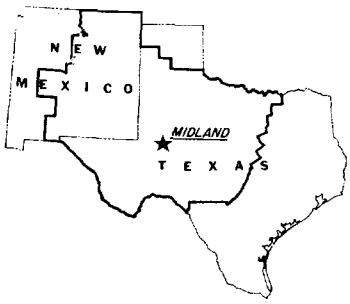


SKELLY OIL COMPANY

May 18, 1972

EXPLORATION & PRODUCTION DEPARTMENT
WEST CENTRAL DISTRICT

C. J. LOVE, PRODUCTION MANAGER
B. A. STRICKLING, OPERATIONS SUPERINTENDENT
F. J. PETRO, DISTRICT PRODUCTION ENGINEER
J. D. MCCLAINE, DISTRICT RESERVOIR ENGINEER
K. E. BOHRER, OUTSIDE OPERATIONS SUPERVISOR

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

File: Lea "D" Waterflood Project
Lease No. 69655

Re: Application for waterflood expansion
Lea "D" Waterflood Project
Grayburg-Jackson Pool
Eddy County, New Mexico

WFX-370
New Mexico

New Mexico Oil Conservation Commission
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 Lea "D" Waterflood Project in the Grayburg-Jackson Pool, Eddy County, New Mexico. This project was authorized by Order No. R-3952 on April 22, 1970.

The subject waterflood project is governed by provisions of Rule 701, 702, and 703 of the Commission rules and regulations; PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the Skelly Grayburg-Jackson Lea "D" Waterflood Project to include such additional 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.

The Lea "D" Waterflood Project consists of 240 acres, which comprises the NE/4 and N/2 of the SE/4 of Section 26, T-17-S, R-31-E. Water injection commenced during December, 1970 and presently the Lea "D" Waterflood Project consists of three injection wells and three producing wells. A compensating agreement is in effect with the offsetting operator, thereby protecting correlative rights. Injection water is purchased from adjoining 100% Skelly owned and operated Skelly Unit.

Oil production from the three Lea "D" producing wells has increased from 37 barrels of oil per day at start of water injection to a current rate of 55 barrels per day. Cumulative oil production from the start of injection to April 1, 1972 was 30,469 barrels. Cumulative water injection to April 1, 1972 was 650,924 barrels. The daily injection rate is currently 1,250 BWPD at 1,700 psig.

Skelly desires to expand the waterflood and requests administrative approval to drill and complete as a water injection well the following:

Township 17 South, Range 31 East, Lea "D" Well No. 7, Unit 6, Section 26.

Skelly requests essentially the same provisions here as were made for the Lea "D" Waterflood Project, namely permission to:

1. Inject water into all intervals included in the vertical limits of the Grayburg-Jackson Pool.

2. Selectively complete the water injection well as may be required to permit separate and simultaneous injection into the Grayburg-Jackson reservoir, if desirable, in the future.

3. Future expansion of the project area within the Lea "D" Lease boundaries by administrative approval should additional wells be completed on the lease.

Attached are the following exhibits:

A. A plat showing the location of the project and location of the proposed injection well. This plat shows all wells and producing horizons within a two mile radius.

B. A diagrammatic sketch of the proposed injection well as it will be when completed and equipped for water injection service. Internally coated tubing will be employed with a tension type packer set as shown. The annular space above the packer will be loaded with inhibited water and a pressure gauge receptacle will be installed on the casing and tubing annulus to monitor any pressure increase.

C. A schematic diagram of the injection well meter run, which will be employed on the well.

D. A laboratory analysis of the water which will be injected. The water is fresh and is taken from the Ogallala Formation as shown by the analysis. Anticipated injection rates are 300-600 BPD at pressures of 1,500-2,000 psi.

Copies of all logs on the Lea "D" Waterflood Project were submitted to the N.M.O.C.C. at the time we requested a hearing for permission to

waterflood the lease. A log from the proposed well will be available for the commission upon completion.

Based on performance of the Lea "D" Waterflood project and in an effort to increase oil recovery, thereby preventing waste, we request that this application to expand the Lea "D" Waterflood Project through drilling and completion of a new injection well be approved.

