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Union Oil Company of California

205 EAST WASHINGTON AVENUE



LOVINGTON, NEW MEXICO 88260

March 14, 1966

Mr. A. L. Porter, Jr.
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

MAR 15 11 09 AM '66
NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, N.M.

Re: Expansion of Waterflood Project,
South Caprock Queen Unit, Chaves
County, New Mexico (Case 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 convert one additional waterflood project area well to 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 48, Well 16-30 located in the SE/4 of the SE/4, Section 30, T-15-S, R-31-E, N.M.P.M. The proposed injection well is offset by stimulated producing wells on two sides and has itself reached the secondary economic limit. Conversion of this well to injection service will complete the five-spot injection pattern around the two offset stimulated producing wells and should greatly improve the areal sweep efficiency in this portion of the reservoir. The location of the proposed injector and the stimulated wells is shown on the attached plat (Figure 1).

In support of this application, the following are attached:

- EXHIBIT I: A plat of the South Caprock Queen Unit showing the location of all injection and producing wells. The proposed injection well is identified on the plat. There are no offset operators who will be affected by the conversion since this is a Unit operation.
- EXHIBIT II: Commission Form C-116 showing production tests for the offsetting stimulated wells both before and after being affected by the waterflood.
- EXHIBIT III: A table showing the casing program of the proposed injection well.
- EXHIBIT IV: A diagrammatic sketch of the proposed injection well showing casing string details, cement tops and perforations. Also shown is the proposed tubing string details.

The proposed injector is perforated entirely in the Queen Sand. The water used for injection is either fresh water produced from the Ogalalla Sand or produced Queen Sand brine. Anticipated injectivity for the well is shown on Exhibit IV.

Water injection at the South Caprock Queen Unit commenced on May 23, 1961, into ten wells located along the gas-oil contact in the central portion of the Unit. Since May, 1961, the project has been expanded twenty times. As of March 1, 1966, 42,054,147 barrels of water have been injected into 84 wells.

Conversion of the subject well is recommended in order to improve pattern sweep efficiency in this portion of the reservoir.

By copy of this application, Mr. Irby of the State Engineer office is being advised of the proposed well conversion. A copy of the transmittal letter to Mr. Irby is attached.

Three copies of this letter and supporting data are transmitted herewith, as outlined by Rule 701.

Please contact me if any additional information is required in support of this application.

Very truly yours,

Richard H. Butler
Richard H. Butler
Secondary Recovery Engineer

Attachments

CC/ Mr. Frank Irby, State Engineer Office

RHB/jj

Union Oil Company of California

205 EAST WASHINGTON AVENUE



LOVINGTON, NEW MEXICO 88260

March 11, 1966

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 Tract 48, Well 16-30 in the South Caprock Queen Unit to water injection service. This 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 proposed injection well. The well will be completed with plastic lined tubing with a tension packer on bottom. The packer will be set just above the perforations in the Queen Sand. The annulus between the oil string 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 about 1300 psig. Included in Exhibit III are data on the age, grade, and condition of the various casing strings in this well.

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

Richard H. Butler
Secondary Recovery Engineer

Attachments

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

RHB/jj

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

EXHIBIT-II
C-116
Revised 1-1-65

Operator		Pool		County		Type of Test - (X)		Scheduled		Completion		Special																					
UNION OIL CO. OF CALIF.		SOUTH ARROCK		CHAVER'S COUNTY		TESTS TO VERIFY WATERFLOOD STIMULATION		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>																					
Address 205 EAST WASHINGTON, LOVINGTON, NEW MEXICO		LEASE NAME		WELL NO.		LOCATION		DATE OF TEST		CHOKE SIZE		T.B.G. PRESS.		DAILY ALLOW-ABLE		LENGTH OF TEST HOURS		WATER BBL'S.		PROD. DURING TEST		GAS - OIL RATIO											
				U		S		T		R		DATE OF TEST		CHOKE SIZE		T.B.G. PRESS.		DAILY ALLOW-ABLE		LENGTH OF TEST HOURS		WATER BBL'S.		PROD. DURING TEST		GAS - OIL RATIO							
1. TRACT 48		* **		9-30		I		30		155		31E		9-14-64 P		-		-		15		24		28		-		17		TSTM		-	
TRACT 48		* **		9-30		I		30		155		31E		2-15-66 P		-		-		50		24		196		-		167		TSTM		-	
2. TRACT 48		* **		15-30		O		30		155		31E		8-6-64 P		-		-		18		24		4		-		29		TSTM		-	
TRACT 48		* **		15-30		O		30		155		31E		12-30-64 P		-		-		80		24		10		-		510		TSTM		-	
TRACT 48		* **		15-30		O		30		155		31E		2-23-66 P		-		-		175		24		314		-		16		TSTM		-	

* TEST PRIOR TO STIMULATION FROM WATERFLOOD
 ** TEST SHOWING CURRENT PERFORMANCE
 *** TEST AT PEAK STIMULATED RATE

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° F. Specific Gravity base will be 0.60.
 Report casing pressure in lieu of tubing pressure for any well producing through casing.
 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 hereby certify that the above information is true and complete to the best of my knowledge and belief.

