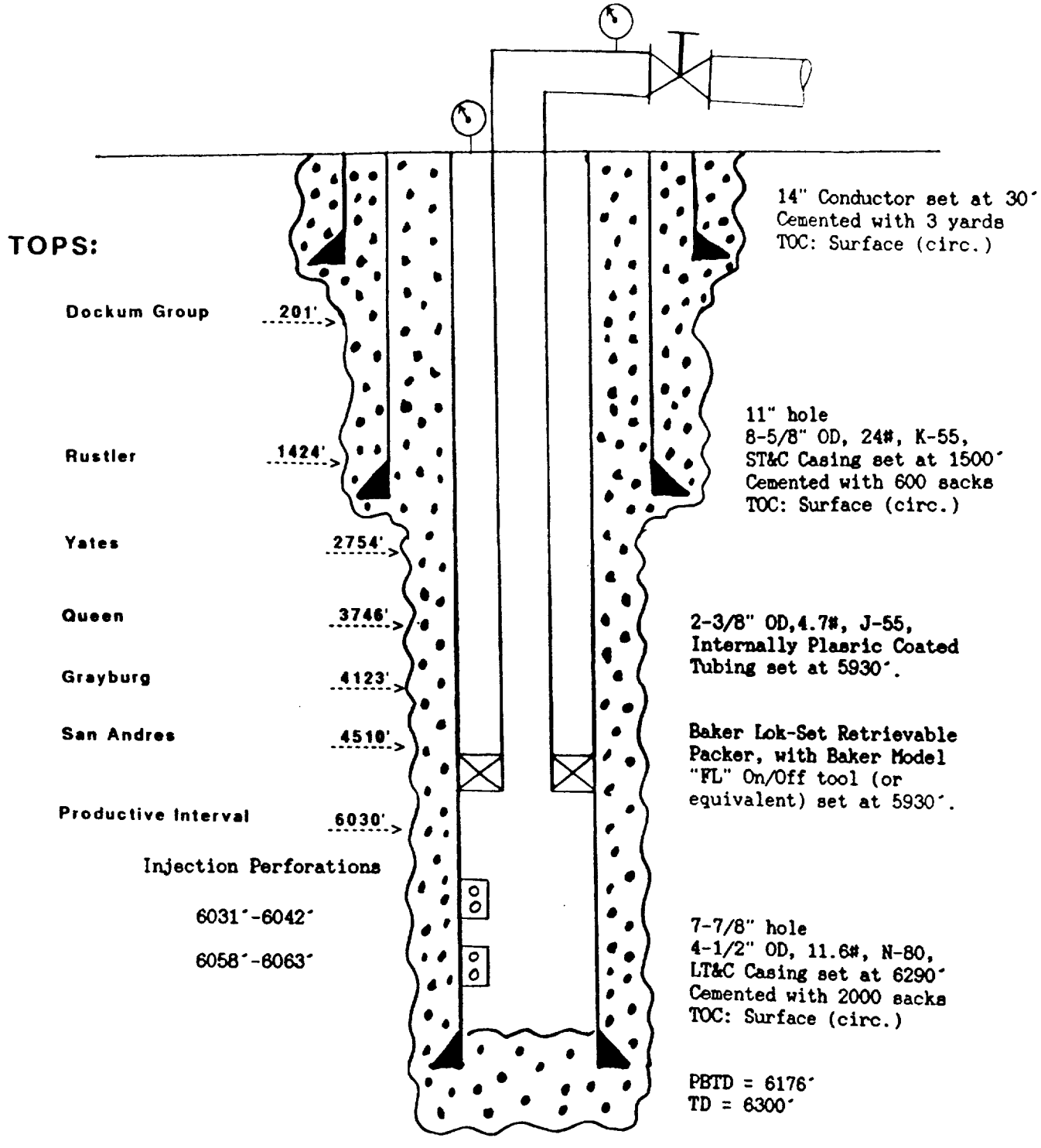
(C) = calculated with .5 safety factor and 1.33 cubic foot/sack
($) = determined with a survey
(Circ) = circulated to the surface

* Additional work placed an additional cement plug behind the 5-1/2" casing from 2500'-9182'. TOC was determined by temperature survey. (See Attachment 3 for futher details)

