

Union Oil Company of California

205 EAST WASHINGTON AVENUE



LOVINGTON, NEW MEXICO

UNIT OPERATOR
SOUTH CAPROCK QUEEN UNIT

December 6, 1963

RECEIVED PM 1 18

WFX - 163

Due Dec 28

Mr. A. L. Porter, Jr.
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Expansion of Waterflood Project Area,
South Caprock Queen Unit, Chaves Co.,
New Mexico (Case No. 2032, Orders
R-1729 and R-1729-A)

Dear Mr. Porter:

The Union Oil Company of California, as Operator of the South Caprock Queen Unit in Chaves County, hereby requests administrative approval for the expansion of the waterflood project area and approval to convert an additional two wells in the project area to water injection service; place four recently re-entered wells on injection; and drill one well for injection service. This request is submitted pursuant to the provisions of Rule 701-E, paragraph 5, of the Rules and Regulations of the New Mexico Oil Conservation Commission.

The wells proposed for conversion are as follows:

1. Tract 48, Well 10-30 located in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 30, T-15-S, R-31-E, NMPM ✓
2. Tract 7A, Well 7-33 located in SW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 33, T-14-S, R-31-E, NMPM ✓

The recently re-entered wells proposed for injection service are as follows:

1. Tract 10, Well 7-9 located in SW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T-15-S, R-31-E, NMPM
2. Tract 63, Well 11-9 located in NE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 9, T-15-S, R-31-E, NMPM
3. Tract 68, Well 3-33 located in NE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 33, T-14-S, R-31-E, NMPM
4. Tract 69A, Well 4-33 located in NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 33, T-14-S, R-31-E, NMPM

The proposed new well for injection service is as follows:

1. Tract 10, Well 1-9 located in NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T-15-S, R-31-E, NMPM. (Proposed location is 130' FNL and 1305' FEL, Section 9, T-15-S, R-31-E, NMPM).

Water injection at the South Caprock Queen Unit commenced on May 23, 1961, into ten wells situated along the contact between the gas cap and the oil zone. The purpose of this initial pattern was to prevent the migration and loss of recoverable secondary oil into the gas cap. Since May, 1961, the project area has been expanded nine times. These expansions are tabulated below:

Porter - SCQU Project Area Expansion - 2

1. April, 1962 - Administrative Order WFX-102 (7 new injectors)
2. August, 1962 - Administrative Order WFX-116 (5 new injectors)
3. December, 1962 - Administrative Order WFX-124 (6 new injectors)
4. January, 1963 - Administrative Order WFX-127 (3 new injectors)
5. March, 1963 - Administrative Order WFX-134 (4 new injectors)
6. May, 1963 - Administrative Order WFX-136 (1 new injector)
7. June, 1963 - Administrative Order WFX-138 (7 new injectors)
8. September, 1963 - Administrative Order WFX-152 (9 new injectors)
9. October, 1963 - Administrative Order WFX-158 (2 new injectors)

As of December 1, 1963, 12,243,853 barrels of water have been injected into 53 wells.

Stimulation from the water injection program has recently been observed in four more producing wells. The seven proposed injection wells are offsets to these stimulated wells. The location of the subject wells is shown on the attached plat (Exhibit I). These wells are a part of the master plan of operation for the project as presented at the hearing on Case No. 2032. This was Union's application for authority to institute a waterflood project in the South Caprock Queen Unit.

In support of this application, the following are attached:

Exhibit I: A plat of the South Caprock Queen Unit showing the present project area, the proposed expansion of the project area and the location of all injection and producing wells. The newly stimulated wells and the seven wells to be converted to injection service are identified on the plat. Because this is a Unit operation, there are no offset operators who will be affected by this proposed expansion.

Exhibit II: Commission Form C-116 showing production tests for the stimulated wells both before and after being affected by the waterflood.

Exhibit III: A table showing the casing program of the two wells proposed for conversion to injection service.

Exhibit IV: A table showing the casing program for the four wells re-entered recently for injection purposes.

Exhibit V: Proposed Drilling Program for the new well.

Conversion of the two wells, drilling of the one new injection well, and placement of the four re-entered wells on injection is recommended in order to continue to maintain proper control of the advancing flood front. This will permit a more efficient sweep of the reservoir in the project area.

By copy of this application, the State Engineer is being advised of the proposed conversions. Attached is a copy of our transmittal letter to Mr. Irby of the State Engineer's office.

