

*Assign. WFX # 910*

GRARIDGE CORPORATION  
IBEX BUILDING POST OFFICE BOX 752  
BRECKENRIDGE, TEXAS

*due: June 9, 1959*

May 22, 1959

*15 day waiting period*

Oil Conservation Commission  
State of New Mexico  
State Capitol Building  
Santa Fe, New Mexico

Re: Application For Administrative  
Approval To Convert Two Unit  
Wells To Water Injection Wells  
In North Caprock Queen Unit No. 1,  
Lea and Chaves Counties, New Mex.

Dear Sirs:

In accordance with Commission Order No. R-972-B, issued on August 6, 1958, Graridge Corporation as Unit Operator, respectively requests administrative approval to convert the following wells to water injection wells:

<u>Unit No.</u>	<u>Location</u>
36-8	SE/4, NE/4 Sec. 36, T12S, R31E
36-10	NW/4, SE/4 Sec. 36, T12S, R31E

The following data pertinent to the proposed expansion are given:

- (1) The proposed injection wells are directly offset by a producing well which has shown response to the water flood project. See attached Form C-116 and Exhibit No. 1.
- (2) The wells requested have undergone remedial work and readied for water injection.
- (3) Exhibit No. 2 indicates present injection well data. It is evident that some of the injection wells are not as receptive to water injection as others, thus, it is desirable to place wells on injection as early as responses warrant in order to maintain balance.

May 22, 1959

(4) Exhibit No. 3 gives performance curves for the overall water flood project.

Attached Exhibit No. 1 indicates all offset operators and all injection wells in North Caprock Queen Unit Nos. 1, 2, and 3 as is requested by Order No. R-972-B.

Copies of this application are being sent to Ambassador Oil Corporation and to Great Western Drilling Company as they are offset operators to the proposed expansion. We are submitting waivers to the offset operators and will forward these to the Commission as soon as possible.

Any consideration by the Commission in expediting this matter will be greatly appreciated.

Yours very truly,

GRARIDGE CORPORATION

By B. G. Harrison  
B. G. Harrison  
Manager of Secondary  
Recovery

BGH:gl

Attachment

## Monthly Water Flood Report

## Injection Well Data

Project: Cap UnitMonth: March, 1959Field: Cparock QueenFormation: Queen Sand

Lease & Well No.	Effective Acre-Feet		Total Water Input			Ibex* Net-Input	Injection Pressure	Total Bbls.	Cumulative Ibex* Net Bbls.	Input Net B/Net AF
	Total	Ibex*	Mo.	Avg/Day	B/D/Ac-Ft.					
Cap Unit 5-4	800		3051	447	0.56		500		327,330	409
5-12	"		6414	206	0.26		1,000		28,046	35
6-2	"		3254	427	0.53		550		348,787	436
6-4	"		1193	361	0.45		1,070		39,019	49
6-6	"		6069	195	0.24		970		36,877	46
6-8	"		6853	221	0.28		1,000		172,567	216
6-10	"		4301	139	0.17		1,000		6,079	8
6-12	"		16345	528	0.66		220		48,700	61
6-14	"		15821	511	0.64		10		21,958	27
6-16	"		4564	147	0.18		1,000		5,289	7
** 7-6	"		3570	119	0.15		1,000		3,570	4
30-16	"		12174	392	0.40		340		25,782	32

## Remarks:

\*\* Injection commenced in Well No. 7-6 on March 1.

