

# Union Oil Company of California

205 EAST WASHINGTON AVENUE

LOVINGTON, NEW MEXICO 88260

September 13, 1965

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

Re: Conversion of one project area producing well to injection service, South Caprock Queen Unit, Chaves County, 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 to place one additional waterflood project area producing well on water injection service. This request is submitted pursuant to the provisions of Rule 701 of the Rules and Regulations of the New Mexico Oil Conservation Commission.

The proposed injection well is:

Tract 21, Well 11-20 located in the NE/4 of the SW/4, Section 20, T-15-S, R-31-E, N.M.P.M.

The proposed injection well has reached the secondary economic limit and its conversion will improve the pattern sweep efficiency in the surrounding portion of the reservoir. This well is directly offset by stimulated producing wells at various stages of secondary depletion. Pattern configuration around producing Well 6-20 will be improved by the conversion of Well 11-20.

In support of this application, the following are attached:

EXHIBIT I: A plat of the South Caprock Queen Unit showing the present project area and the location of all injection and producing wells. The proposed injection well is identified on the plat.

EXHIBIT II: Production performance tabulation for the offset producing wells to the proposed injection well.

EXHIBIT III: Casing programs for the proposed injection well.

EXHIBIT IV: Diagrammatic sketch of the proposed injection well showing casing string, casing diameter, setting depth, tops of cement and perforations. Also shown is the proposed tubing string, including depth, diameter, and packer. The proposed injection well is perforated in the Queen Sand as shown on the diagram. The water used for injection is either fresh water produced from the Ogallala Sand or a mixture of this fresh water and produced Queen Sand brine. The anticipated injection rate and pressure is shown on the diagram.

Water injection at the South Caprock Queen Unit commenced on May 23, 1961, into ten wells located along the gas-oil contact. 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 has been expanded nineteen times. As of August 1, 1965, 34,484,405 barrels of water have been injected into 83 wells.

Conversion of the proposed well is recommended in order to improve pattern efficiency in the portion of the reservoir surrounding the well.

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

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

Very truly yours,

*Lon H. Pardue*  
Lon H. Pardue  
Production Engineer

Attachments

CC/ Mr. Frank Irby, State Engineer Office

LHP/jj

## NEW MEXICO OIL CONSERVATION COMMISSION

## GAS-OIL RATIO REPORT

OPERATOR Union Oil Company of California POOL South Caprock Queen Unit  
 ADDRESS 205 E. Washington, Lovington, N.M. MONTH OF August, 19 65  
 SCHEDULED TEST..... COMPLETION TEST..... SPECIAL TEST..... (Check One)

(See Instructions on Reverse Side)

(Tests To Verify Waterflood Stimulation)

Lease	Well No.	Date of Test	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 23	6-20	7-2	P	-	24	322	467	200	TSTM	-
		8-25	P	-	24	322	557	139	TSTM	-
2. Tract 40	5-20	7-1	P	-	24	183	199	199	TSTM	-
		8-24	P	-	24	183	250	134	TSTM	-
3. Tract 21	11-20	8-16	P	-	24	20	66	3	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 September 13, 1965 Union Oil Company of California  
CompanyBy Lon H. Pardue

Production Engineer

Title

## EXHIBIT III

SOUTH CAPROCK QUEEN UNIT

Casing program for proposed injection well.

WELL:	<u>Tract 21, Well #11-20</u>
TD:	3163'
ETD:	3155'
PERFORATIONS:	3140-3145'
<u>SURFACE CASING:</u>	
SIZE:	9 5/8"
SETTING DEPTH:	315
CEMENT, SACKS:	160
CIRCULATED:	Yes
GRADE PIPE:	J-55
WEIGHT, LLBS/FT:	36
AGE, YEARS:	6
CONDITION:	Used
<u>OIL STRING:</u>	
SIZE:	5 1/2"
SETTING DEPTH:	3163'
CEMENT, SACKS:	150
GRADE PIPE:	J-55
WEIGHT, LLBS/FT:	14
AGE, YEARS:	6
CONDITION:	Used

2" plastic lined tubing at approximately 3050' w/Baker tension packer on bottom.

Calc. top of cement = 2293'

Anticipated inj. = 500 B/D @ 1300 psig.

