

SKELLY OIL COMPANY

November 8, 1972

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

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

[Handwritten signature]

File: Skelly Unit Well No. 3
Lease No. 73617

Re: Application for waterflood expansion
Grayburg-Jackson Pool
Eddy County, New Mexico

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

WFX - 382

No waiting

Attention: Secretary Director

Gentlemen:

Additional wells - Injection - Producers by administrative procedure authorized by Order R-4419 10/16/72

Skelly Oil Company respectfully requests administrative approval to expand the Skelly Unit Waterflood in the Grayburg-Jackson Pool, Eddy County, New Mexico. The Skelly Unit Waterflood was authorized by Order No. R-2900, May 4, 1965, and amended by Order R-3214, April 11, 1967.

The subject waterflood project is governed by the 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 Grayburg-Jackson Skelly Unit Waterflood project to include additional wells, within said unit area, or water injection as may be necessary to complete an efficient waterflood pattern.

Skelly initiated a six injection well, eighty-acre five spot pilot project during April, 1965. Successful response to water injection led Skelly to expand the project. By November, 1972, the original pilot has been expanded to include a total of 39 injection wells. The latest expansion being by Order No. WFX-357 dated June 1, 1971. Plans at present are to convert the Skelly Unit No. 102 and No. 114 to water injection, for which prior approval has been received. Following these conversions, the Unit will have a total of 41 injectors.

The Skelly Unit Well No. 3 is a dually completed Seven Rivers and Grayburg-San Andres producer. Authority to dually complete this well

DOCKET MAILED

Skelly Unit Well No. 3
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was granted by N.M.O.C.C. Order No. MC-1287, dated March 15, 1963. Plans are to inject water into the Grayburg-San Andres via 2-3/8" tubing. A permanent packer will be installed between the Seven Rivers and Grayburg-San Andres. Water will be injected below the packer and the Seven Rivers will be produced via 2-3/8" tubing above the packer; therefore, administrative approval is requested to convert the following well to a Grayburg-San Andres injector and continue producing the Seven Rivers.

Township 17 South, Range 31 East
Unit Well No. 3, Unit D, Section 22

Under Order No. R-3214, Skelly was authorized to effect a waterflood project in the Grayburg-Jackson Pool in the Skelly Unit by selective injection of water into various zones throughout the entire Grayburg-Jackson producing interval. Selectivity of injection would be achieved by dual injection utilizing the casing-tubing annulus; however, it is our intention to equip the proposed well to inject throughout the entire Grayburg-Jackson interval, reserving the right to utilize separation of zones (Grayburg-San Andres) only where it is deemed necessary to achieve the most efficient vertical distribution of injected fluid.

Although the necessity of proving response is no longer required in the Skelly Unit, it is worthy of mention that response to water injection has occurred in this area of the Unit.

Attached is a map showing all wells within a two mile radius, a Unit plat showing the present and proposed injection well, a schematic diagram of the proposed dual injector-producer, and a copy of the log on Skelly Unit Well No. 3. Also included as a part of this request is an analysis of the water which will be injected.

Injection fluid will be purchased from Double Eagle Water Company. The water is fresh and is taken from the Ogallala formation as shown by the attached water analysis. Anticipated injection rates in Unit Well No. 3 are 300-600 barrels of water per day at a wellhead pressure of 1,500-2,000 psig.

Negotiations are currently underway with the offset operator whereby a compensating injection agreement will be worked out and correlative rights protected. All offset operators to the proposed area of expansion have been notified by a copy of this application.

