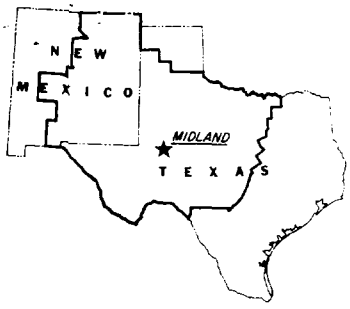


SKELLY OIL COMPANY

EXPLORATION & PRODUCTION DEPARTMENT
WEST CENTRAL DISTRICT

A. B. CARY, EXPLORATION & PRODUCTION MANAGER
V. E. BARTLETT, EXPLORATION MANAGER
C. J. LOVE, PRODUCTION MANAGER
J. R. AVENT, ADMINISTRATIVE COORDINATOR

December 31, 1973

ADDRESS REPLY TO:
P. O. BOX 1351
MIDLAND, TEXAS 79701

File: Skelly Langlie Mattix Steeler
Waterflood Project
Lease No. 03860
Lea County, New Mexico
Langlie Mattix Pool
Skelly Interest : 100%

Re: Application for Waterflood Expansion

New Mexico Oil Conservation Commission (3)
State Land Office Building
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Secretary-Director

Gentlemen:

Skelly Oil Company respectfully requests administrative approval to expand its Skelly Langlie Mattix Steeler Waterflood Project in the Langlie Mattix Pool, Lea County, New Mexico. The Skelly Langlie Mattix Steeler Waterflood Project was authorized by Order No. R-3593 dated November 26, 1968.

The subject waterflood project is governed by the provisions of Rules 701, 702, and 703 of the Commission rules and regulations; PROVIDED, HOWEVER, that the Secretary-Director of the Commission may approve expansion of the project to include such additional lands and injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

Skelly initiated a pilot waterflood project by conversion of the E. L. Steeler No. 6 to injection service on December 23, 1968. No response has been achieved to date, but it is desired to expand the waterflood project in order to complete an efficient water injection pattern.

Skelly Oil Company requests administrative approval to convert the following wells to water injection service:

Township 23 South, Range 37 East
E. L. Steeler Well No. 1, Unit B of Section 17
E. L. Steeler Well No. 3, Unit H of Section 17
E. L. Steeler Well No. 7, Unit L of Section 17

Conversion of these wells will permit co-operative flood and leaseline agreements with the offsetting Skelly Penrose "B" Unit to the north, the Samedan Langlie Mattix B-4 Penrose (Queen) Unit to the west, the Texaco State BZ lease to the east, and the Skelly J. C. Johnson lease to the south.

Attached are: A map showing all wells within a two mile radius, a plat showing present and proposed injection wells, a schematic diagram and copy of the log on the wells included in this application, and an analysis of each of the water sources of the water to be injected.

Skelly proposes to expand the project to place the E. L. Steeler under full-scale flood in the following manner: We propose to utilize purchased pressured water from the Skelly Penrose "B" Unit on the E. L. Steeler No. 1 and No. 3 wells initially, and produced water on the E. L. Steeler No. 6 and No. 7 wells. Injection water from the E. L. Steeler No. 6 is a combination of trucked produced water from Skelly operated wells in the vicinity and produced water from the recently recompleted J. C. Johnson No. 6 well (Grayburg). This will be continued. Produced water from a planned recompletion of the J. C. Johnson No. 3 well (Grayburg) will also be utilized for injection into the E. L. Steeler No. 7 well. Purchases of pressured water will be phased out as produced water from the flood area becomes available as replacement. Anticipated injection rates are 300-600 BPD per well at pressures of 1,500-1,800 psig.

