Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 Telephone (915) 682-9731 mailing address: P. O. Box 671 Midland, Texas 79702



Midland District

November 28, 1984

New Mexico Oil Conservation Commission Hobbs District Office P. O. Box 1980 Hobbs, New Mexico 88240

SUBJECT:

Union Oil Company of California Application for Administrative Approval Reentry of the South Caprock Queen Unit Well No. 16-30 Water Injection Well Caprock Queen Field Chaves County, New Mexico

Gentlemen:

Enclosed is one copy of our application for administrative approval to reenter the South Caprock Queen Unit Well No. 16-30, Section 30, T-15-S, R-31-E, Chaves County, New Mexico. This application was submitted to the NMOCC office in Santa Fe on November 8, 1984. Mr. Gilbert Quintana of the Santa Fe office has advised that the Hobbs district office also requires a copy of this application for review prior to granting approval of the project. We are proposing to reenter the subject well and use it to inject water into the Queen Sand for secondary recovery purposes, which is how the well was utilized prior to abandonment.

Should your office have any questions concerning this application, please do not hesitate to contact us. Thank you for your cooperation in this matter.

Very truly yours

L. F. Thompson 💋 District Operations Manager

TLP:dr Enclosures

RECEVED NOV 29 1984 NUMBER OF THE

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 Telephone (915) 682-9731 Mailing Address: P. O. Box 671 Midland, TX 79702



**Midland District** 

November 6, 1984

New Mexico Oil Conservation Commission P. O. Box 2088 State Land Office Building Santa Fe, New Mexico 87501

Gentlemen:

SUBJECT:

Union Oil Company of California Application for Administrative Approval Re-entry of the South Caprock Queen Unit Well No. 16-30 Water Injection Well To Use for Produced Water Injection

Union Oil Company of California respectfully requests administrative approval to re-enter the South Caprock Queen Unit Well No. 16-30, Section 30, T-15-S, R-31-E, 990' FSL and 990' FEL, Chaves County, New Mexico. We are proposing to re-enter the subject well and use it to inject water into the Queen Sand for secondary recovery purposes. The injection fluid will be produced water from the Queen Sand. Prior to abandonment in 1972, the well was being used for this same purpose.

In support of this application, we enclose the following:

- 1. Completed Forms C-101, C-102, and C-108.
- 2. A tabulation of well data for the proposed injection well including a schematic diagram of its present and proposed conditions.
- 3. A map identifying all wells and leases within a two-mile radius of the subject well.
- A tabulation of well data on all wells within the one-half mile radius area of review, including schematic diagrams of all plugged wells illustrating plugging details.
- 5. Data concerning our proposed operation parameters for the well.
- 6. Water analysis of the injection fluid taken from the producing zone in the area. This is the same zone as the proposed injection zone.



New Mexico Oil Conservation Commission Page 2 November 6, 1984 South Caprock Queen Unit Well No. 16-30

- 7. A water analysis of a fresh water well located within one-mile of the proposed injection well.
- 8. A copy of the letter sent to the surface owners notifying them of our application to inject.
- 9. Copies of letters sent to offset leasehold operators notifying them of our application to inject.
- 10. A copy of the legal advertisement of our application, published in the Roswell Daily Record.

Should you require any further information concerning this application, please contact us. Thank you for your consideration in this matter.

Very truly yours, С. Merritt

District Production Superintendent

TLP:pd Enclosures



# SEC. 30 , TWP. 15 S., RGE. 31 E. N.M.P.M.

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD BY ME AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN W. WEST, PE & LS NO. 676 AUGUST 2, 1955