# PROPOSED INJECTION WELL

PHILLIPS PETROLEUM COMPANY

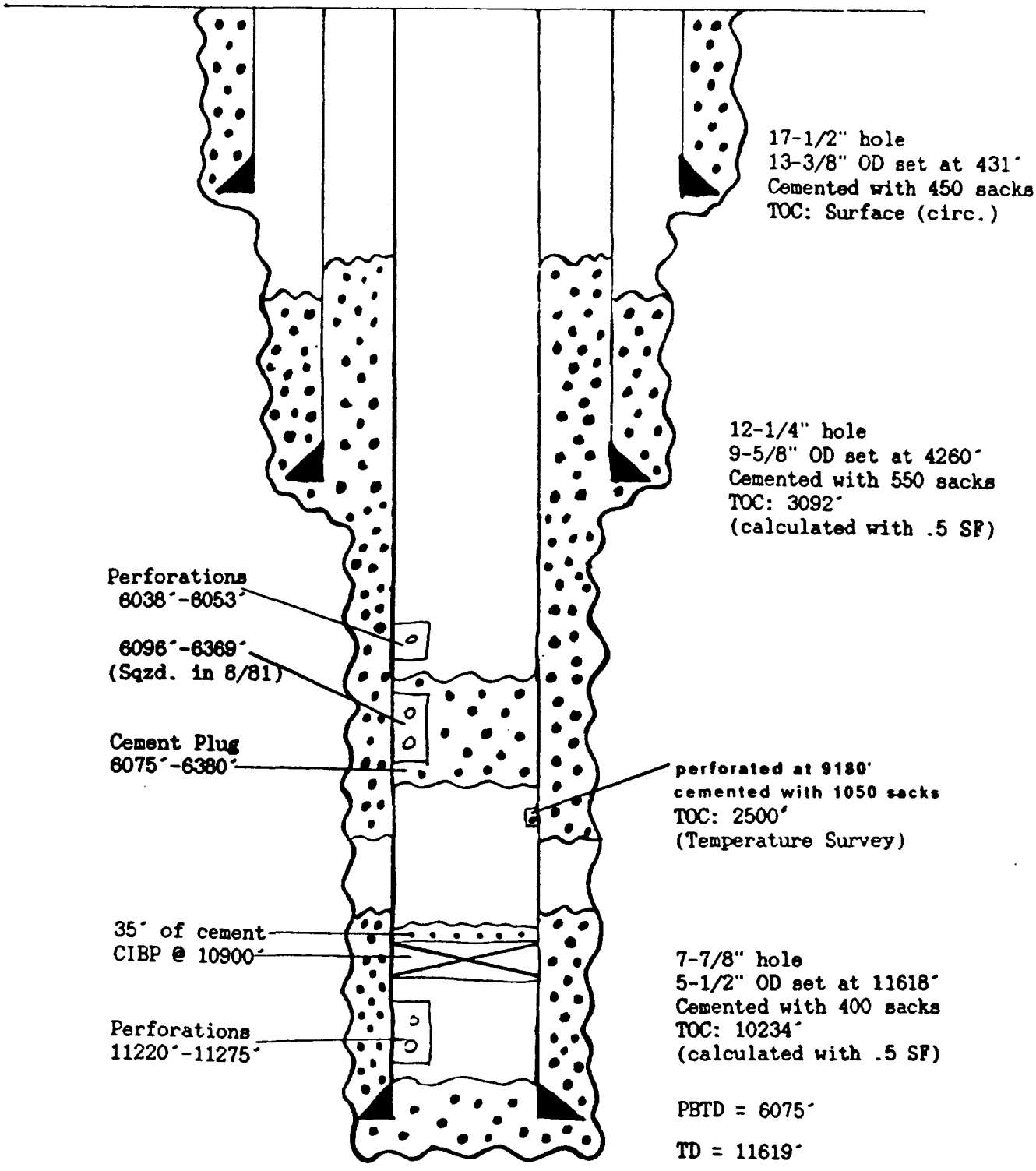
Leamex Well No. 26
660' FSL & 990' FWL
Section 22, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 2**

