



SKELLY OIL COMPANY

December 15, 1975

DOMESTIC EXPL. & PROD. DEPARTMENT

MIDLAND E & P DISTRICT

F. L. FRANZ, DISTRICT PRODUCTION MANAGER

M. J. EKMAN, DISTRICT ENGINEER

C. F. BOSECKER, LEAD RESERVOIR ENGINEER

F. J. PETRO, LEAD PRODUCTION ENGINEER

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

File: Lovington San Andres Unit
Well No. 49
Lease No. 76008
Lea County, New Mexico

Re: Application for Waterflood Expansion

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

Attn: Director

Dear Sir:

Skelly Oil Company respectfully requests administrative approval to expand the Lovington San Andres Unit waterflood in the Lovington San Andres Pool, Lea County, New Mexico. The Lovington San Andres waterflood was authorized by N.M.O.C.C. Order No. R-2278, dated July 12, 1962.

The subject waterflood is governed by the provision of Rules No. 701, 702 and 703 of the commission rules and regulations.

Skelly initiated water injection into the San Andres reservoir in April, 1963. Waterflood operations have been conducted continuously since initial injection to the present time.

Skelly now desires administrative approval to convert Well No. 49 to water injection. Well No. 49 is located in Unit I, Section 1, T17S R36E, Lea County, New Mexico.

In support of this application we are attaching the following:

1. A map showing all wells within a two mile radius.
2. A lease plat, pointing out Well No. 49.
3. Copy of C-120 for September 1975.
4. Copy of a Gamma Ray-Neutron log on the well.
5. Copy of water analysis report of water that will be injected into Well No. 49.

6. Downhole schematic of the well after being equipped for injection.

The tubing will be internally lined to prevent corrosion and the well head will be equipped to detect any leaks that may occur down hole. The tubing casing annulus will be loaded with corrosion inhibited fluid.

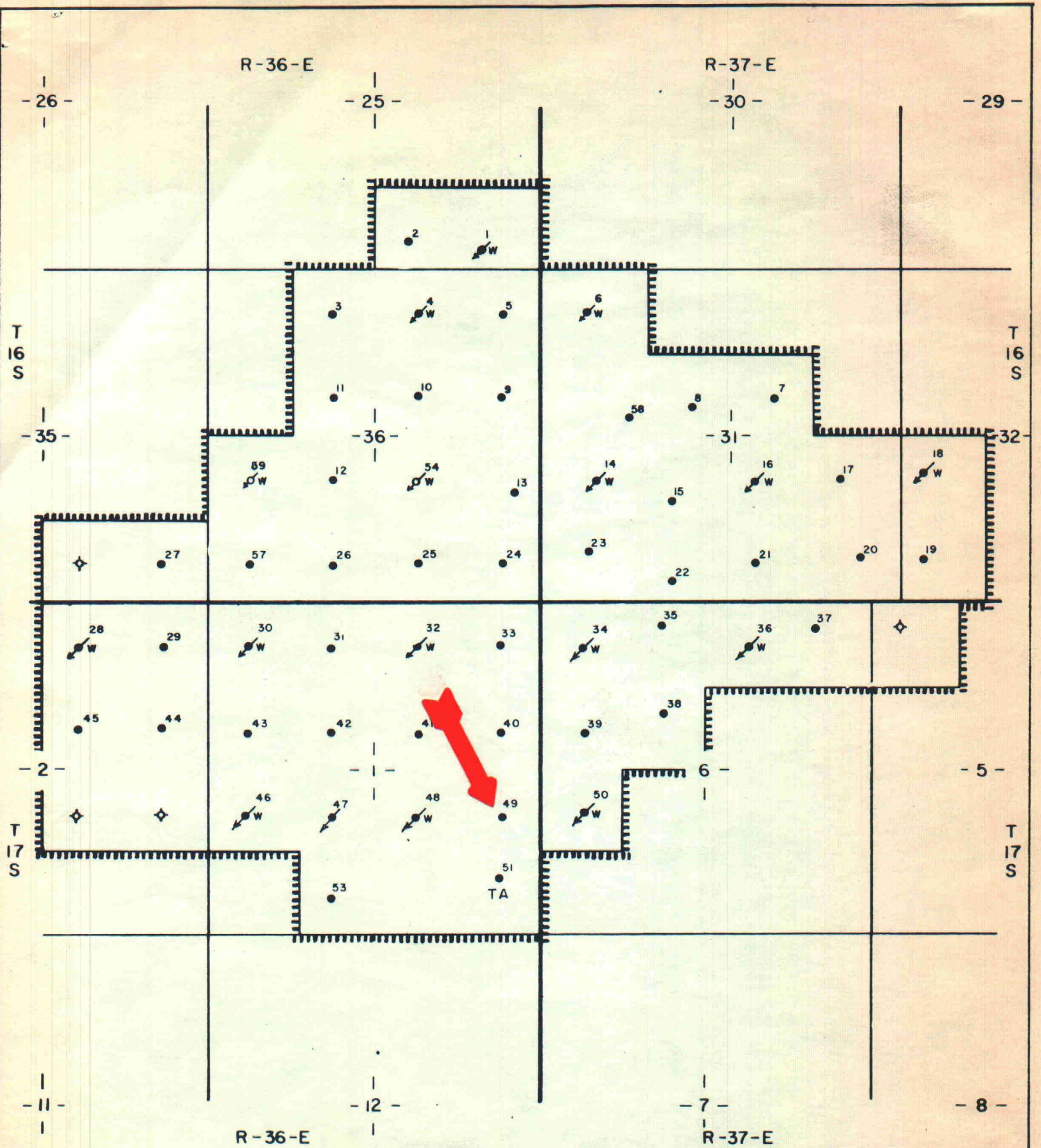
Well No. 49 has been "watered-out" and shut-in pending approval to convert to injection. Conversion is expected to improve the sweep efficiency in this area of the unit, and increase the rate of oil recovery.