Pan Willet

ENERGY	STATE OF ( AND MINER	NEW ME) ALS DEP	(ICO ARTMENT	OIL CONSER POST ( STATE LAI GANTA FE	RVATION DIVISION DEFICE BOX 2008 ND OFFICE BUILDING NEW MEXICO 87501		Revised 7-1-81
APPLICAT	TION FOR AU	THORIZA	TION TO INJ	ECT			
Ι.	Purpose: Applica	X Sec	condary Reco alifies for	very Pre administrati	essure Mainten ive approval?	ance Dispos	sal 🔲 Storage
11.	Operator:	Union	0il Compar	<u>y of Califor</u>	nia		
	Address:	P. O.	Box 671; M	lidland, Texa	s 79702		
	Contact pa	rty:	John Merrit	t		Phone: (915) 6	82-9731
111.	Well data:	Compl propo	ete the dat sed for inj	a required or ection. Addi	h the reverse s tional sheets	side of this for may be attached	rm for each well b if necessary.
IV.	Is this an If yes, gi	expans ve the	ion of an e Division or	xisting proje der number au	ect? X yes uthorizing the	no Origi project <u>Expansi</u>	nal Auth. No. R-1729 <u>on Auth, No. R-2</u> 660
۷.	Attach a m injection well. Thi	ap that well wi s circl	identifies th a one-ha e identifie	all wells ar lf mile radiu s the well's	nd leases with as circle drawn area of review	in two miles of n around each pr 4.	any proposed oposed injection
VI.	Attach a t penetrate well's typ a schemati	abulati the pro e, cons c of an	on of data posed injec truction, c y plugged w	on all wells tion zone. S ate drilled, ell illustrat	of public reco Such data shal location, dep ing all plugg:	ord within the a l include a desc th, record of co ing detail.	rea of review which ription of each mpletion, and
VII.	Attach dat	a on th	e proposed	operation, ir	cluding:		
•	1. Pr 2. Wh 3. Pr 4. So 5. If	oposed ether t oposed urces a the rec inject at or w the dis literat	average and he system i average and nd an appro eiving form ion is for ithin one m posal zone ure, studie	I maximum dail s open or clo maximum inje priate analys ation if othe disposal purp ile of the pr formation wat s, nearby wel	y rate and vo osed; ection pressure is of injection or than reinjection coses into a zer coposed well, a cer (may be mea- ls, etc.).	lume of fluids t e; on fluid and com cted produced wa one not producti attach a chemica asured or inferr	to be injected; patibility with ter; and ve of oil or gas l analysis of red from existing
VIII.	Attach app detail, ge bottom of total diss injection injection	ropriat ologica all unc olved s zone as interva	e geologica 1 name, thi 1erground sc 10 lids conce 1 well as ar 1.	l data on the cknass, and c urces of drin ntrations of ay such source	e injection zon Jepth. Give th Nking water (ac 10,000 mg/l og e known to be g	ne including app ne geologic name quifers containi r less) overlyir immediately unde	propriate lithologic e, and depth to .ng waters with ng the proposed erlying the
IX.	Describe t	he prop	osed stimul	ation program	n, if any.		
Χ.	Attach app with the D	ropriat ivisíon	e logging a they need	nd test data not be resubm	on the well. hitted.)	(If well logs H	ave been filed
XI.	Attach a c available location o	hemical and pro f wells	analysis c ducing) wit and dates	f fresh water hin one mile samples were	from two or 1 of any inject: taken.	nore fresh water ion or disposal	• wells (if well showing
XII.	Applicants examined a or any oth source of	for di vailabl er hydr drinkir	sposal well e geologic ologic conr g water.	s must make a and engineeri ection betwee	an affirmative ing data and f en the disposa	statement that ind no evidence l zone and any u	they have of open faults inderground
XIII.	Applicants	must c	complete the	• "Proof of No	otice" section	on the reverse	side of this form.
XIV.	Certificat	ion					
	I hereby c to the bes	ertify t of my	that the in knowledge	formation sub and belief.	omitted with t	his application	is true and correct
	Name: <u>JO</u>	hn Mer	rith	A	Tit:	le <u>District Pro</u>	duction Superintendent
	Signature:	246	11 fm	<u> </u>	D:	ate: Novemb	er 6, 1984
* If the submit of the	e informati tted, it ne e earlier s	on required not	ired under be duplicat	Sections VI, ed and resubm	VIII, X, and initted. Please	XI above has bee show the date	en previously and circumstance

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III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
  - Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
  - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
  - (3) A description of the tubing to be used including its size, lining material, and setting depth.
  - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
  - (1) The name of the injection formation and, if applicable, the field or pool name.
  - (2) The injection interval and whether it is perforated or open-hole.
  - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
  - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
  - (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them. Form C-108 South Caprock Queen Unit Well No. 16-30

- III. Well Data
  - A. (1) Lease Name: South Caprock Queen Unit Well No.: 16-30 990' FLS and 990' FEL, Section 30, T-15-S, R-31-E, Location: Chaves County, New Mexico (2) Casing Record: 8-5/8" casing set at 305' in 12-1/4" hole, cemented with 100 sacks. Top of cement calculated at surface. 5-1/2" casing set at 3195' in 7-7/8" hole, cemented with 175 sacks. Top of cement calculated to be 1862' (100% efficiency). Plug No. 1 in 5-1/2" casing: 25 sacks from 3100-2853' (calculated). Plug No. 2 in 5-1/2" casing: 5 sacks at surface. (3) 2-3/8" 4.70# J-55 8rd EUE internally plastic-coated set at Tubing: approximately 3100'. (4) Packer: Guiberson Unipacker VI, set at approximately 3100'. Injection Formation: Β. (1)Queen
    - Field: Caprock Queen Field
      - (2) Injection Interval: 3172-3184' perforated
      - (3) This well was originally drilled as an oil well. It was converted to water injection April 18, 1966 and plugged and abandoned March 24, 1972.
      - (4) There are no other perforated intervals.
      - (5) There are no known higher or lower oil or gas zones in the area of the well.