PHILLIPS PETROLEUM COMPANY

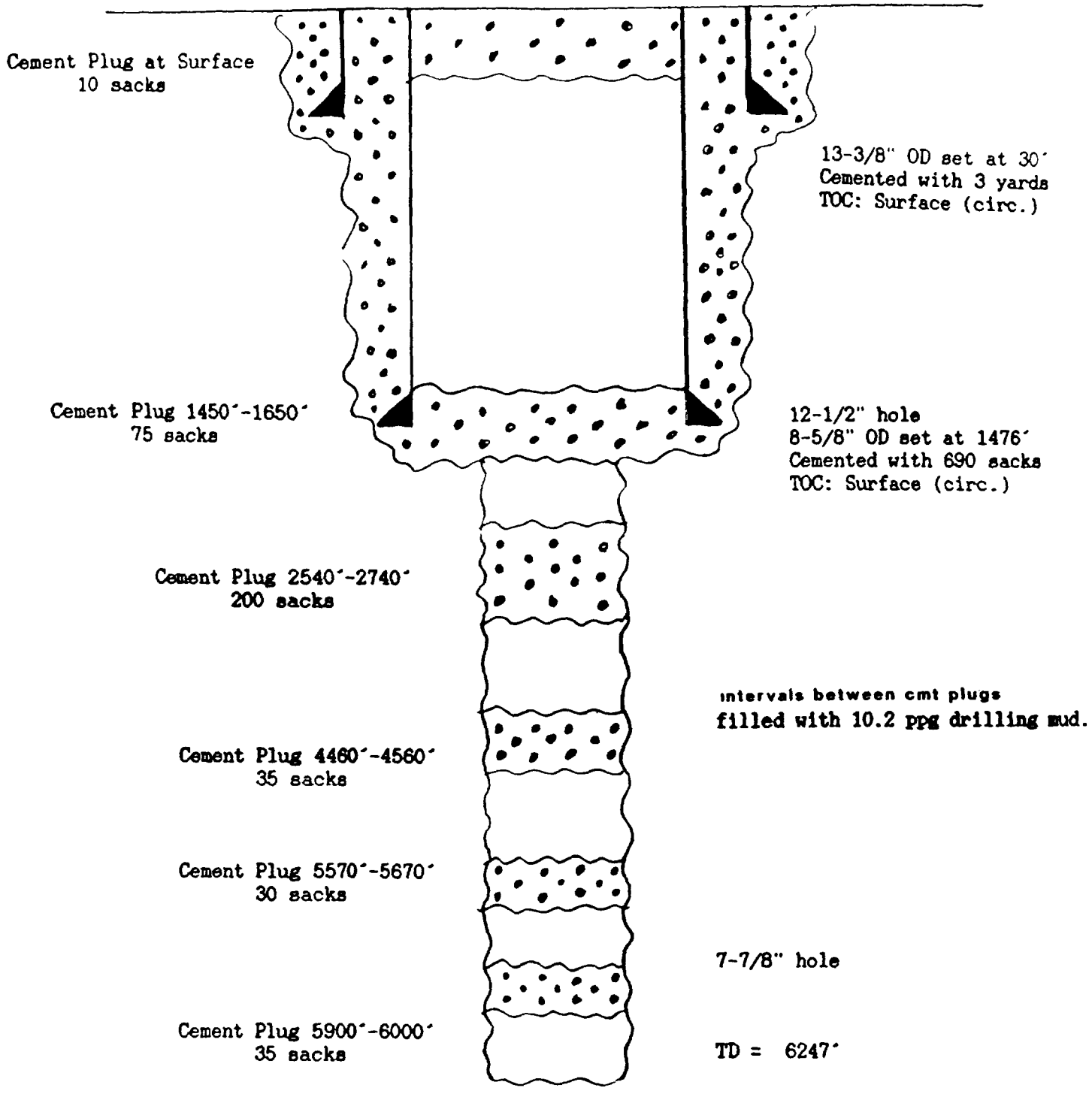
Devon State Well No. 2
660' FSL & 2130' FEL
Section 22, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 3**