Exhibit II

## Monthly Water Flood Report

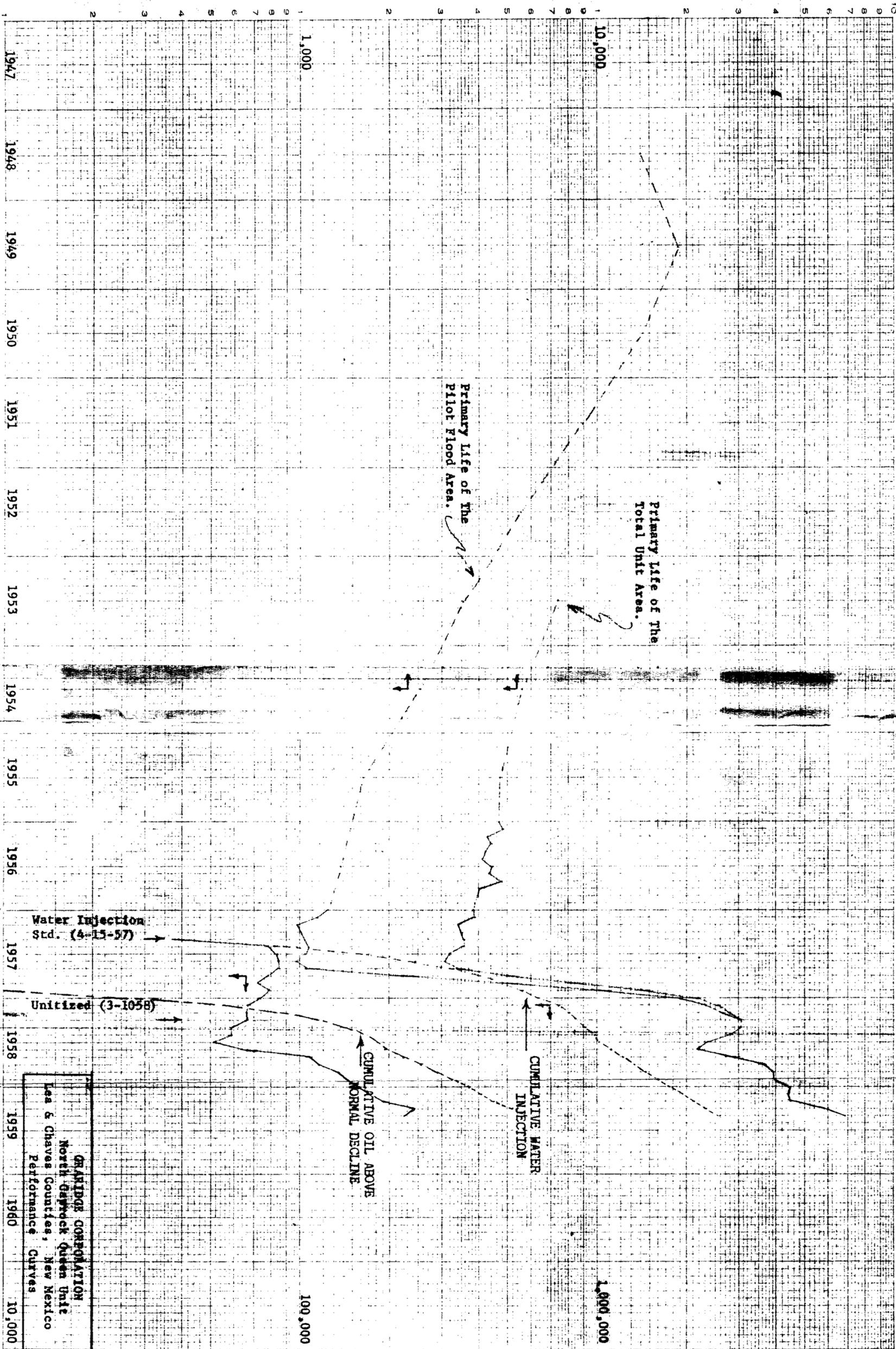
## Injection Well Data

Project: Cap UnitMonth: March, 1959Field: Caprock QueenFormation: Queen Sand

Lease & Well No.	Effective Acre-Feet		Total Water Input			Ibex* Net-Input	Inject-ion Pressure	Total Bbls.	Cumulative Ibex* Net Ebbs.	Input Net B/Net AF
	Total	Ibex*	Mo.	Avg/Day	B/D/Ac-Ft.					
Cap Unit 3-2	800		12330	395	0.50		520		109,115	137
31-8	"		13609	439	0.55		640		110,302	138
31-10	"		6214	265	0.33		0		320,400	400
31-12	"		11219	362	0.45		590		74,236	93
31-14	"		2462	79	0.10		1,100		87,502	109
31-16	"		13256	428	0.54		460		357,079	446
32-4	"		10294	332	0.42		860		11,867	15
32-6	"		12339	398	0.50		190		27,653	35
32-10	"		7995	258	0.32		1,100		9,724	122
32-12	"		11673	376	0.47		30		59,129	74
32-14	"		13589	438	0.55		900		92,826	116
36-16	"		13376	431	0.51		140		60,859	76
<b>Totals (24)</b>			<b>244,771</b>	<b>7,097</b>	<b>0.41 (avg)</b>		<b>637 (avg)</b>		<b>2,384,696</b>	<b>129 (avg)</b>

Remarks:

Oil Production ( Bbls/Mo. )



Water Injected ( Bbls/Mo. )  
Cumulative Oil Produced & Water Injected, bbls.

