

Case Number

4882

Application

Transcripts.

Small Exhibits

ETC.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

BIT NO. 4

SHELL AMCO - HODGES - FEDERAL
WATERFLOOD PROJECT CASE NO.

4882

Submitted Shell Oil Co.

Hearing Date 12-19-72

Project is a proposed water

The Shell Amco-Hodges-Federal Waterflood Project is presently producing from the San Andres formation in the Cato Field in Chaves County, New Mexico.

LEASE:

Shell's Amco-Federal

Shell's Amco-Federal "A"

Shell's Hodges-Federal "B"

FORMATION:

DEPTH:

INJECTION RATE:

INJECTION PRESSURE:

WATER SOURCE:

LOCATION:

W/2 NE/4, NW/4 and S/2 of Section 33,
T-8-S, R-30-E, Chaves County, New Mexico

N/2 Section 4, T-9-S, R-30-E, Chaves
County, New Mexico

W/2 Section 34, T-8-S, R-30-E, Chaves
County, New Mexico

San Andres

Approximate 3350'-3550'
(+800 to +600)

Approximately 3000 BWPD (5 wells)

Approximately 500 psi (Wellhead)

Produced water and convert salt water
disposal to source wells.

<u>WELL:</u>	<u>UNIT LETTER</u>	<u>LOCATION</u>	<u>COUNTY & STATE</u>	<u>FORMATION</u>	<u>PERF'D. INTERVAL</u>
1. Shell Federal No. 1	A	330' FNL, 990' FEL Sec. 36, T-8-S, R-30-E	Chaves, N.M.	Cato - San Andres	3581'- 3680'
2. Thelma Crosby "P" No. 1	H	1980' FNL, 660' FEL Sec. 17, T-9-S, R-30-E	Chaves, N.M.	Cato - San Andres	3414'- 3485'

ADDITIONAL RECOVERY:

543,000 bbl., estimated by reservoir
calculations

PARAMETERS:

<u>AVERAGE POROSITY</u>	<u>WATER SATURATION</u>	<u>HEIGHT</u>	<u>AREA</u>	<u>VOLUME FACTOR</u>	<u>OIL GRAVITY</u>	<u>BUBBLE POINT</u>	<u>SOLUTION GAS</u>
7%	30%	22'	760 acres	1.199	24° API	1014 psia	377 SCF/Bbl.

PROJECT INSTALLATION COST

\$150,000 estimated

SHELL OIL COMPANY
WATER ANALYSIS REPORT
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY Shell Oil Company
 FIELD Caddo San Andres
 LEASE Shell Federal
 WELL NUMBER #1 SWD
 COUNTY & STATE Chaves, N. m.
 PRODUCING FORMATION _____
 WHERE SAMPLED Triplex discharge.
 REMARKS _____

LABORATORY Martin Water Laboratories
 LABORATORY NUMBER 127241
 DATE SAMPLE TAKEN 12-4-72
 DATE SAMPLE RECEIVED 12-12-72
 DATE SAMPLE REPORTED 12-12-72

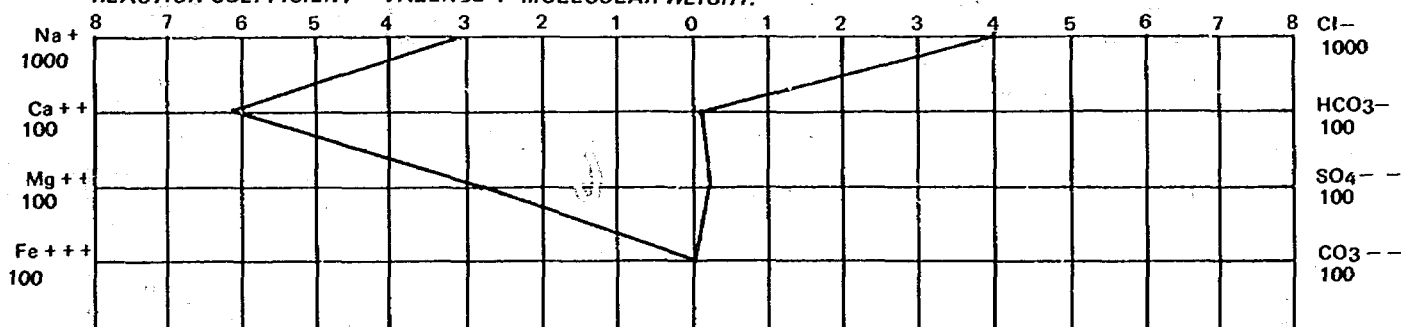
CHEMICAL AND PHYSICAL PROPERTIESTOTAL HARDNESS Mg/L AS Ca CO₃ 44,500TOTAL ALKALINITY Mg/L AS Ca CO₃ 670

CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na ⁺	71,664	0.04350	3,116.0
CALCIUM - Ca ⁺⁺	12,200	0.04990	610.0
MAGNESIUM - Mg ⁺⁺	3,402	0.08224	279.8
IRON TOTAL - Fe ⁺⁺ & Fe ⁺⁺⁺	15	0.03581	0.5
BARIUM - Ba ⁺⁺		0.01460	
POSITIVE SUB-TOTAL	87,281		4,006.3
CHLORIDE - Cl ⁻	140,618	0.02820	3,965.4
CARBONATE & BICARBONATE - CO ₃ ⁼ & HCO ₃ ⁼	817	0.01639 *	13.4
SULFATE - SO ₄ ⁼	1,083	0.02082	22.5
HYDROXYL - OH ⁻	0	0.05880	0.0
SULFIDE - S ⁼	80	0.06238	5.0
NEGATIVE SUB-TOTAL	142,598		4,006.3
TOTAL DISSOLVED SOLIDS	229,879		8,012.6

* BICARBONATE

SPECIFIC GRAVITY 1.1507 @ 60 °F pH 6.8 RES. 0.056 @ 80 °FANALYST W. Reagan White
REQUESTED BY B. W. Best

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
 REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.



WATER ANALYSIS
CATO-SAN ANDRES FIELD
CHAVES COUNTY, NEW MEXICO

<u>CHEMICAL AND PHYSICAL PROPERTIES</u>	<u>PROPOSED WATER SOURCE WELL</u> <u>SALT WATER DISPOSAL WATER</u>		<u>PROPOSED INJECTION WELL</u> <u>PRODUCED WATER</u>	
	<u>SHELL FED. #1</u> <u>Mg/L</u>	<u>THELMA CROSBY "F" 1</u> <u>Mg/L</u>	<u>AMCO FED. #6</u> <u>Mg/L</u>	<u>AMCO FED. #7</u> <u>Mg/L</u>
Specific Gravity	1.1507	1.1431	1.1427	1.1543
Ph	6.8	7.1	6.5	6.8
Rw	0.056	0.059	0.058	0.055
Total Dissolved Solids	229,879	225,096	221,459	253,048
Calcium and Barium Ca & Ba ⁺⁺	12,200	7,500	9,100	14,800
Magnesium Mg ⁺⁺	3,402	2,612	3,159	4,799
Sodium & Potassium Na & K ⁺	71,664	76,092	72,153	75,847
Bicarbonate HCO ₃ ⁻⁻	817	946	799	586
Sulfate So ₄ ⁻⁻	1,083	1,482	1,140	728
Chloride Cl ⁻	140,618	136,356	134,936	156,242
Iron Fe ⁺⁺	15	0	7.1	9.5
Sulphur	80	108	165	36.2

SHELL OIL COMPANY
WATER ANALYSIS REPORT
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY Shell Oil Company
FIELD Caddo San Andres
LEASE Amoco Federal
WELL NUMBER #7
COUNTY & STATE Chaves, N. M.
PRODUCING FORMATION wellhead
WHERE SAMPLED wellhead
REMARKS _____

LABORATORY Martin Water Laboratories
LABORATORY NUMBER 127243
DATE SAMPLE TAKEN 12-4-72
DATE SAMPLE RECEIVED 12-12-72
DATE SAMPLE REPORTED 12-12-72

CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS Ca CO₃ 56,750

TOTAL ALKALINITY Mg/L AS Ca CO₃ 480

CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na ⁺	75,847	0.04350	3,297.7
CALCIUM - Ca ⁺⁺	14,800	0.04990	740.0
MAGNESIUM - Mg ⁺⁺	4,799	0.08224	395.0
IRON TOTAL - Fe ⁺⁺ & Fe ⁺⁺⁺	9.5	0.03581	0.3
BARIUM - Ba ⁺⁺		0.01460	
POSITIVE SUB-TOTAL	95,456		4,433.0
CHLORIDE - Cl ⁻	156,242	0.02820	4,406.1
CARBONATE & BICARBONATE - CO ₃ ⁼ & HCO ₃ ⁻	586	0.01639 *	9.6
SULFATE - SO ₄ ⁼	728	0.02082	15.1
HYDROXYL - OH ⁻	0	0.05880	0.0
SULFIDE - S ⁼	36.2	0.06238	2.2
NEGATIVE SUB-TOTAL	157,592		4,433.0
	253,048		8,866.0

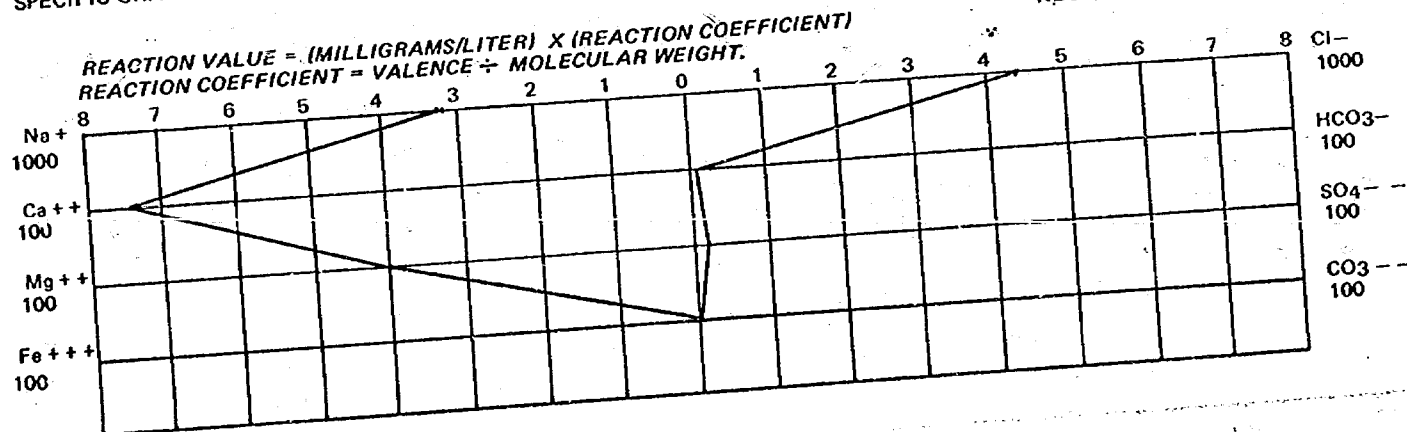
TOTAL DISSOLVED SOLIDS

* BICARBONATE
SPECIFIC GRAVITY 1.1543 @ 60 °F

pH 6.8

RES. 0.055

@ 80 °F
ANALYST W. Reagan White
REQUESTED BY B. W. Best



SHELL OIL COMPANY
WATER ANALYSIS REPORT
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY Shell Oil Company
FIELD Caddo San Andres
LEASE Amoco Federal
WELL NUMBER #6
COUNTY & STATE Chaves, N. M.
PRODUCING FORMATION _____
WHERE SAMPLED wellhead
REMARKS _____

LABORATORY Martin Water Laboratories
LABORATORY NUMBER 127244
DATE SAMPLE TAKEN 12-4-72
DATE SAMPLE RECEIVED 12-12-72
DATE SAMPLE REPORTED 12-12-72

CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS Ca CO₃ 35,750

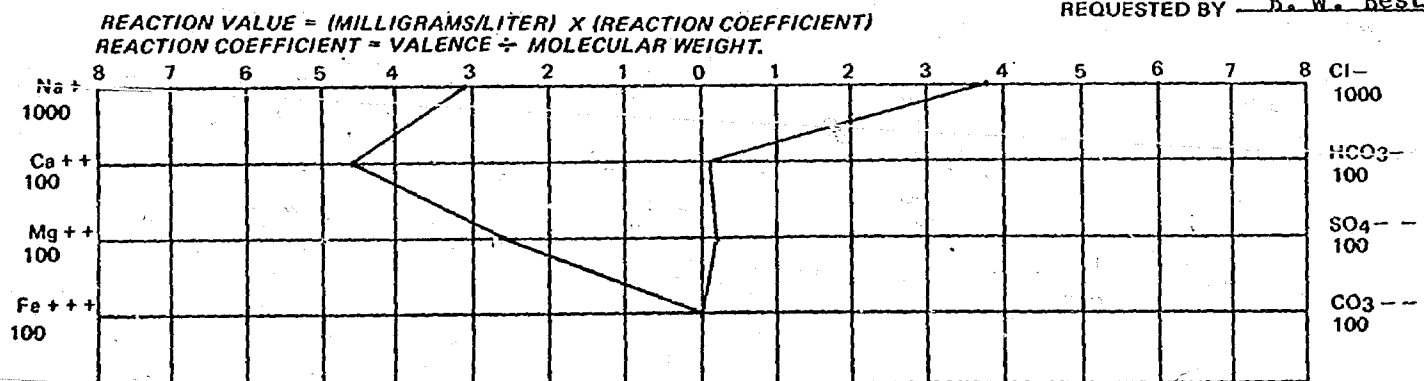
TOTAL ALKALINITY Mg/L AS Ca CO₃ 655

CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na ⁺	72,153	0.04350	3,137.0
CALCIUM - Ca ⁺⁺	9,100	0.04990	455.0
MAGNESIUM - Mg ⁺⁺	3,159	0.08224	260.0
IRON TOTAL - Fe ⁺⁺ & Fe ⁺⁺⁺	7.1	0.03581	0.3
BARIUM - Ba ⁺⁺		0.01460	
POSITIVE SUB-TOTAL	84,419		3,852.3
CHLORIDE - Cl ⁻	134,936	0.02820	3,805.2
CARBONATE & BICARBONATE - CO ₃ = & HCO ₃ -	799	0.01639 *	13.1
SULFATE - SO ₄ =	1,140	0.02082	23.7
HYDROXYL - OH ⁻	0	0.05880	0.0
SULFIDE - S =	165	0.06238	10.3
NEGATIVE SUB-TOTAL	137,040		3,852.3
TOTAL DISSOLVED SOLIDS	221,459		7,704.6

* BICARBONATE

SPECIFIC GRAVITY 1.1427 @ 60 °F pH 6.5 RES. 0.058 @ 80 °F

ANALYST W. Reagan White
REQUESTED BY R. W. Rest



SHELL OIL COMPANY
WATER ANALYSIS REPORT
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY <u>Shell Oil Company</u>	LABORATORY <u>Martin Water Laboratories</u>
FIELD <u>Caddo San Andres</u>	LABORATORY NUMBER <u>127242</u>
LEASE <u>Thelma Crosby "F"</u>	DATE SAMPLE TAKEN <u>12-4-72</u>
WELL NUMBER <u>#1 SWD</u>	DATE SAMPLE RECEIVED <u>12-12-72</u>
COUNTY & STATE <u>Chaves, N. M.</u>	DATE SAMPLE REPORTED <u>12-12-72</u>
PRODUCING FORMATION _____	
WHERE SAMPLED <u>Triplex discharge</u>	
REMARKS _____	

CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS CaCO₃ 29,500

TOTAL ALKALINITY Mg/L AS CaCO₃ 775

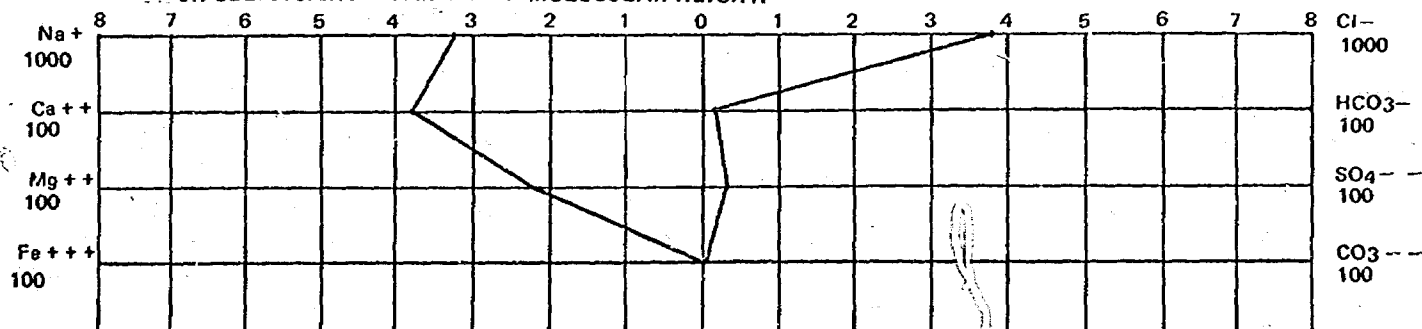
CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na ⁺	76,092	0.04350	3,308.2
CALCIUM - Ca ⁺⁺	7,500	0.04990	375.0
MAGNESIUM - Mg ⁺⁺	2,612	0.08224	215.0
IRON TOTAL - Fe ⁺⁺ & Fe ⁺⁺⁺	0.79	0.03581	0.0
BARIUM - Ba ⁺⁺		0.01460	
POSITIVE SUB-TOTAL	86,204		3,898.2
CHLORIDE - Cl ⁻	136,356	0.02820	3,845.2
CARBONATE & BICARBONATE - CO ₃ ⁼ & HCO ₃ ⁻	946	0.01639 *	15.5
SULFATE - SO ₄ ⁼	1,482	0.02082	30.8
HYDROXYL - OH ⁻	0	0.05880	0.0
SULFIDE - S ⁼	108	0.06238	6.7
NEGATIVE SUB-TOTAL	138,892		3,898.2
TOTAL DISSOLVED SOLIDS	225,096		7,796.4

* BICARBONATE

SPECIFIC GRAVITY 1.1431 @ 60 °F pH 7.1 RES. 0.059 @ 80 °F

ANALYST W. Reagan White
REQUESTED BY B. W. Best

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.



DATE	AMCO FEDERAL			AMCO FEDERAL "A"			HODGES FEDERAL "B"		
	BOPM	BWPD	MCF GPM	BOPM	BWPM	MCF GPM	BOPM	BWPM	MCF GPM
1-71	23,393	27,699	28,128	6,584	2,348	2,925	1,426	9,589	3,377
2-71	18,035	22,058	21,143	4,577	12,858	2,126	2,099	14,231	3,426
3-71	17,118	26,804	22,667	5,812	21,676	2,198	2,470	16,848	4,176
4-71	18,678	31,369	24,836	5,295	19,183	2,613	2,399	19,924	3,881
5-71	18,198	33,946	28,908	5,115	18,705	1,874	1,086	8,474	3,224
6-71	17,702	32,052	35,898	4,950	19,126	2,396	1,952	17,261	3,839
7-71	19,062	34,105	36,520	5,125	20,448	2,598	2,478	28,758	4,562
8-71	16,686	31,658	36,885	5,126	20,357	2,559	1,684	17,990	2,950
9-71	16,328	33,746	33,079	4,950	19,862	2,273	857	9,784	2,562
10-71	15,511	34,229	36,132	4,961	23,523	3,092	893	12,329	4,200
11-71	11,958	29,772	29,741	4,350	21,110	3,072	847	12,264	4,381
12-71	10,880	38,667	23,067	3,876	24,349	3,002	1,240	8,296	5,638
1-72	11,937	34,409	29,643	2,135	16,436	2,615	925	6,527	5,284
2-72	10,509	42,841	18,784	3,584	17,517	2,398	1,063	8,017	4,994
3-72	9,376	37,966	20,386	3,118	15,314	2,407	826	6,118	5,470
4-72	9,729	64,806	18,377	3,086	9,763	2,179	774	6,460	4,804
5-72	5,486	228,587	22,832	4,386	24,459	2,268	764	5,372	4,076
6-72	7,036	79,028	19,081	4,601	18,447	2,325	747	3,358	3,908
7-72	5,531	68,208	18,046	4,035	15,712	1,998	517	4,063	3,847
8-72	4,218	27,144	17,883	5,093	16,588	1,985	431	1,664	1,697
9-72	4,831	38,716	17,014	4,677	18,707	2,412	400	62,025	1,737
TOTAL	1,125,473	881,032	871,565	381,239	434,155	144,325	208,168	523,529	175,719

SHELL AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT

DATE	AMCO FEDERAL			AMCO FEDERAL "A"			HODGES FEDERAL "B"		
	BOPM	BWPD	MCF GPM	BOPM	BWPM	MCF GPM	BOPM	BWPM	MCF GPM
9-67	---	---	---	---	---	---	1,893	---	492
10-67	864	---	---	---	---	---	1,826	165	475
11-67	8,276	---	---	---	---	---	2,116	1,552	537
12-67	12,942	130	2,432	1,456	---	---	1,912	1,153	820
1-68	17,648	121	2,572	3,942	380	1,197	2,269	1,457	990
2-68	22,601	1,067	7,542	6,541	886	2,330	3,683	1,062	651
3-68	25,669	110	8,541	9,157	1,093	3,062	4,796	2,653	1,074
4-68	24,071	155	8,113	8,599	293	2,909	4,712	8,831	1,009
5-68	25,216	197	8,484	9,004	90	3,041	4,774	4,040	1,042
6-68	24,255	442	8,198	8,660	531	2,937	4,972	3,947	1,009
7-68	25,134	1,116	8,484	8,977	635	3,043	5,407	6,840	1,009
8-68	25,002	1,108	1,495	8,933	632	796	5,331	6,543	237
9-68	24,409	1,684	8,893	8,717	661	1,183	5,303	3,889	740
10-68	25,052	1,728	8,688	8,950	678	1,221	5,495	3,904	670
11-68	24,829	2,910	7,089	8,866	1,152	1,183	5,307	4,105	559
12-68	24,729	3,544	7,454	8,833	1,391	1,199	5,513	3,751	546
1-69	26,190	3,752	7,693	9,355	1,474	1,264	5,742	4,495	549
2-69	22,761	4,495	7,254	8,128	1,891	1,093	5,623	4,435	707
3-69	26,175	5,248	10,492	9,349	1,953	2,134	6,348	5,069	2,712
4-69	26,463	5,194	10,383	9,450	1,717	3,408	6,859	4,998	3,746
5-69	26,541	5,632	11,315	9,481	1,731	2,173	6,506	4,337	3,336
6-69	26,755	6,237	6,973	9,550	2,073	2,597	6,414	4,006	4,231
7-69	27,822	5,558	10,968	9,939	2,064	3,915	6,634	1,734	3,962
8-69	28,043	6,596	16,184	10,015	2,429	2,532	7,984	3,117	5,395
9-69	27,164	8,789	20,430	9,703	3,879	2,369	8,127	4,372	5,255
10-69	28,976	8,876	18,283	10,349	3,391	2,278	6,857	3,695	5,652
11-69	27,940	8,589	13,927	9,970	3,321	3,581	7,011	3,867	3,639
12-69	25,330	8,240	13,280	9,050	3,387	3,563	6,765	3,813	4,194
1-70	22,511	10,636	15,409	8,550	3,484	3,409	5,781	4,440	2,919
2-70	20,873	17,285	13,079	8,338	4,438	4,170	4,630	8,054	4,317
3-70	22,461	26,034	18,514	9,449	6,445	3,480	4,585	7,447	7,129
4-70	28,425	44,402	29,017	11,596	10,859	2,806	4,460	7,717	6,521
5-70	27,180	37,713	27,573	11,333	12,381	5,678	4,550	14,801	6,759
6-70	24,563	39,850	26,242	8,532	10,272	5,168	4,481	23,800	10,300
7-70	23,647	39,301	14,601	7,454	98,998	5,307	3,101	24,678	2,124
8-70	24,061	45,755	21,867	7,290	16,395	4,073	3,100	23,562	2,153
9-70	24,021	32,352	28,941	10,226	29,366	5,446	2,356	40,014	4,917
10-70	27,735	42,718	22,874	4,001	12,090	5,350	1,428	6,825	4,156
11-70	23,160	35,182	22,705	7,351	21,964	7,301	2,250	59,761	5,361
12-70	22,007	36,920	26,634	9,125	31,797	5,228	2,316	17,836	4,518

SHELL AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT

<u>DATE</u>	<u>OIL, BPM</u>	<u>WATER, BPM</u>	<u>GAS, MCFPM</u>	<u>DATE</u>	<u>OIL, BPM</u>	<u>WATER, BPM</u>	<u>GAS, MCFPM</u>
9-67	1,893	---	492	1-71	31,403	39,636	34,430
10-67	2,690	165	475	2-71	24,711	49,147	26,695
11-67	10,392	1,552	537	3-71	25,400	65,328	29,041
12-67	16,310	1,283	3,252	4-71	26,372	70,476	31,330
1-68	23,859	1,958	4,759	5-71	24,399	61,125	34,006
2-68	32,825	3,015	10,523	6-71	24,604	68,439	40,133
3-68	39,622	3,856	12,677	7-71	26,665	83,311	43,680
4-68	37,382	9,279	12,031	8-71	23,496	70,005	42,394
5-68	38,994	4,327	12,567	9-71	22,135	63,392	37,914
6-68	37,887	4,920	12,144	10-71	21,365	70,081	43,424
7-68	39,518	8,591	12,536	11-71	17,155	63,146	37,194
8-68	39,266	8,283	2,528	12-71	15,996	71,312	31,707
9-68	38,429	6,234	10,816	1-72	14,997	57,372	37,542
10-68	39,497	6,310	10,579	2-72	15,156	68,375	26,176
11-68	39,002	8,167	8,831	3-72	13,320	59,398	28,263
12-68	39,075	8,686	9,199	4-72	13,589	81,033	25,360
1-69	41,287	9,721	9,506	5-72	10,636	258,418	29,176
2-69	36,512	10,821	9,054	6-72	12,384	100,833	25,314
3-69	41,872	12,270	15,338	7-72	10,083	87,983	23,891
4-69	42,772	11,909	17,537	8-72	9,742	45,396	21,565
5-69	42,528	11,700	16,824	9-72	9,908	119,448	21,163
6-69	42,719	12,316	13,801				
7-69	44,392	9,356	18,845	TOTAL	1,714,880	1,838,716	1,191,609
8-69	46,042	12,142	24,111				
9-69	44,994	17,040	28,054				
10-69	46,182	15,962	26,213				
11-69	44,921	15,777	21,147				
12-69	41,145	15,440	21,037				
1-70	36,842	18,560	21,737				
2-70	33,841	29,777	21,566				
3-70	36,495	39,926	29,123				
4-70	44,481	62,978	38,344				
5-70	43,063	64,895	40,010				
6-70	37,576	73,922	41,710				
7-70	34,202	162,977	19,826				
8-70	34,451	85,712	28,093				
9-70	36,603	101,732	39,304				
10-70	32,664	61,653	32,380				
11-70	32,761	116,907	35,367				
12-70	33,448	86,553	36,380				

CATO SAN ANDRES FIELD PRODUCTION, 9-1-72:

Oil, Bbls.