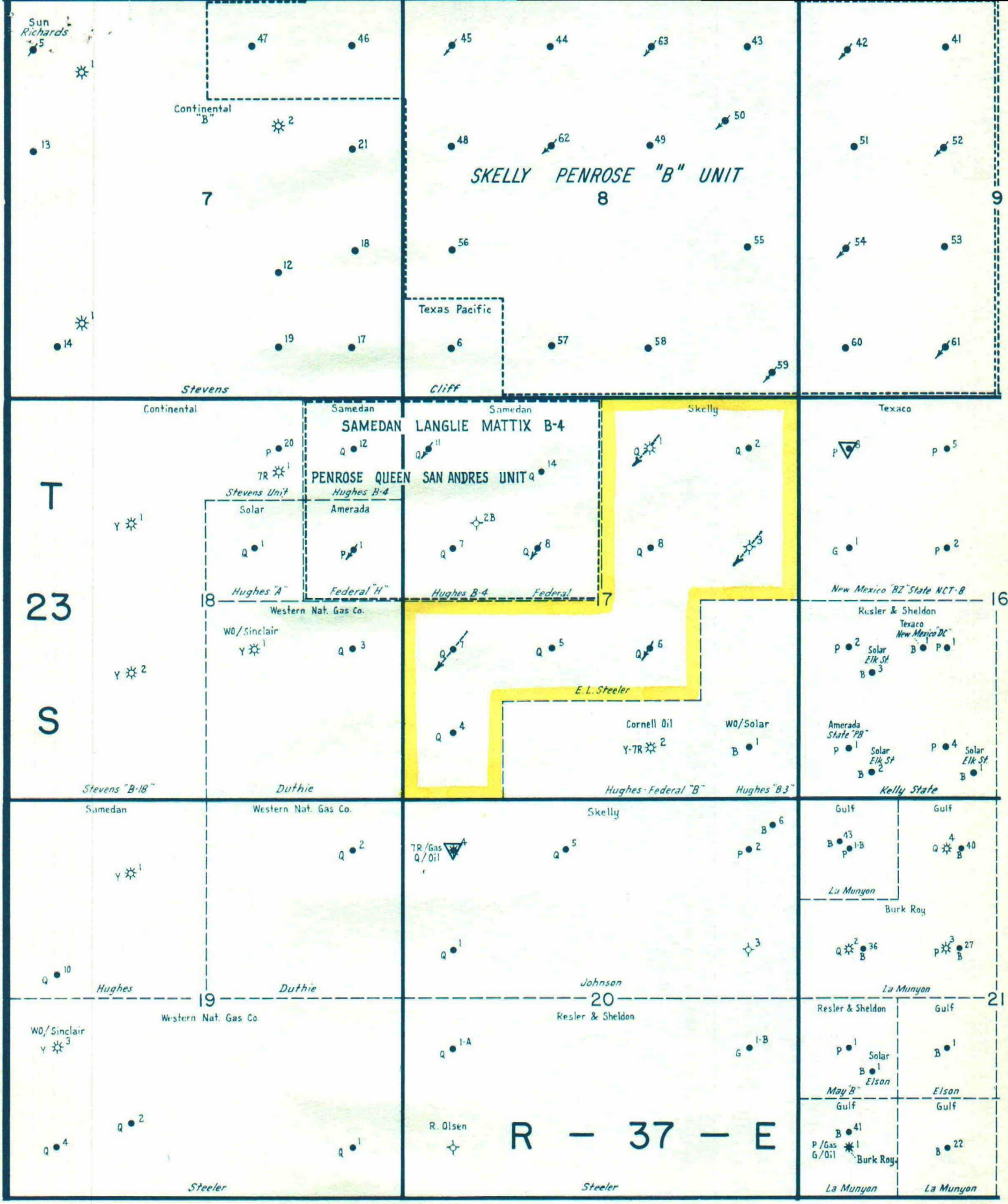
All offset operators are being notified of this application by copy of this letter.

Yours very truly,

C. J. Love
Dist. Production Manager

OVS/rc
Attach:

cc: Samedan Oil Company - Midland, Texas
Texaco, Inc. - Hobbs, New Mexico
Resler & Sheldon - ~~Roswell, New Mexico~~ Port Isabell, Texas