Yours very truly,

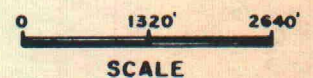
A handwritten signature in cursive script that reads "Leland Franz".

Leland Franz
District Production Manager

BOB/ss
Attachs.



LOVINGTON SAN ANDRES UNIT
LEA COUNTY, NEW MEXICO



MONTHLY INJECTION REPORT

Submit this report in triplicate to the District Office, Oil Conservation Commission.

7

Company SKELLY OIL COMPANY Pool LOVINGTON SAN ANDRES
 County LEA Month September 1975

INJECTION WELLS (Attach additional sheets if necessary)

LEASE	WELL NO.	LOCATION				MCF GAS INJECTED	CUMULATIVE GAS INJ.	BBLs. WATER INJECTED	CUMULATIVE WATER INJ.	AVG. INJ. PRESSURES
		UL	S	T	R					
LOVINGTON SAN ANDRES UNIT	1	P	25	16	36			3330	716 637	2 000
	4	B	36	16	36			2900	938 146	2 000
	6	D	31	16	37			1095	497 882	2 000
	14	L	31	16	37			10355	2 000 979	1350
	16	J	31	16	37			20431	2843 009	300
	18	L	32	16	37			3374	394 548	1350
	28	B	2	17	36			1560	373 329	2 000
	30	D	1	17	36			8100	1937 897	2 000
	32	B	1	17	36			19500	2295 309	2 000
	34	D	6	17	37			5750	2481 259	1350
	36	B	6	17	37			3748	2237 343	
	46	L	1	17	36			6550	2504 560	1350
	47	K	1	17	36			12130	1028 576	1350
	48	J	1	17	36			7920	2191 258	1350
	50	L	6	17	37			3410	1093 227	1350
	54	J	36	16	36			6900	1782 892	2 000
	59	L	36	16	36			3400	590 756	2 000
TOTAL		17						120453	25907607	

PRODUCING WELLS (Attach additional sheets if necessary)