12,174,000

Water, Bbls.

6,914,000

Gas, MCF

20,327,000

1,000,000

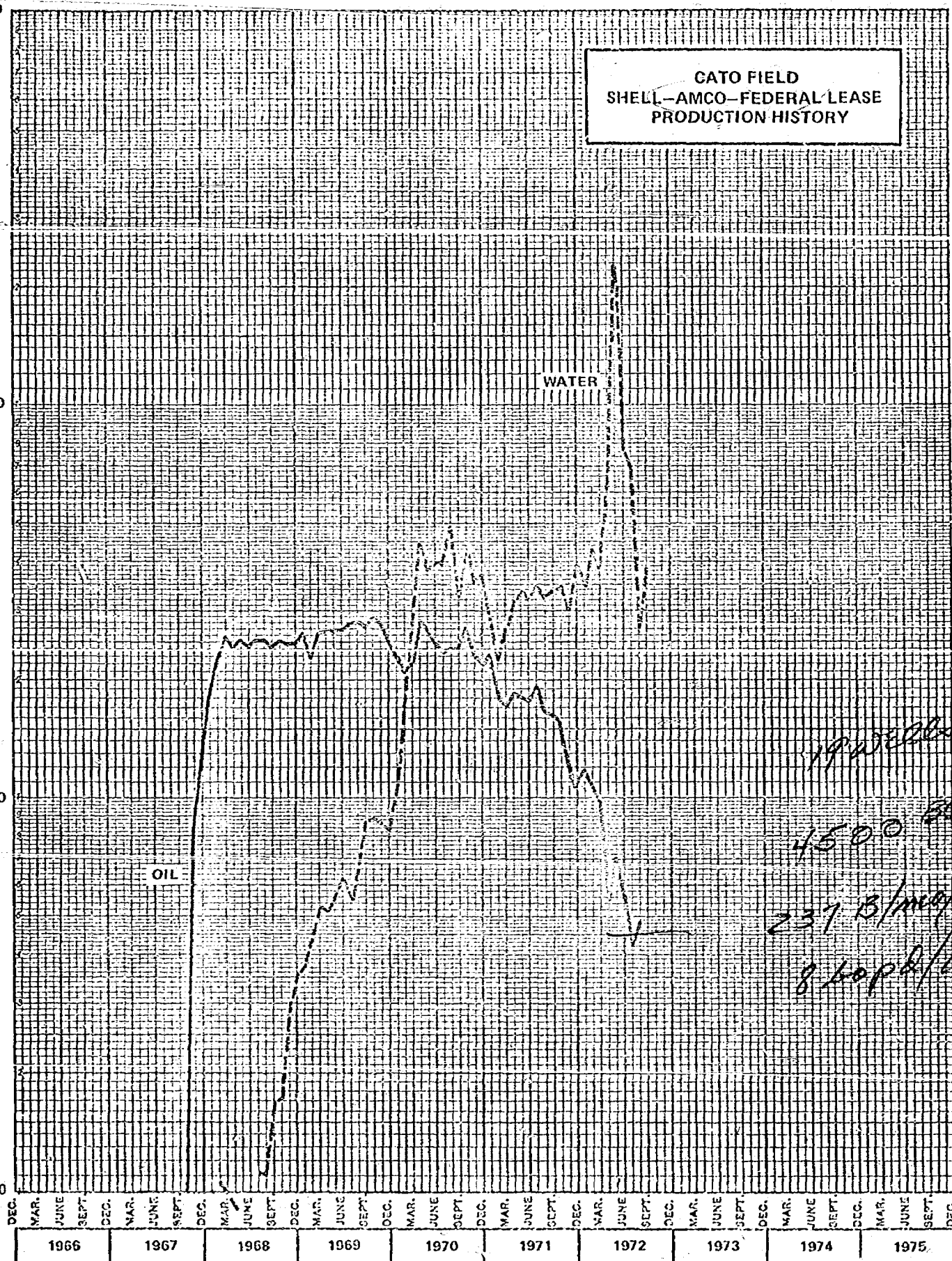
OIL & WATER PRODUCTION (BBL.S./MO.)