PHILLIPS PETROLEUM COMPANY

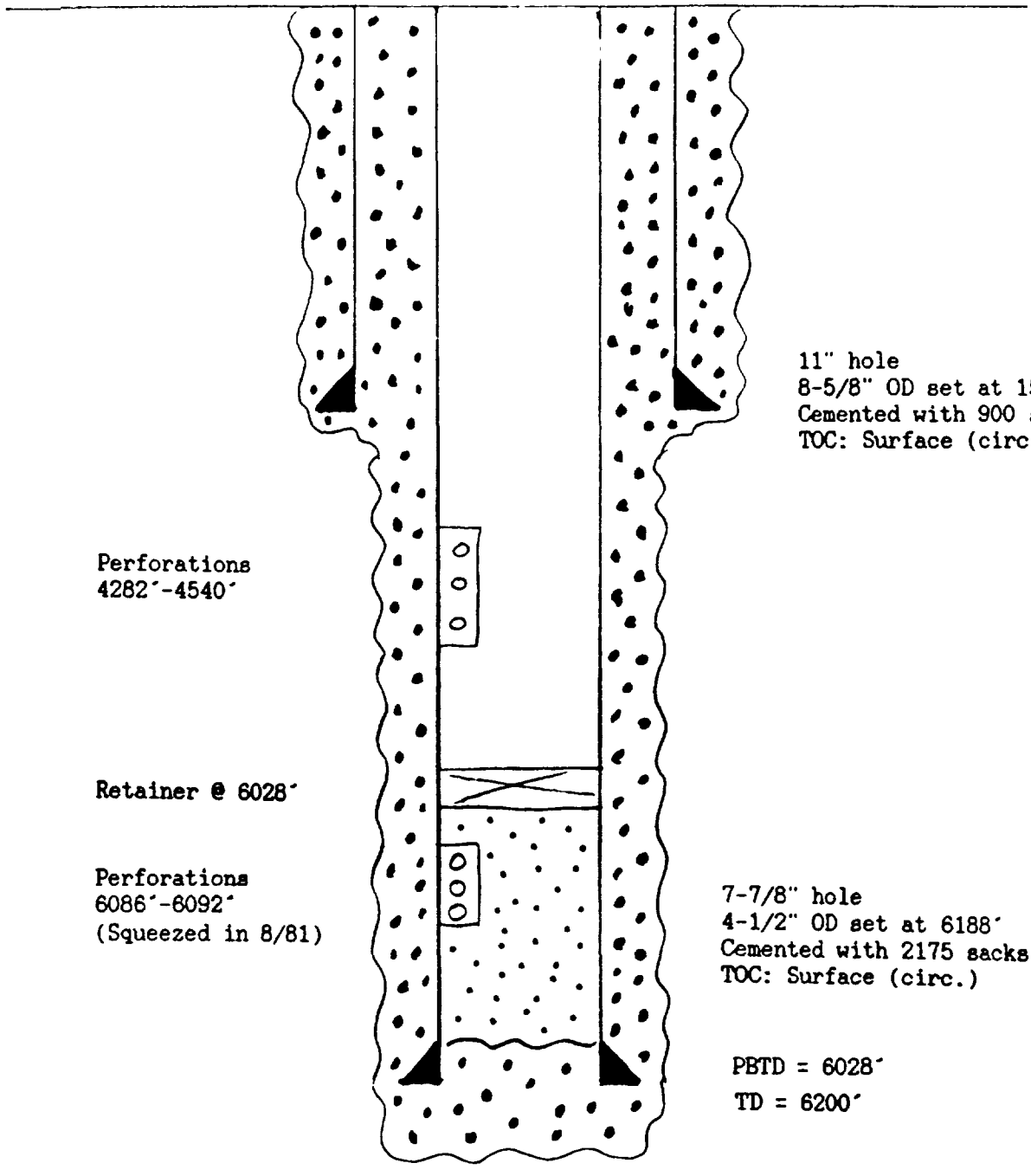
Devon State Well No. 3
1710' FSL & 2300' FEL
Section 22, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 4**

PHILLIPS PETROLEUM COMPANY

Leamex Well No. 30
660' FSL & 660' FEL
Section 21, T-17-S, R-33-E
Lea County, New Mexico