LEASE	WELL NO.	LOCATION				BBLs. OIL PRODUCED	MCF GAS PRODUCED	GOR	BBLs. WATER PRODUCED	% WATER PRODUCED
		UL	S	T	R					
						SEE ATTACHED SHEET			DISTRICT OFFICE	
									FILE COPY	
TOTAL										

PRODUCING WELLS OUTSIDE A PRORATED WATERFLOOD PROJECT AREA WHICH ARE PRODUCING INTO COMMON FACILITIES WITH WELLS INSIDE A PRORATED WATERFLOOD PROJECT AREA (Attach additional sheets if necessary)

LEASE	WELL NO.	LOCATION				DATE OF TEST	LENGTH OF TEST	BARRELS PRODUCED	BARRELS PER DAY
		UL	S	T	R				
						NONE			

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Remarks: _____ NAME J. R. Avent
 TITLE District Administrative Coordinator

LOVINGTON SAN ANDRES UNIT

7

September 1975

PRODUCING WELLS (Attach additional sheets if necessary)

LEASE	WELL NO.	LOCATION				BBLs. OIL PRODUCED	MCF GAS PRODUCED	GOR	BBLs. WATER PRODUCED	% WATER PRODUCED	
		UL	S	T	R						
LOVINGTON SAN ANDRES UNIT	2	O	25	16	36	90	52	578	553	86.	0
	3	C	36	16	36	120	51	425	280	70.	0
	5	A	36	16	36	121	48	397	686	85.	0
	7	G	31	16	37	60	23	383	1440	96.	0
	8	F	31	16	37	361	349	967	498	58.	0
	9	H	36	16	36	392	85	217	478	54.	9
	10	G	36	16	36	120	103	858	480	80.	0
	11	F	36	16	36	361	28	78	1029	74.	0
	12	K	36	16	36	392	133	339	913	70.	0
	13	I	36	16	36	181	13	72	543	75.	0
	15	K	31	16	37	150	289	1927	1350	90.	0
	17	I	31	16	37	0	0	—	232	100.	0
	19	M	32	16	37	512	42	82	3150	86.	0
	20	P	31	16	37	753	84	116	3480	82.	2
	21	O	31	16	37	301	60	199	3420	91.	9
	22	N	31	16	37	391	72	184	563	59.	0
	23	M	31	16	37	753	371	493	7613	91.	0
	24	P	36	16	36	602	107	178	1403	70.	0
	25	O	36	16	36	542	85	157	4470	89.	2
	26	N	36	16	36	392	81	207	2622	87.	0
	27	P	36	16	36	180	66	367	187	51.	0
	29	A	2	17	36	91	108	187	415	82.	0
	31	C	1	17	36	271	91	336	550	67.	0
	33	A	1	17	36	241	11	46	241	50.	0
	35	C	6	17	37	542	93	172	1626	75.	0
	37	A	6	17	37	120	67	558	1380	92.	0
	38	F	6	17	37	662	0	—	7200	91.	6
	39	E	6	17	37	422	34	81	4200	90.	9
	40	H	1	17	36	572	200	350	7500	92.	9
	41	G	1	17	36	572	124	217	3000	84.	0
	42	F	1	17	36	723	307	425	7050	90.	7
	43	E	1	17	36	331	67	202	3120	90.	4
	44	H	2	17	36	361	178	493	884	71.	0
	45	G	2	17	36	332	181	545	1414	81.	0
	49	I	1	17	36		TEMPORARILY ABANDONED				
	51	P	1	17	36		Shut 10 min				
	52	D	1	17	36		Shut 10 min				
	53	N	1	17	36	120	12	100	1380	92.	0
	57	M	36	16	36	241	9	37	161	40.	0
	58	E	31	16	37	151	25	106	184	54.	9
TOTAL											
	40					12526	3649	291	75695	85.	8

DISTRICT OFFICE
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Bar
P. O. BOX 1468
PHONE 843-3234 OR 563-1040
MONAHANS, TEXAS 79756

Martin Water Laboratories, Inc.