100,000

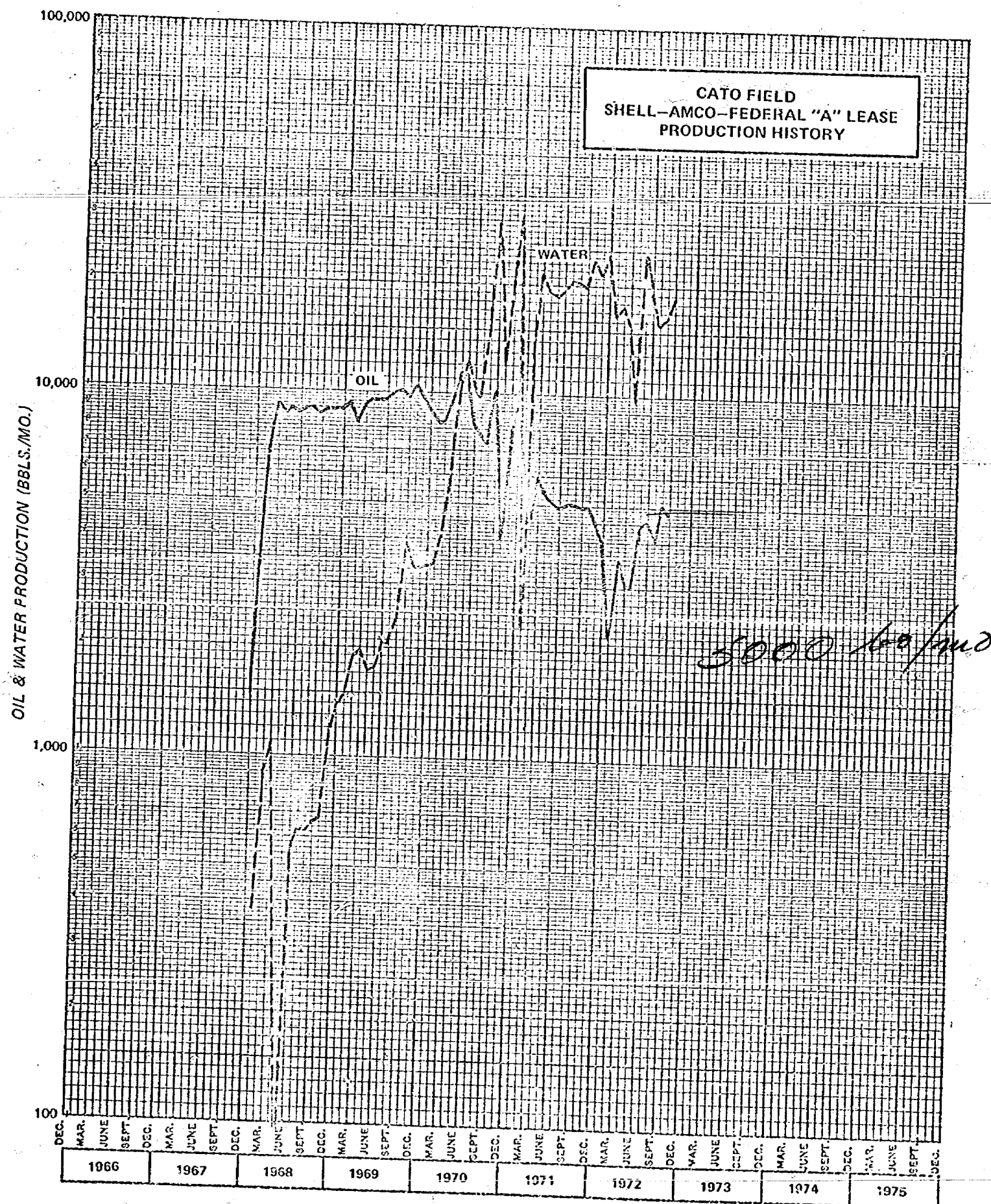
10,000

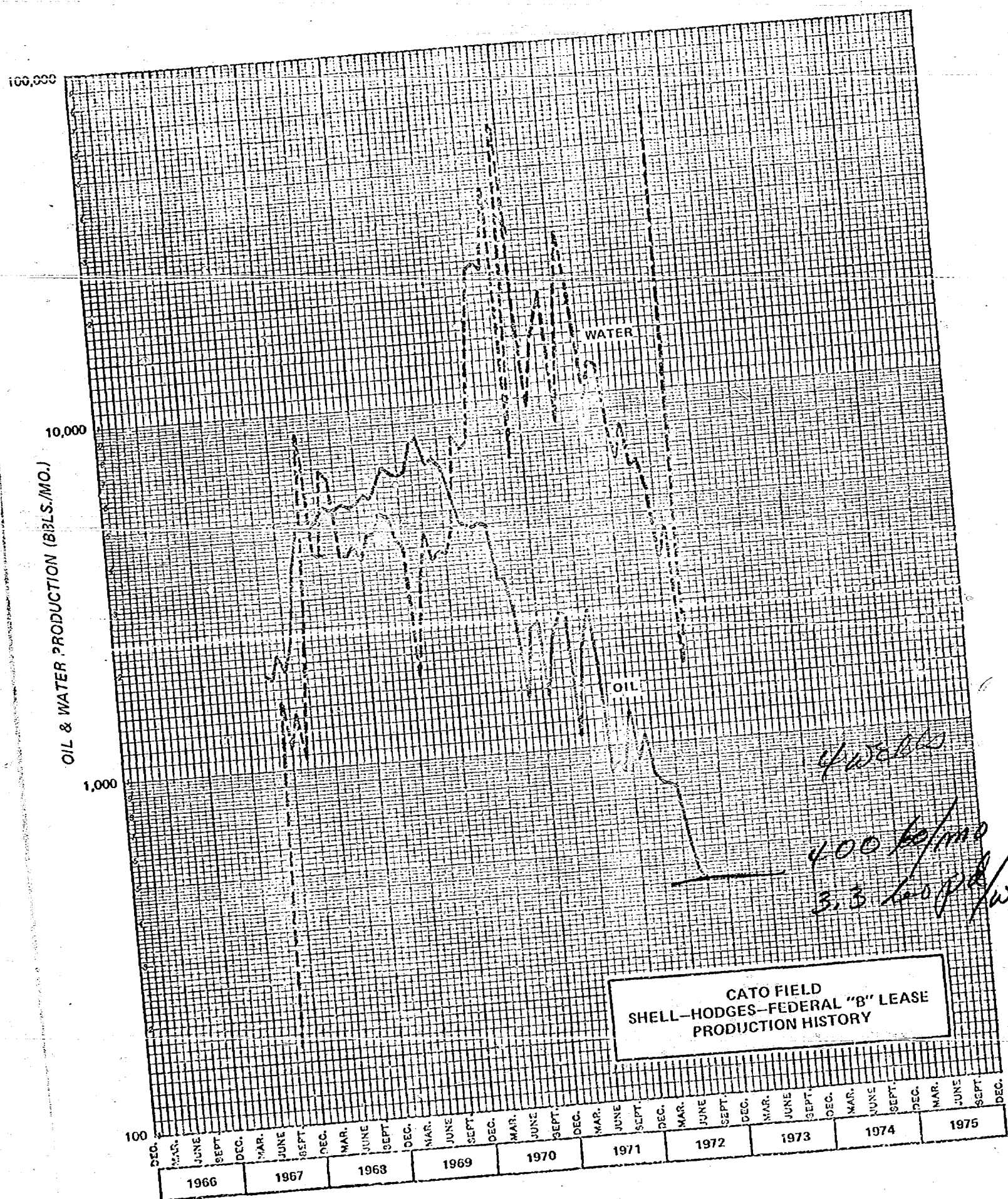
1,000

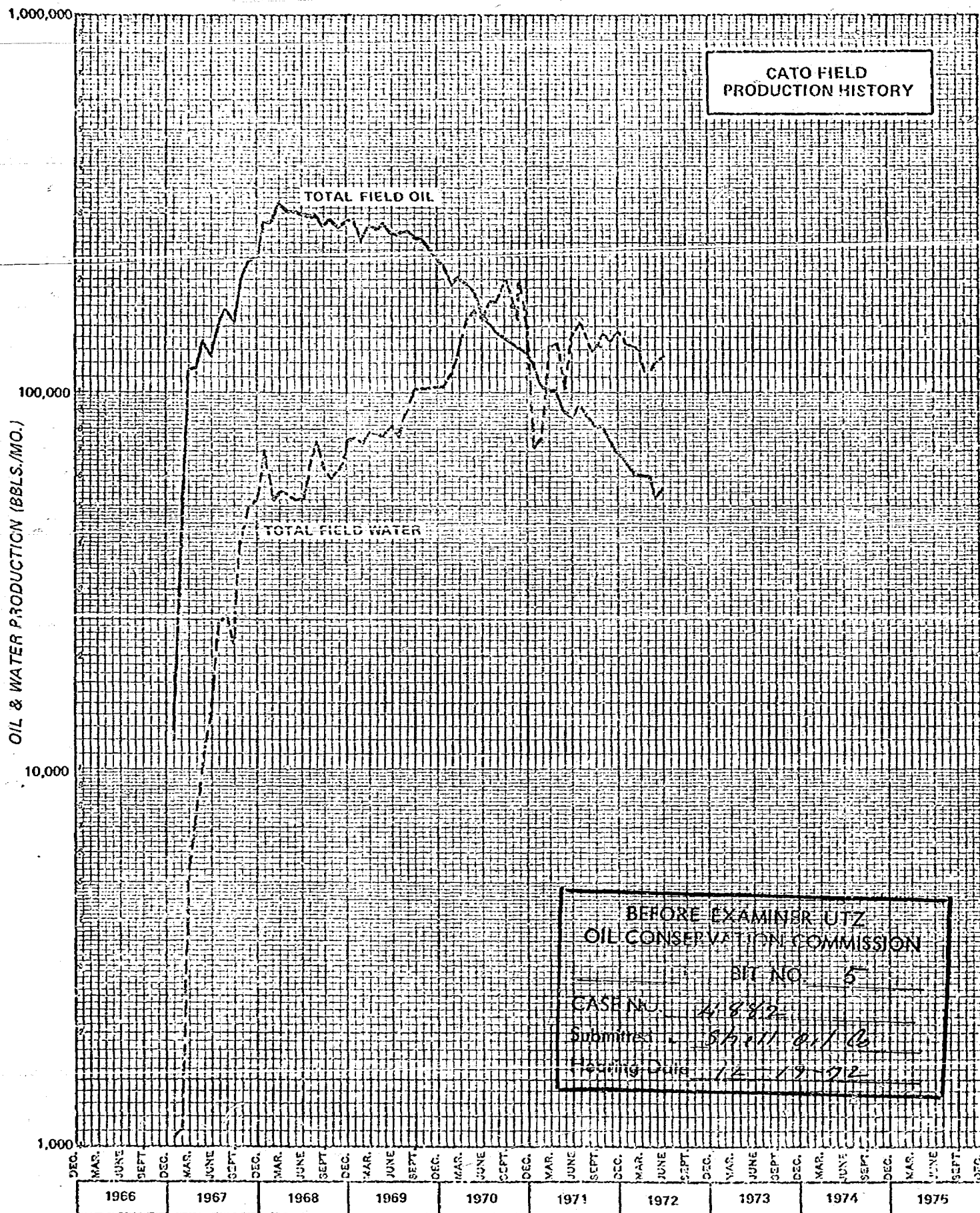
CATO FIELD
SHELL-AMCO-FEDERAL LEASE
PRODUCTION HISTORY

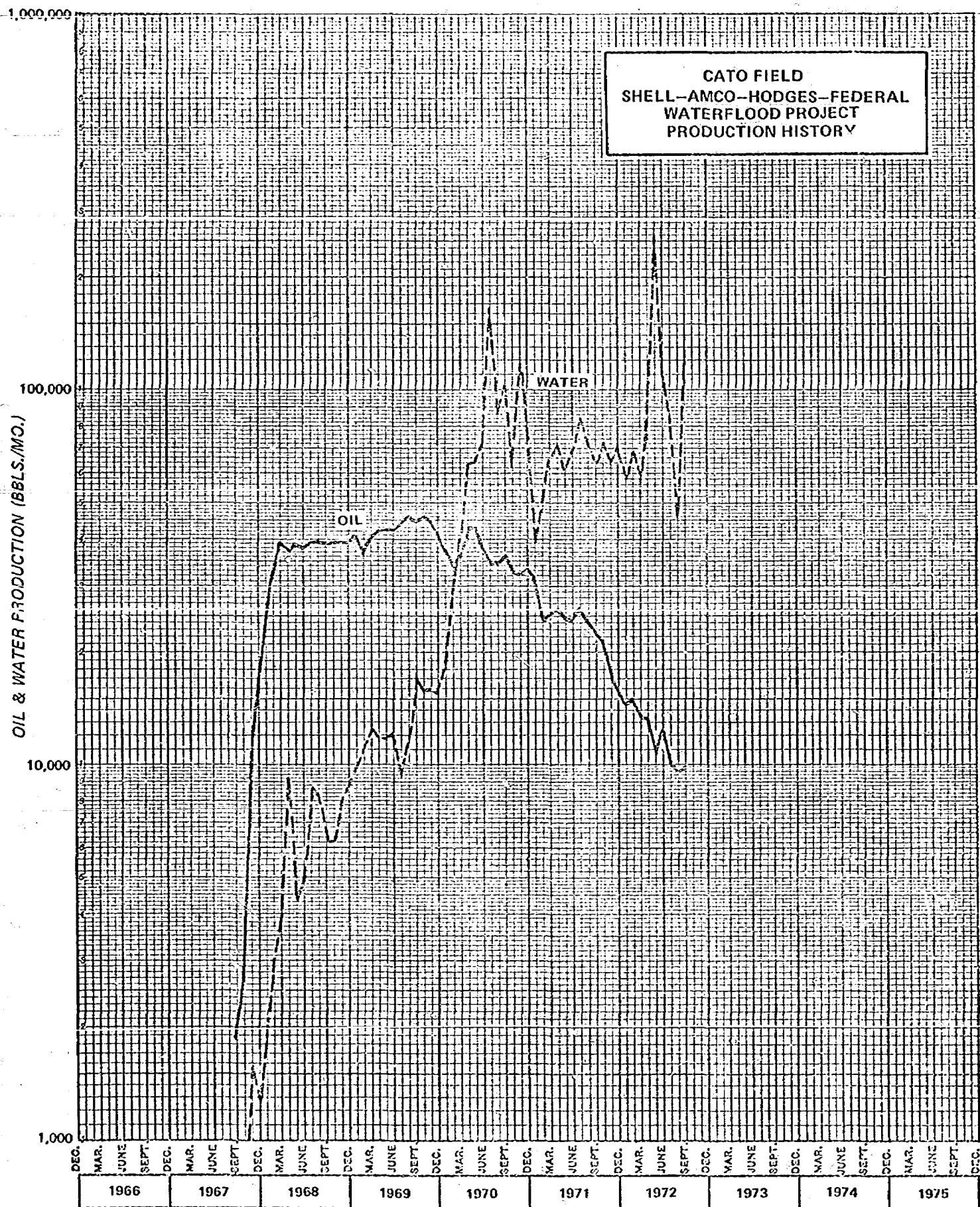


19 wells
4500 BBL/MO
237 BBL/MO/Well
8 bopd/Well









dearnley, meier & mc cormick reporting service, inc.

209 SIMMS BLDG., P.O. BOX 1082 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

PAGE 1

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

December 19, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Shell Oil Company
for a waterflood project,
Chaves County, New Mexico.

Case No. 4882

BEFORE: Elvis A. Utz,
Examiner.

TRANSCRIPT OF HEARING

dearnley, meier & mc cormick reporting service inc.

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6601, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108

1 MR. UTZ: Case 4882: Application of Shell Oil
2 Company for a waterflood project, Chaves County, New Mexico.

3 MR. LOPEZ: Owen Lopez, of the firm of Montgomery,
4 Federici, Andrews, Hannahs and Morris, Santa Fe, appearing
5 on behalf of the Applicant. I have one witness to be sworn.

6 MR. UTZ: Are there other appearances?

7 (No response)

8 B. M. BEST,

9 was called as a witness, and after being duly sworn, testified
10 as follows:

11 DIRECT EXAMINATION

12 BY MR. LOPEZ:

13 Q Would you please state your name and residence for
14 the record, please?

15 A Billy Wayne Best, Odessa, Texas.

16 Q Mr. Best, have you previously testified before the
17 Oil Conservation Commission and had your qualifications
18 accepted as a matter of record?

19 A No, I have not.

20 Q Could you then briefly describe your educational
21 background and work experience?

22 A I am a graduate of Texas Tech University, I graduated
23 in 1960 with a bachelor of science degree in petroleum
24 engineering. I went to work for Shell Oil Company in
25 1960, and have been working for Shell ever since. I

1 am presently a production engineer in the Southeastern
2 part of New Mexico.

3 Q You are familiar with the application of Shell Oil
4 Company in Case 4882?

5 A Yes, sir. The application is seeking authority to
6 institute a waterflood project by the injection of
7 water into the San Andres formation through the
8 following five wells in the Cato-San Andres Pool,
9 Chaves County, New Mexico: Amoco Federal Wells Numbers
10 4, 6, 7, and 8 in Units G, O, E and M, respectively,
11 of Section 33, and the Hodges Federal B Well Number 4
12 in Unit M of Section 34, all in Township 8 South,
13 Range 30 East.

14 Q And in your position with Shell, you are in charge of
15 this waterflood project, are you not?

16 A That's right.

17 MR. LOPEZ: Are the witness's qualifications
18 acceptable, Mr. Examiner?

19 MR. UTZ: Yes, they are.

20 Q (By Mr. Lopez) I believe you prepared some exhibits
21 in support of your application in this case, and I
22 ask you to turn to Exhibit One and briefly explain
23 what it describes.

24 A Exhibit One is a plat with a two-mile radius of the
25 subject waterflood project, which is outlined in dark

1 blue. The red boundary engulfs the proposed injection
2 wells, and this plat shows the proposed injection lines,
3 and also shows the tank battery on the east side, and
4 the tank battery for the proposed station site, which
5 will be 1400 feet from the south line and 1,900 feet
6 from the east line of Section 33, Township 8 South,
7 Range 30 East. This water station will be equipped
8 with automatic shut-down devices, and the well heads
9 will be equipped with check valves, and in cases of
10 malfunction, there will be an operator to check these
11 operations daily.

12 Q Now, turning to Exhibit Two, would you please explain
13 what this is?

14 A Exhibit Number Two is the downhole draining of the
15 proposed injection wells. Amoco Federal Wells Numbers
16 4, 6, 7, and 8, and the Hodges Federal B Well Number 4.
17 It shows the casing sizes, the depths at which they
18 are set, the amount of cement, and the top of the
19 cement, the perforated intervals, and the proposed
20 packer setting depths, and the tubing which we intend
21 to inject through is 2 and 3/8. Also attached to the
22 back is the exact locations of these wells.

23 Q That is the last page of the exhibit, which gives the
24 exact locations of each well?

25 A Yes, sir.

1 Q Now, turning to Exhibit Three, what is this?

2 A Exhibit Three is a log of each injection well, proposed
3 injection well. The San Andres is marked, and the top
4 of the pay is marked in red. The perforations and
5 depths are marked in green.

6 Q Now, turning to Exhibit Number Four, would you please
7 explain what this is?

8 A This gives the locations of the three leases involved.
9 The projection rate is proposed to be approximately
10 5,000 barrels per day for five wells with anticipated
11 well head pressure of 500 pounds.

12 We propose the water source to be produced water,
13 and we will convert the salt water wells to water
14 source wells.

15 The Shell Federal Number 1 is 330 feet from the
16 north line and 990 feet from the east line. The
17 perforated interval is 3,581 to 3,680. The second
18 well is close by, 1,980 feet from the north line and
19 660 feet from the east line of Section 16. The
20 perforation depths are 3,414 to 3,485.

21 Q And do the additional pages of the exhibit describe
22 the water analyses for the source of the water?

23 A Yes, it describes the analyses of source water and
24 analyses were made by Martin Water Laboratories in
25 Midland, Texas.

1 Q Turning your attention to Exhibit Number Five, would
2 you please describe what this is?

3 A Exhibit Five is a production curve of the Cato field.
4 On the back we have tabulated the monthly production of
5 each lease and the sum of the three leases together.