Richard H. Butler
 Richard H. Butler
 (Signature)
 Secondary Recovery Engineer
 (Title)
 3-11-66
 (Date)

SOUTH CAPROCK QUEEN UNIT

Proposed Injection Well

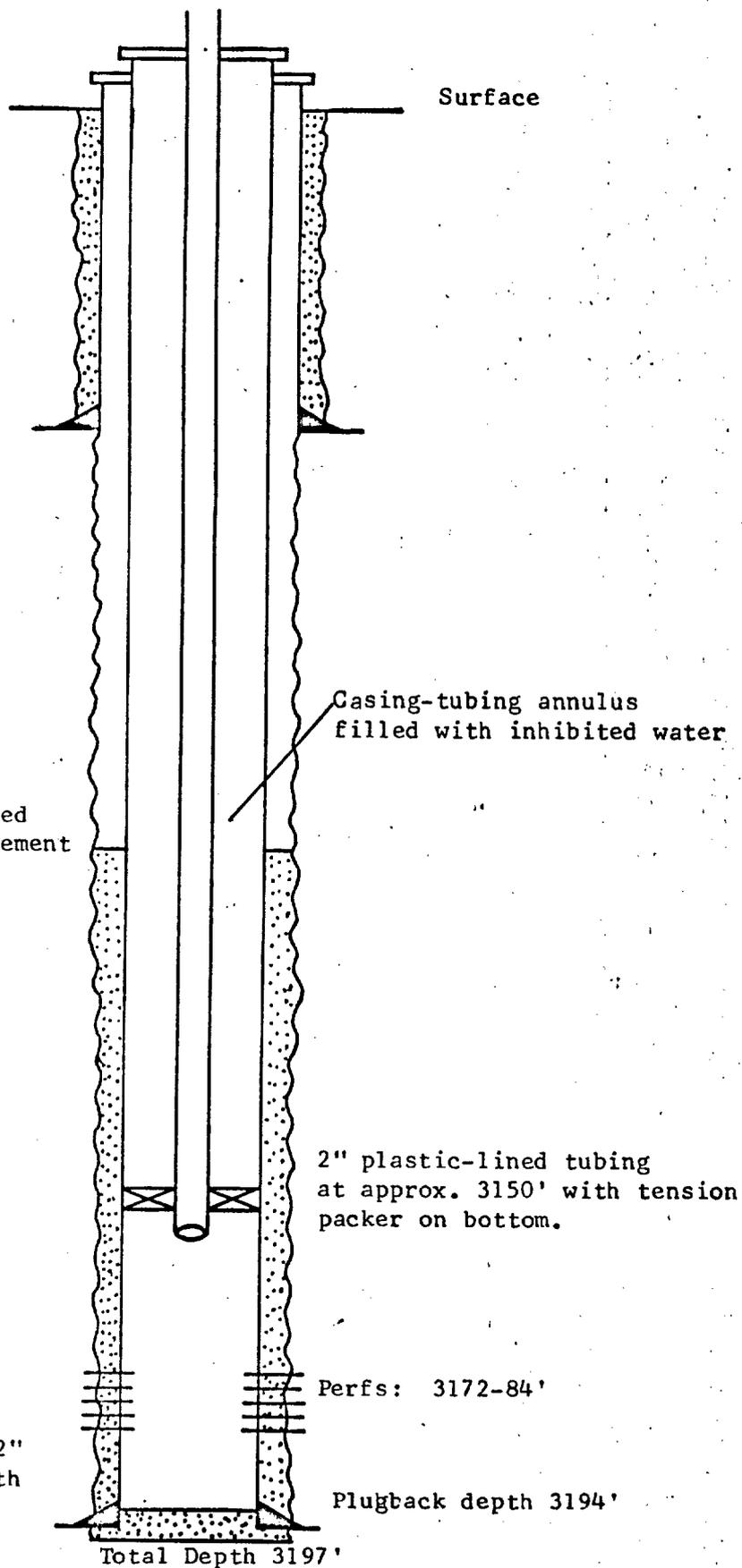
Tract 48, Well 16-30

Anticipated Injectivity =
600 B/D at 1300 psig

305' 8-5/8"
C 317' with
204 sacks
(circ.)

Calculated
Top of Cement
2165'

3184' -5-1/2"
C 3195' with
175 sacks



Perfs: 3172-84'

Plugback depth 3194'

Total Depth 3197'

EXHIBIT III

SOUTH CAPROCK QUEEN UNIT

Casing Program of Proposed Injection Well

WELL:	<u>Tract 48, Well 16-30</u>
TD:	3197'
ETD:	3194'
PERFORATIONS:	3172' - 3184'
<u>SURFACE CASING:</u>	
SIZE:	8 5/8"
SETTING DEPTH:	317'
CEMENT, SACKS:	204
CIRCULATED?	Yes
GRADE PIPE:	J-55
WEIGHT, LLBS/FT:	36
AGE, YEARS:	11
CONDITION:	New
<u>OIL STRING:</u>	
SIZE:	5½"
SETTING DEPTH:	3195'
CEMENT, SACKS:	175
GRADE PIPE:	J-55
WEIGHT, LLBS/FT:	14
AGE, YEARS:	11
CONDITION:	New



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

March 24, 1966

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

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

Dear Mr. Porter:

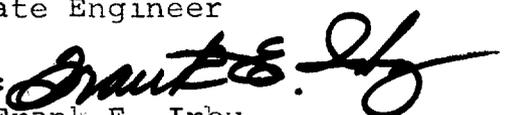
Reference is made to the application of Union Oil Company of California dated March 11, 1966, which seeks to expand their South Caprock Queen Unit Waterflood Project, which was the subject of Case 2032 and Orders R-1729 and R-1729-A. The identity of the proposed injection well is Tract 48, Well 16-30 located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Sec. 30, T. 15 S., R. 31 E.

In view of the fact that injection will be down internally plastic coated tubing, under a tension packer, set just above the perforations in the Queen Sand and the casing-tubing annulus filled with inhibited water, this office offers no objection to the granting of the application.

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

Yours truly,

S. E. Reynolds
State Engineer

By: 
Frank E. Irby
Chief
Water Rights Div.

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