Very truly yours,

C. J. Love

C. J. Love
District Production Manager

WTT/rc
Attachments

cc: USGS

DIAGRAMMATIC SKETCH
SKELLY OIL COMPANY
Lea "D" No. 7
1980' FNL & 1980' FWL
Section 26-T17S-R31E
Eddy County, New Mexico
(Proposed Injection Well)

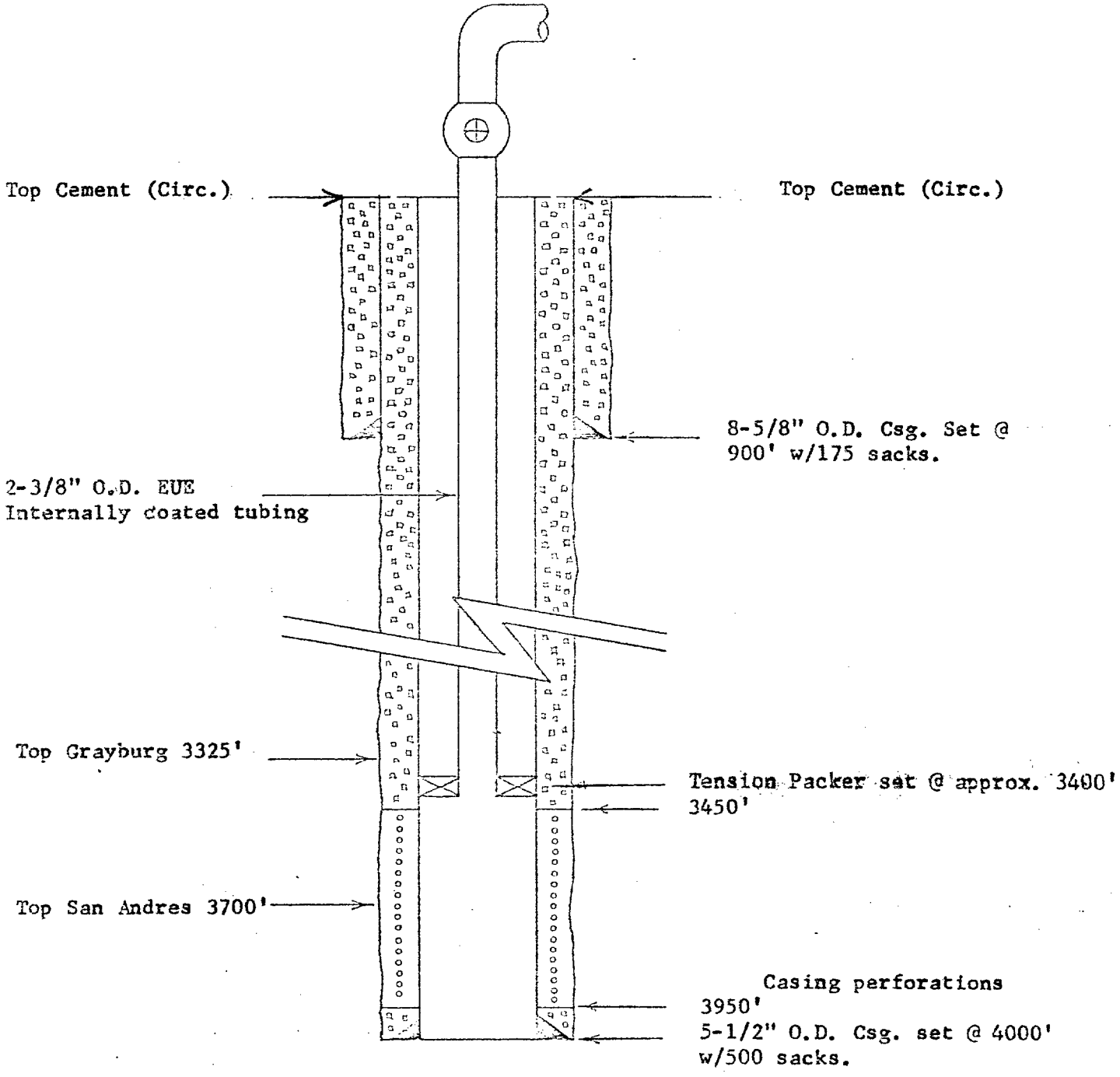
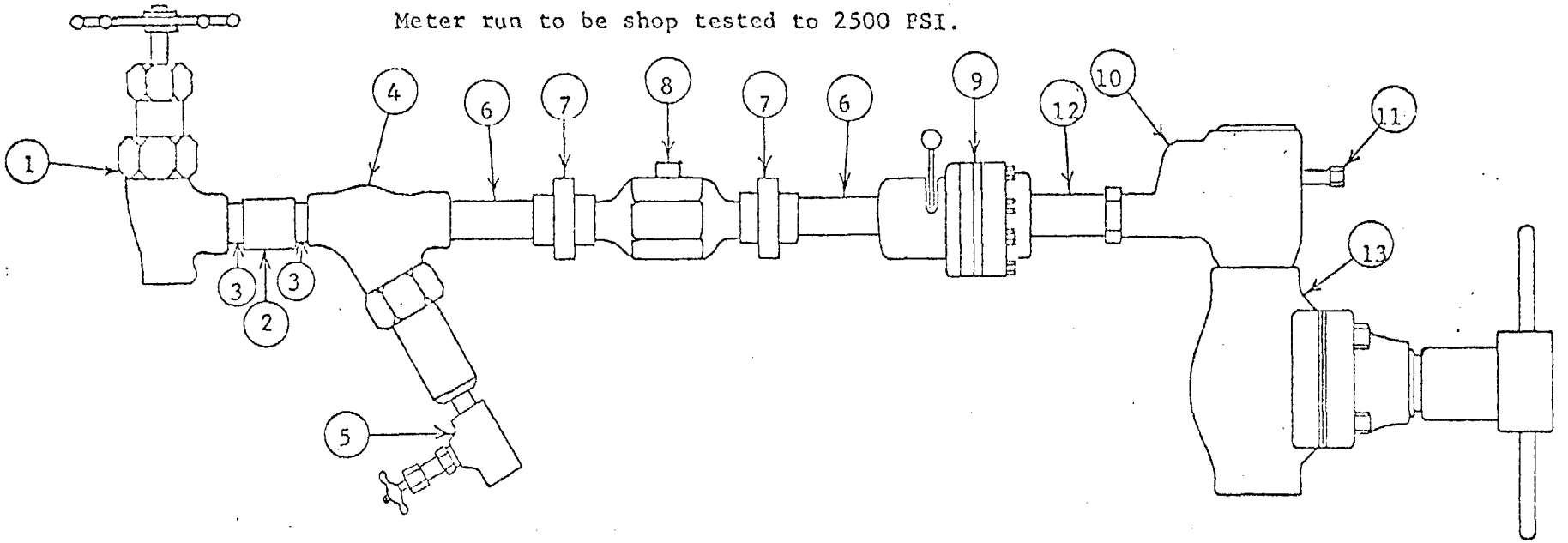