6 You will notice that there has been a very steep
7 decline, approximately fifty-eight percent, and from
8 my calculations, the economic limits on these three
9 leases will be approximately between March and June
10 of 1974. We plan to commence injection in mid-summer
11 of 1973, and it is anticipated that this will take
12 about nine months from injection to waterflood response.

13 So waterflood response and the economic limits
14 of the leases will be at about the same time.

15 Q Now, turning your attention to Exhibit Number Six,
16 will you explain this?

17 A Exhibit Six is a letter to all the offset operators,
18 and attached is a copy of the receipt for certified
19 mail. In this letter, we notified the offset operators.

20 Q Will you explain Exhibit Number Seven?

21 A Exhibit Seven is a letter that Shell sent to the USGS
22 notifying them of this hearing, and attached is their
23 letter of approval for this project.

24 Q And could you briefly summarize exactly what you are
25 requesting?

1 A Well, if this application is approved, we hope to have
2 operations set up by mid-summer with all connections
3 installed, and commence injection. Unless the project
4 is approved, there are an amount of reserves which will
5 not be recovered. It is our firm opinion that approval
6 of this application will prevent waste and protect
7 correlative rights.

8 Q Do you have an opinion as to the amount of additional
9 secondary recovery?

10 A On Exhibit Four, we have indicated-- we have estimated
11 an increase in the reserves of 543,000 barrels of oil
12 from these three leases.

13 Q Were Exhibits One through Seven prepared by you, or
14 under your supervision?

15 A Yes, they were.

16 MR. LOPEZ: At this time, we would like to
17 introduce Exhibits One through Seven.

18 MR. UTZ: Without objection, Exhibits One through
19 Seven will be entered into the record of this case.

20 MR. LOPEZ: That's all we have.

21 * * * *

22 CROSS EXAMINATION

23 BY MR. UTZ:

24 Q Mr. Best, do you intend to re-inject your produced
25 water?

1 A That's right.

2 Q How about the surface equipment on your injection wells?
3 Do you intend to monitor that with a gauge?

4 A Yes, we intend to monitor the amount of water we inject
5 with meters.

6 Q How about checking for casing leaks? Will you have a
7 gauge at the surface, or will you leave it open?

8 A I'm sure we will place a gauge upon the wells. We
9 plan to fill the annulus with fluid to limit corrosion.

10 MR. UTZ: Are there any questions of the witness?

11 (No response)

12 MR. UTZ: If not, he may be excused.

13 (Witness excused.)

14 MR. UTZ: Are there any statements in this case?

15 (No response)

16 MR. UTZ: The case will be taken under advisement.

17

18

19

20

21

22

23

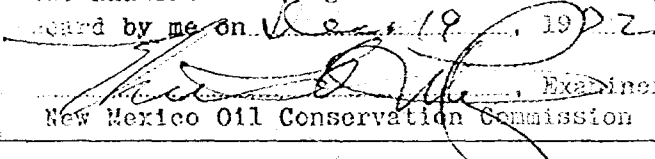
24

25

1 STATE OF NEW MEXICO)
2 COUNTY OF BERNALILLO) SS

3
4 I, RICHARD E. McCORMICK, a Certified Shorthand
5 Reporter, in and for the County of Bernalillo, State of
6 New Mexico, do hereby certify that the foregoing and attached
7 Transcript of Hearing before the New Mexico Oil Conservation
8 Commission was reported by me; and that the same is a true
9 and correct record of the said proceedings to the best of
10 my knowledge, skill and ability.

11
12 
13 CERTIFIED SHORTHAND REPORTER

14
15
16
17
18
19
20
21
22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
the Examiner hearing of Case No. 4882,
24 heard by me on Dec 19, 1942.
25  Examiner
New Mexico Oil Conservation Commission

I N D E XWITNESSPAGE

B. W. BEST

Direct Examination by Mr. Lopez

2

Cross Examination by Mr. Utz

7

E X H I B I T SEXHIBITADMITTEDOFFERED

Exhibit #1

Plat

7

3

Exhibit #2

Downhole draining

7

4

Exhibit #3

Log

7

5

Exhibit #4

Location of leases

7

5

Exhibit #5

Production curve

7

6

Exhibit #6

Letter

7

6

Exhibit #7

Letter

7

6



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

January 9, 1973

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

Mr. Owen Lopez
Montgomery, Federici, Andrews,
Hannahs, & Morris
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 4882
Order No. R-4462
Applicant:
Shell Oil Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced
Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. D. E. Gray - State Engineer Office, Santa Fe

Case 4682

Heard 12-19-72

Rec. 12-21-72

Grant Shell approval of our
H₂O flood project known as the
~~Cato~~ S.A. Amco-Hodges-Ed.
Project.

Also grant permission to
connect 5 wells to injection
as listed on attached sheet.

Injection wells are all cased.
Injection will be thru ~~the~~ inter-
nally plastic coated tubing w/
annulus filled w/ inert fluid
and gauge at surface.

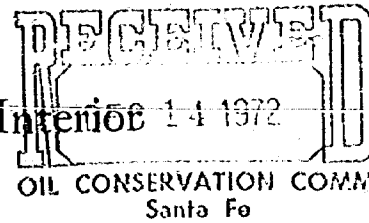
Est 543,000 additional
reserves.

— *Thur O. Mc*



United States Department of the Interior 14 1972

GEOLOGICAL SURVEY



P. O. Drawer U
Artesia, New Mexico 88210

Case 4882

December 12, 1972

Shell Oil Company
Post Office Box 1509
Midland, Texas 79701

Gentlemen:

Your letter of December 1, 1972 requests approval to institute and operate a waterflood project of the San Andres formation in the Gato pool, located in T. 8 and 9 S., R. 30 E., N.M.P.M., Chaves County, New Mexico involving that portion of Federal oil and gas leases described as follows:

New Mexico 0155254-A

T. 8 S., R. 30 E.
sec. 33: $W\frac{1}{2}$, $W\frac{1}{2}E\frac{1}{2}$, $E\frac{1}{2}SE\frac{1}{2}$
T. 9 S., R. 30 E.
sec. 4: $N\frac{1}{2}$

New Mexico 022636

T. 8 S., R. 30 E.
sec. 34: $W\frac{1}{2}$

The plan proposes to convert to water injection the following wells:

<u>Well Number and Lease</u>	<u>Location</u>
4 - Amoco Federal	1980/N&E sec. 33
6 - Amoco Federal	660/S 1980/E sec. 33
7 - Amoco Federal	1980/N 660/W sec. 33
8 - Amoco Federal	660/S&W sec. 33
4 - Hodges Federal "B"	660/S&W sec. 34

The plan for operating this project as proposed in the application is satisfactory to this office and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.
2. Duplicate copies of a monthly progress report (N.M.O.C.C. form C-120 acceptable) are to be submitted to this office showing the volume of water injected and average pressure for the injection wells and production for the producing wells in the project area.
3. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases or the necessity to submit the usual notices and reports on wells involved. When this project is expanded to involve other operators and interests, the correlative rights of all concerned should be considered.

Sincerely yours,

(Orig. Sgd.) JAMES A. KNAUF

James A. Knauf
District Engineer

cc:
N.M.O.C.C., Santa Fe ✓
Roswell
Accounts

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4882
Order No. R-4462

APPLICATION OF SHELL OIL COMPANY
FOR A WATERFLOOD PROJECT, CHAVES
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 19, 1972, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 5th day of January, 1973, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Shell Oil Company, seeks authority to institute a waterflood project on its Amco-Federal and Hodges Federal "B" Leases, Cato-San Andres Pool, by the injection of water into the San Andres formation through five injection wells in Sections 33 and 34, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute a waterflood project in the Cato-San Andres Pool by the injection of water into the San Andres

-2-

Case No. 4382
Order No. R-4462

formation through the following-described wells in Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico:

Amco Federal Well No. 4 - Section 33, Unit G
Amco Federal Well No. 6 - Section 33, Unit O
Amco Federal Well No. 7 - Section 33, Unit E
Amco Federal Well No. 8 - Section 33, Unit M
Hodges Federal B Well No. 4 - Section 34, Unit M

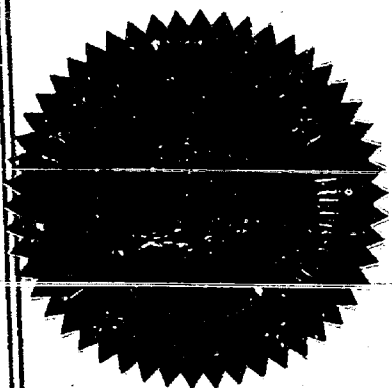
(2) That the subject waterflood project is hereby designated the Shell Amco-Hodges Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


BRUCE KING, Chairman

ALEX J. ARMISTO, Member

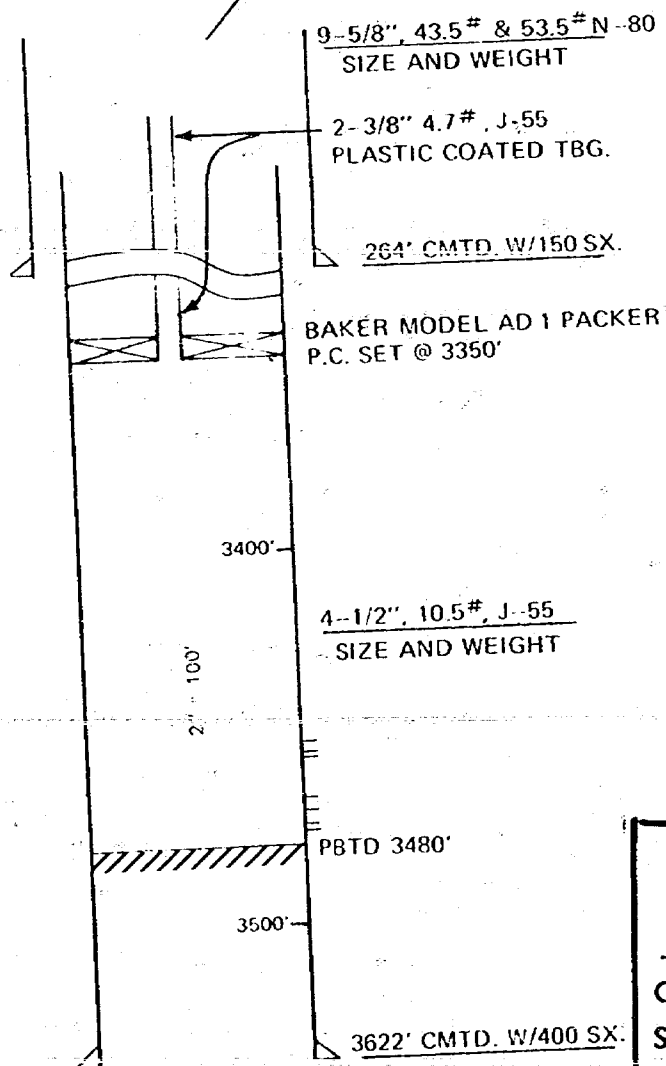
A. L. PORTER, Jr., Member & Secretary

S E A L

dr/

SHELL-AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT
CATO FIELD
HODGES FEDERAL "B" WELL NO. 4
660' FSL & 660' FWL, SEC. 34, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 3-17-68

ELEVATION: 4116' DF

TD: 3623', PBTD: 3480'

PERF: 3452', 3455', 3465', 3470', 3474',
3476', 3479', 3481', 3498', 3499',
3503', 3506', 3512', 3515',
(14 HOLES)
SQUEEZED W/400 SX. CEMENT.

PERF: 3452', 3455', 3465', 3470', 3474',
3476', 3479', 3481' (8 HOLES)
SQUEEZED W/375 SX. CEMENT.

PERF: 3451', 3454', 3456', 3466', 3469',
3473', 3475' (7 HOLES)

9-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT
TOP 1700'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

BIT NO. 2

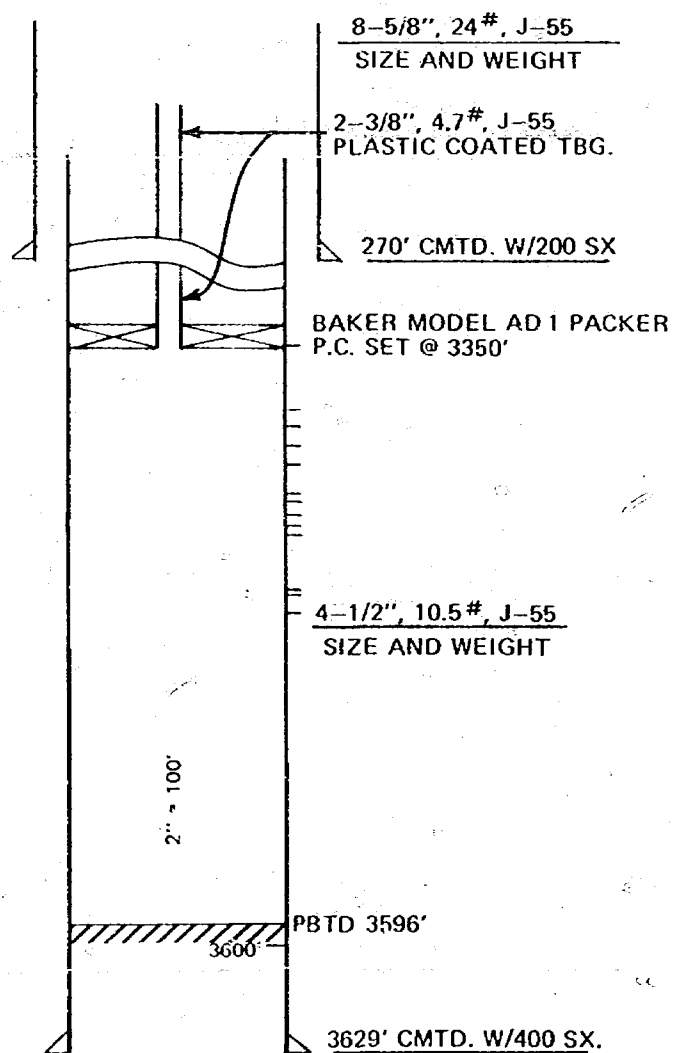
CASE NO. 4882

Submitted Shell Oil Co.