### Form C-108 South Caprock Queen Unit Well No. 16-30

VI. Tabulation of Well Data Within Area of Review

Well No.	Description	
South Caprock Queen Unit (SCQU) 11-29	Location:	3210' FNL & 1400' FWL, Section 29, T-15-S, R-31-E
	Type:	Water Injection Well
	Date Drilled:	July 23, 1964 - August 2, 1964
	Construction:	<pre>8-5/8" 24# J-55 csg set at 353' cmt'd w/250 sks regular, 4% gel, 2% CaCl2. 4-1/2" 9.5# J-55 csg set at 3245' cmt'd w/250 sks regular, 4% gel, 18% salt, 0.75% friction reducer; followed by 50 sks Incor, 18% salt, 0.75% friction reducer. TD = 3245'</pre>
	Completion:	Perf 3187-3201' w/2 SPF Placed on injection August 2, 1964.
ś	Plugged and ab	andoned March 1972 (schematic attached).
✓ South Caprock Queen Unit (SCQU) 12-29	Location:	2310' FSL & 330' FWL, Section 29, T-15-S, R-31-E
	Type:	Water Injection Well
	Date Drilled:	September 7, 1955 - September 23, 1955
	Construction:	8-5/8" csg set at 325' cmt'd w/200 sks 5-1/2" csg set at 3185' cmt'd w/175 sks TD = 3188'
	Completion:	Perf 3154-3167' w/6 SPF Frac'd w/10,000 gals lease oil Potential flowed 66 BOPD thru 16/64" ck
	Converted to w 405 BWPD at 12	ater injection July 20, 1965. Injected 80 psi
4	Plugged and ab	andoned August 12, 1971.
South Caprock Queen Unit (SCQU) 13-29	Location:	990' FSL & 330' FWL, Section 29, T-15-S, R-31-E
	Type:	Water Injection Well
	Date Drilled:	November 18, 1956 - December 28, 1956
	Construction:	12-3/4" csg set at 300' cmt'd w/250 sks 8-5/8" csg set at 1325' TD = 3187' Plugged and abandoned December 28, 1956
	Convert to wat 3235'. 4-1/2" Perf 3188-3203	er injection August 1, 1964 and deepen to 9.5# csg set at 3234' cmt'd w/250 sks ' w/2 SPF
	Plugged and ab	andoned August 12, 1971

1	Well No.	Description	
South Cap (SCQU) No	South Caprock Queen Unit (SCQU) No. 7-30	Location:	1980' FNL & 1980' FEL, Section 30, T-15-S, R-31-E
		Туре:	Oil Well
		Date Drilled:	July 31, 1955 - July 24, 1955
		Construction:	8-5/8" csg set at 315' cmt'd w/330 sks 5-1/2" csg set at 3137' cmt'd w/150 sks Open hole - 3137-3159' TD = 3159'
		Completion:	Frac'd open hole 3137-3159' w/20,000 gals oil
			Potential - flowed /U BUPD on 16/64" CK
	/	Plugged and ab	andoned March 24, 1972.
J	South Caprock Queen Unit (SCQU) 8-30	Location:	1650'FNL & 990'FEL, Section T-15-S R-31-E
		Type:	Water Injection Well
		Date Drilled:	July 13, 1955 - July 24, 1955
		Construction:	8-5/8" csg set at 309' cmt'd w/175 sks 5-1/2" csg set at 3158' cmt'd w/200 sks TD = 3159'
		Completion:	Perfed 3140-3152' w/3 SPF Frac'd w/8000 gals oil Potential - 188 BOPD on 1/2" ck
		Convert to wat	er injection October 1, 1963
		Plugged and ab	andoned March 24, 1972
J	South Caprock Queen Unit (SCQU) 9-30	Location:	1980' FSL & 660' FEL, Section 30, T-15-S R-31-E
		Type:	Oil Well
		Date Drilled:	July 26, 1955 - August 16, 1955
		Construction:	8-5/8" csg set at 314' cmt'd w/200 sks 5-1/2" csg set at 3203' cmt'd w/175 sks TD = 3205'
		Completion:	Perf 3157-3169' w/8 SPF Natural completion Potential - Flowed 144 BOPD on 16/64" ck
		Plugged and ab	andoned March 24, 1972