LEGEND

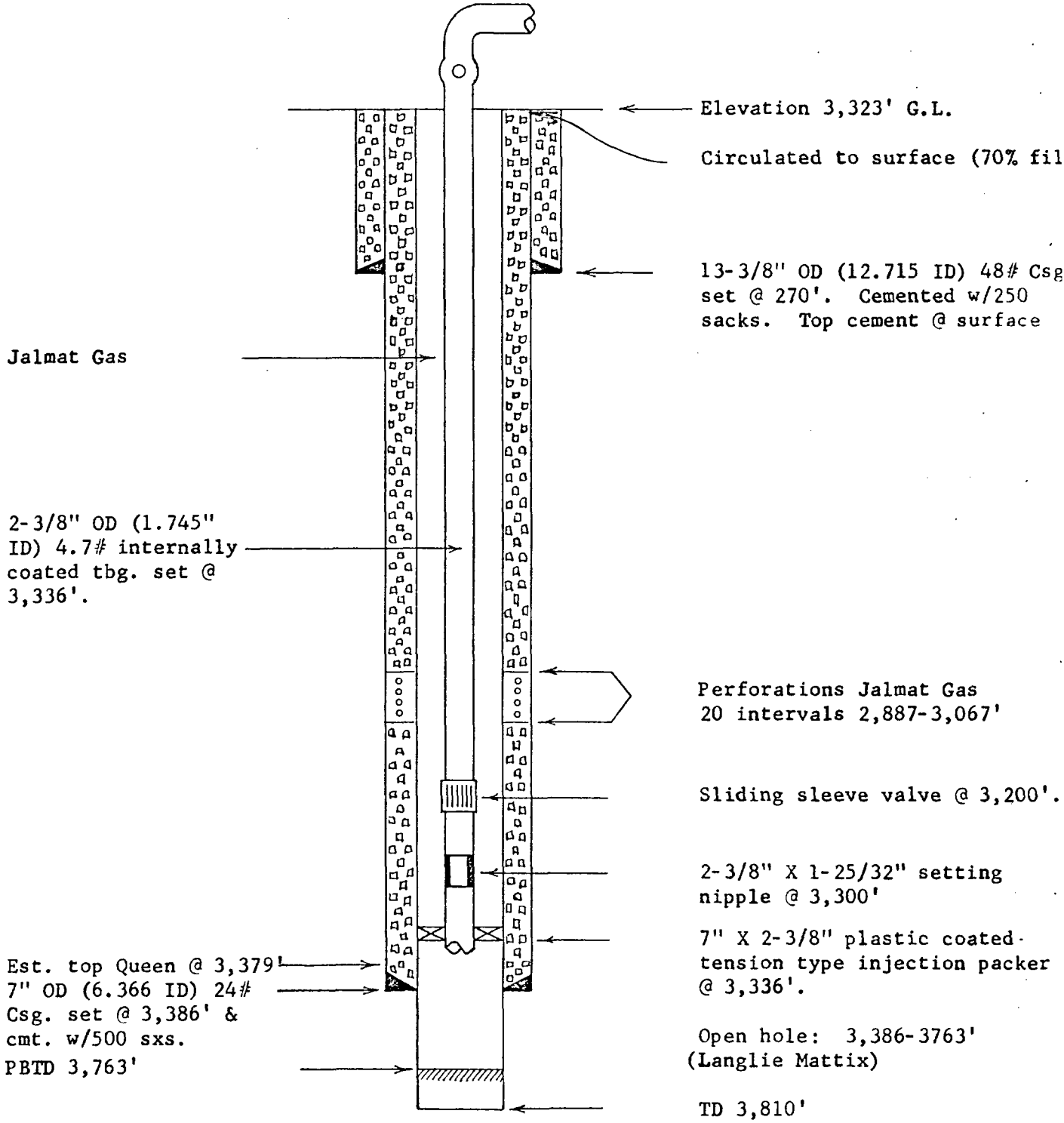
- Steeler Lease
- Injection Well
- Proposed Injection Well
- Future Injection Well

Exhibit "A"
SKELLY OIL COMPANY
WEST CENTRAL E & P DISTRICT
SKELLY LANGLIE MATTIX STEELER WATERFLOOD PROJECT
Lea County, New Mexico