SOUTH CAPROCK QUEEN UNIT  
PROPOSED INJECTION WELL  
TRACT 21, WELL 11-20

Anticipated Injectivity:  
500 B/D @ 1300 psig ✓

9-5/8" c 315'  
w/160 sacks  
(circ.) ✓

Calculated Top  
of Cement  
2293' ✓

Surface

Casing-tubing annulus filled  
with inhibited water ✓

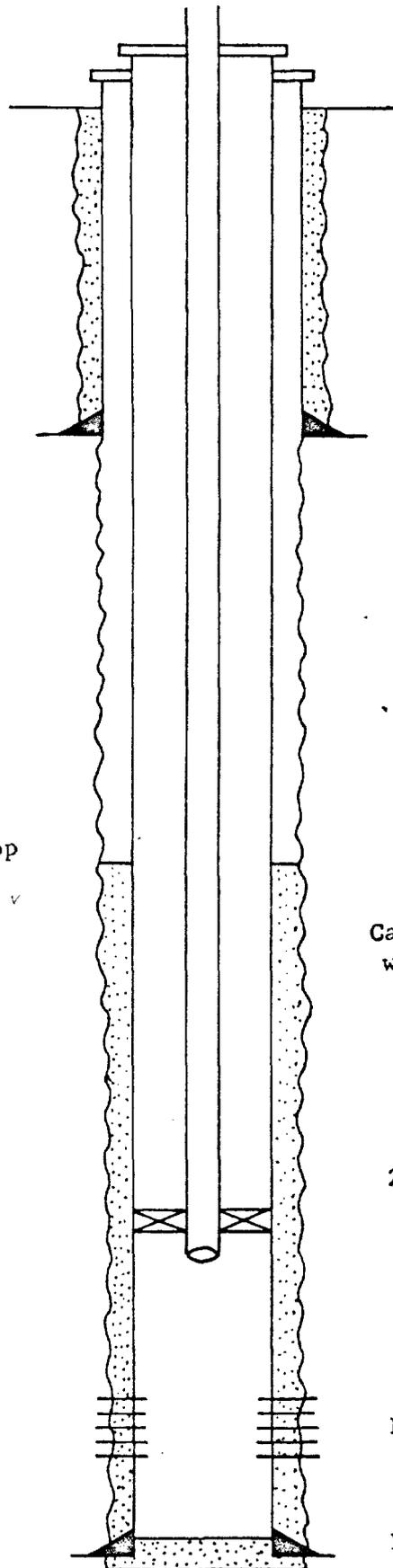
2" plastic-lined tubing at  
approx. 3050' w/Baker Tension  
Packer on bottom ✓

Perfs 3140' to 3145'

5 1/2" c 3163'  
w/150 sacks

ETD 3155'

TD 3163'



# Union Oil Company of California

205 EAST WASHINGTON AVENUE



LOVINGTON, NEW MEXICO

88260

September 13, 1965

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

Re: Casing Data on Proposed Water Injection  
Well, 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 convert one well to injection service in the South Caprock Queen Unit. The application is submitted in accordance with the provisions of Rule 701 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 well to be converted to injection service. The well will be completed with plastic lined tubing and tension packer set just above the perforations in the Queen Sand. The annulus between the casing (oilstring) and the tubing will be filled with an inhibited water for protection against corrosion. The maximum anticipated surface injection pressure for the well will be 1300 psig.

Data on the age, grade and condition of the casing string in the well to be converted is 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,

*Lon H. Pardue*  
Lon H. Pardue  
Production Engineer

Attachments

CC/ Mr. A. L. Porter, Jr. (3)

LHP/jj



STATE OF NEW MEXICO  
STATE ENGINEER OFFICE  
SANTA FE

MAY 11 1965

OCT 8 1965

217

S. E. REYNOLDS  
STATE ENGINEER

ADDRESS CORRESPONDENCE TO:  
STATE CAPITOL  
SANTA FE, NEW MEXICO 87501

October 7, 1965

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 which seeks authority to convert their well No. 11-20 in Tract 21 located in the NE $\frac{1}{4}$  of the SW $\frac{1}{4}$  of Sec. 20, T. 15 S., R. 21 E., to water injection service. Previous Orders on the South Cap-rock Queen Unit are R-1729 and R-1729-A.

This office offers no objection to the granting of the application provided the well is equipped and operated in the manner set forth in the application and the letter addressed to me, a copy of which was indicated for you.

FEI/ma  
cc-Union Oil Co.  
F. H. Hennighausen

Yours truly,

S. E. Reynolds  
State Engineer

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

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