	Well No.	Description	
Ĵ	South Caprock Queen Unit (SCQU) No. 10-30	Location:	1980' FSL & 1980' FEL, Section 30, T-15-S, R-31-E
		Туре:	Water Injection Well
		Date Drilled:	June 8, 1955 - June 20, 1955
		Construction:	9-5/8" csg set at 315' cmt'd w/200 sks 5-1/2" csg set at 3195' cmt'd w/75 sks TD = 3195'
		Completion:	Perf 3153-3160' w/8 SPF Natural completion Potential - Flowed 140 BOPD on 1/2" ck
		Converted to w 1000 BWPD on v	ater injection January 1, 1964. Injected acuum.
		Plugged and ab	andoned March 24, 1972
	South Caprock Queen Unit (SCQU) No. 11-30	Location:	1980' FSL & 1962.8 FWL, Section 30, T-15-S R-31-E
		Туре:	Oil Well
		Date Drilled:	May 19, 1955 - June 8, 1955
		Construction:	9-5/8" csg set at 315' cmt'd w/200 sks 5-1/2" csg set at 3181' cmt'd w/175 sks TD = 3182'
		Completion:	Perf 3143-3151' w/8 SPF Natural completion Potential - Flowed 144 BOPD on 16/64" ck
		Plugged and ab	andoned March 24, 1972
	1	Re-entered Mar w/1200 gals 15 Pumped 7 BOPD	ch 27, 1984. Perf 3143-51' w/2 SPF. Acidized % HC1 acid. Potential (May 14, 1984) - + 266 BWPD.
$\checkmark$	/ South Caprock Queen Unit (SCQU) No. 14-30	Location:	990' FSL & 2293' FWL, Section 30, T-15-S, R-31-E
		Туре:	Water Injection Well
		Date Drilled:	May 30, 1955 - June 20, 1955
		Construction:	9-5/8" csg set at 322' cmt'd w/200 sks 5-1/2" csg set at 3185' cmt'd w/175 sks TD - 3186'
		Completion:	Perf 3184-3160' w/8 SPF Frac'd w/10,000 gals oil Potential - Flowed 296 BOPD on 30/64" ck
		Converted to w 700 BWPD on va	ater injection February 27, 1964. Injected cuum.
		Plugged and ab	andoned March 24, 1972

### Form C-108 South Caprock Queen Unit Well No. 16-30

Well No.	Description	
South Caprock Queen Unit (SCQU) 15-30	Location:	1980' FEL & 990' FSL, Section 30, T-15-S, R-31-E
	Type:	Oil Well
	Date Drilled:	August 3, 1955 - August 31, 1955
	Construction:	8-5/8" csg set at 322' cmt'd w/200 sks 5-1/2" csg set at 3186' cmt'd w/175 sks TD = 3187'
	Completion:	Perf 3165-3176' w/8 SPF Frac'd w/10,000 gals oil Potential - Flowed 372 BOPD on 16/64" ck
	Plugged and ab	andoned March 24, 1972
	Re-entered Apr Acidized w/200 1984) - 5 BOPD	ril 3, 1984. Perf 3163-3176' w/2 SPF. 00 gals 15% HCl acid. Potential (May 14, 0 + 275 BWPD.
South Caprock Queen Unit (SCQU) No. 1-31	Location:	330' FNL & 990' FEL, Section 31, T-15-S, R-31-E
	Type:	Water Injection Well
South Caprock Queen Unit (SCQU) 15-30 South Caprock Queen Unit (SCQU) No. 1-31 South Caprock Queen Unit (SCQU) No. 2-31	Date Drilled:	May 1, 1956 - May 31, 1956
	Construction:	9-5/8" csg set at 327' cmt'd w/204 sks 5-1/2" csg set at 3217' cmt'd w/125 sks TD = 3220'
	Completion:	Perf 3187-3191' w/4 SPF Squeezed perfs w/100 sks Reperf 3185-88' w/4 SPF Frac'd w/10,000 gals oil Potential - Pumped 48 BOPD + 50 BWPD
	Converted to w	water injection July 1964
	Plugged and ab	andoned August 12, 1971
South Caprock Queen Unit (SCQU) No. 2-31	Location:	330' FWL & 2310' FEL, Section 31, T-15-S, R-31-E
	Туре:	Water Injection Well
	Date Drilled:	October 25, 1956 - November 21, 1956
	Construction:	<pre>13-3/8" csg set at 255' cmt'd w/100 sks 8-5/8" csg set at 1242' 5-1/2" csg set at 3087' cmt'd w/100 sks Open Hole 3087-3095' TD = 3095'</pre>
	Completion:	Frac'd open hole 3087-3095' w/l0,000 gals oil Potential - Pumped 47 BOPD
	Converted to v BWPD at 1000 p Plugged and at	water injection June 27, 1966. Injected 490 osi. Dandoned March 1972

Description	
Location: Type: Date Drilled:	Unit A, Section 31, T-15-S, R-31-E Oil Well Unknown
Construction:	9-5/8" surface csg 5-1/2" csg set at 3252' TD = 3252'
Completion:	Perfs 3185-3191'
Plugged and al	pandoned June 30, 1956
	Description Location: Type: Date Drilled: Construction: Completion: Plugged and al

Plugged Much 1972 South Cuprock Dueen Unit Well No. 11-29 Current Well bore schematic Plug No. 2 5 sxs cement at surf e 12.14" hole B-5/8" 24" J-55 Casing set @ 353' cemented w/250 5x5 regular, 4% -cl, 2% Ca C/2 ... Coment circulated. 7.7/8" hole Cement top calculated at 1728 outside 41/2" casing Plug No.1 25 sxs cement in 41/2" cusing from 3100-2738! Queen sand perts 3187-3201' W/2 bullets/f+ PBTD 3219' 4'2" 9.5# J-55 cusing set at 3245' cenented 2/250 515 render, 4%gel, 18% sult, 0.75% friction reducer, followed by 5) ses more, 18% salt, 0.75% 70 3245' fliction reduces.

Plugged 3/12/71. South Caprock Queen Unit Well No. 12-29 Current wellbore schematic Plug No.2 5 5x5 cmt at Surfure. B-5/8" Casing set at 325' cemented with 200 5×5. Cement circulated. Cement top calculated at 1852 outside 512 casing Plug No. 1 25 5x5 cement in 51/2 cusing from 3100'-2853' Queen Sand perfs 3154-3167' W/ 6 holes perfast 51/2" Casing set at 3185' cemented with 175 5x5. 70 = 3188'

South Caprock Queen Unit Well No. 7-30 Pugged 3/24/72 Current Wellbore Schematic Plug No. 2 5 sxs cement at surface 8-518" casing set at 315' cemented with 330 sxs. Cement circulated. cement top culculated at 1994' outside of 5 1/2" cusing Plug No.1. 25 sxs cement in 51/2" casing from 3100'- 2853' 5 1/2" cosing set at 3137' Commented W/150 sxs 4314" open hole 3137-3159' Queen Sand. TD = 3159'

South Cuprock Queen Unit Well No. 8-30 Plugged 3/24/72 Current Wellbore Schematic Plug No. 2 5 sxs cement at surfure. 8-518" Cusing set at 309' cemented w/ 175 sxs. Cement circulated. Cement top Calculated at 1635' outside of 5'5" casing. Plug No. 1 25 sxs cement in 51/2" cusing from 3100-2853" Perts Queen sand 3140-3152' W/3 holes per foot PBTD 51/2" casing set at 315B' cemented with 200 sxs 3157 TO: 3159

plugged 3/24/72 South Caprock Queen Unit Well No. 9-30 Current wellbore Schematic Plug. No. 2 5 sxs cement at surface 8-5/8" casing set at 314' cemented with 200 sxs. Cement circulated. cement top calculated at 1870' outside 51/2" cosing Plug No. 1 25 5x5 cement in 51/2" casing from 3100-2853'. Perfs Queen Sand 3157-3169' W/ B holes per toot 5 1/2" casing set at 3203' comented with 175 sxs. TO : 3205'

South Copport Queen thit well No. 12-53  

$$Physical 3/24/72$$
  
 $Physical 3/24/72$   
 $Physical 2 5 5x5 cement at surface
 $9.5/8^{n}$  dasing set at 315' cemented with 200 sx5, concert circulation.  
Cement top Cubulated at 2639' outside of 5 %" cosing.  
Physical 25 5x5 cement from 3100'- 2853' in 5%" casing.  
Ports  
Queen Sund 3053-3160' with 8 holes per beet.  
Ports  
 $To: 3175'$   
 $To: 3175'$$ 

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South Coprock Queen Unit well No. 10-30

South Captor A Green Unit Well No. 14-30  
Carrent Wellbore Schematic  

$$Plage No. 2$$
 5 sis cement at surface  
 $q \cdot 5/8$ " casing set at 322' cemented ns/200 six. Cement circulatel.  
 $Tor of cement outside  $5k$ "casing at 1852'  
 $Plage No. 1$  25 six cement in 5% casing them 3100' 2853'.  
Parts  
Quere sort 3148-3160' NI 8 holes pri bat  
5%" casing set at 3185' cemented w/ 175 six.  
 $To - 5186'$$ 

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- VII. Proposed Operation
  - 1. Proposed average daily injection rate 800 BWPD Proposed maximum daily injection rate - 1000 BWPD
  - 2. This will be a closed system.
  - 3. Proposed average injection pressure 1100 psi Proposed maximum injection pressure - 2000 psi
  - 4. Source of injection fluid is water produced from the Queen Sand. Analysis is attached.
  - 5. Injection is for waterflood purposes into the same zone it is produced from.

#### VIII. (Attached)

IX. Proposed Stimulation Program:

The well will be acidized with 1500 gallons 15% HCl acid with an aromatic solvent. Maximum treating pressure will be 2000 psi.

- X. Logging data on well is attached.
- XI. Analysis from fresh water well attached. Well is located in the N/2 of the NE/4, Section 32, T-15-S, R-31-E, Chaves County, NM (only one well within one mile).
- XII. We have examined available geologic and engineering data and find no evidence of open faults or other hydrologic connection between the injection zone and any underground source of drinking water.

Form C-108 South Caprock Queen Unit Well No. 16-30

VIII. The proposed injection zone in the South Caprock Queen No. 16-30, Section 30, T-15-S, R-31-E, Chaves County, New Mexico, is in the Shattuck (Sandstone) member of the Permian Queen formation, which is the uppermost 100' of the Queen formation. The top of the Queen formation is at 3170' (+1277') and the bottom of the sand is at 3188' (+1259'). The proposed injection zone is in the interval 3172' to 3184'. The proposed injection is in an arkosic sandstone and siltstone with small amounts of sandy anhydrite and sandy dolomite, which was deposited in a shallow marine, shelf-lagoon environment. There are no apparent faults or fractures in the field which would permit the migration of oil out of the Shattuck reservoir.

The only known source of drinking water in the area is at a very shallow depth, less than 300' in the Tertiary "Ogallala" formation, of the Lea County underground basin.



WATER ANALYSIS REPORT

COMPANY	<u></u>	······································		ANALYSIS NUMBER
UNION OIL OF CAL	IFOPNIA			0564
COMPANY ADDRESS				DATE
				10/22/84
FIELD			COUNTY OR PARISH	STATE
CAPROCK QUE	EN		CHAVES CO.	N.M.
LEASE OR UNIT	WELL(S)	NAME OR NO.	WATER SOURCE (FORMATION)	
SOUTH CAPROCK OUEEN	UNIT NE/4 SC	C. 52 T-15-5 R-31-E		
DEPTH. FT. BHT. °F	SAMPLE SOURCE	TEMP, OF	WATER, BEL/DAY OIL, BEL/DAY	GAS. MMCF/DAY
	WAIER PUMP			
DATE SAMPLED	TYPE OF WATER			
10/22/84	PRODUCED		U WATERFLOOD U SA	LT WATER DISPOSAL
		WATER ANALYSI	S PATTERN	
10	(NUMBER BE	SIDE ION SYMBOL IN	DICATES me/I* SCALE UNIT)	10
$-\underline{10}$ Na <sup>+</sup> 20 1		5 0		
10				
	┟ <sub>╋╋</sub> ╷ <sub>╋╋</sub> ╋╋╋╋			<b>↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ </b>
10++	] ]			
	┠╍┽╌╉╌╂╌╂╼╂╼╂╼╂╴┦		<del>╏╡╏┨╏╏╏╏┥</del> ┠┽╅┽┽┽	
1				
Fe <sup>++++</sup>				
— <u></u>				
DISSOLVED SOLIDS			DISSOLVED GASES	
CATIONS	me/l*	mg/l*	A Hydrogen Sulfide Has	-()- ma/1*
Tatal Hardana			Carbon Diaxida COn	410 mg/1*
Coloium Co. ++	14			510 mg/1*
Magnesium Mg <sup>++</sup>		146.4	4	IIIg/ I
$Iron$ (Total) $Ee^{+++}$	-0-	-0-	PHYSICAL PROPERTIES	
Barium, Ba <sup>++</sup>				
Sodium, Na <sup>+</sup> (calc.)	61.	9 1424	2 рн	6.70
		·	Specific Gravity	1.012
			• Total Dissolved Solids (calc.	) $5053_6 \text{ mg/l}^*$
ANIONS	01	- 7000	Stability Index @C	54
Chloride, CI <sup></sup>		$\frac{5}{100}$	°C	07.1:
Sulfate, SO4 <sup>=</sup>	<u>,</u>	4220	CaSO4 Solubility @2Uc	_2/_4 me/1*
Carbonate, CO3 <sup>=</sup>	<u> </u>		@°C	me/1*
Bicarbonate, HCO3 <sup>—</sup>	<u>_</u>	$U = \frac{185}{2}$	Max. CaSO4 Possible (calc.)	<u>42</u> me/1*
Hydroxyl, OH <sup></sup>	<u> </u>		Max. CaSO4 Possible (calc.)	me/l*
Sulfide, S <sup>=</sup>				
<b></b>			nesiqual Hydrocarbons	ppm(Vol/Vol)
TOTAL SOLIDS (QUANT	ITATIVE)	5053.	6	
DEMADIC AND DECOM	MENDATIONS		*NOTE: me	/I and mg/I are common!
REMARKS AND RECOM			used interc	hangeably for epm and ppr
a 20°C MODERATE	LY UTPHISIVE TEN	DENCY IS INDICA	IED, respectivel	y. Where epm and ppm ar
200 c cal cum	CHIENTE CONTING	IS HIMI IVELV	used, corr specific ar	echons should be made to avity.
a ZU C CALUIUN	OUL ALC SURLING	IN UNLINEL!	, 3	-

BAKER OL TREATING REPRESENTATIVE	ADDRESS	TELEPHONE OFF:	RES:
AN RITA BETTY	10/22/84 DISTRIBUTION		



WATER ANALYSIS REPORT

COMPANY Union Oil of	California		<u></u>	ANALYSIS NUMBER
COMPANY ADDRESS		· · · · · · · · · · · · · · · · · · ·		DATE 9/26/84
FIELD	<u> </u>		COUNTY OR PARISH	STATE
LAPROCK QUEE	N		(HAUES (D.	N.M.
LEASTS LOUR DNIT	WELL(S) NA	ME OR NO.	WATER SOURCE (FORMATION)	<u></u>
South	$1 \text{ een} \mathbf{\beta} = \pi 15 - 30$	J	QUEEN SAND	
DEPTH. FT. BHT. OF	SAMPLE SOURCE	TEMP. OF	WATER. BBL/DAY   OIL. BBL/DAY	GAS. MMCF/DAY
DATE SAMPLED	TYPE OF WATER			
<b>ø</b> 9/26/84	PRODUCED	SUPPLY	WATERFLOOD SALT	WATER DISPOSAL
100 Na <sup>+</sup> 20 15	(NUMBER BESID	VATER ANALYSIS E ION SYMBOL IND 5 0	S PATTERN DICATES me/I* SCALE UNIT) 5 10	15 <u>20</u> ci <u>100</u>
100 Ca++	┝┼┼╊╈╁╊╊╋			нсо3
$\frac{100}{1} M_{9}^{++} + \frac{1}{1} + \frac$				1
DISSOLVED SOLIDS			DISSOLVED GASES	
CATIONS	me/1*	mg/l*	Hydrogen Sulfide, H2S	<u>-0-</u> mg/l*
Total Hardness	636		Carbon Dioxide, CO2	<u>190.1mg/l*</u>
Calcium. Ca ++	334	<u>    6680  </u>	Oxygen, O2	<u>l+</u> mg/l*
Magnesium, Mg <sup>++</sup>		3684	.4_	
Iron (Total) Fe <sup>+++</sup>	<u></u>	22	PHYSICAL PROPERTIES	
Barium, Ba''				6.95
Sodium, Na (calc.)			PH Sopoific Gravity	1.147
	• <u></u> .		Total Dissolved Solids (calc.)	54405 Ball*
ANIONS		. <del> </del>	Stability Index @_20_°C	<u> </u>
Chloride, Cl <sup></sup>	935.2	33200	@°C	
Sulfate, SO4 <sup>=</sup>	55.2	2650	CaSO4 Solubility @ <u>20</u> °C	<u>_31.2</u> me/1*
Carbonate, CO3 <sup>=</sup>	-0-		°C	me/1*
Bicarbonate, HCO3 <sup></sup>		48	8. Max. CaSO4 Possible (calc.)	<u>55.2</u> me/1*
Hydroxyl, OH <sup>—</sup>	<b>0</b>	0	Max. CaSO4 Possible (calc.)	me/l*
Sulfide, S <sup>=</sup>				
			Residual Hydrocarbons	ppm(Vol/Vol)
TOTAL SOLIDS (OHANTITA		54427	.2	
REMARKS AND RECOMMEN	IDATIONS:		*NOTE: me/l used interch	and mg/1 are commonly angeably for epm and ppm

@ 20<sup>0</sup> C SLIGHTLY CORROSIVE TENDENCY IS INDICATED @ 20<sup>0</sup> C CALCIUM SULFATE SCALING, IS POSSIBLE \*NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

BAKER OIL TREATING REPRESENTATIVE	ADDRESS		TELEPHONE	
C. DEWIS			OFF	RES
ANALYZED BY: RITA BETTY	9/27/84	DISTRIBUTION		

where the part of the states

COMPANY				ANALYSIS NUMBER
UNION OIL OF	CALIFORNIA		· · ·	0526
COMPANY ADDRESS				DATE 9/26/84
FIELD			COUNTY OR PARISH	STATE
CAPROCK QUE	EN		CHAVES COUNTY	N.M.
LEAS DR UNIT	WELL(S) NAM	AE OR NO.	WATER SOURCE (FORMATION)	
WEET CAPROCK QUE	EN <b>\$</b> UNIȚ #5-30	)	QUEEN SIAND	
DEPTH, FT. BHT. °F	SAMPLE SOURCE	TEMP, °F	WATER, BBL/DAY OIL, BBL/DAY	GAS. MMCF/DAY
DATE SAMPLED	TYPE OF WATER		1	
9/26/84	PRODUCED	SUPPLY	WATERFLOOD SAL	T WATER DISPOSAL
$\frac{1000}{N_{a}^{+}}$ 20 15		ATER ANALYSI ION SYMBOL INI 5 0	S PATTERN DICATES me/I* SCALE UNIT) 5 10 1 1 1 1 1 1 1 1 1	<u><sup>15</sup></u> 20a- <u>1000</u>
Ca <sup>++</sup>	╋╋╋╋ ╋╋╋╋╋╋╋ ╋╋╋╋╋╋╋			HCO <sub>3</sub> - <u>1</u> HCO <sub>3</sub> - <u>1</u> SO <sub>4</sub> - <u>10</u> CO <sub>3</sub> - <u>1</u>
DISSOLVED SOLIDS	··	<u></u>	DISSOLVED GASES	
CATIONS Fotal Hardness Calcium. Ca <sup>++</sup> Magnesium, Mg <sup>++</sup> Iron (Total) Fe <sup>+++</sup> Barium, Ba <sup>++</sup> Sodium, Na <sup>+</sup> (calc.)	me/l* 410 288 122 3.4  1170.3	<u>mg/l</u> * 5760 1488.4 63  26916.9	Hydrogen Sulfide, H2S Carbon Dioxide, CO2 Oxygen, O2 PHYSICAL PROPERTIES	-0- mg/l* <u>114.8</u> mg/l* <u>1+</u> mg/l*
ANIONS Chloride, CI <sup></sup>	1549.3	55000	Specific Gravity Total Dissolved Solids (calc.) - Stability Index @℃ @℃	<u>1.102</u> 9 <u>0910.</u> 6mg/l* <u>52</u>
Sulfate, SO4 <sup>=</sup> Sarbonate, CO3 <sup>=</sup> Sicarbonate, HCO3 <sup>-</sup> Aydroxyl, OH <sup></sup> Sulfide, S <sup>=</sup>	27.1 -0- 7.3 0-	<u>1300</u> -0- 445.3 -0-	CaSO4 Solubility @°C @°C Max. CaSO4 Possible (calc.) Max. CaSO4 Possible (calc.)	35.6 me/l* me/l* 27.1 me/l* me/l*
OTAL SOLIDS (QUANTIT		90'973.6	Residual Hydrocarbons	ppm{Vol/Vo

EMARKS AND RECOMMENDATIONS:

## 20<sup>0</sup> C MODERATELY CORROSIVE TENDENCY IS INDICATED

20° C CALCIUM SULFATE SCALING IS UNLIKELY

\*NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

BAKER OIL TREATING REPRESENTATIVE	ADDRESS	TELEPHONE		
J. LEWIS		OFF:	RES:	
RITA BETTY	9/27/84 DISTRIBUTION			



NCV 5 1984

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#### AFFIDAVIT OF PUBLICATION

County of Chaves

State of New Mexico,

R.M. Higginbotham

.......

Manager

Of the Roswell Daily Record, a daily newspaper published at Roswell, New Mexico, do solemnly swear that the clipping hereto attached was published once a week in the regular and entire issue of said paper and not in a supplement thereof for a period

of One

Time

weeks

beginning with the issue dated .....

November 1 19.84

and ending with the issue dated .....

November 1 84 19 m M Ň Manager

Sworn and subscribed to before me

this ........... day of .....

November 19.

A. ll

Notary Public

84

My commission expires .....

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Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 Telephone (915) 682-9731 Mailing Address: P. O. Box 671 Midland, TX 79702

Midland District

October 26, 1984

State of New Mexico P. O. Box 1148 Santa Fe, New Mexico 87501

Gentlemen:

SUBJECT:

Re-entry of Union Oil Company of California's South Caprock Queen Unit Well No. 16-30 To Inject Produced Water

This is notification to you, as owner of the surface land and as a leasehold operator within one-half mile of the proposed injection well location, that Union Oil Company of California proposes to re-enter the South Caprock Queen Unit Well No. 16-30, Section 30, T-15-S, R-31-E, 990' FSL and 990' FEL of Section, Chaves County, New Mexico, and use it to inject produced water. Injection will be into the Queen Sand through perforations from 3172' to 3184', with water produced from the Queen Sand. The well was being used in this manner prior to abandonment in 1972. Attached are copies of the applications for approval to inject. Any objections or requests for hearing of administrative application must be filed with Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 85701, within 15 days from the date this application was mailed to you.

Very truly yours.

J. C. Merritt District Production Superintendent

TLP:pd Enclosures

mailed "certified, return receipt requested"
10/26/84:dr (certified no. P397 479 682)

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 Telephone (915) 682-9731 Mailing Address: P. O. Box 671 Midland, TX 79702

UNI®N

Midland District

October 26, 1984

Sun Exploration and Production Co. P. O. Box 1861 Midland, Texas 79702

Gentlemen:

SUBJECT:

Re-entry of Union Oil Company of California's South Caprock Queen Unit Well No. 16-30 To Inject Produced Water

This is notification to you, as a leasehold operator within one-half mile of the proposed injection well location, that Union Oil Company of California proposes to re-enter the South Caprock Queen Unit Well No. 16-30, Section 30, T-15-S, R-31-E, 990' FSL and 990' FEL of section, Chaves County, New Mexico, and use it to inject produced water. Injection will be into the Queen Sand through perforations from 3172' to 3184', with water produced from the Queen Sand. The well was being used in this manner prior to abandonment in 1972. Attached are copies of the applications for approval to inject. Any objections or requests for hearing of administrative application must be filed with Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501, within 15 days from the date this application was mailed to you.

Very truly yours,

District Production Superintendent

TLP:pd Enclosures

mailed "certified, return receipt requested"
10/26/84:dr (certified no. P397 479 683)

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etal, 2/3 McClellan Oil 1 HBP McClellon Gertruc	014         McClellan Oil         6-2856           8-1-88         WAZ         WAZ           v. 786         V. 786	8-10420 HER'S TE.43	State State		Mid Cant.	6-2771 1 578	1 C 39 8 8 10 411	Cent'l
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