Exhibit III

**GARDNER CONSOLIDATION**  
North Gwyndok Queen Unit  
Lea & Chaves Counties, New Mexico  
Performance Curves

NEW MEXICO OIL CONSERVATION COMMISSION

GAS-OIL RATIO REPORT

OPERATOR..... Granidge Corporation..... POOL..... Caprock Queen.....  
 ADDRESS..... P. O. Box 752, Breckenridge, Tex. MONTH OF..... May....., 1959.....  
 SCHEDULED TEST..... COMPLETION TEST..... SPECIAL TEST..... ..... (Check One)

**North Caprock Queen Unit No. 1  
 Test Prior to increase caused by waterflood**

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	
North Caprock Queen Unit No. 1	36-9	4-18	Pump		24		0	2		

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.....  
 By..... Granidge Corporation  
E. G. Harrison  
 Manager of Secondary Recovery

NEW MEXICO OIL CONSERVATION COMMISSION

GAS-OIL RATIO REPORT

OPERATOR..... **Graridge Corporation** ..... POOL..... **Caprock Queen** .....  
 ADDRESS..... **P. O. Box 752, Breckenridge, Texas** MONTH OF..... **May** ....., 19... **59**  
 SCHEDULED TEST..... COMPLETION TEST..... SPECIAL TEST..... **X** ..... (Check One)

**North Caprock Queen Unit No. 1**  
**Test submitted in accordance with Commission Order No. R-972-B**

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	
North Caprock Queen Unit No. 1	36-9	5-15	Pump		24		0	33		

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..... **Graridge Corporation** .....  
Company

By..... **S. G. Harrison** .....  
**Manager of Secondary Recovery**  
Title

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



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

May 28, 1959

ADDRESS CORRESPONDENCE TO:  
P. O. BOX 1079  
SANTA FE, N. M.

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

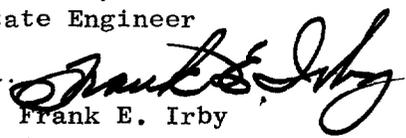
Dear Mr. Porter:

Reference is made to application and information transmitted to you by Graridge Corporation dated May 22, 1959. Their reference is to "Application for Administrative Approval to Convert Two Unit Wells to Water Injection Wells in North Caprock Queen Unit No. 1, Lea and Chaves County, New Mexico." No exhibits or other information are enclosed with this material pertaining to the casing and cementing program of the two wells which they propose to convert. Therefore, I am unable to determine whether or not this office should offer objection to this application.

By copy of this letter, the Graridge Corporation is requested to submit the above-mentioned information to this office, in order that we may determine our position in this matter and eliminate any unnecessary delay on the completion of their project.

Yours truly,

S. E. Reynolds  
State Engineer

By:   
Frank E. Irby  
Chief  
Water Rights Division

FEI/ma  
cc-Graridge Corporation  
F. H. Hennighausen

GRARIDGE CORPORATION

1565 BUILDING

POST OFFICE BOX 752

BECKENRIDGE, TEXAS

409 33 42

May 29, 1959

Oil Conservation Commission  
State of New Mexico  
State Capitol Building  
Santa Fe, New Mexico

Gentlemen:

We are enclosing herewith for your information and files, the signed letters from Ambassador Oil Corporation and Great Western Drilling Company, granting their consent to expand the water injection program in the North Caprock Queen Unit No. 1, Lea and Chaves Counties, New Mexico.

The wells to be included in this expansion are indicated below.

<u>Unit No.</u>	<u>Location</u>
36-8	SE/4, NE/4, Sec. 36, T12S, R31E
36-10	NW/4, SE/4, Sec. 36, T12S, R31E

If you need any additional information to expedite your approval of this request, please let us know.

Very truly yours,

GRARIDGE CORPORATION

By B. G. Harrison  
B. G. Harrison  
Manager of Secondary  
Recovery

BGH:gl

Encl.

**OPERATIONS**  
**MAY 25 1959**

Exec: \_\_\_\_\_  
 Plans: \_\_\_\_\_  
 Sec: \_\_\_\_\_  
 Acq: \_\_\_\_\_  
 Engr: \_\_\_\_\_  
 Adm: *my* \_\_\_\_\_  
 Prod: \_\_\_\_\_  
 Mat: \_\_\_\_\_  
 Pers: \_\_\_\_\_  
 FILE: \_\_\_\_\_

**GRARIDGE CORPORATION**  
 1704 BUILDING POST OFFICE BOX 752  
 BRECKENRIDGE, TEXAS

May 22, 1959

Great Western Drilling Company  
 P. O. Box 1659  
 Midland, Texas

Attn: Mr. M. B. Wilson

Ambassador Oil Corporation  
 P. O. Box 9338  
 Fort Worth, Texas

Attn: Mr. R. H. Vick

Gentlemen:

It is the desire of Graridge Corporation to expand the water injection program in the North Caprock Queen Unit No. 1 in Lea and Chaves Counties, New Mexico. The expansion is to include the following wells:

<u>Unit No.</u>	<u>Location</u>
36-8	SE/4, NE/4 Sec. 36, T12S, R31E
36-10	NW/4, SE/4, Sec.36, T12S, R31E

A fifteen-day waiting period is set up by the Commission unless waivers are obtained from all operators offsetting the proposed expansion.