406 W. ILLINOIS
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

TO: Mr. Dale Crockett LABORATORY NO. 975231
P. O. Box 730, Hobbs, New Mexico SAMPLE RECEIVED 9-25-75
RESULTS REPORTED 10-3-75

COMPANY Skelly Oil Company LEASE Lovington San Andres Unit
FIELD OR POOL Lovington
SECTION BLOCK SURVEY COUNTY Lea STATE New Mexico

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced water taken from free water knockout. 9-25-75
NO. 2 Treated water taken from injection pump discharge. 9-25-75
NO. 3 Injection water taken from input #47. 9-25-75
NO. 4

REMARKS: MIXED WATER SYSTEM

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0151	1.0031	1.0076	
pH When Sampled	7.1	6.7	6.8	
pH When Received	6.7	6.45	6.5	
Bicarbonate as HCO ₃	1,342	254	628	
Supersaturation as CaCO ₃	70	--	35	
Undersaturation as CaCO ₃	--	60	--	
Total Hardness as CaCO ₃	4,500	1,080	2,450	
Calcium as Ca	1,580	344	776	
Magnesium as Mg	134	53	124	
Sodium and/or Potassium	6,505	1,041	2,967	
Sulfate as SO ₄	2,615	510	1,323	
Chloride as Cl	10,511	1,846	4,371	
Iron as Fe	0.32	0.40	0.72	
Barium as Ba	0	0	0	
Turbidity, Electric	4.6	7.0	24	
Color as Pt	28	24	66	
Total Solids, Calculated	22,687	4,048	10,780	
Temperature °F.	72	70	71	
Carbon Dioxide, Calculated	176	83	165	
Dissolved Oxygen, Winkler	0.0	0.6	0.6	
Hydrogen Sulfide	1,300	80.0	525	
Resistivity, ohms/m at 77° F.	0.326	1.45	0.563	
Suspended Oil	81	4.0	15	
Filtrable Solids as mg/l	14.7	1.7	4.3	
Volume Filtered, ml	1,000	3,400	1,575	

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The above results continue to reflect reasonably satisfactory chemical and physical properties. We do show a slightly high filtrable solids at the free water knockout, but this was a very fine paraffin material and no evidence of any bottom sediment or interface material. We are also showing no evidence of any potential calcium carbonate scale. In general, we would conclude that the over all condition of the waters is sufficiently satisfactory as to warrant no changes at this time.

Form No. 3

cc: Mr. F. J. Petro, Midland

DISTRICT OF DE
FILE COPY

By Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

BOX 1468
MUNAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

406 W. ILLINOIS
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Dale Crockett
P. O. Box 730
Hobbs, New Mexico

Laboratory No. 897520
Samples received 9-25-75
Results reported 10-3-75

Company: Skelly Oil Company
County: Lea, New Mexico
Field: Lovington
Lease: Lovington San Andres Unit - Mixed Water System

Source of sample and date taken:

- #1. Treated water - taken from injection pump discharge. 9-25-75
#2. Injection water taken from input #47. 9-25-75

	#1	#2
Iron bacteria	Not detected	Not detected
Sulfur bacteria	380	280
Sulfate-reducing bacteria	Not detected	Not detected
Other aerobes	1,700	220
Other anaerobes	610	360
Fungi (& aciduric bacteria)	6	Not detected
Algae	Not detected	Not detected
Protozoa	Not detected	Not detected
<u>Total count</u>	<u>2,696</u>	<u>860</u>
<u>pH</u>	<u>6.7</u>	<u>6.8</u>
<u>Temperature</u>	<u>70</u>	<u>71</u>

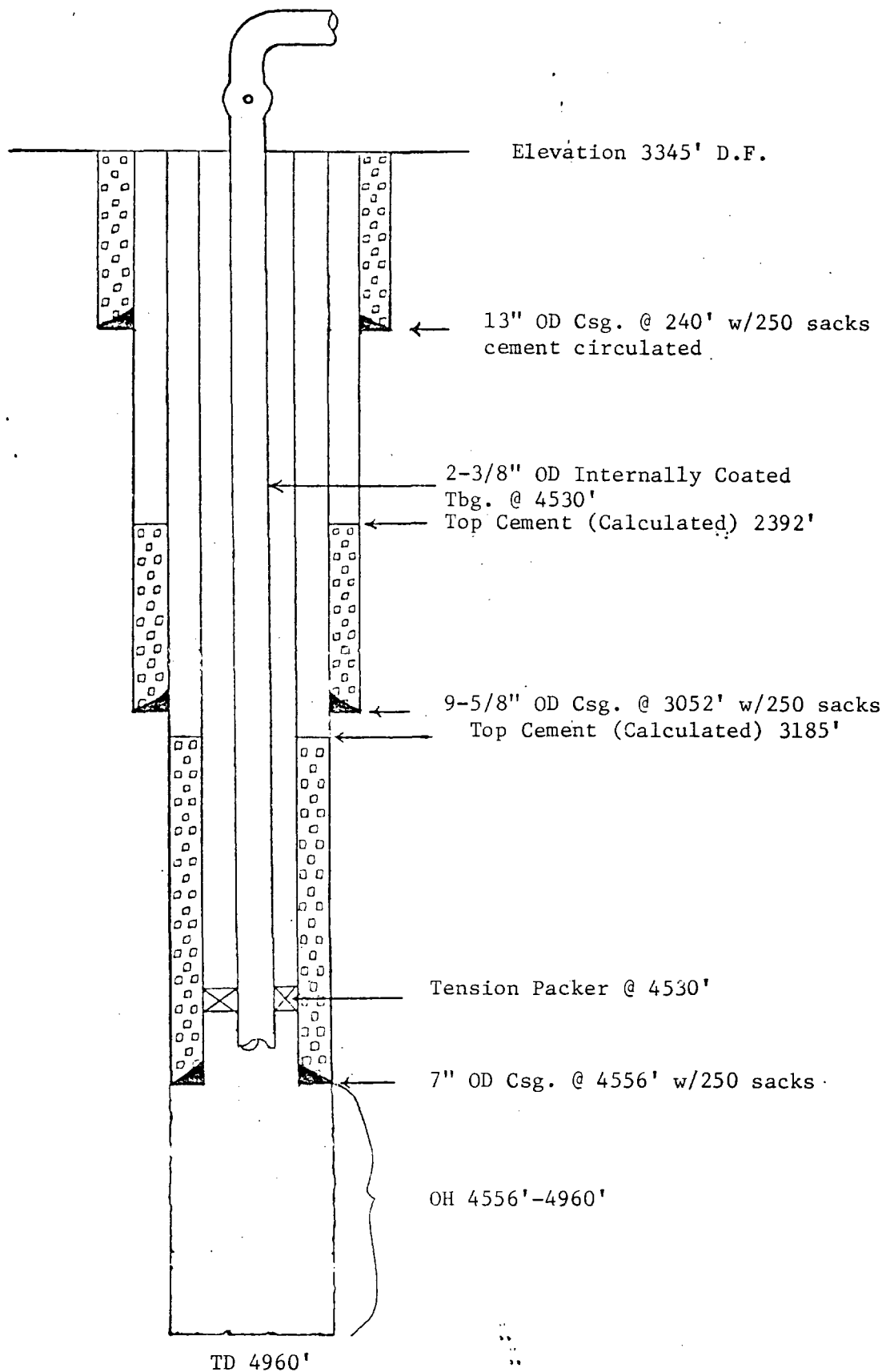
Note: All numerical results are reported as the number of cells per milliliter of the sample as determined by plate counts; except iron, algae, and protozoa, which are determined microscopically.

Remarks: The above results clearly indicate no significant bacterial development, and consequently still no need for any bactericidal treatment.

Waylan C. Martin, M. A.

cc: Mr. F. J. Petro, Midland

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