Hearing Date 12-19-72

**SHELL-AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT
CATO FIELD
AMCO FEDERAL WELL NO. 4
1980' FNL & 1980' FEL, SEC. 33, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO**

**DOWNHOLE DRAWING
OF PROPOSED COMPLETION**



COMPLETION DATE: 11-6-67

ELEVATION: 4165' DF

TD: 3600', PBTD: 3596'

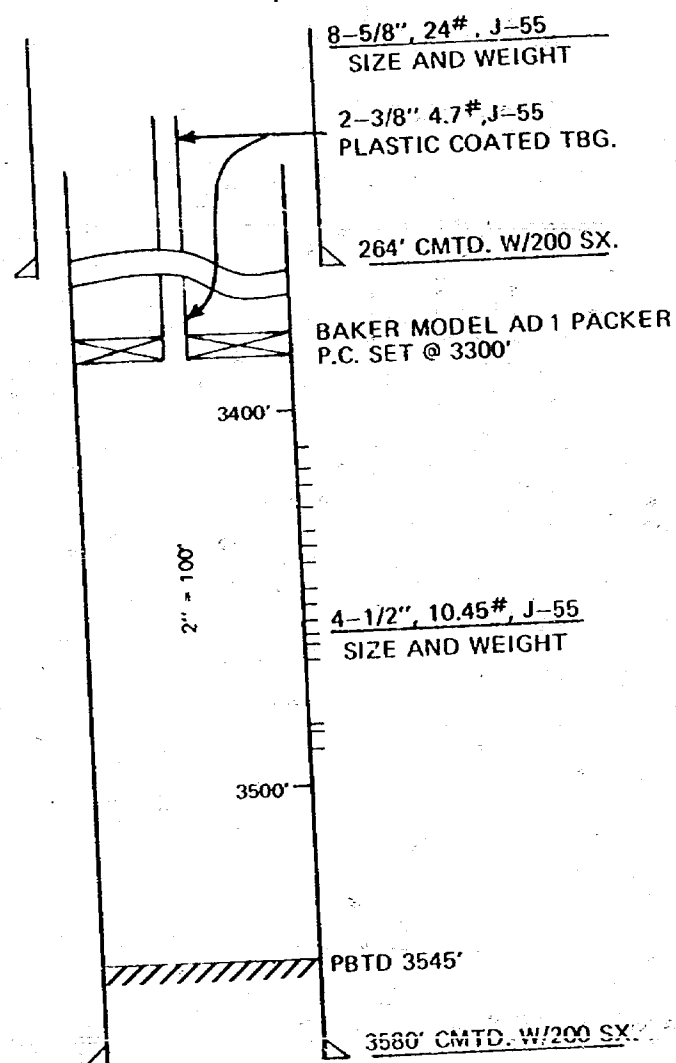
PERF: 3457', 3461', 3466', 3471', 3479',
3481', 3485', 3488', 3490', 3505',
3508', 3511', (12 HOLES)

8-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT
TOP 1700'

SHELL-AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT
CATO FIELD
AMCO FEDERAL WELL NO. 6
660' FSL & 1980' FEL, SEC. 33, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 11-21-67

ELEVATION: 4138' DF

PBTD: 3545', TD: 3580'

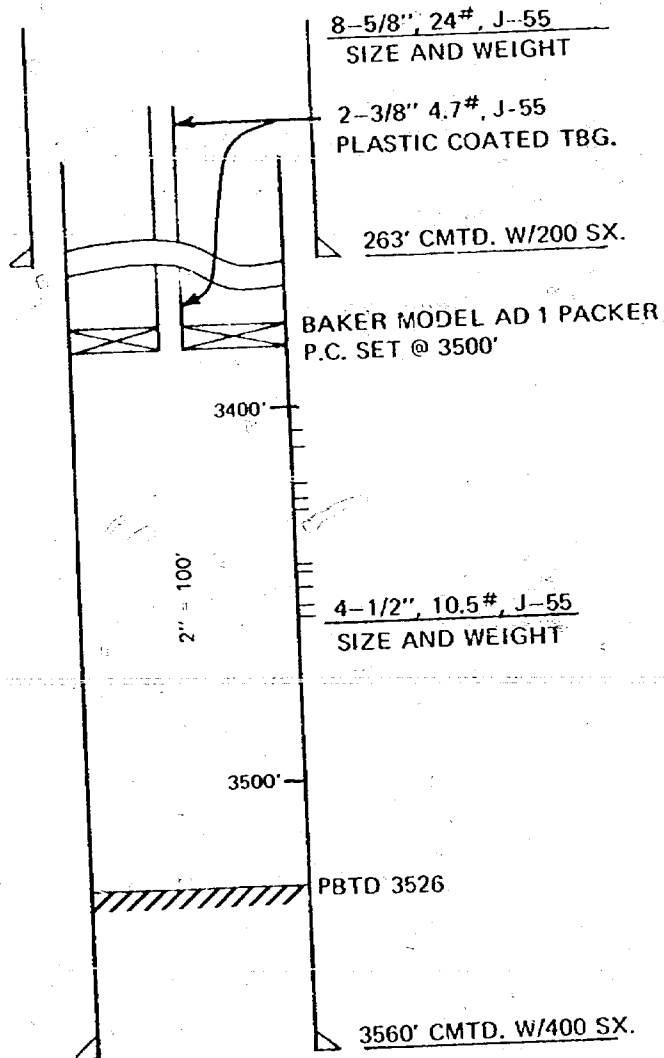
PERF: 3410', 3416', 3420', 3426', 3432',
3436', 3441', 3448', 3452', 3456',
3460', 3463', 3467', 3484', 3486',
3492', (16 HOLES)

8-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT
TOP 2600'

SHELL-AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT
CATO FIELD
AMCO FEDERAL WELL NO. 7
660' FWL & 1980' FNL, SEC. 33, T-8-S, R-30-E
CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 11-29-67

ELEVATION: 4142' DF

TD: 3560', PBD: 3526'

PERF: 3400', 3406', 3411', 3420', 3424',
3427', 3442', 3444', 3448', 3453',
3456', (11 HOLES)

8-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT
TOP 1700'

SHELL-AMCO-HODGES-FEDERAL
WATERFLOOD PROJECT

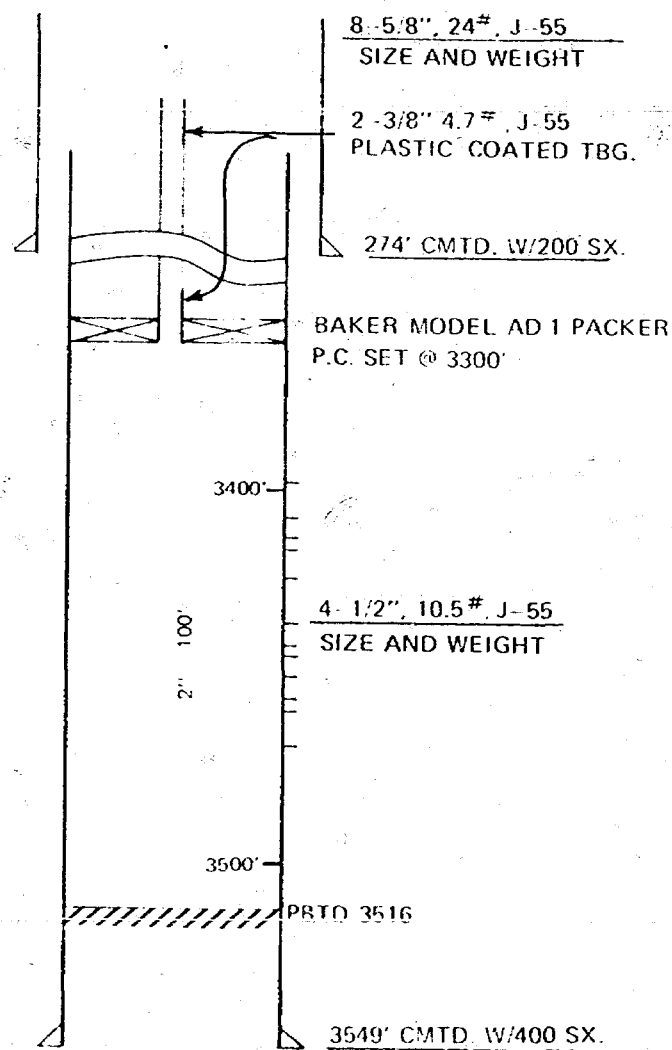
CATO FIELD

AMCO FEDERAL WELL NO. 8

660' FSL & 660' FWL, SEC. 33, T-8-S, R-30-E

CHAVES COUNTY, NEW MEXICO

DOWNHOLE DRAWING
OF PROPOSED COMPLETION



COMPLETION DATE: 12-13-67

ELEVATION: 4127' DF

TD: 3550', PBD: 3516'

PERF: 3398', 3408', 3413', 3416', 3424',
3436', 3442', 3445', 3450', 3456',
3459', 3469' (12 HOLES)

8-5/8" CSG. CEMENT CIRCULATED

4-1/2" CSG. CALCULATED CEMENT
TOP 1650'

DOCKET: EXAMINER HEARING - TUESDAY - DECEMBER 19, 1972

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for January, 1973, from seventeen prorated pools in Lea, Eddy, Roosevelt, and Chaves Counties, New Mexico;
- (2) Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico for January, 1973.

CASE 4608: (Reopened) (Continued from November 14, 1972)

In the matter of Case 4608 being reopened pursuant to the provisions of Order No. R-4213 which order established special rules and regulations for the Haystack Siluro-Devonian Pool, Chaves County, New Mexico, including a provision for 80-acre spacing units. All interested persons may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 4860: (Continued from the November 29, 1972 Examiner Hearing)

Application of Craig Polson for an unorthodox oil well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well to test the Queen formation at an unorthodox oil well location 1340 feet from the South line and 1300 feet from the East line of Section 12, Township 13 South, Range 31 East, Caprock-Queen Pool, Chaves County, New Mexico.

CASE 4869: (Continued and Readvertised)

Application of Claude C. Kennedy for the amendment of Order No. R-4263, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-4263 to prohibit the transfer of allowable to any well located closer than 1320 feet from the outer boundary of the Lone Pine Dakota "D" Unit Area, Lone Pine Dakota "D" Pool, McKinley County, New Mexico.

CASE 4874: Application of Skelly Oil Company for a dual completion and water injection well, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Skelly Waterflood Unit Well No. 3 located in Unit D of Section 22, Township 17 South, Range 31 East, Eddy County, New Mexico, in such a manner as to permit the production of oil from the Fren-Seven Rivers Pool and the injection of water into the Grayburg-Jackson Pool through parallel strings of tubing.