In order to expedite matters, please sign and return one copy of this letter to this office if your company has no objection to the proposed expansion.

Yours very truly,

GRARIDGE CORPORATION

By B. G. Harrison  
 B. G. Harrison  
 Manager of Secondary  
 Recovery

BGH:gl

SIGNED BY: Robert H. Vick  
 FOR Ambassador Oil Corp.

GRARIDGE CORPORATION

IREX BUILDING

POST OFFICE BOX 752

BRECKENRIDGE, TEXAS

May 22, 1959

✓ Great Western Drilling Company  
P. O. Box 1659  
Midland, Texas

Attn: Mr. M. B. Wilson

Ambassador Oil Corporation  
P. O. Box 9338  
Fort Worth, Texas

Attn: Mr. R. H. Vick

Gentlemen:

It is the desire of Graridge Corporation to expand the water injection program in the North Caprock Queen Unit No. 1 in Lea and Chaves Counties, New Mexico. The expansion is to include the following wells:

<u>Unit No.</u>	<u>Location</u>
36-8	SE/4, NE/4 Sec. 36, T12S, R31E
36-10	NW/4, SE/4, Sec.36, T12S, R31E

A fifteen-day waiting period is set up by the Commission unless waivers are obtained from all operators offsetting the proposed expansion.

In order to expedite matters, please sign and return one copy of this letter to this office if your company has no objection to the proposed expansion.

Yours very truly,

GRARIDGE CORPORATION

By B. G. Harrison  
B. G. Harrison  
Manager of Secondary  
Recovery

BGH:gl

SIGNED BY: M. B. Wilson  
Vice President Production  
FOR GREAT WESTERN DRILLING COMPANY

GRARIDGE CORPORATION  
MAIN OFFICE  
IBEX BUILDING

POST OFFICE BOX 752

1959 JUN 6 AM 6:37  
CKENRIDGE, TEXAS

June 5, 1959

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

Dear Mr. Porter:

The information below pertains to the casing and cementing program on our Caprock Unit No. 1 Wells No. 36-10 and 36-8 for which we are asking Application for Administrative Approval to Convert Two Unit Wells to Water Injection Wells.

Well No. 36-10. Eight and five-eighths inch casing was set at 300' and cemented with 150 sacks cement. Five and one-half inch casing was set at 2978' and cemented with 600 sacks cement. After drilling plug, the well was tested by running the bailer, and the cement job was found to be satisfactory. We will set approximately 150' of 4½" liner in anhydrite at 3012' and cement with 75 sacks cement. Drill cement and shoe and clean out to bottom 3020'.

Well No. 36-8. Eight and five-eighths inch casing was set at 250' and cemented with 150 sacks. Five and one-half inch casing was set at 2970' and cemented with 600 sacks. After drilling plug, casing was swabbed dry and bail testing for 24 hours showed cement job satisfactory. Cable tools were moved in and well cleaned out to bottom. Ran Gamma Ray and Caliper logs. Plugged hole back to 3004' with gravel and cement. Filled hole with water and held O.K. Ran 153' of 4½", 12.60# liner and cemented with 75 sacks cement. Tested cement job and found to be satisfactory. Drilled cement and shoe and cleaned out to bottom.

If you desire other information, please let us know.

Yours very truly,

GRARIDGE CORPORATION

*S. H. Lindley, Jr.*  
S. H. Lindley, Jr.

SHLjr/gl

cc: Frank E. Irby

CAPRIDGE CORPORATION

MAIL OFFICE OCC  
POST OFFICE BOX 152  
E. FLOCKENRIDGE, TEXAS

1959 JUN 22 AM 8:37

June 18, 1959

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

Dear Mr. Porter:

The following is additional information ask for on our Caprock Unit No. 1 Wells No. 36-8 and 36-10 for which we are making Application for Administrative Approval to Convert Two Unit Wells to Water Injection Wells.