Very truly yours,

SKELLY OIL COMPANY

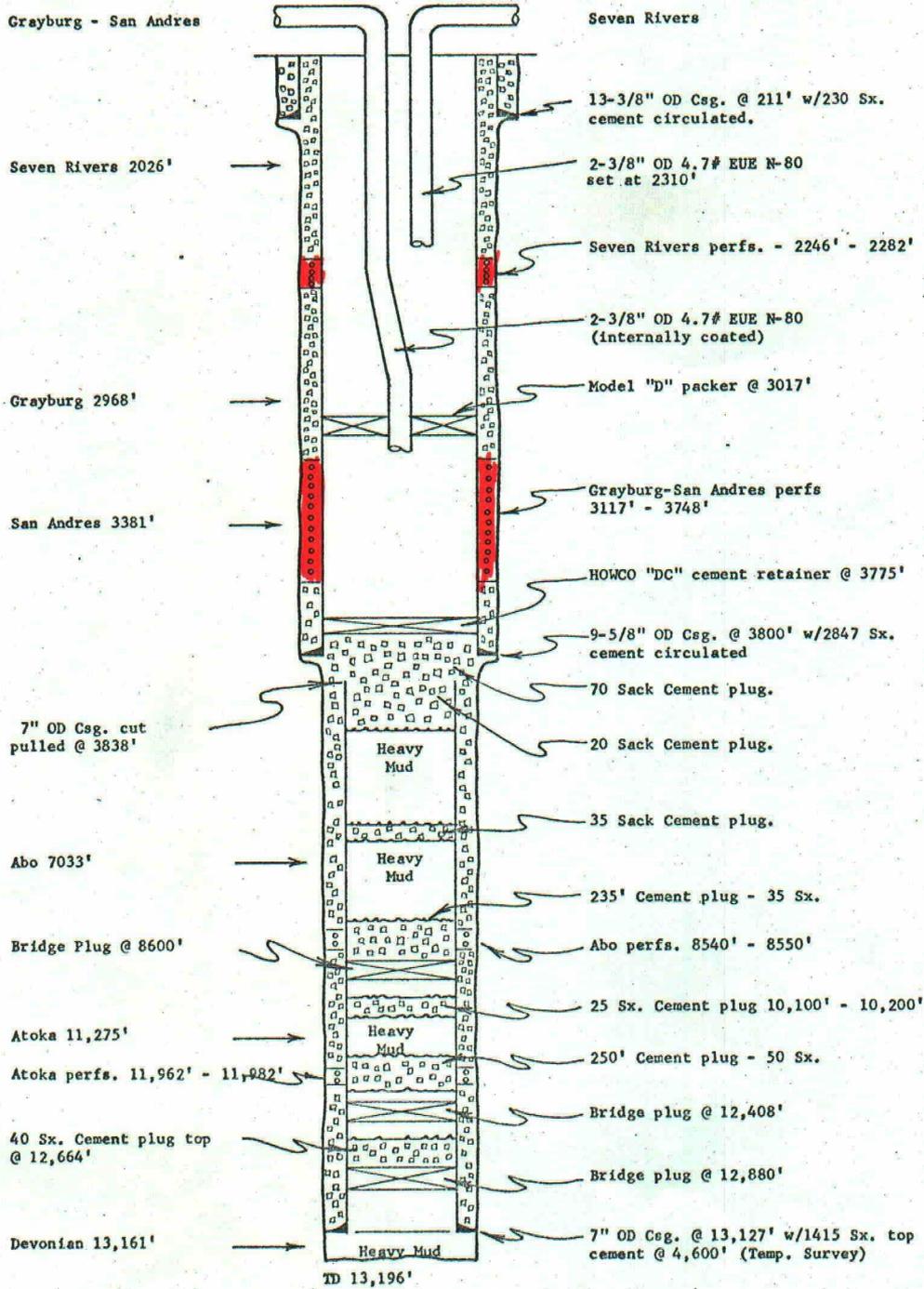


C. J. Love
District Production Manager

WTT/rc
Attach. Two Mile Radius Map
Lease Plat
Schematic Diagram of Proposed Injector
Log Section

SKELLY OIL COMPANY

Skelly Unit No. 3
660' FNL & 660' FWL, Sec. 22-17S-31E



Case 4874

RESULT OF WATER ANALYSES

TO: Mr. D. R. Parkhurst LABORATORY NO. 77161
P. O. Box 730, Hobbs, New Mexico SAMPLE RECEIVED 7-7-71
RESULTS REPORTED 7-19-71

COMPANY Skelly Oil Company LEASE Skelly Unit - Plant #1
FIELD OR POOL Grayburg Jackson
SECTION BLOCK SURVEY COUNTY Eddy STATE N. M.