- CASE 4875: Application of ESH Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Lower San Andres formation in the perforated interval from 5144 feet to 5170 feet in its Hobbs State Well No. 5 located in Unit F of Section 29, Township 18 South, Range 38 East, Hobbs Field, Lea County, New Mexico.
- CASE 4876: Application of Gulf Oil Corporation for an unorthodox oil well location and amendment of Order No. R-2248, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its West Dollarhide Devonian Unit Well No. 118 at an unorthodox location 2540 feet from the South line and 1420 feet from the West line of Section 33, Township 24 South, Range 38 East, West Dollarhide-Devonian Pool, Lea County, New Mexico. Applicant further seeks the amendment of Order No. R-2248 to provide for administrative approval of additional production and injection wells in the aforesaid unit at unorthodox locations.
- CASE 4877: Application of Texas Pacific Oil Company, Inc. for two non-standard oil proration units and a non-standard location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre non-standard proration unit comprising the NE/4 NW/4 and NW/4 NE/4 of Section 2 to be dedicated to its State "C" Well No. 1 located in Unit B and a 40-acre non-standard proration unit comprising the SE/4 NW/4 of Section 2 to be dedicated to its State "C" Well No. 2 located in Unit F of Section 2 and an 80-acre standard proration unit comprising the E/2 NE/4 of Section 2 to be dedicated to its State "D" Well No. 1 at an unorthodox location in Unit A of Section 2, Township 12 South, Range 33 East, Bagley Siluro-Devonian Pool, Lea County, New Mexico.
- CASE 4878: Application of Harding Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Strawn and Atoka formations underlying the E/2 SE/4 of Section 10, Township 17 South, Range 37 East, Lea County, New Mexico, to be dedicated to a Humble City Field extension well to be drilled at a standard location for said pools; also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.
- CASE 4879: Application of Atlantic Richfield Company for gas proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard proration unit comprising the N/2 of Section 30, Township 23 South, Range 37 East, to be dedicated to its Eva Blinbry Wells Nos. 2 and 7 located in Units D and G, respectively, of said Section 30; a 320-acre non-standard proration unit comprising the E/2 of Section 26, Township 22 South, Range 36 East to be dedicated to its McDonald State Wells Nos. 8 and 9 located in

(Case 4879 continued from page 2)

Units P and G, respectively, of said Section 26, and a 640-acre standard gas proration unit comprising all of Section 15, same township, to be dedicated to its McDonald State Wells Nos. 13, 14, and 15 located in Units P, G, and L, respectively, of said Section 15, Jalmat Gas Pool, Lea County, New Mexico.

CASE 4880: Application of Jake L. Hamon for the amendment of Order No. R-638-C, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-638-C which established 150 barrels of oil per day as the maximum allowable for the South Knowles-Devonian Pool. Applicant proposes that the regular 80-acre depth bracket allowable be applied to said pool.

CASE 4881: Application of Anadarko Production Company for two unorthodox oil well locations, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill two wells at unorthodox locations 1980 feet from the South line and 1310 feet from the West line of Section 9 and 1310 feet from the North line and 1980 feet from the East line of Section 16, both in Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.

Applicant further seeks the adoption of a procedure for administrative approval of additional production and injection wells in its Far West Loco Hills Sand Unit at unorthodox locations.

CASE 4882: Application of Shell Oil Company for a waterflood project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the San Andres formation through the following five wells in the Cato-San Andres Pool, Chaves County, New Mexico: Amoco Federal Wells Nos. 4, 6, 7, and 8 in Units G, O, E, and M, respectively, of Section 33 and Hodges Federal B Well No. 4 in Unit M of Section 34, all in Township 8 South, Range 30 East.

CASE 4883: Application of El Paso Natural Gas Company for non-standard gas spacing units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the following non-standard gas spacing units adjacent to the Blanco-Pictured Cliffs Pool in Township 31 North, Range 9 West, San Juan County, New Mexico:

A 145.6-acre unit comprising lots 9 and 10 and 15 through 18 of Section 31;

A 153.5-acre unit comprising lots 14 through 17 of Section 30 and lots 7 and 8 of Section 31;

A 156.5-acre unit comprising lots 17 and 18 of Section 19 and lots 6 through 9 of Section 30;

A 152.6-acre unit comprising lots 7 through 10 and 15 and 16 of Section 19.

CASE 4853: (Continued and Readvertised)

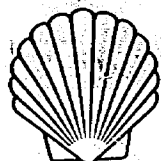
Application of El Paso Natural Gas Company for amendment of gas well testing procedures, San Juan Basin, New Mexico. Applicant, in the above-styled cause, seeks the amendment of the gas well testing procedures for the San Juan Basin, New Mexico, promulgated by Order No. R-333-F, as amended, to remove the requirement for annual deliverability and shut-in pressure tests for marginal wells.

Applicant further requests the Commission to consider:

1. Other means of avoiding or minimizing the loss of pipeline availability attributable to the period wells in prorated pools are shut in in order to conduct the annually required deliverability and shut-in pressure tests;
2. Exempting wells in non-prorated pools from the annual deliverability and shut-in pressure requirements; and,
3. Exempting all wells in the San Juan Basin from the requirement for annual shut-in pressure tests as provided in the General Rules and Regulations.

CASE 4884: Application of Colorado Plateau Geological Services, Inc., for an extension of Order No. R-4227, McKinley County, New Mexico. Applicant, in the above-styled cause, as managing agent for oil and gas for the Henry Birdseye Estate, seeks a one-year extension to certain provisions of Order No. R-4227 which, as amended by Order NO. R-4227-A, required that certain of the Birdseye wells in the Chaco Wash Mesaverde Oil Pool be placed on active production or water injection by December 31, 1972, or be plugged and abandoned. Applicant, or United States Fidelity and Guaranty Company, or any other interested party will be permitted to show cause why the effective date of the aforesaid order should not be enforced.

CASE 4885: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit John Lemley and Juanita Franks and Aetna Casualty and Surety Company and all other interested parties to appear and show cause why the Lemley and Franks Greathouse Well No. 1, located in Unit F of Section 10, Township 23 North, Range 1 West, Rio Arriba County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.



SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

Subject: Shell Amco-Hodges-Federal
Waterflood Project
Cato (San Andres) Field
Sections 33 and 34, T-8-S, R-30-E
Chaves County, New Mexico

TO ALL OPERATORS
(See Attached List)

Gentlemen:

On December 19, 1972, Shell Oil Company will submit to the New Mexico Conservation Commission an application to waterflood the subject properties. Our plan of waterflooding will consist of converting initially five San Andres producing wells to water injection at the location shown on the attached plat. Water for injection will be produced water from these properties and from Shell-operated salt water disposal units.

If any additional information is needed, please advise.

Yours very truly,

Jack L. Mahaffey
Production Manager
Mid-Continent Division

JES:SH

Attachments

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
BIT NO.	6
CASE NO.	4882
Submitted by	Shell Oil Co
Hearing Date	12-19-72

PROPOSED WATER INJECTION WELLS
CATO (SAN ANDRES) FIELD
CHAVES

Hodges Federal "B" No. 4 - Lease No. NM 022636
Location: Unit Letter M, 660' FSL, 660' FWL
Section 34, T-8-S, R-30-E, Chaves County, New Mexico.

Amco Federal No. 4 - Lease No. NM 0155254A
Location: Unit Letter G, 1980' FNL, 1980' FEL
Section 33, T-8-S, R-30-E, Chaves County, New Mexico.

Amco Federal No. 6
Location: Unit Letter O, 660' FSL, 1980' FEL
Section 33, T-8-S, R-30-E, Chaves County, New Mexico.

Amco Federal No. 7
Location: Unit Letter E, 660' FWL, 1980' FNL
Section 35, T-8-S, R-30-E, Chaves County, New Mexico.

Amco Federal No. 8
Location: Unit Letter M, 660' FSL, 660' FWL
Section 33, T-8-S, R-30-E, Chaves County, New Mexico.

OPERATORS
CATO (SAN ANDRES) FIELD
CHAVES COUNTY, NEW MEXICO

ADOBE OIL COMPANY
601 WILKINSON-FOSTER BLDG.
MIDLAND, TX 79701

AMOCO PRODUCTION COMPANY
P. O. BOX 68
HOBBS, NM 88240

ATLANTIC RICHFIELD COMPANY
P. O. BOX 1610
MIDLAND, TX 79701

THE EASTLAND OIL COMPANY
704 WESTERN UNITED LIFE BLDG.
MIDLAND, TX 79701

GLENN PETROLEUM CORP.
2902 MAPLE AVENUE
DALLAS, TX 75201

McCLELLAN OIL CORP.
P. O. BOX 848
ROSWELL, NM 88201

MWJ PRODUCING COMPANY
413 FIRST NAT'L. BANK BLDG.
MIDLAND, TX 79701

EUGENE E. NEARBURG
4219 SIGMA ROAD
DALLAS, TX 75240

J. CECIL RHODES
822 BUILDING OF THE SOUTHWEST
MIDLAND, TX 79701

SUN OIL COMPANY
P. O. BOX 1861
MIDLAND, TX 79701


TAMARACK PETROLEUM COMPANY, INC.
910 BUILDING OF THE SOUTHWEST
MIDLAND, TX 79701

TERRA RESOURCES, INC.
FOURTH NATIONAL BANK BUILDING
TULSA, OK 74119

UNION TEXAS PETROLEUM CORP.
1300 WILCO BUILDING
MIDLAND, TX 79701

THE WIL-MC OIL CORPORATION
607 FIDELITY UNION LIFE BLDG.
DALLAS, TX 75201


RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO THE EASTLAND OIL COMPANY		POSTMARK OR DATE 
STREET AND NO. 704 WESTERN UNITED LIFE BLDG.		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT	1. Shows to whom and date delivered With delivery to addressee only	15¢
SERVICES	2. Shows to whom, date and where delivered With delivery to addressee only	65¢
DELIVER TO ADDRESSEE ONLY		85¢
SPECIAL DELIVERY (extra fee required)		50¢
PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970-337-438		


RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO ATLANTIC RICHFIELD COMPANY		POSTMARK OR DATE 
STREET AND NO. P. O. BOX 1610		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT	1. Shows to whom and date delivered With delivery to addressee only	15¢
SERVICES	2. Shows to whom, date and where delivered With delivery to addressee only	65¢
DELIVER TO ADDRESSEE ONLY		85¢
SPECIAL DELIVERY (extra fee required)		50¢
PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970-337-438		

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO AMOCO PRODUCTION COMPANY		POSTMARK OR DATE 
STREET AND NO. P. O. BOX 68		
P.O., STATE AND ZIP CODE HOBBS, NM 88240		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT	1. Shows to whom and date delivered With delivery to addressee only	15¢
SERVICES	2. Shows to whom, date and where delivered With delivery to addressee only	65¢
DELIVER TO ADDRESSEE ONLY		85¢
SPECIAL DELIVERY (extra fee required)		50¢
PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970-337-438		

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO ADORE OIL COMPANY		POSTMARK OR DATE 
STREET AND NO. 601 WILKINSON-FOSTER BLDG.		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT	1. Shows to whom and date delivered With delivery to addressee only	15¢
SERVICES	2. Shows to whom, date and where delivered With delivery to addressee only	65¢
DELIVER TO ADDRESSEE ONLY		85¢
SPECIAL DELIVERY (extra fee required)		50¢
PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970-337-438		

No. 697163

No. 697162

No. 697161

No. 697160

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO		POSTMARK OR DATE
EUGENE E. NEARBURG		
STREET AND NO. 4219 SIGMA ROAD		
P.O., STATE AND ZIP CODE DALLAS, TX 75240		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN	1. Shows to whom and date delivered	15¢
RECEIPT	With delivery to addressee only	65¢
SERVICES	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		

PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970 O-327-488

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO		POSTMARK OR DATE
MWJ PRODUCING COMPANY		
STREET AND NO. 413 FIRST NAT'L. BANK BLDG.		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN	1. Shows to whom and date delivered	15¢
RECEIPT	With delivery to addressee only	65¢
SERVICES	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		

PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970 O-327-488

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO		POSTMARK OR DATE
McCLELLAN OIL CORP.		
STREET AND NO. P. O. BOX 848		
P.O., STATE AND ZIP CODE ROSWELL, NM 88201		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN	1. Shows to whom and date delivered	15¢
RECEIPT	With delivery to addressee only	65¢
SERVICES	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		

PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970 O-327-488

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO		POSTMARK OR DATE
GLENN PETROLEUM CORP.		
STREET AND NO. 9902 MAPLE AVENUE		
P.O., STATE AND ZIP CODE DALLAS, TX 75201		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN	1. Shows to whom and date delivered	15¢
RECEIPT	With delivery to addressee only	65¢
SERVICES	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		

PS Form 3800 Nov. 1971 NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL (See other side) * GPO: 1970 O-327-488

No. 697167

No. 697166

No. 697165

No. 697164

7169

02126970

625769

CC
CC
T
N
O
CC

CC
CC
T
N
CC
CC


SENT TO SUN OIL COMPANY		POSTMARK OR DATE
STREET AND NO. P. O. BOX 1861		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT SERVICES	1. Shows to whom and date delivered 15¢ With delivery to addressee only 65¢ 2. Shows to whom, date and where delivered 35¢ With delivery to addressee only 55¢	
DELIVER TO ADDRESSEE ONLY 50¢		
SPECIAL DELIVERY (extra fee required)		
PS Form 3800		NO INSURANCE COVERAGE PROVIDED— (See other side)
Nov. 1971		NOT FOR INTERNATIONAL MAIL • GPO: 1970-0-387-4

CC
CC
T
N
CC
CC

SENT TO J. CECIL RHODES		POSTMARK OR DATE
STREET AND NO. 822 BUILDING OF THE SOUTHWEST		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT SERVICES	<input type="checkbox"/> 1. Shows to whom and date delivered With delivery to addressee only <input checked="" type="checkbox"/> 2. Shows to whom, date and where delivered With delivery to addressee only	15¢ 65¢ 35¢ 85¢
DELIVERY TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		
PS Form 3800 Nov. 1971	NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL	(See other side)