Well No. 36-8. Eight and five-eights inch casing was set at 250' in Red Bed formation and cemented with 150 sacks. We have no record of the cement top or if cement was circulated. Five and one-half inch casing was set at 2970' in Anhydrite formation and cemented with 100 sacks. A temperature survey indicates the top of cement to be at 2450'. The 5½" was perforated at 1389-1390' and squeezed with 137 sacks of cement. Temperature survey indicates top of squeeze cement to be at 525'. Cement plug was drilled and tested with 750# pressure, tested okay. 153' of 4½" liner was set at 3004' in Anhydrite. Top of liner is at 2851'. Liner was cemented with 75 sacks of cement. Cement job was tested and found to be satisfactory. We plan to inject water down the 5½" casing and 4½" liner into open hole from 3004' to 3020'.

Well No. 36-10. Eight and five-eights inch casing was set at 300' in Red Bed formation and cemented with 150 sacks of cement. We have no record of the cement top or if cement was circulated. Five and one-half inch casing was set at 2978' in Anhydrite formation and cemented with 600 sacks of cement. We have no temperature survey on this well, but from reasonable calculations determine the cement top to be at a depth of 1378'. 130.62' of 4½" liner was set at 3008' in Anhydrite and cemented with 75 sacks. Top of liner is at 2877.38'. We plan to drill out cement and

Mr. A. L. Porter, Jr.

-2-

June 18, 1959

clean out to bottom, 3020'. Water will be injected down 5½" casing and 4½" liner into open hole from 3008' to 3020'.

Yours very truly,

GRARIDGE CORPORATION

By *S. H. Lindley, Jr.*  
S. H. Lindley, Jr.  
Engineer

SHLjr:gl

cc: Frank E. Irby



MAIN OFFICE OCC

1959 JUN 25 AM 8:13

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

June 25, 1959

ADDRESS CORRESPONDENCE TO:  
P. O. BOX 1079  
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 Graridge Corporation dated May 22, 1959 and subsequent correspondence pertaining to the conversion of two wells in the North Caprock Queen Unit No. 1 in Lea County.

After receiving the necessary information, I have determined that on well No. 36-8 only a single casing wall exists between the earth and the finished hole from 250 feet to 525 feet. The surface casing is landed at the exact elevation of the top of the red beds. The top of the cement between the bore hole and the 5½ inch casing is indicated at 525 feet and was placed by squeezing. Perforations for the squeeze job were between 1389 feet and 1390 feet. I discussed this matter with Mr. B. G. Harrison of the Graridge Corporation yesterday and have come to the conclusion that this office will offer no objection to the conversion of this well, provided injection is through tubing and packer with the packer set below the perforations at 1390 feet.

I have determined that on well No. 36-10, there is only a single casing wall protecting the zone between 300 feet and 1378 feet. The log of this well shows that the bit entered the red beds at 305 feet, which would indicate that the bottom 5 feet of the Ogallala formation is protected only by the above-mentioned single casing wall. The top of the cement behind the 5½ inch casing is calculated to be at 1378 feet, but no temperature survey was made and I believe there is reason to doubt the accuracy of the calculations, since there may have been some porosity between 1378 feet and the bottom of the hole.

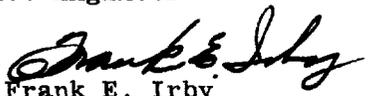
In view of my findings, after study of the casing and cementing records, this office will offer no objection to the conversion of



this well, provided injection is made through tubing and packer with packer set at 1540 feet or deeper.

Yours truly,

S. E. Reynolds  
State Engineer

By:   
Frank E. Irby  
Chief  
Water Rights Division

FEI/ma

cc-Graridge Corporation  
F. H. Hennighausen

GRARIDGE CORPORATION  
MAIN OFFICE OCC  
IBEX BUILDING

POST OFFICE BOX 752

BRECKENRIDGE, TEXAS

1959 JUL 2 AM 8:14

June 30, 1959

36-10

Oil Conservation Commission  
State of New Mexico  
State Capitol Building  
Santa Fe, New Mexico

Re: Conversion of wells No. 36-8  
36-10 to injection wells in  
the North Caprock Queen Unit  
No. 1 in Lea County.

Dear Sirs:

The above mentioned wells have been discussed by our  
Mr. Harrison and Mr. Irby, Chief Water Rights Division, and  
they find it necessary to inject water through tubing and packer  
in these wells.

In Well No. 36-8, we will run 2" tubing with a tension  
type packer and set the packer below perforations at 1390 feet.  
Water will be injected down tubing.

In Well No. 36-10, we will run 2" tubing with a tension  
type packer and set the packer below a depth of 1540 feet. Water  
will be injected down tubing.

Yours very truly,

GRARIDGE CORPORATION

*S. H. Lindley, Jr.*  
S. H. Lindley, Jr.

SHLjr/gl

cc: Mr. Frank Irby