0 1 2 3
SCALE IN THOUSANDS OF FEET

SKELLY LANGLIE MATTIX STEELER WATERFLOOD PROJECT

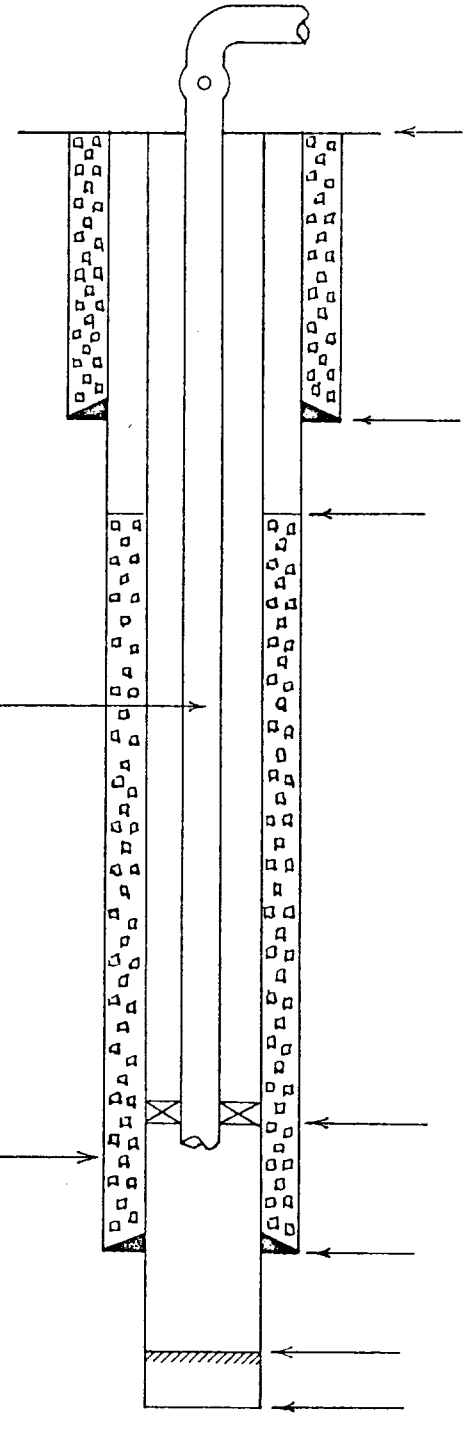
Typical Injection Well With Jalmat Gas Zone Open
Dual Completion



ACTUAL WELL SHOWN
SKELLY OIL COMPANY E. L. STEELER NO. 1
UNIT B SECTION 17, T23S-R37E
LEA COUNTY, NEW MEXICO

SKELLY LANGLIE MATTIX STEELER WATERFLOOD PROJECT

Typical Injection Well With Open Hole Completion



Elevation 3,322' D.F.

9-5/8" OD (8.921" ID), 36# Csg. set @ 1,087'. Cemented w/300 sacks. Top cement surface.

Top cement calculated @ 2,511' (70% fill).

2-3/8" OD (1.745" ID), 4.7# internally coated tbg. set @ 3,350'.

5-1/2" X 2-3/8" plastic coated tension type injection packer @ 3,350'.

Est. top Queen 3,352'

Open hole @ 3,400'-3,570'

5-1/2" OD (4.892" ID), 17# Csg. set @ 3,400' cemented with 200 sacks.