No. 697172


RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO THE WIL-MC OIL CORPORATION		POSTMARK OR DATE 
STREET AND NO. 607 FIDELITY UNION LIFE BLDG.		
P.O., STATE AND ZIP CODE DALLAS, TX 75201		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT SERVICES	1. Shows to whom and date delivered	15¢
	With delivery to addressee only	65¢
	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		
PS Form 3800 Nov. 1971		NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL

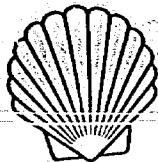
(See other side)
• GPO: 1975 O-397-451

No. 697172

RECEIPT FOR CERTIFIED MAIL—30¢ (plus postage)

SENT TO UNION TEXAS PETROLEUM CORP.		POSTMARK OR DATE 
STREET AND NO. 1300 WILCO BUILDING		
P.O., STATE AND ZIP CODE MIDLAND, TX 79701		
OPTIONAL SERVICES FOR ADDITIONAL FEES		
RETURN RECEIPT SERVICES	1. Shows to whom and date delivered	15¢
	With delivery to addressee only	65¢
	2. Shows to whom, date and where delivered	35¢
	With delivery to addressee only	85¢
DELIVER TO ADDRESSEE ONLY		50¢
SPECIAL DELIVERY (extra fee required)		
PS Form 3800 Nov. 1971		NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL

(See other side)
• GPO: 1975 O-397-451



SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

December 1, 1972

Subject: Shell-Amco Federal Lease
Shell-Amco Federal "A" Lease
Cato (San Andres) Field
Sections 33, 34, T-8-S, R-30-E
Chaves County, New Mexico

Amco Oil Corporation
390 Franklin Street
Denver, Colorado 80218

Gentlemen:

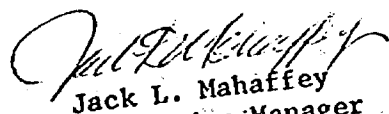
You are probably well aware of the severe decline in production that the Amco Federal and Amco Federal "A" Leases, in which you own an overriding Royalty Interest, have suffered in the past few years. To arrest this decline and to realize the maximum recovery possible, Shell Oil Company is instigating a program to waterflood the Cato (San Andres) Reservoir underlying these properties. It is estimated that this program will increase the recovery of the properties in which you are interested on the order of 500,000 barrels of oil.

We plan to submit to the New Mexico Conservation Commission early in December our application to waterflood these properties. Our plan of waterflooding will consist of converting initially five San Andres producing wells to water injection at the locations shown on the attached plat. Water for injection will be produced water from these properties and from Shell-operated salt water disposal wells.

The initial conversion of producing wells to injection wells will result in a reduction of production from these properties of approximately 65 barrels of oil per day. However, we believe that the reservoir is amenable to secondary recovery operations and that this reduction will be more than offset by the arresting of decline and a possible increase in the rate of production as the reservoir responds to waterflood efforts.

We sincerely hope that this information will be of help to you in your future reviews of these properties. If we can be of any further help in this regard, please advise.

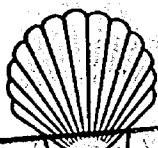
Yours very truly,



Jack L. Mahaffey
Production Manager
Mid-Continent Division

WEB:SH

Attachment



SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

BIT NO. 7

CASE NO. 4882

Submitted by Shell Oil Co.

Hearing Date 12-19-72

Subject: Shell Amco-Hodges-Federal
Waterflood Project
Cato (San Andres) Field
Sections 33 and 34, T-8-S, R-30-E
Chaves County, New Mexico
Federal Lease No. NM-0155254-A

United States Department of the Interior
Geological Survey
P. O. Drawer "U"
Artesia, New Mexico 88210

Attention Mr. Knauf, District Engineer

Gentlemen:

Shell Oil Company requests your approval, as royalty owner, to conduct a Waterflood Project in Sections 33 and 34, T-8-S, R-30-E, Chaves County, New Mexico. As you are aware, a severe decline in production has taken place in the past few years. To arrest this decline and to realize the maximum recovery possible, Shell Oil Company is instigating a program to waterflood the Cato (San Andres) Reservoir underlying these properties.

On December 19, 1972, we plan to submit to the New Mexico Conservation Commission our application to waterflood these properties. Our plan of waterflooding will consist of converting initially five San Andres producing wells to water injection at the location shown on the attached plat. Water for injection will be produced water from these properties and from Shell-operated salt water disposal wells.

The initial conversion of producing wells to injection wells will result in a reduction of production from these properties of approximately 65 barrels of oil per day. However, we believe that the reservoir is amenable to secondary recovery operations and that this reduction will be more than offset by the arresting of decline and a possible increase in the rate of production as the reservoir responds to waterflood efforts.

Attached is a list of all injection wells and a map indicating injection lines and amount of surface area needed for facilities. If we can be of any further assistance, please advise.

Yours very truly,

W. J. Ouster
for Jack L. Mahaffey
Production Manager
Mid-Continent Division

JES:SH

Attachments



United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Drawer U
Artesia, New Mexico 88210

December 12, 1972

Shell Oil Company
Post Office Box 1509
Midland, Texas 79701

Gentlemen:

Your letter of December 1, 1972 requests approval to institute and operate a waterflood project of the San Andres formation in the Cato pool, located in T. 8 and 9 S., R. 30 E., N.M.P.M., Chaves County, New Mexico involving that portion of Federal oil and gas leases described as follows:

New Mexico 0155254-A

T. 8 S., R. 30 E.
sec. 33: $W\frac{1}{2}$, $W\frac{1}{2}E\frac{1}{2}$, $E\frac{1}{2}SE\frac{1}{4}$
T. 9 S., R. 30 E.
sec. 4: $N\frac{1}{2}$

New Mexico 022636

T. 8 S., R. 30 E.
sec. 34: $W\frac{1}{2}$

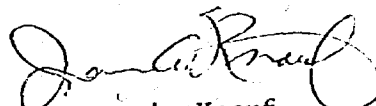
The plan proposes to convert to water injection the following wells:

<u>Well Number and Lease</u>	<u>Location</u>
4 - Amoco Federal	1980/N&E sec. 33
6 - Amoco Federal	660/S 1980/E sec. 33
7 - Amoco Federal	1980/N 660/W sec. 33
8 - Amoco Federal	660/S&W sec. 33
4 - Hodges Federal "B"	660/S&W sec. 34

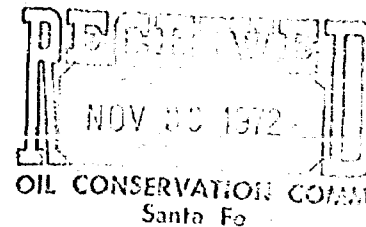
The plan for operating this project as proposed in the application is satisfactory to this office and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.
2. Duplicate copies of a monthly progress report (N.M.O.C.C. form C-120 acceptable) are to be submitted to this office showing the volume of water injected and average pressure for the injection wells and production for the producing wells in the project area.
3. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases or the necessity to submit the usual notices and reports on wells involved. When this project is expanded to involve other operators and interests, the correlative rights of all concerned should be considered.

Sincerely yours,


James A. Knauf
District Engineer

cc:
N.M.O.C.C., Santa Fe
Roswell
Accounts



BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF SHELL OIL COMPANY FOR AUTHORITY
FOR A WATERFLOOD PROJECT ON ITS
HODGES FEDERAL B AND AMCO FEDERAL
LEASES IN THE CATO-SAN ANDRES POOL,
CHAVES COUNTY, NEW MEXICO, BY THE
CONVERSION OF CERTAIN PRODUCING
WELLS TO WATER INJECTION WELLS.

Case No. 4882

A P P L I C A T I O N

1. Shell Oil Company hereby requests authority for a waterflood project on its Hodges Federal B and Amco Federal leases in the Cato-San Andres Pool, Chaves County, New Mexico, by the conversion of certain presently producing wells, as hereinafter designated and identified, to water injection wells in the San Andres Formation.

<u>Lease</u>	<u>Well No.</u>	<u>Unit Letter Designation</u>	<u>Section</u>
Hodges Federal B	4	M	34
Amco Federal	4	G	33
" "	6	O	33
" "	7	E	33
" "	8	M	33

All above wells are in Township 8 South, Range 30 East, N.M.P.M.

2. Conversion work on the proposed injection wells will consist of the removal of existing production equipment and tubing and replacement with cement-lined tubing and packers. Adequate tests of all casing strings will be made to insure that all surface waters and other formations will not be exposed to injection water in the event of tubing or packer leaks.

3. A copy of this application has been sent to the office of the State Engineer of New Mexico, and each offsetting operator has been notified of the proposed conversion of the wells described in this application to injection wells.

DOCKET MAILED

Date 12-6-72

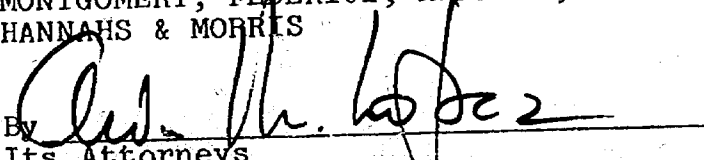
4. The granting of this application will result in the prevention of waste and will protect correlative rights in the project area.

WHEREFORE, applicant requests that this matter be set for hearing before an examiner and that thereafter the Commission issue its order approving the conversion of the wells to injection wells as hereinabove set forth.

Respectfully submitted,

SHELL OIL COMPANY

MONTGOMERY, FEDERICI, ANDREWS,
HANNAHS & MORRIS

By 
Its Attorneys
P.O. Box 2307
Santa Fe, New Mexico 87501

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF SHELL OIL COMPANY FOR AUTHORITY
FOR A WATERFLOOD PROJECT ON ITS
HODGES FEDERAL B AND AMCO FEDERAL
LEASES IN THE CATO-SAN ANDRES POOL,
CHAVES COUNTY, NEW MEXICO, BY THE
CONVERSION OF CERTAIN PRODUCING
WELLS TO WATER INJECTION WELLS.

Case No. 4882

A P P L I C A T I O N

1. Shell Oil Company hereby requests authority for a waterflood project on its Hodges Federal B and Amco Federal leases in the Cato-San Andres Pool, Chaves County, New Mexico, by the conversion of certain presently producing wells, as hereinafter designated and identified, to water injection wells in the San Andres Formation.

<u>Lease</u>	<u>Well No.</u>	<u>Unit Letter Designation</u>	<u>Section</u>
Hodges Federal B	4	M	34
Amco Federal	4	G	33
" "	6	O	33
" "	7	E	33
" "	8	M	33

All above wells are in Township 8 South, Range 30 East, N.M.P.M.

2. Conversion work on the proposed injection wells will consist of the removal of existing production equipment and tubing and replacement with cement-lined tubing and packers. Adequate tests of all casing strings will be made to insure that all surface waters and other formations will not be exposed to injection water in the event of tubing or packer leaks.

3. A copy of this application has been sent to the office of the State Engineer of New Mexico, and each offsetting operator has been notified of the proposed conversion of the wells described in this application to injection wells.

DOCKET MAILED

Date 12-6-72

4. The granting of this application will result in the prevention of waste and will protect correlative rights in the project area.

WHEREFORE, applicant requests that this matter be set for hearing before an examiner and that thereafter the Commission issue its order approving the conversion of the wells to injection wells as hereinabove set forth.

Respectfully submitted,

SHELL OIL COMPANY

MONTGOMERY, FEDERICI, ANDREWS,
HANNAH & MORRIS

By 

Its Attorneys

P.O. Box 2307

Santa Fe, New Mexico 87501

DRAFT

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4882

Order No. R- 4462

APPLICATION OF SHELL OIL COMPANY
FOR A WATERFLOOD PROJECT, CHAVES COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 19, 1972,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this day of December, 1972, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Shell Oil Company
seeks authority to institute a waterflood project in the on its Amco - Federal

and Hodges Federal "B" Leases Unsub Area, Cato-San Andres Pool,

by the injection of water into the San Andres formation
through five injection wells in Sections 33 and 34,
Township 8 North, South, Range 30 West, East,
NMPM, Chaves County, New Mexico.

(3) That the wells in the project area are in an advanced
state of depletion and should properly be classified as "stripper"
wells.

(4) That the proposed waterflood project should result in
the recovery of otherwise unrecoverable oil, thereby preventing
waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to institute a waterflood project in the

~~Unit 4~~ Cato-San Andres Pool, by the injection of water into the San Andres formation

through the following-described wells in Township 8

~~North~~, South, Range 30 ~~West~~ East, NMPM, Chaves

County, New Mexico:

Amco

Amco Federal Well No. 4 - Section 33, Unit G ✓
Amco Federal Well No. 6 - Section 33, Unit O ✓
Amco Federal Well No. 7 - Section 33, Unit E ✓
Amco Federal Well No. 8 - Section 33, Unit M ✓
Hodges Federal B Well No. 4 - Section 34, Unit M ✓

(2) That the subject waterflood project is hereby designated the Shell Amco-Hodges Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

CASE 4883: Application of EL PASO
FOR NON-STANDARD GAS SPACING UNITS
SAN JUAN COUNTY, NEW MEXICO.