Porter - SCQU Project Area Expansion - 3

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Three copies of this letter and supporting data are transmitted herewith as requested in Rule 701-E. Please contact me if any additional information is required for this application.

Very truly yours,

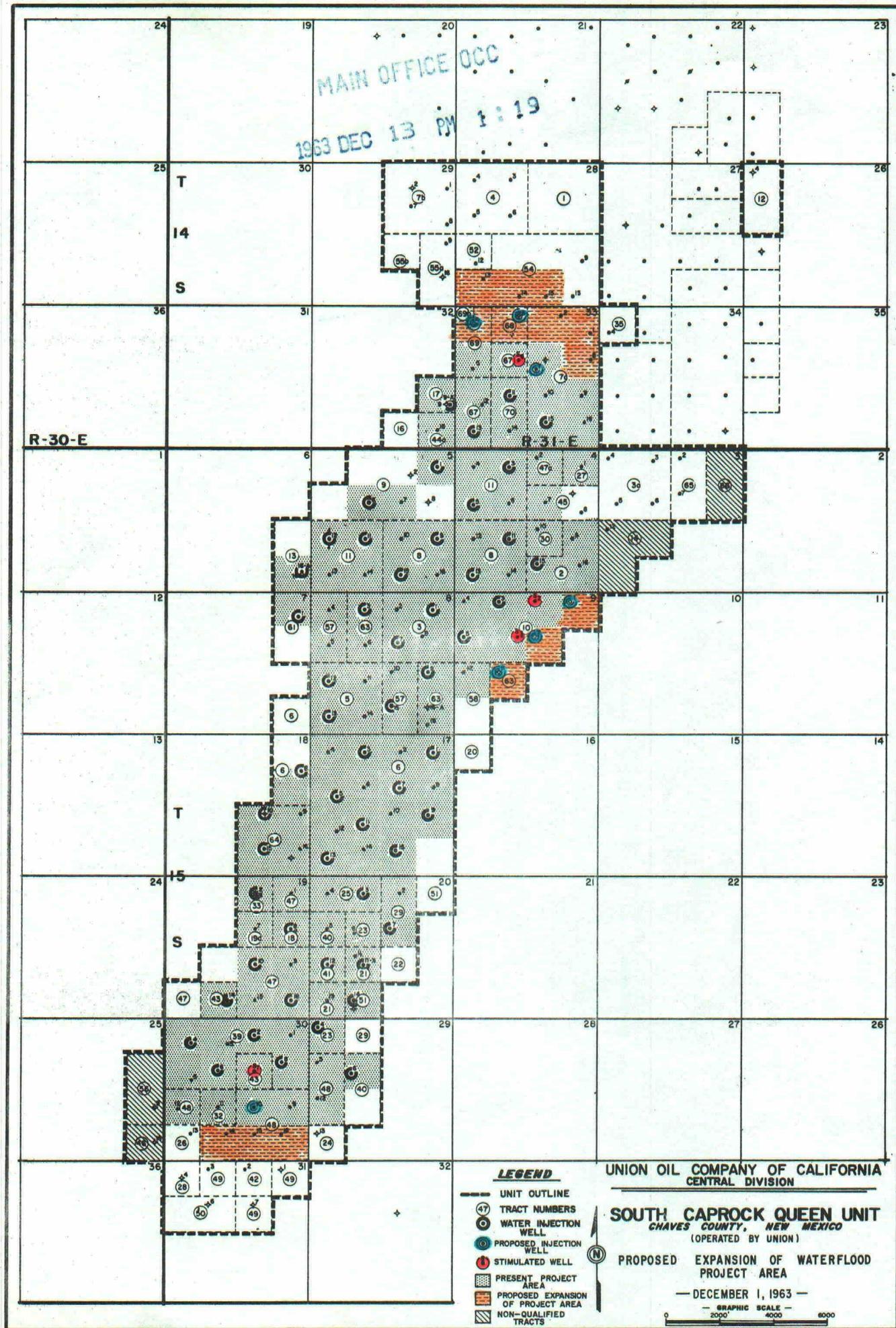


Richard H. Butler
Unit Engineer

RHB:am

Attachments (3)

cc: Mr. Frank Irby,
State Engineer Office



MAIN OFFICE OCC
1963 DEC 13 PM 1:19

R-30-E

R-31-E

LEGEND

- UNIT OUTLINE
- 47 TRACT NUMBERS
- WATER INJECTION WELL
- PROPOSED INJECTION WELL
- STIMULATED WELL
- ▨ PRESENT PROJECT AREA
- ▨ PROPOSED EXPANSION OF PROJECT AREA
- ▨ NON-QUALIFIED TRACTS