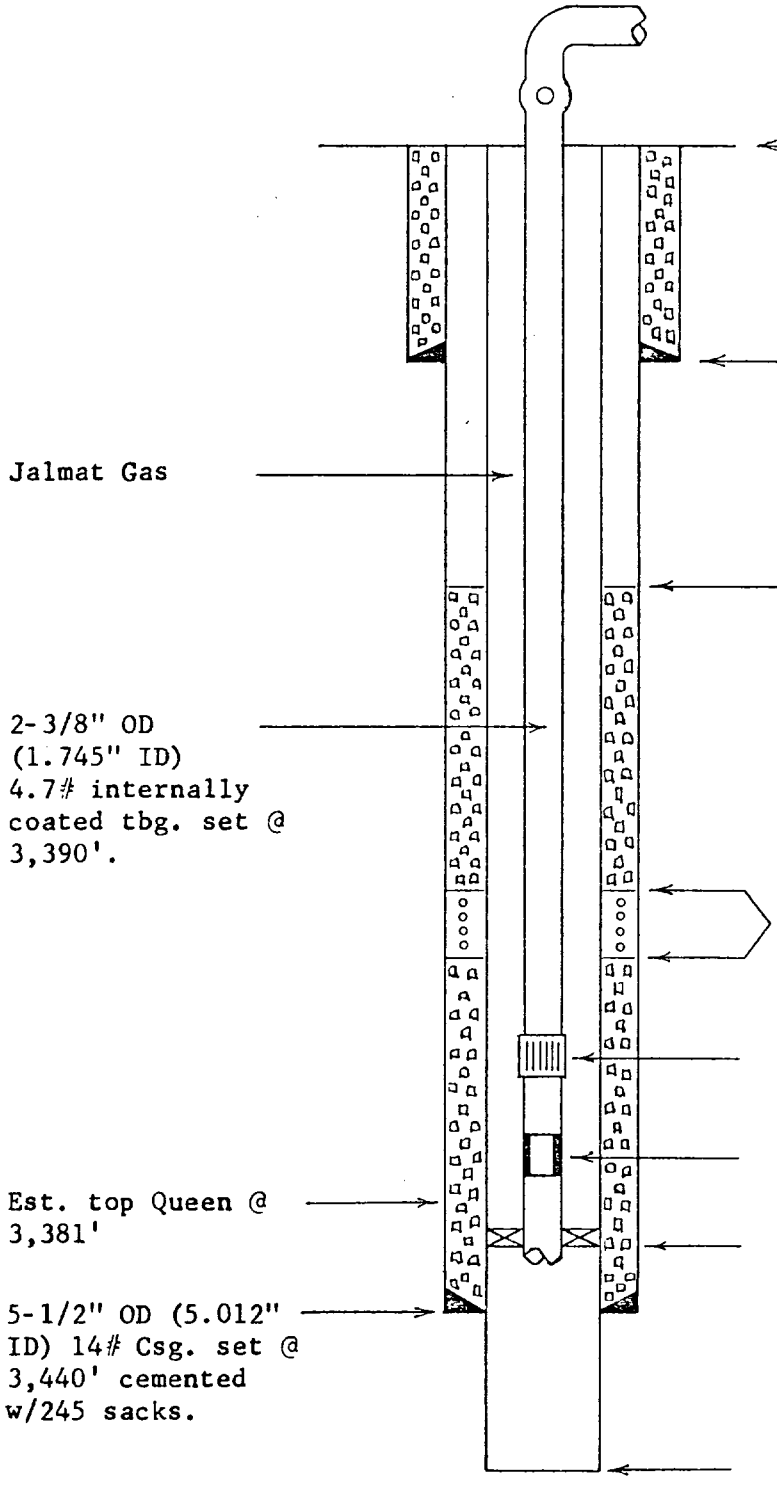
PBTD 3,570'

TD 3,737'

ACTUAL WELL SHOWN
SKELLY OIL COMPANY
E. L. STEELER No. 3
UNIT H SEC. 17, T23S-R37E
LEA COUNTY, NEW MEXICO

SKELLY LANGLIE MATTIX STEELER WATERFLOOD PROJECT

Typical Injection Well With Jalmat Gas Zone Open
Dual Completion



ACTUAL WELL SHOWN:
SKELLY OIL COMPANY E. L. STEELER NO. 7
UNIT L SECTION 17, T23S-R37E
LEA COUNTY, NEW MEXICO

834-0015

EXXON CHEMICAL COMPANY U.S.A.
SPECIALTIES LABORATORY
December 28, 1973
8230 Stedman, Houston, Texas 77029

EXXON CHEMICALS

WATER ANALYSIS

SAMPLE DESCRIPTION: Water sample from Penrose "B" Unit input #54 submitted for routine correlation and stability to $CaCO_3$