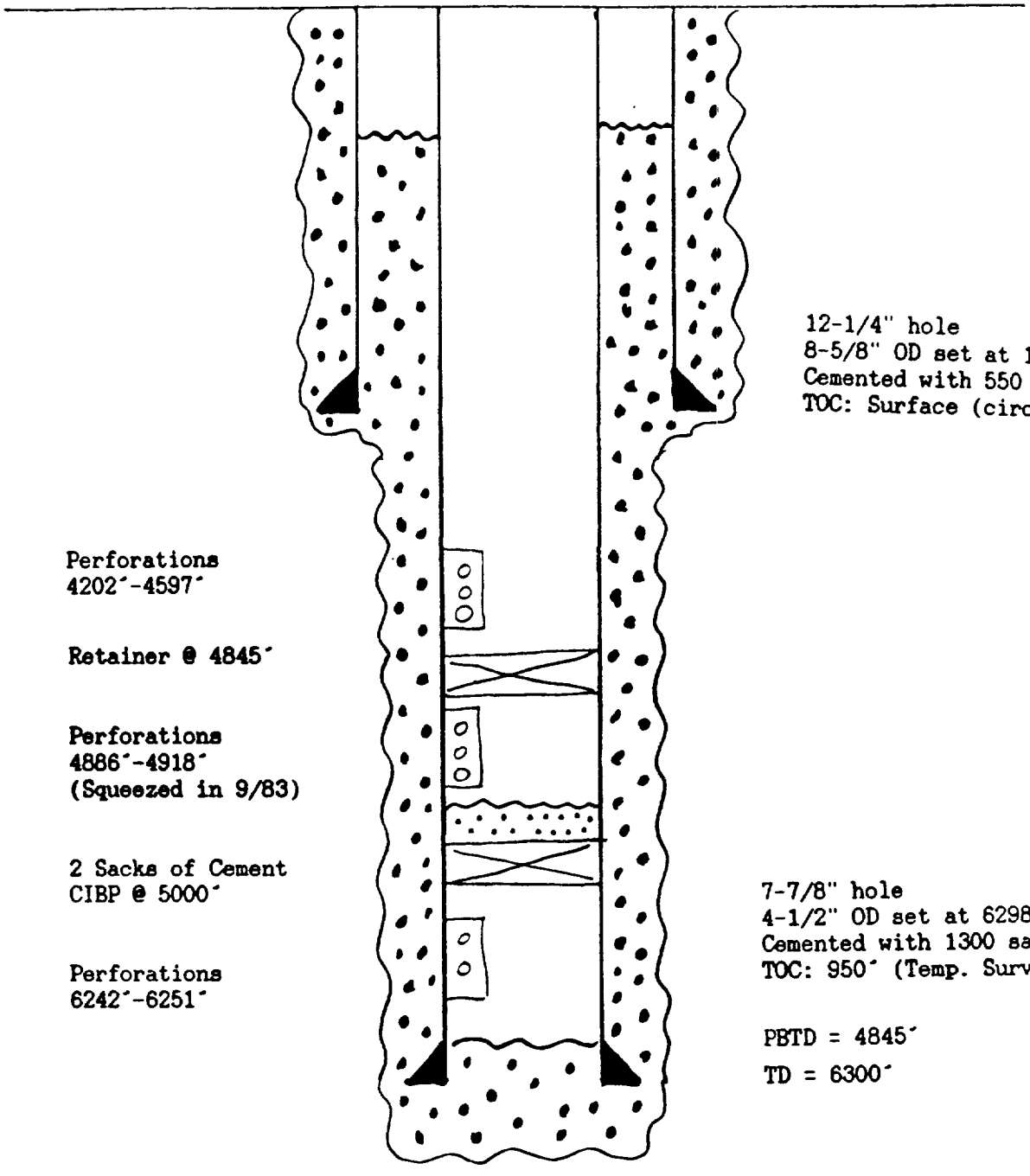



**ATTACHMENT NO. 5**

8

PHILLIPS PETROLEUM COMPANY

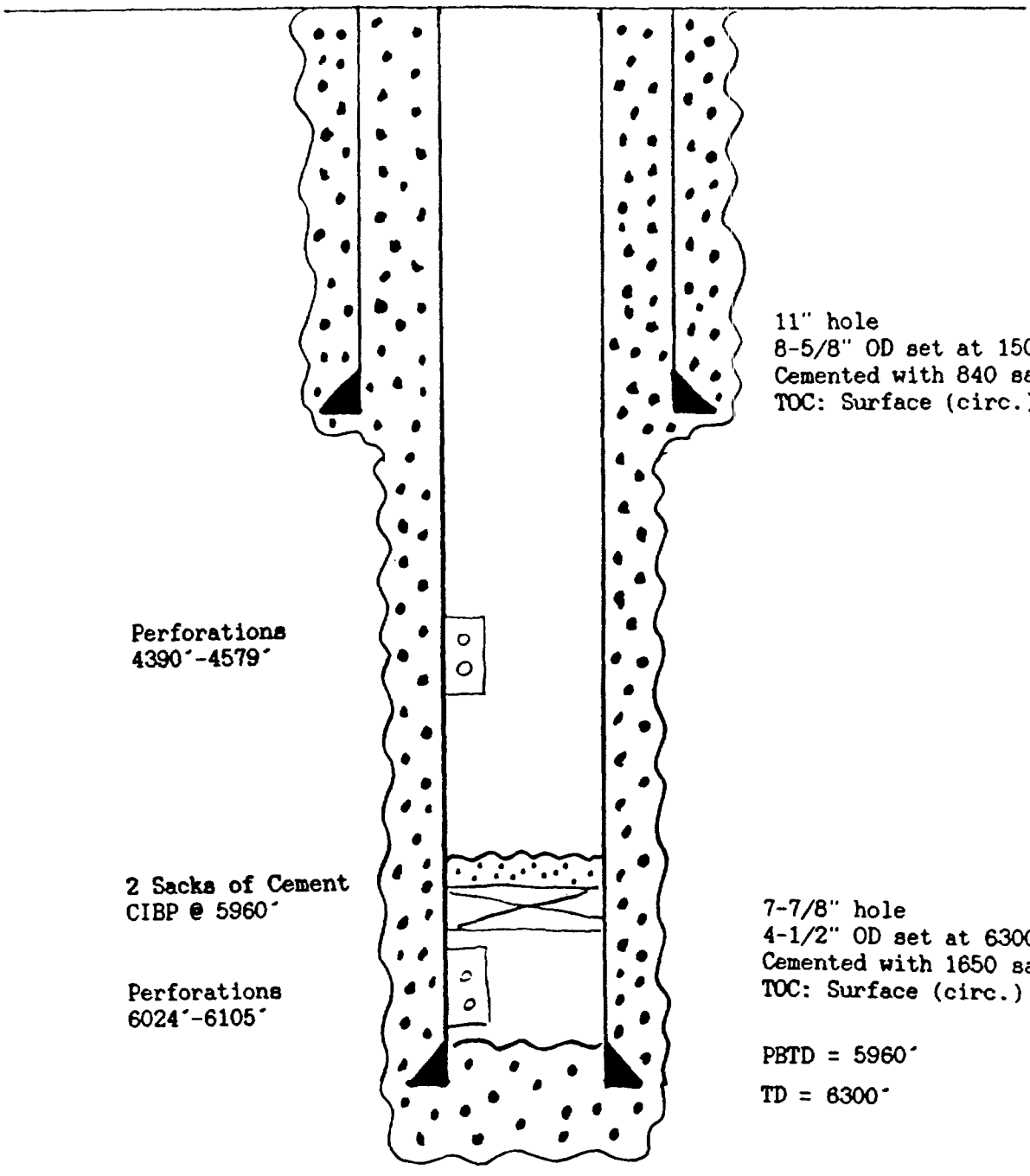