UNION OIL COMPANY OF CALIFORNIA
CENTRAL DIVISION

SOUTH CAPROCK QUEEN UNIT
CHAVES COUNTY, NEW MEXICO
(OPERATED BY UNION)

PROPOSED EXPANSION OF WATERFLOOD
PROJECT AREA

— DECEMBER 1, 1963 —

GRAPHIC SCALE
0 2000 4000 6000

NEW MEXICO OIL CONSERVATION COMMISSION

GAS-OIL RATIO REPORT

EXHIBIT II

OPERATOR Union Oil Company of California POOL Caprock Queen (South Caprock Queen Unit)

ADDRESS 205 East Washington, Lovington, N.M. MONTH OF Oct., Nov., Dec., 1963

SCHEDULED TEST..... COMPLETION TEST..... SPECIAL TEST..... (Check One)
(See Instructions on Reverse Side) (Tests to verify waterflood stimulation)

Lease	Well No.	Date of Test 1963	Producing Method	Choke Size	Test Hours	Daily Allowable Bbls.	Production During Test			GOR Cu. Ft. Per Bbl.
							Water Bbls.	Oil Bbls.	Gas MCF	
1. Tract 10	2-9	10-2	P	-	24	10	0	11	TSTM	-
Tract 10	2-9	11-27	P	-	24	50	0	56	TSTM	-
2. Tract 10	6-9	10-10	P	-	24	14	2	17	TSTM	-
Tract 10	6-9	11-30	P	-	24	14	19	58	TSTM	-
3. Tract 43	7-30	11-10	P	-	24	7	0	7	TSTM	-
Tract 43	7-30	11-29	P	-	24	7	0	34	TSTM	-
4. Tract 67	6-33	11-15	P	-	24	3	0	3	TSTM	-
Tract 67	6-33	12-4	P	-	24	3	0	29	TSTM	-

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60 degrees F. Specific gravity base will be 0.60.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission. In accordance with Rule 301 and Appropriate Pool Rules.

(I certify that the information given is true and complete to the best of my knowledge.)

Date December 6, 1963

Union Oil Company of California
By Richard H. Butler
Richard H. Butler
Unit Engineer
Title

SOUTH CAPROCK QUEEN UNIT
Chaves County

EXHIBIT 111

CASING DATA FOR PROPOSED INJECTION WELLS

<u>Tract</u>	<u>Well</u>	<u>ID</u>	<u>ETD</u>	<u>Perforations</u>	<u>Setting Depth</u>	<u>Cement, Sacks</u>	<u>Circ. ?</u>	<u>Grade Pipe</u>	<u>Weight, lbs/ft</u>	<u>Age, Years</u>	<u>Condition</u>
48 7A	10-30	3195	3175	3153 - 3160		200	Yes	J-55	36	10	Good
	7-33	3112	3106	3093 - 3098		140	Yes	J-55	32	10	Good
48 7A	10-30	5 1/2"	3175			175	J-55	14	8	New	
	7-33	5 1/2"	3112			100	J-55	17, 15½, 14	10	Good	

SURFACE CASING

OIL STRING

SOUTH CAPROCK QUEEN UNIT
Chaves County

EXHIBIT IV

CASING DATA FOR RE-ENTERED WELLS

<u>Tract</u>	<u>Well</u>	<u>ID</u>	<u>ETD</u>	<u>Perforations</u>	<u>Ground Level Elevation</u>	<u>Circ.</u>	<u>Grade Pipe</u>	<u>Weight lbs/ft</u>	<u>Age, Years</u>	<u>Condition</u>
10	7-9	3223	3193	3171 - 3177	4426	?	J-55	24	24	New
63	11-9	3183	3183	3180 - 3181		Yes	J-55	24	24	New
68	3-33	2986	2956	3164 - 3173	4425	Yes	J-55	24	24	Good
69A	4-33	2948	2912	2932 - 2939	4278	Yes	J-55	32	10	Good
				2904 - 2913	4254					