SOURCE OF SAMPLE AND DATE TAKEN:

- NO. 1 Raw water - taken from raw water line. 7-7-71
- NO. 2 Treated water - taken from injection pump discharge. 7-7-71
- NO. 3 Injection water - taken from input #30. 7-7-71
- NO. 4

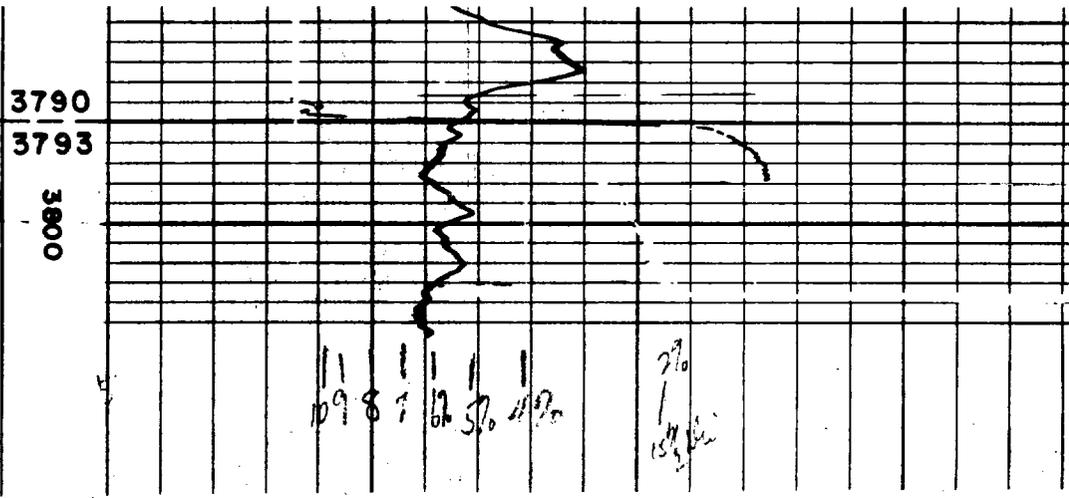
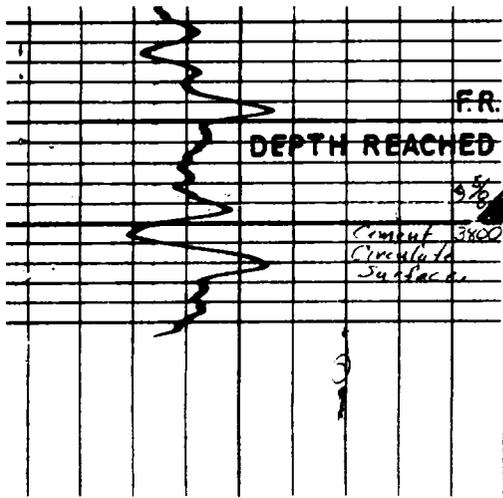
REMARKS: Supply Water System

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0016	1.0019	1.0018	
pH When Sampled	6.5	6.3	6.3	
pH When Received	6.2	6.2	6.25	
Bicarbonate as HCO ₃	122	127	132	
Supersaturation as CaCO ₃	-	-	-	
Undersaturation as CaCO ₃	88	76	76	
Total Hardness as CaCO ₃	172	172	180	
Calcium as Ca	54	54	56	
Magnesium as Mg	0	0	10	
Sodium and/or Potassium	53	50	48	
Sulfate as SO ₄	110	112	112	
Chloride as Cl	66	62	62	
Iron as Fe	0.33	0.37	0.26	
Barium as Ba	0	0	0	
Turbidity, Electric	0.54	1.3	0.0	
Color as Pt	2	0	0	
Total Solids, Calculated	403	394	400	
Temperature °F.	74	82	84	
Carbon Dioxide, Calculated	62	134	100	
Dissolved Oxygen, Winkler	0.0	0.0	0.0	
Hydrogen Sulfide	0.0	0.0	0.0	
Resistivity, ohms/m at 77° F.	18.50	18.55	18.50	
Suspended Oil				
Filtrable Solids as mg/l	0.34	0.52	0.75	
Volume Filtered, ml	10,000	10,000	10,000	

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Letter of recommendation attached.

ILLEGIBLE



SKELLY OIL CO.
 LYNCH A # 6
 WILDCAT
 EDDY COUNTY, N.M.



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