Leamex Well No. 35
2130' FSL & 1980' FWL
Section 22, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 6**

PHILLIPS PETROLEUM COMPANY

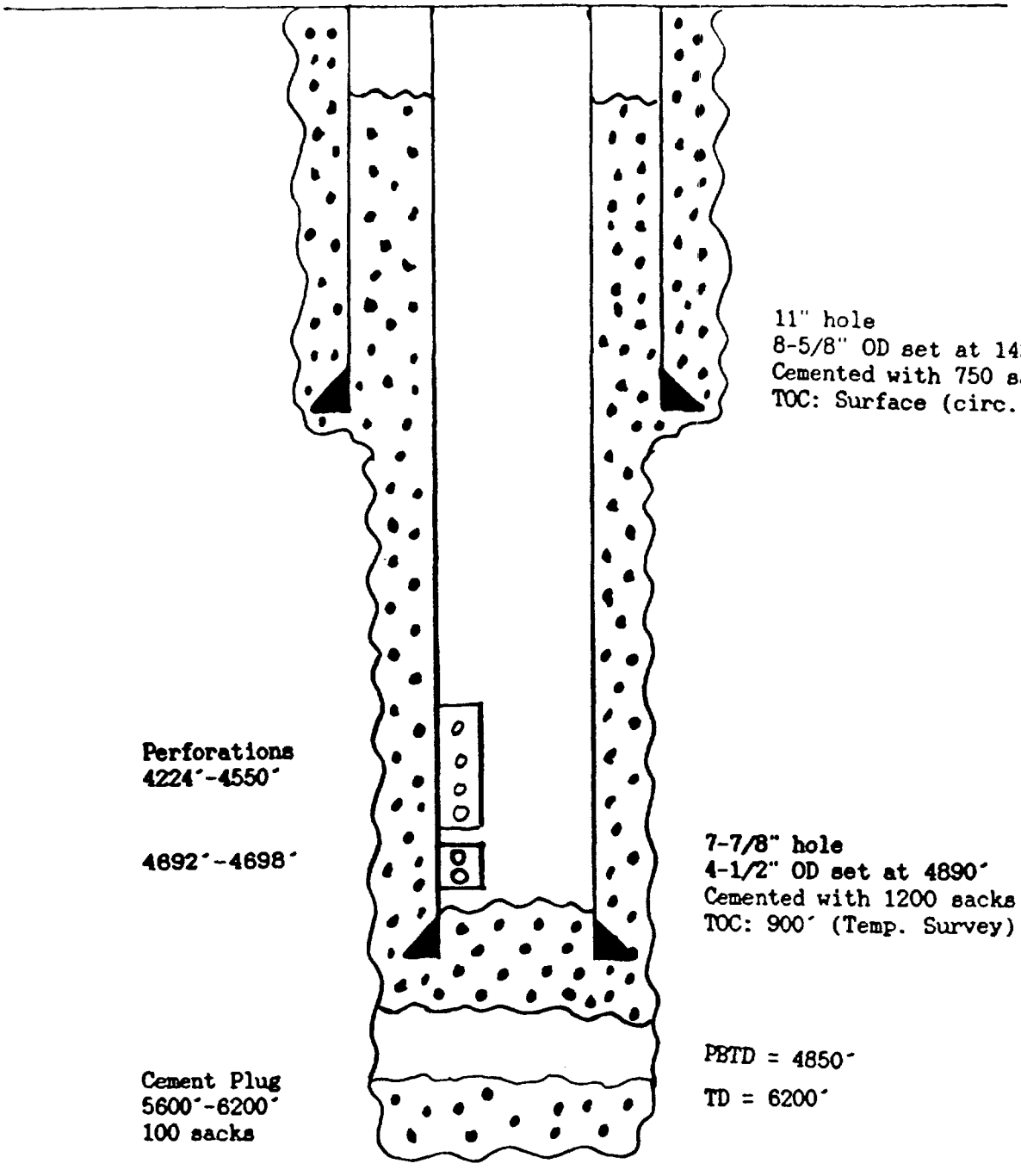
Philmex Well No. 13
330' FNL & 1980' FEL
Section 27, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 7**