COMPANY: Skelly Oil Company
STSR NUMBER: 1273147
REQUESTED BY: Harold Langen

DATE RECEIVED: 12-20-73
ANALYZED BY: Gene Keil

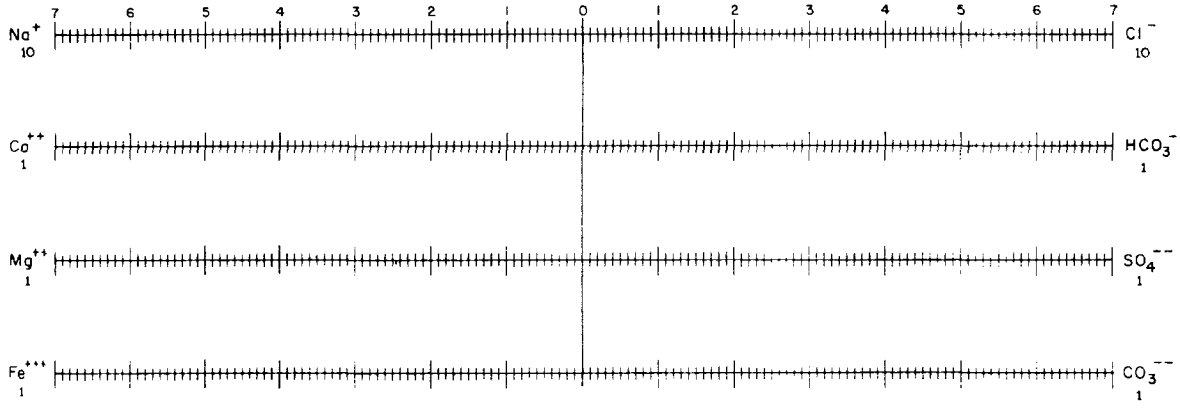
	Mg/L	Meq/L
Sodium	6,270	272.6
Calcium	682	34.1
Magnesium	971	79.9
Chloride	11,008	310.4
Sulfate	2,730	56.8
Bicarbonate	1,183	19.4
Carbonate	0	0.0
Hydroxide	0	0.0
TOTAL	22,844	
Dissolved Iron		
Total Iron	4.2	0.2

pH 7.3

Specific Gravity at 60 °F. 1.0186
Resistivity ohms/m @ 77°F 0.360

	Mg/L
Oil Content	
Organic Matter	
Hydrogen Sulfide	313
Total Alkalinity, as $CaCO_3$	970
Supersaturation as $CaCO_3$	69

WATER PATTERN (Stiff Method)



Meq/LITER

Remarks:

834-0015

EXXON CHEMICAL COMPANY U.S.A.
SPECIALTIES LABORATORY
December 28, 1973
8230 Stedman, Houston, Texas 77029

EXXON CHEMICALS

WATER ANALYSIS

SAMPLE DESCRIPTION: Theoretical combination of 2/3 E. L. Steeler water and 1/3 J. C. Johnson water.

COMPANY: Skelly Oil Company
STSR NUMBER: 1273148 (page 3)
REQUESTED BY: Harold Langen

DATE RECEIVED: 12-20-73
ANALYZED BY: Gene Keil

	Mg/L	Meq/L
Sodium	37,711	1,639.6
Calcium	7,237	361.9
Magnesium	788	64.9
Chloride	72,321	2,039.5
Sulfate	469	9.8
Bicarbonate	1,045	17.1
Carbonate	0	0.0
Hydroxide	0	0.0
TOTAL	119,571	
Dissolved Iron		
Total Iron	0.59	

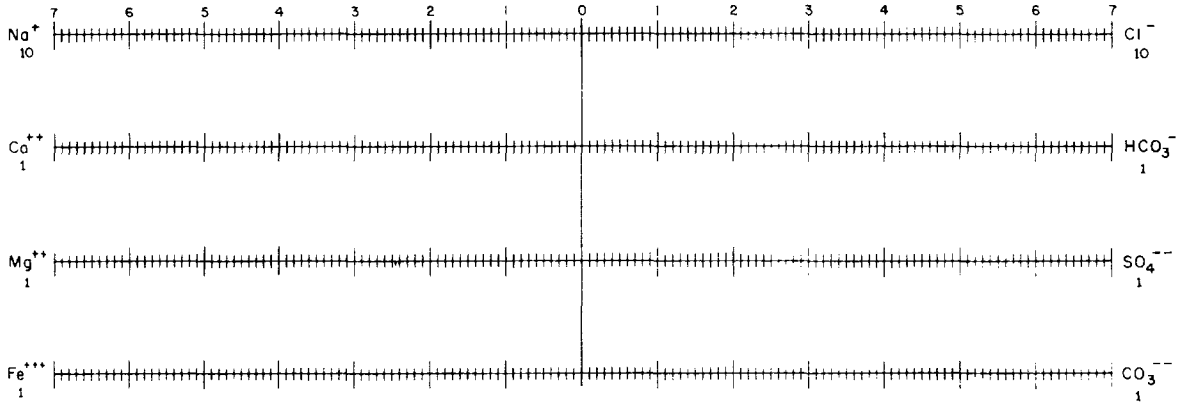
pH 7.2

Specific Gravity at 60 °F. 1.0710

Resistivity ohms/m @ 77°F 0.080

	Mg/L
Oil Content	
Organic Matter	
Hydrogen Sulfide	193

WATER PATTERN (Stiff Method)



Meq/LITER

Remarks: