WFX-301
Due Dec 17

DEC 2 1969

SKELLY OIL COMPANY

P. O. Box 1351, Midland, Texas 79701

November 25, 1969

Re: Application for Waterflood Expansion
Skelly Unit
Grayburg-Jackson Pool
Eddy County, New Mexico

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

Attention: Secretary-Director

Gentlemen:

Skelly Oil Company respectfully requests administrative approval to expand its Skelly Unit Waterflood in the Grayburg-Jackson Pool, Eddy County, New Mexico. The Skelly Unit Waterflood Project was authorized by Order No. R-2900, May 4, 1965, and amended by Order No. 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 in April, 1965. The successful response to the water injection led Skelly to expand the project. By November 1969, the original pilot area has been expanded to include a total of 33 injection wells. The last expansion being by administrative order No. WFX dated June 12, 1968.

Skelly Oil Company desires to expand the waterflood and requests administrative approval to convert the following wells to water injection.

Township 17 South, Range 31 East
Unit Well No. 79, Unit N, Section 23
Unit Well No. 81, Unit P, Section 23

Under order R-3214, Skelly Oil Company was authorized to effect a waterflood project in the Grayburg-Jackson Pool in the Skelly Unit by the selective injection of water into various zones throughout the Grayburg-Jackson producing interval. Selectivity of injection is to be achieved by dual injection util-

izing the casing tubing annulus. Skelly Oil Company requests approval to selectively inject throughout the Skelly Unit; however, it is our intention to equip the proposed injectors as single injection wells and utilize the separation of zones in only the wells where it is deemed necessary to achieve the most efficient vertical distribution of injected fluid.

Attached is a map showing all wells within a two mile radius, a Unit plat showing the present and proposed injection wells, along with schematic diagrams and copies of the logs on the wells included in this application, an analysis of the water to be injected and a supplement to the Oil Proration Schedule.

Response to water injection has been noted in the area of the proposed expansion. The proposed injection wells producing capacity and other producing wells which directly offset the proposed water injectors are shown on the following tabulation. Shown are the wells producing capacity at the start of the pilot (April 1965) and the current (October 1969) rates.

	Daily Average Production			
	April 1965		October 1969	
Unit Well No.	Oil	Water	Oil	Water
79 (Proposed WIW)	10	0	4	4
80	11	0	40	8
81 (Proposed WIW)	8	0	22	15
82	11	0	30	25
TOTAL	40	0	96	52

The oil proration schedule supplement substantiates response on three wells in the area.

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 current water analysis. Anticipated injection rates are 300-600 BPD per well (600 to 1200 for both wells) at pressures of 1500 - 2000 PSI.

Correlative rights are being protected by a lease line agreement with Hudson and Hudson, the only operator adjoining the Skelly Unit in the area of the proposed expansion and they have been notified by a copy of this application.

Very truly yours,

P. L. Nunley
District Production Manager

WTT/BOB/ljm
Attachments

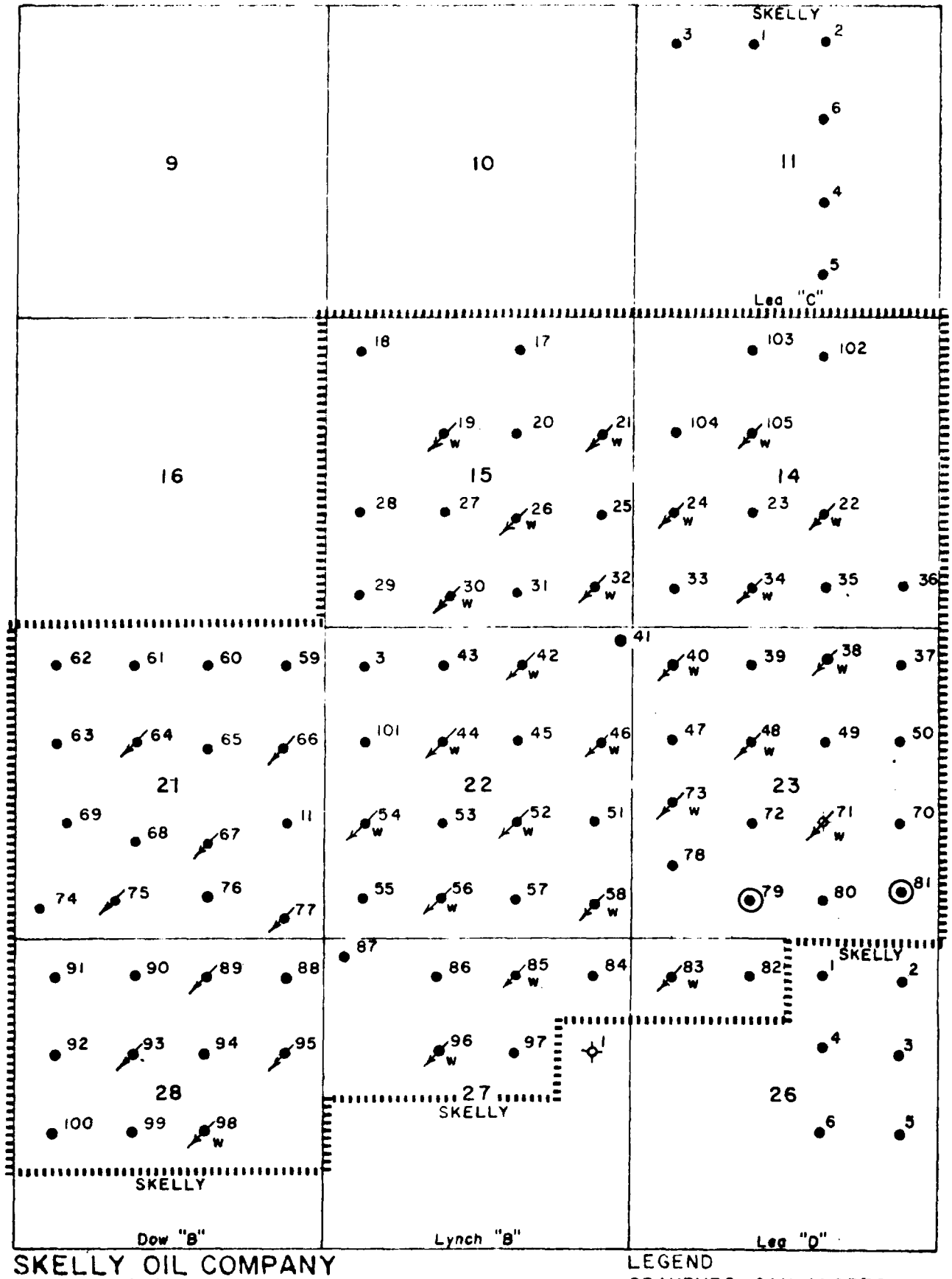
cc: Operators mailing list attached
G. W. Selinger, Tulsa Oklahoma

MAILING LIST
SKELLY UNIT

William A. and Edward R. Hudson
1510 First National Building
Fort Worth, Texas

William A. and Edward R. Hudson
P. O. Box 198
Artesia, New Mexico

Attention: Mr. Ralph L. Gray

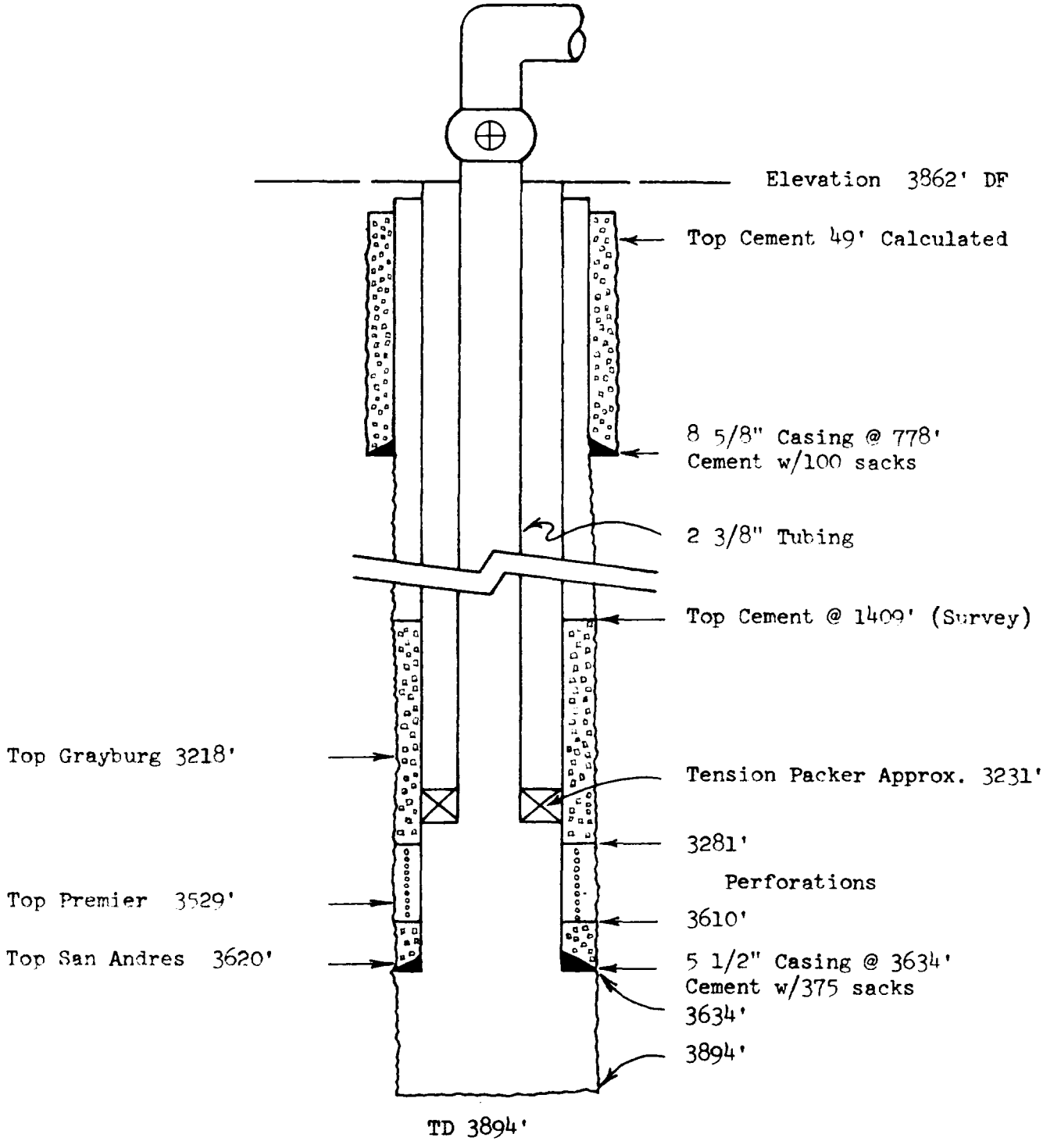


SKELLY OIL COMPANY
SKELLY UNIT
EDDY COUNTY, NEW MEXICO
TOWNSHIP 17-S, RANGE 31-E
SCALE: 1"=2460'

LEGEND
- GRAYBURG-SAN ANDRES OIL WELL
- DRY HOLE
- SKELLY UNIT
- PROPOSED WATER INJECTION WELL

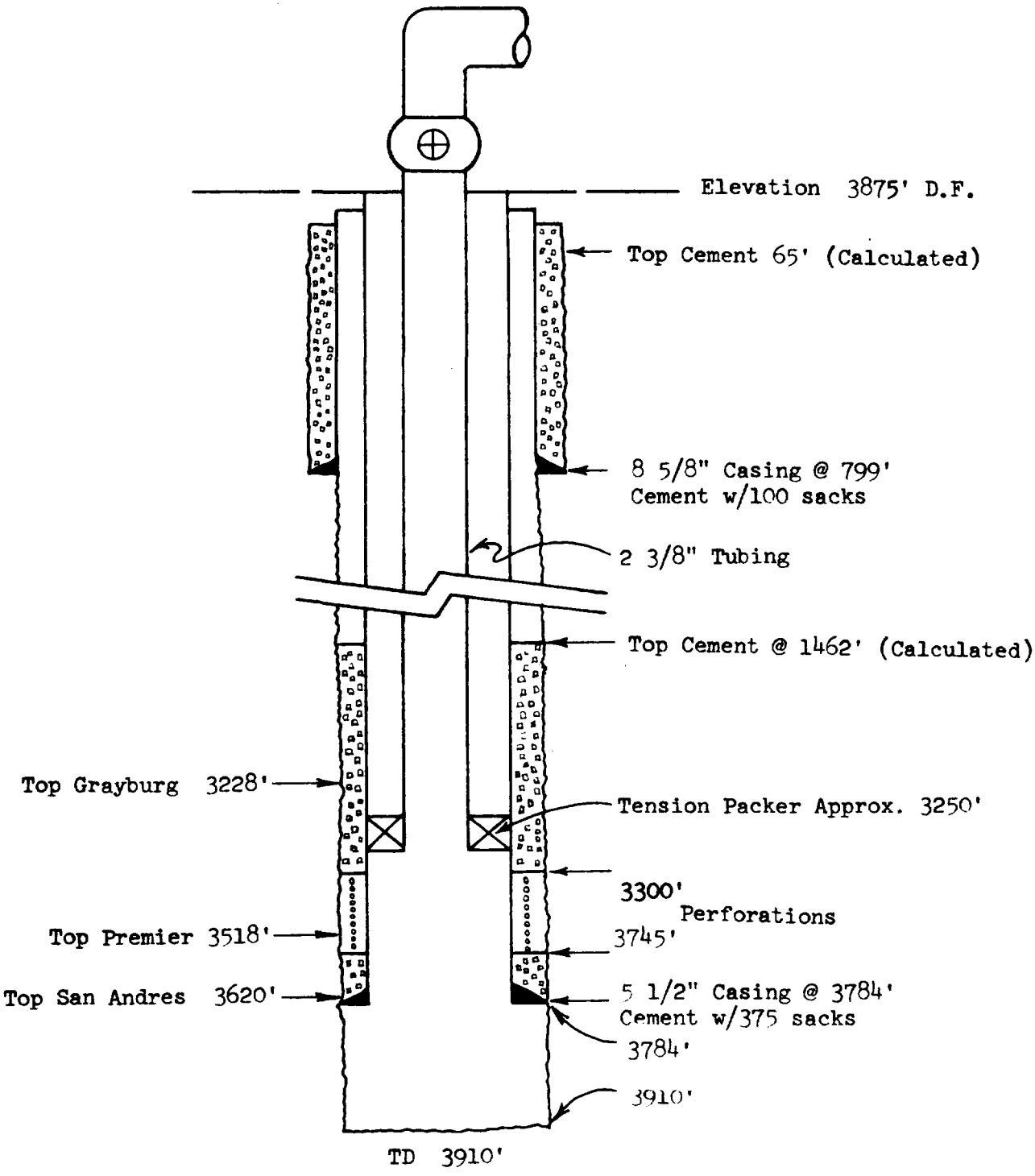
SKELLY OIL COMPANY

Skelly Unit No. 79
660' FSL & 1980' FWL, Section 23-17S-31E
GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY

SKELLY UNIT NO. 81
810' FSL & 660' FEL, Section 23-17S-31E
GRAYBURG JACKSON INJECTION WELL



TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Skelly Oil Company

Field

Lease Double Eagle Water Sampling Date 11-19-69

Type of Sample Inlet to Skelly Tank

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	2.59	52
Magnesium (Mg++)	1.07	13
Sodium (Na+) (Calculated)	2.07	48
Iron		0.55
Bicarbonate (HCO_3)	2.10	128
Carbonate (CO_3 -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4 -)	2.08	100
Chloride (Cl-)	1.55	55
6.7ph c 68°F		
Dissolved Solids on Evap. at 103°- 105° C		
Hardness as Ca CO_3	3.66	183
Carbonate Hardness as $CaCO_3$ (temporary)	2.10	105
Non-Carbonate Hardness as $CaCO_3$ (permanent)	1.56	78
Alkalinity as $CaCO_3$	2.10	105
Specific Gravity c 68° F	1.000	

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

Calcium Carbonate scaling index negative at 86°F

Calcium Sulfate scaling index negative

X	VEF	X	OIL
X	GRB		OVS
	HOW		TRH
X	ANT		BOB
	WTK		GB
X	LF		THH
			WTT
	[illegible]		[illegible]
	KTD		EAT
	HKC		[illegible]
	DMD		HMD
	[illegible]		[illegible]
	MC		SUPPLEMENT TO THE OIL PRORATION SCHEDULE
			File

May file

Posted in Book

NEW MEXICO
OIL CONSERVATION COMMISSION
P. O. DRAWER DD
ARTESIA, NEW MEXICO

Sept. 1969

No. A 1

DATE 9/1/69

PURPOSE: ALLOWABLE REVISION (Waterflood)

Effective 9/1/69, the allowables of the following Skelly Oil Co. wells in the Grayburg Jackson Pool are hereby revised as indicated.

Skelly Unit

#3-D,	22-17-31,	increased to	2 BOPD	or	60 bbls for the month.
#17-B,	15-17-31,	increased to	10 BOPD	or	300 bbls for the month.
#20-G,	" ,	increased to	26 BOPD	or	780 bbls for the month.
#28-L,	" ,	increased to	15 BOPD	or	450 bbls for the month.
#31-O,	" ,	increased to	23 BOPD	or	690 bbls for the month.
#35-O,	14-17-31,	increased to	18 BOPD	or	540 bbls for the month.
#41-A,	22-17-31,	increased to	40 BOPD	or	1200 bbls for the month.
#45-G,	" ,	increased to	46 BOPD	or	1380 bbls for the month.
#47-E,	23-17-31,	increased to	18 BOPD	or	540 bbls for the month.
#49-G,	" ,	increased to	95 BOPD	or	2850 bbls for the month.
#53-K,	22-17-31,	increased to	33 BOPD	or	990 bbls for the month.
#11-I,	21-17-31,	increased to	20 BOPD	or	600 bbls for the month.
#59-A,	" ,	increased to	25 BOPD	or	750 bbls for the month.
#60-B,	" ,	increased to	18 BOPD	or	540 bbls for the month.
#61-C,	" ,	increased to	16 BOPD	or	480 bbls for the month.
#62-D,	" ,	increased to	21 BOPD	or	630 bbls for the month.
#63-E,	" ,	increased to	20 BOPD	or	600 bbls for the month.
#65-G,	" ,	increased to	29 BOPD	or	870 bbls for the month.

Continued.

OIL CONSERVATION COMMISSION

W. A. Gressett
SUPERVISOR, DISTRICT NO. 2

WAG:jw
Skelly Oil Co.
TNM

OPERATOR'S COPY

MY P/

Supplement A--1 for September 1969 Continued

Skelly Unit

#68-K, 21-17-31,	increased to	21 BOPD	or	630 bbls	for the month.
#69-L, " ,	increased to	20 BOPD	or	600 bbls	for the month.
#72-K, 23-17-31,	increased to	69 BOPD	or	2070 bbls	for the month.
#76-O, " ,	increased to	57 BOPD	or	1710 bbls	for the month.
#78-M, " ,	increased to	21 BOPD	or	630 bbls	for the month.
#80-O, " ,	increased to	44 BOPD	or	1320 bbls	for the month.
#81-P, " ,	increased to	29 BOPD	or	870 bbls	for the month.
#82-C, " ,	increased to	33 BOPD	or	990 bbls	for the month.
#88-A, 28-17-31,	increased to	38 BOPD	or	1140 bbls	for the month.
#90-C, " ,	increased to	18 BOPD	or	540 bbls	for the month.
#92-E, " ,	increased to	198 BOPD	or	5940 bbls	for the month.
#94-G, " ,	increased to	85 BOPD	or	2550 bbls	for the month.
#100-L," ,	increased to	46 BOPD	or	1380 bbls	for the month.

WAG:jw

Skelly Oil Company

TNM

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

WELEX

RADIOACTIVITY LOG

COMPANY Skelly Oil Company
WELL Lea "B" # 7
FIELD Grayburg-Jackson
County Eddy State N. M.

COMPANY SKELLY OIL COMPANY
Now: Skelly Unit # 79
WELL ~~LEA "B" # 7~~
FIELD GRAYBURG-JACKSON
COUNTY EDDY STATE NEW MEXICO

Location
Sec. ____ Twp ____ Rge ____

Other Services:

Permanent Datum 8-5/8"Collar Elev. ____
Log Measured from 9 Ft. Above Perm. Datum
Drilling Measured From 9'Above 8-5/8"Collar

Elev.: K.B. ____
D.F. ____
G.L. ____

Date	5-4-66
Run No.	- One -
Type Log	GR - NG
Depth—Driller	3894
Depth—Welex	3893
Bottom Logged Interval	3892
Top Logged Interval	3000
Type Fluid in Hole	Mud
Salinity, PPM Cl.	
Density	8.5
Level	
Max. rec. temp., deg. F.	
Operating Rig Time	
Recorded By	G. E. Ayres
Witnessed by	Mr. King

MEA 5-16-66 GAL 5-16-66
JWB 5-16-66
HOW JTC
JWT LRH
WFK OVS
SRM WS
ERL EXT
JDM JMB
LG HED
PMM BDH
BLN
JAD TLR
RLC File
DMM
RRW

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
				5-1/2"		0	3633(Log)
	-	3633	3798				
	4-3/4"	3798	3894				

WELEX

RADIOACTIVITY LOG

COMPANY Skelly Oil Company
WELL Lea "B" # 10
FIELD Grayburg-Jackson
County Eddy State N. M.

COMPANY SKELLY OIL COMPANY
Now: Skelly Unit #81
WELL ~~LEA "B" # 10~~
FIELD GRAYBURG-JACKSON
COUNTY EDDY STATE NEW MEXICO

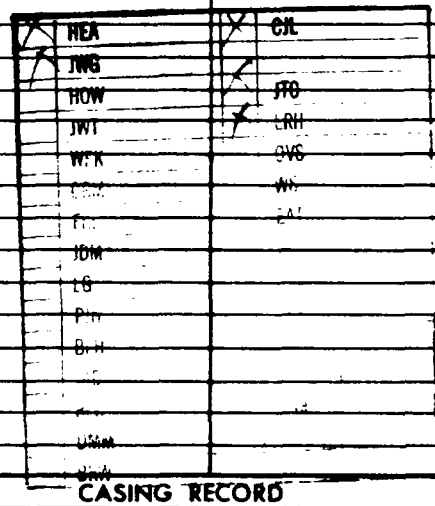
Location 810'FSL 660'FEL
Sec. 23 Twp 17-S Rge 31-E

Other Services:

Permanent Datum Ground Level Elev. 3871
Log Measured from 4' Ft. Above Perm. Datum
Drilling Measured From 4'Above G. L.

Elev.: K.B. 3876
D.F. 3875
G.L. 3871

Date	4-27-66
Run No.	- One -
Type Log	GR - NG
Depth—Driller	3910
Depth—Welex	3907
Bottom Logged Interval	3906
Top Logged Interval	3000
Type Fluid in Hole	Mud
Salinity, PPM Cl.	
Density	
Level	Full
Max. rec. temp., deg. F.	93
Operating Rig Time	1-1/2 Hrs.
Recorded By	G. E. Ayres
Witnessed by	Mr. King



RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	11"	0	800	8-5/8"		0	800
	8"	800	3842	5-1/2"		0	3782
	4-3/4"	3842	3910				