SURFACE CASING

<u>Tract</u>	<u>Well</u>	<u>Size</u>	<u>Setting Depth</u>	<u>Cement Sacks</u>	<u>Grade Pipe</u>	<u>Weight lbs/ft</u>	<u>Age, Years</u>	<u>Condition</u>
10	7-9	8 5/8"	338	250	J-55	24	1	New
63	11-9	8 5/8"	303	250	J-55	24	8	Good
68	3-33	8 5/8"	170	75	J-55	24	1	New
69A	4-33	9 5/8"	211	200	J-55	32	1	New

OIL STRING

<u>Tract</u>	<u>Well</u>	<u>Size</u>	<u>Setting Depth</u>	<u>Cement Sacks</u>	<u>Grade Pipe</u>	<u>Weight, lbs/ft</u>	<u>Age, Years</u>	<u>Condition</u>
10	7-9	4 1/2"	3222	300	J-55	9.5	1	New
63	11-9	5 1/2"	3181	175	J-55	14	8	Good
68	3-33	4 1/2"	2983	300	J-55	9.5	1	New
69A	4-33	4 1/2"	2948	300	J-55	9.5	1	New

SOUTH CAPROCK QUEEN UNIT
Chaves County

EXHIBIT V

PROPOSED DRILLING PROGRAM FOR NEW INJECTION WELL

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Well: Tract 10, #1-9

Location: 130' FNL and 1305' FEL, Section 9, T-15-S, R-31-E, NMPM

Proposed TD: 3190'

Estimated Top of Queen: 3140'

Surface Casing: 8 5/8" c 300' w/300 sacks. (New pipe)

Oil String: 4 1/2" c 3190' w/200 sacks. (New pipe)

Estimated ETD: 3160'

Estimated Perforations: 3145' - 3152'

Tubing: 2" EUE, 8rt, J-55 plastic lined w/tension packer on bottom set just above perforations. Annulus between casing and tubing to be filled with inhibited water for corrosion protection.

Union Oil Company of California

205 EAST WASHINGTON AVENUE



LOVINGTON, NEW MEXICO 8800

UNIT OPERATOR
SOUTH CAPROCK QUEEN UNIT

December 6, 1963

1963 DEC 10 PM 1 19

Mr. Frank Irby
Chief of Water Rights Division
State Engineer's Office
State Capitol Building
Santa Fe, New Mexico

Re: Casing Data on Proposed Water Injection
Wells, South Caprock Queen Unit,
Chaves County, New Mexico

Dear Mr. Irby:

Attached please find a copy of an application submitted by the Union Oil Company of California to the New Mexico Oil Conservation Commission requesting administrative approval to expand our waterflood project in the South Caprock Queen Unit. This expansion will include the conversion of two more producing wells to water injection service, the placement of four recently re-entered wells on injection, and the drilling of one injection well. The application is in accordance with the provisions of Rule 701-E of the Rules and Regulations of the New Mexico Oil Conservation Commission.

Exhibit III of the attached application is a table of casing information on the two wells to be converted to injection service. Tables IV and V summarize the casing programs for the new and re-entered wells proposed for injection service. All seven wells will be completed with plastic lined tubing and tension packers set just above the perforations in the Queen Sand. The annulus between the casing (oil string) and the tubing will then be filled with an inhibited water for protection against corrosion. The maximum anticipated surface injection pressure for the 7 wells will be 1000 psig.

Data on the age, grade and condition of the various casing strings in the two wells to be converted are tabulated in Exhibit III.

If you are in agreement with this proposal, we would appreciate your so notifying the Secretary-Director of the New Mexico Oil Conservation Commission as soon as possible. Thank you for your consideration of this matter.

Very truly yours,

Richard H. Butler
Unit Engineer

RHB:am
Attachments (3)
cc: Mr. A. L. Porter, Jr. (3)



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

December 19, 1963

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Union Oil Company of California submitted on December 6, 1963 which seeks administrative approval for the expansion of their South Caprock Queen Unit, Chaves County, New Mexico waterflood project which involves seven wells.

In view of Mr. Butler's statement in his letter "All seven wells will be completed with plastic lined tubing and tension packers set just above the perforations in the Queen Sand. The annulus between the casing (oil string) and the tubing will then be filled with an inhibited water for protection against corrosion. The maximum anticipated surface injection pressure for the 7 wells will be 1000 psig," it appears that no threat of contamination to the fresh waters which may exist in the area will occur. Therefore, this office offers no objection to the granting of this application.

Very truly yours,

S. E. Reynolds
State Engineer

FBI/na
cc-Union Oil Co.
F. H. Hennighausen

By: *Frank E. Irby*
Frank E. Irby
Chief
Water Rights Division