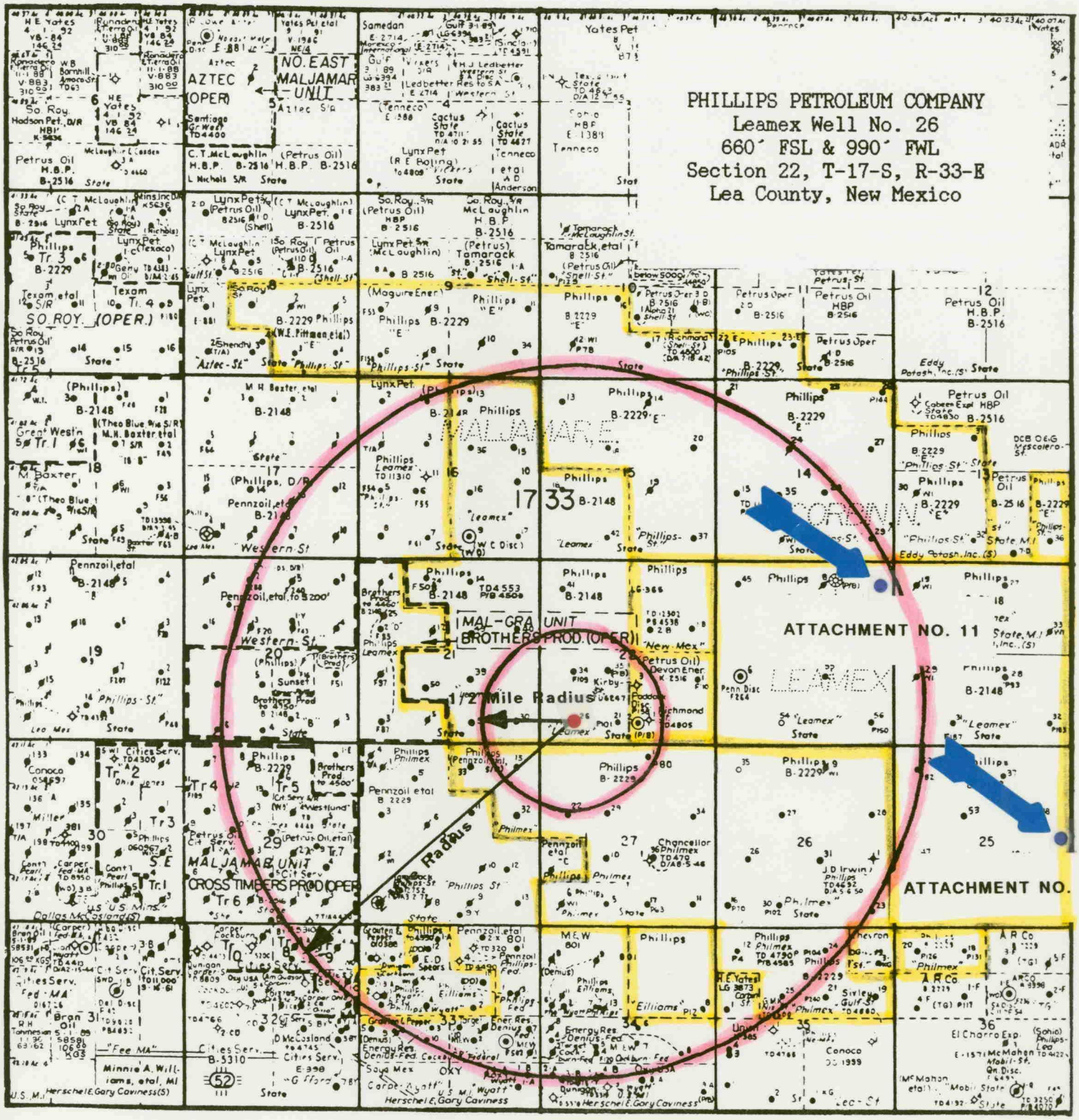
PHILLIPS PETROLEUM COMPANY

Philmex Well No. 15
660' FNL & 660' FEL
Section 28, T-17-S, R-33-E
Lea County, New Mexico




**ATTACHMENT NO. 8**

# Fresh Water Well Locations




## ATTACHMENT NO. 9

Acreage belonging to Phillips Petroleum Co.

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM
Date : 05-02-1989
Location: AMEX #1 (on 05-02-1989)

| | Sample 1 |
|---|---|
| Specific Gravity: | 1.000 |
| Total Dissolved Solids: | 345 |
| pH: | 7.05 |
| IONIC STRENGTH: | 0.007 |

| CATIONS: | | me/liter | mg/liter |
|---|---|---|---|
| Calcium | ($Ca^{+2}$) | 2.80 | 56.0 |
| Magnesium | ($Mg^{+2}$) | 1.30 | 15.8 |
| Sodium | ($Na^{+1}$) | 0.538 | 12.4 |
| Iron (total) | ($Fe^{+2}$) | 0.018 | 0.500 |
| **ANIONS:** | | | |
| Bicarbonate | ($HCO_3^{-1}$) | 3.60 | 220 |
| Carbonate | ($CO_3^{-2}$) | 0 | 0 |
| Hydroxide | ($OH^{-1}$) | 0 | 0 |
| Sulfate | ($SO_4^{-2}$) | 0.333 | 16.0 |
| Chloride | ($Cl^{-1}$) | 0.705 | 25.0 |

SCALING INDEX (positive value indicates scale)

| Temperature | | Calcium Carbonate | Calcium Sulfate |
|---|---|---|---|
| 86°F | 30°C | -0.34 | -18 |

**ATTACHMENT NO. 10**

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM
Date : 05-02-1989
Location: DUVAL (on 05-02-1989)

| | Sample 1 |
|---|---|
| Specific Gravity: | 1.000 |
| Total Dissolved Solids: | 322 |
| pH: | 7.08 |
| IONIC STRENGTH: | 0.007 |

| CATIONS: | | me/liter | mg/liter |
|---|---|---|---|
| Calcium | ($Ca^{+2}$) | 2.80 | 56.0 |
| Magnesium | ($Mg^{+2}$) | 1.40 | 17.0 |
| Sodium | ($Na^{+1}$) | 0.205 | 4.71 |
| Iron (total) | ($Fe^{+2}$) | 0.021 | 0.600 |
| **ANIONS:** | | | |
| Bicarbonate | ($HCO_3^{-1}$) | 3.20 | 195 |
| Carbonate | ($CO_3^{-2}$) | 0 | 0 |
| Hydroxide | ($OH^{-1}$) | 0 | 0 |
| Sulfate | ($SO_4^{-2}$) | 0.500 | 24.0 |
| Chloride | ($Cl^{-1}$) | 0.705 | 25.0 |

SCALING INDEX (positive value indicates scale)

| Temperature | | Calcium Carbonate | Calcium Sulfate |
|---|---|---|---|
| 86°F | 30°C | -0.36 | -18 |

**ATTACHMENT NO. 11**