Exhibit "B"

MAXIMUM WORKING PRESSURE 2000 PSI WOG

Note: All items to be internally plastic coated except meter, gauge valve & fiber glass nipple with 3-M Scotch Kote No. 101 (Baked on) with 10-15 mil thickness and applied by Meister Plastic Coating Co., 2013 W 42, Odessa, Texas
All screwed connection assembled using teflon tape.

Meter run to be shop tested to 2500 PSI.



Item	DESCRIPTION	Qnty
1	Valve, Edwards 1", Fig. 849, P. L. Stop	1
2	Coupling, 1" x 6" Red Thread Fiberglass, Female threads, 1.14" ID x 1.60" OD 2500 psi WOG	1
3	Nipple, 1" x 3" 2500 psi WOG	2
4	Strainer, Edwards 1" Figure 236	1
5	Valve, Edwards 1/2" Fig. 152 J. Gauge	1
6	Nipple, 1" x 6" 2000# WOG	2
7	Union, Screw Hex Type, 1" 2000# psi WOG	2
8	Meter, 1" Halliburton Turbine Flow Meter (stainless steel)	1
9	Valve, Willis Type M99 Multiple orfice (2-1/4" holes)	1
10	Assembly, well head injection: Edjohn CS Fig. T-21-BC 2000# W.P. W/2" EUE Bottom Thread, Side Tapped with 1/2" L.P. Thread and Top Plug Blank with underneath coupon attachment.	1
11	Connector, 1/2" Thornhill Craver (or equal) Gauge Valve	1
12	Nipple, 1" x 3" 2000# WOG	1
13	Valve, Edwards 2", Fig. 2426 Gate, with 2" EUE Tubing Thread on both ends, Aluminum Bronze Trim,	1

SKELLY OIL COMPANY
WEST CENTRAL DISTRICT

INJECTION WELL METER RUN

LEA "D" WATERFLOOD PROJECT

EDDY COUNTY, NEW MEXICO

Exhibit "C"

ENJAY CHEMICAL COMPA

Houston Chemical Plant
8230 Stedman, Houston, Texas 77029
May 15, 1970

WATER ANALYSIS

SAMPLE DESCRIPTION: Water sample from SKU supply submitted for routine correlation analysis.

COMPANY: Skelly Oil Co.
STSR NUMBER: #57091
REQUESTED BY: A. T. Bohannon

DATE RECEIVED: 5-13-70
ANALYZED BY: J. P. Kindle

	Mg/L	Meq/L
Sodium	46	2.0
Calcium	48	2.4
Magnesium	10	0.8
Chloride	38	1.1
Sulfate	40	0.8
Bicarbonate	203	3.3
Carbonate	0	0.0
Hydroxide	0	0.0
TOTAL	385	
Dissolved Iron		
Total Iron	0.08	0.0

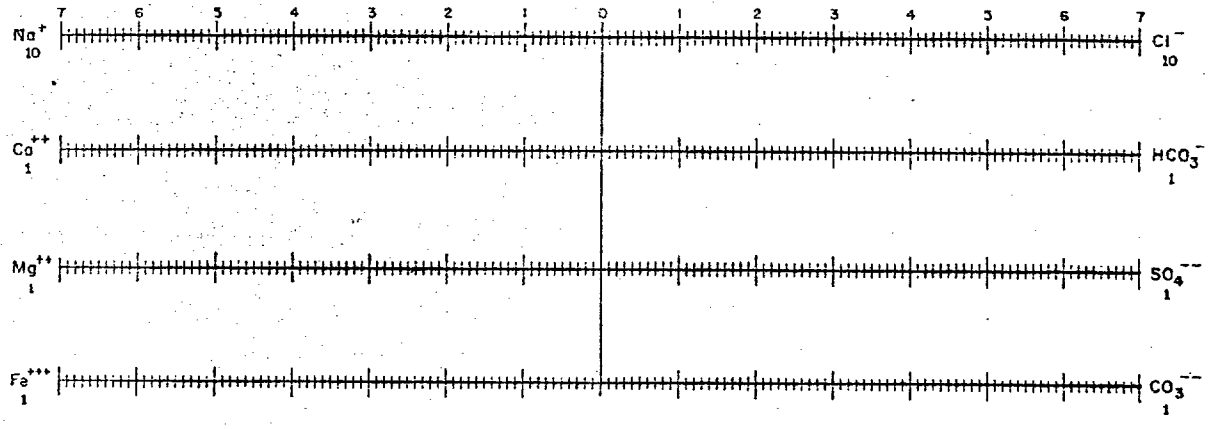
pH 7.7

Specific Gravity at 60 °F- 1.0034

Resistivity, ohms/m @ 77°F. 10.53

	Mg/L
Oil Content	
Organic Matter	
Hydrogen Sulfide	0.0

WATER PATTERN (Stiff Method)



Meq/LITER

Remarks:

Exhibit "D"

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE