

CASE 1073: Application of GRABBER
for removal of unorthodox location
of a water injection well.

Casa No.

1973

Application, Transcript,
Small Exhibits, Etc.

**BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO**

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:**

CASE No. 1973
Order No. R-1687

**APPLICATION OF GRARIDGE CORPORATION
FOR PERMISSION TO DRILL THREE WATER
INJECTION WELLS ON UNORTHODOX LOCA-
TIONS IN ITS ARTESIA WATERFLOOD
PROJECT NO. 2, EDDY COUNTY, NEW
MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on June 1, 1960, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

Now, on this 7th day of June, 1960, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Graridge Corporation, is the operator of the Artesia Waterflood Project No. 2, Artesia Pool, Eddy County, New Mexico.
- (3) That the applicant proposes to drill three additional injection wells in the said Artesia Waterflood Project No. 2 on unorthodox locations as follows:

Hesler-Yates-State Well No. 384, 2310 feet from the North line and 1300 feet from the East line of Section 28

Hesler-Yates-State Well No. 385, 1820 feet from the North line and 730 feet from the East line of Section 28

Hesler-Yates-State Well No. 386, 2310 feet from

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CASE No. 1973
Order No. R-1687

the North line and 330 feet from the East line
of Section 28

all in Township 18 South, Range 28 East, NMPM, Eddy County, New
Mexico.

(4) That the above-described injection wells are located
in such a manner that they should provide a thorough and efficient
sweep of oil by the waterflood.

(5) That inasmuch as the three proposed injection wells
will be drilled as twin-wells to Western Development Company's
Well Nos. 27, 43, and 47, which produce from an interval other
than that being flooded by the applicant, and two of which
require certain remedial work to protect the pay zone from water
channeling or encroachment, there should be no injection of water
into the three above-described injection wells until such time as
this remedial work has been accomplished.

(6) That approval of the subject application under these
conditions will neither cause waste nor impair correlative rights.

IT IS THEREFORE ORDERED:

That the applicant, Graridge Corporation, be and the same is
hereby authorized to drill three injection wells in its Artesia
Waterflood Project No. 2, all of said wells to be on unorthodox
locations and to be located as follows:

Resler-Yates-State Well No. 384, 2310 feet from
the North line and 1300 feet from the East line
of Section 28

Resler-Yates-State Well No. 385, 1820 feet from
the North line and 730 feet from the East line
of Section 28

Resler-Yates-State Well No. 386, 2310 feet from
the North line and 330 feet from the East line
of Section 28

all in Township 18 South, Range 28 East, NMPM, Eddy County, New
Mexico.

PROVIDED HOWEVER, That the injection of water into the
above-described Well Nos. 385 and 386 shall not commence until
such time as the necessary remedial work has been accomplished
on Western Development Company's Resler-Yates-State Well Nos. 43
and 47, both of which are located in the SE/4 NE/4 of said
Section 28.

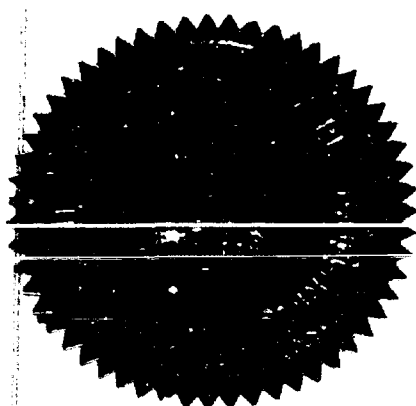
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CASE No. 1973

Order No. R-1687

~~Done~~ at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



John Burroughs
JOHN BURROUGHS, Chairman

Murray E. Morgan
MURRAY E. MORGAN, Member

A. L. Porter, Jr.
A. L. PORTER, JR., Member & Secretary

CSY/

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

June 7, 1960

Mr. Jack Campbell
Box 766
Roswell, New Mexico

Dear Sir:

On behalf of your client, Graridge Corporation,
we enclose two copies of Order R-1687 in Case
1978 issued by the Oil Conservation Commission
this date.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

lr/

Enclosures: (2)

Carbon copy of Order R-1687 sent to:

Oil Conservation Commission:
Artesia, New Mexico
Hobbs, New Mexico

C
O
P
Y

Case 1973

LAW OFFICES OF
CAMPBELL & RUSSELL
J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

JACK M. CAMPBELL
JOHN F. RUSSELL

TELEPHONES
MAIN 2-4641
MAIN 2-4642

May 3, 1960

Mr. Daniel S. Nutter
Chief Engineer
Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

RE: Resler Yates State
384, 385 and 386 in
Artesia Waterflood #2

Dear Mr. Nutter:

Reference is made to Mr. T. A. Ford's letter to you of April 21 and your reply of April 26 in connection with the captioned well.

Please consider Mr. Ford's letter of April 21 as an application for hearing on the unorthodox location of well #384 as described in that letter. The Commission is requested to set this matter down for hearing before an examiner at its earliest convenience.

For your information, the Graridge Corporation intends to drill wells #385 and #386 as indicated on the plat attached to their letter of April 21 as twin wells to producing wells #43 and #47. Inasmuch as wells #385 and #386 are orthodox locations, we assume they may be drilled as injection wells under the circumstances without hearing. If this is not the case, please include wells #385 and #386 in your notice of hearing.

Very truly yours,

Jack M. Campbell

JMC:np

cc: Mr. T. A. Ford
Graridge Corporation
P. O. Box 752
Breckenridge, Texas

Western Yates Company
Box 427
Artesia, New Mexico

*wells are run still
because less than
660' to other wells
in some pool*

*Copy to
Mr. Nutter*

Western Development
Company of Delaware

MAIN OFFICE OCC

1960 JUN 1 PM 1:12

SENA PLAZA, SANTA FE, NEW MEXICO
TELEPHONE YUca 2-3568
P. O. Box 427
Artesia, New Mexico
May 31, 1960

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Case No. 1973

Gentlemen:

Reference is made to the Application of Graridge Corporation for approval to drill three water injection wells as contained in their Application in the above captioned case.

The three wells which Graridge desires to drill, well No. 384, 385 and 386, are twin wells to our wells No. 27, 47 and 43, respectively. In the case of well No. 27 the present condition of this well is such that no work will have to be done on the well in order to protect the present pay zone. In the case of wells No. 43 and 47, it will be necessary for remedial work to be performed prior to the injection of water in wells No. 386 and 385.

Under the terms of our Operating Agreement with Graridge it is their responsibility to see that all existing pay zones in our wells are adequately protected from damage by any water encroachment or channelling. It is contemplated that as soon as wells No. 385 and 386 are drilled we will undertake the necessary remedial work at Graridge's expense to adequately protect our present producing zones in wells No. 43 and 47. The exact details of this work will be furnished to the Commission and approval obtained prior to the commencement of operations. We feel that it will be to our advantage to drill and log the injection wells prior to commencing remedial work.

We, therefore, have no objection to the approval of Graridge's Application in this case.

Yours very truly,

WESTERN DEVELOPMENT COMPANY
of Delaware

W B Macey
W. B. Macey
President

WBM:fc

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 6-2-60

CASE 1973 Hearing Date 6-1-60

My recommendations for an order in the above numbered cases are as follows:

1. Grant 3 northdax injection well locations for Grayridge, as follows:

(a) Grayridge - Rector Yates St. # 384, 2310/N, 1300/E
" " " " # 385, 1820/N, 730/E
" " " " # 386, ~~2310~~/N 330/E

2. The H₂O shall not be injected into the #1 Grayburg zone (upper) until immediate work is done on the Western development - Rector Yates St.

#'s 43 & 47.

3. Approve as injection wells for project.

Frank H. [Signature]

DOCKET: EXAMINER HEARING JUNE 1, 1960

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, N.M.
The following cases will be heard before Elvis A. Utz, Examiner, or Oliver E. Payne, Attorney, as alternate Examiner:

- CASE 1970: Application of Gulf Oil Corporation for approval of a gas-oil dual completion. Applicant, in the above-styled cause, seeks permission to dually complete its Lea-State "AQ" Well No. 8, located in Unit E of Section 32, Township 19 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of gas from the East Pearl-Seven Rivers Gas Pool and the production of oil from the Pearl Queen Pool through the casing-tubing annulus and 2-3/8 inch tubing respectively, utilizing a retrievable type packer to separate the two producing horizons.
- CASE 1971: Application of Gulf Oil Corporation for permission to commingle the production from two separate pools. Applicant, in the above-styled cause, seeks permission to commingle the Blinebry oil production with the Tubb gas condensate from all wells presently completed or hereafter drilled on its Evelyn Lineberry lease, consisting of the N/2 SW/4 of Section 29, Township 22 South, Range 38 East, Lea County, New Mexico, after separately metering the Blinebry oil production.
- CASE 1972: Application of Gulf Oil Corporation for permission to commingle the production from several separate pools. Applicant, in the above-styled cause, seeks permission to commingle the Blinebry oil production with the Blinebry gas condensate and Tubb gas condensate from all wells on its T. R. Andrews lease comprising the E/2 of Section 32, Township 22 South, Range 38 East, Lea County, New Mexico, after separately metering the Blinebry oil production.
- CASE 1973: Application of Graridge Corporation for approval of the unorthodox locations of three water injection wells. Applicant, in the above-styled cause, seeks approval of an unorthodox location for three water injection wells to be located in the SE/4 NE/4 of Section 28, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

- CASE 1974: Application of C. T. Robertson for an order authorizing a water flood project. Applicant, in the above-styled cause, seeks an order authorizing him to institute a water flood project in the Coyote-Queer Pool, Chaves County, New Mexico, by the injection of water into the Queen formation through six wells located in Sections 11 and 14, Township 11 South, Range 27 East.
- CASE 1975: Application of Amerada Petroleum Corporation for approval of, an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State LM "T" Well No. 5, located in Unit A, Section 36, Township 23 South, Range 36 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Jalmat Gas Pool and the production of oil from the Langlie-Mattix Pool through parallel strings of 1-inch tubing and 2-3/8 inch tubing respectively, utilizing a retrievable type packer to separate the two producing horizons.
- CASE 1976: Application of Caulkins Oil Company for approval of a gas-gas dual completion and for the establishment of a non-standard gas unit. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Reuter PC-297 well in such a manner as to permit the production of gas from the South Blanco-Pictured Cliffs Gas Pool and the production of gas from the Dakota Producing Interval through parallel of 1 1/4-inch and 2 3/8 inch tubing respectively. Applicant further seeks an order establishing a non-standard gas unit to be dedicated to the subject well in the Dakota Producing Interval consisting of the SW/4 of Section 15 and the NW/4 of Section 22, Township 26 North, Range 6 West, Rio Arriba County, New Mexico.
- CASE 1977: Application of Hondo Oil & Gas Company for approval of an automatic custody transfer system. Applicant, in the above-styled cause, seeks an order authorizing the installation of an automatic custody transfer system to handle the production from the Empire-Abo Pool from all wells presently completed or hereafter drilled on the Hondo-Western-Yates State 647 lease, which lease consists of acreage in Sections 25, 26, 34, 35, and 36, all in Township 17 South, Range 28 East, Eddy County, New Mexico.

- CASE 1978: Application of Shell Oil Company for an order authorizing two salt water disposal wells. Applicant, in the above-styled cause, seeks an order authorizing the disposal of produced salt water through its State ETA Well No. 1, located in the NE/4 NE/4 of Section 8, Township 16 South, Range 35 East, Lea County, New Mexico, with the injection to be in the Wolfcamp formation in the interval from 10,365 feet to 10,463 feet. Applicant further seeks an order authorizing the disposal of produced salt water through its State EDA Well No. 2, located in the SW/4 SW/4 of Section 7, Township 16 South, Range 35 East, Lea County, New Mexico, with injection to be in the Wolfcamp formation in the interval from 10,712 feet to 10,734 feet.
- CASE 1979: Application of The Atlantic Refining Company for an order authorizing a water injection project in the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the injection of water, for purposes of pressure maintenance and/or secondary recovery, into the Horseshoe-Gallup Oil Pool through 15 wells located in Sections 19, 20, 29, 30 and 31, Township 31 North, Range 16 West, San Juan County, New Mexico. Applicant further requests that special rules and regulations be promulgated governing the operation of this water injection project including the assignment of a project allowable.
- CASE 1980: Application of Hudson and Hudson for nine unorthodox locations. Applicant, in the above-styled cause, seeks an order authorizing the drilling of wells at nine 5-spot locations on its Puckett "A" Lease, Maljamar Pool, Lea and Eddy Counties, New Mexico, said wells to be located in the 40-acre units hereinafter described, and within 100 feet of the indicated corner thereof.
- SW Corner Unit O, Section 13, and the following wells in Section 24:
- | | |
|-------------------|-------------------|
| SE Corner Unit D; | SE Corner Unit F; |
| NW Corner Unit C; | NE Corner Unit G; |
| SW Corner Unit B; | NW Corner Unit K; |
| NW Corner Unit A; | NW Corner Unit I; |
- all in Township 17 South, Range 31 East, Eddy County.

- CASE 1981: Application of El Paso Natural Gas Company for an order amending the special pool rules for the Blanco-Mesaverde Gas Pool. Applicant, in the above-styled cause, seeks an order amending the special pool rules for the Blanco-Mesaverde Gas Pool, Rio Arriba and San Juan Counties, New Mexico, to authorize district supervisors to approve "slim hole" completions in the Blanco-Mesaverde Gas Pool, regardless of depth.
- CASE 1982: Application of Otto Reynolds for an unorthodox oil well location. Applicant, in the above-styled cause, seeks approval of an unorthodox oil well location for his Wood Well No. 1, located 330 feet from the South line and 1629 feet from the West line of Section 14, Township 29 North, Range 11 West, San Juan County, New Mexico.
- CASE 1983: Application of Ralph Lowe for permission to commingle the production from several separate leases. Applicant, in the above-styled cause, seeks permission to commingle the production from an undesignated Delaware pool from several separate leases comprising the N/2 NW/4 of Section 17 and the E/2 NE/4 and the E/2 NW/4 of Section 18, Township 25 South, Range 30 East, Eddy County, New Mexico.
- CASE 1984: Application of Mountain States Petroleum Corporation for an unorthodox gas well location and for a 183-acre non-standard gas unit. Applicant, in the above-styled cause, seeks approval of an unorthodox gas well location for a well to be drilled 1050 feet from the North line and 750 feet from the West line of partial Section 31, Township 26 North, Range 2 West, Rio Arriba County, New Mexico. Applicant further seeks the establishment of a 183-acre non-standard gas unit in the Pine Lakes-Pictured Cliffs Gas Pool consisting of all of said partial Section 31 to be dedicated to the subject well.
- CASE 1985: Application of Charles Loveless, Jr. for a 280-acre non-standard gas unit. Applicant, in the above-styled cause, seeks the establishment of a 280-acre non-standard gas unit in the Atoka-Pennsylvanian Gas Pool consisting of the NE/4 NE/4, W/2 NE/4, NW/4 of Section 11, Township 18 South, Range 26 East, or in the alternative to force pool all mineral interest owners in the SE/4 NE/4 of said Section 11 in the Atoka-Pennsylvanian Gas Pool with the interests of those in the above-described non-standard unit in said pool. Said unit is to be dedicated to a well to be drilled 1650 feet from the North and West lines of said Section 11, Township 18 South, Range 26 East, Eddy County, New Mexico.

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Docket No. 15-60

CASE 1986:

Application of J. M. Welch for a gas-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of his Etz Well No. 3, located in the NE/4 SE/4 of Section 13, Township 16 South, Range 30 East, Eddy County, New Mexico, in such a manner as to produce gas from the Penrose sand of the Queen formation and to produce oil from the Lovington sand of the San Andres formation in the Henshaw (San Andres) Pool, through the casing-tubing annulus and 2-inch tubing respectively, utilizing a retrievable type packer to separate the two producing horizons.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

Case 1973

Jan

April 26, 1960

Graridge Corporation
P. O. Box 752
Breckenridge, Texas

Attention: Mr. T. A. Ford

Gentlemen:

Reference is made to your letter of April 21, 1960,
inquiring as to whether a hearing would be necessary to authorize
the unorthodox location of Well No. RYS 384 in your Artesia Water
Flood No. II.

While it seems that a hearing on this should not be neces-
sary, this is one of those situations where there appears to be no
alternative but to have a hearing inasmuch as no administrative procedure
is provided by our rules.

Please advise us if you wish your letter of April 21st to
be considered as an application for hearing.

Very truly yours,

DANIEL S. NUTTER
Chief Engineer

DSN/og

Case 1973

GRARIDGE CORPORATION

IBEX BUILDING POST OFFICE BOX 752
BRECKENRIDGE, TEXAS

April 21, 1960

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. Dan Nutter

Re: NYS 384 twin well to Western
Yates well 27 in SE/4 of NE/4
of Section 28, T 18S, R 28E,
Eddy County, New Mexico

Gentlemen:

Western Yates Company of Artesia, New Mexico owns wells 27, 43 and 47 that are completed in a deeper horizon in our Artesia Water Flood No. II in Section 28 as shown on the attached plat. We had agreed with Western Yates either to attempt to buy their wells for use in our flood or to attempt to work out an arrangement with them whereby the wells could be dually completed so both companies could use them. To that end we had the unorthodox location of wells 27 and 43 approved by you in Case 1196, Order R-966E dated July 15, 1959, since these wells fit our waterflood pattern.

Western Yates Company has recently tested their No. 27 well and found that it made approximately 11 barrels per day. Their records reveal that the well has 7" 20# J-55 casing cemented from 2618' to approximately 1600' and that the 1st Grayburg zone we are waterflooding is not perforated in this well.

Neither company wished to take any chance of losing this well by attempting to make a dual producer-water injection well out of it. We therefore propose to drill a twin well to it 80 feet north of it which we would call No. 384.

Please inform us whether it will be necessary to have a hearing on the unorthodox location of No. 384 in view of the fact that the No. 27 unorthodox location has already been approved as mentioned above. We feel sure Western Yates will give their approval of the location for No. 384 in a letter which we can send in with the application to drill No. 384.

Very truly yours,

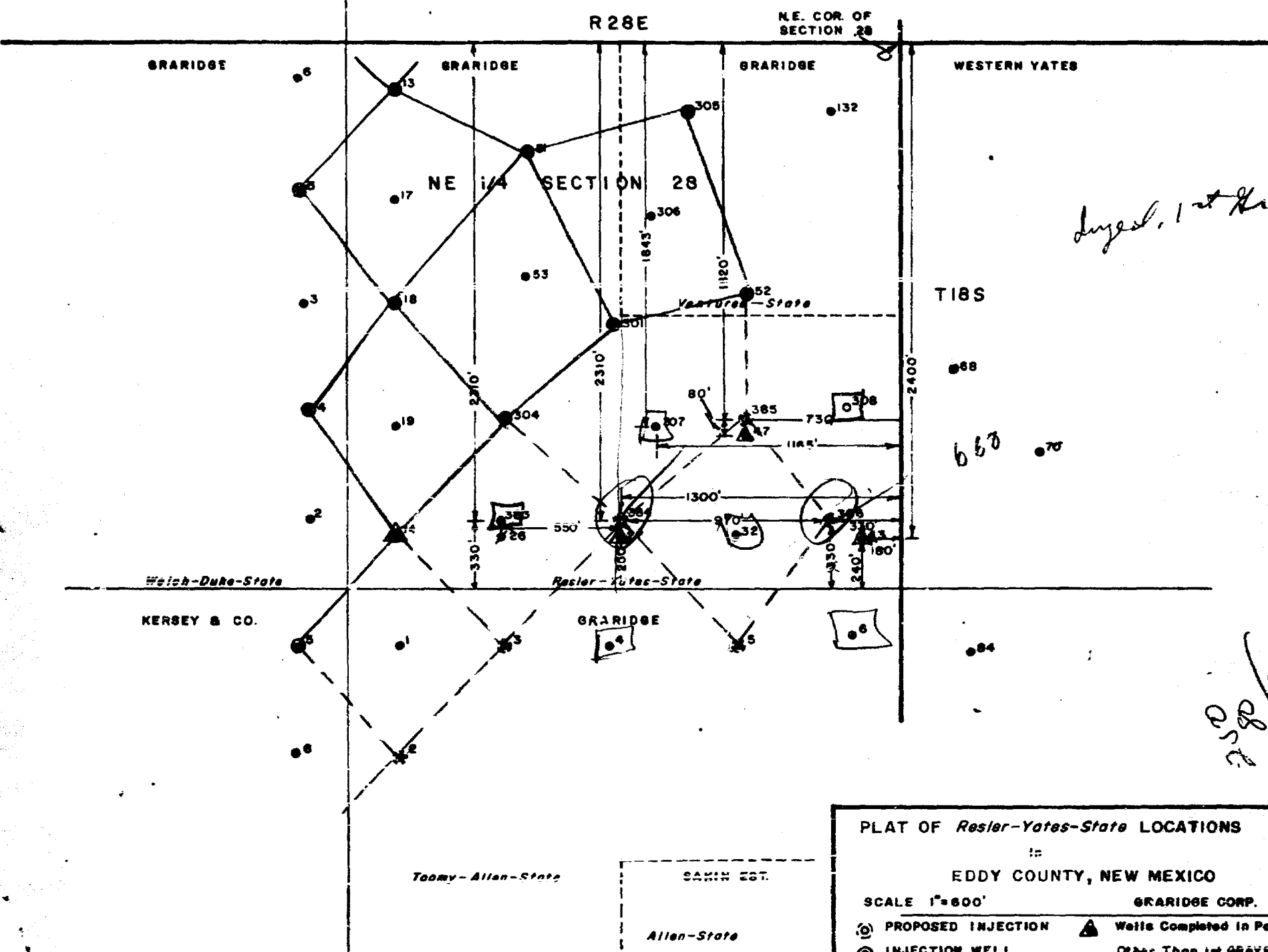
GRARIDGE CORPORATION

T. A. Ford
T. A. Ford (et)
Manager of Production

TAF/lt

cc: New Mexico Oil Conservation Commission
Artesia, New Mexico

Western Yates Company
Artesia, New Mexico



PLAT OF *Resler-Yates-State* LOCATIONS

is

EDDY COUNTY, NEW MEXICO

SCALE 1"=600'

GRARIDGE CORP.

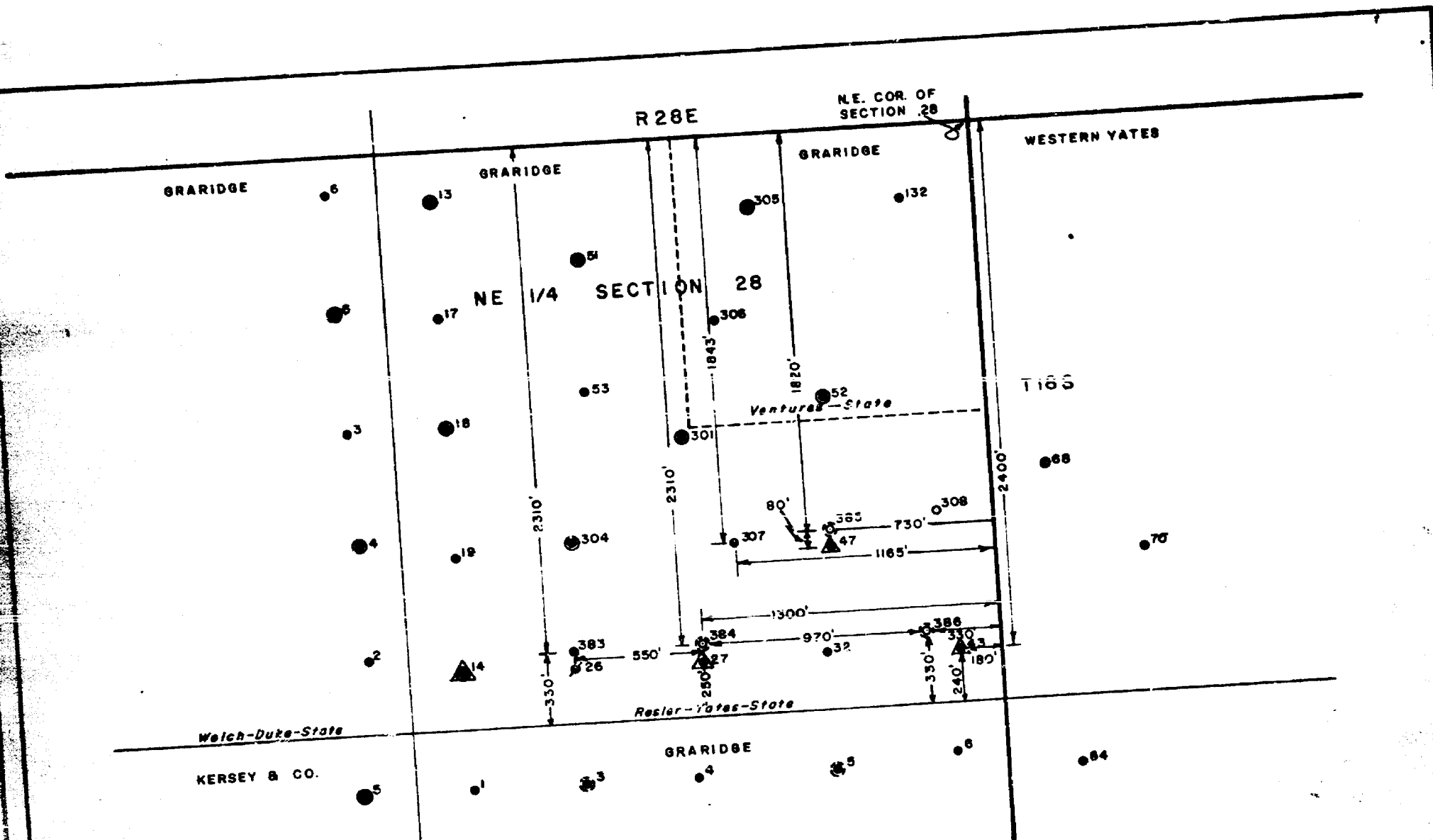
⊙ PROPOSED INJECTION

▲ Wells Completed in Pays

⊗ INJECTION WELL

Other Than 1st GRAYBURG

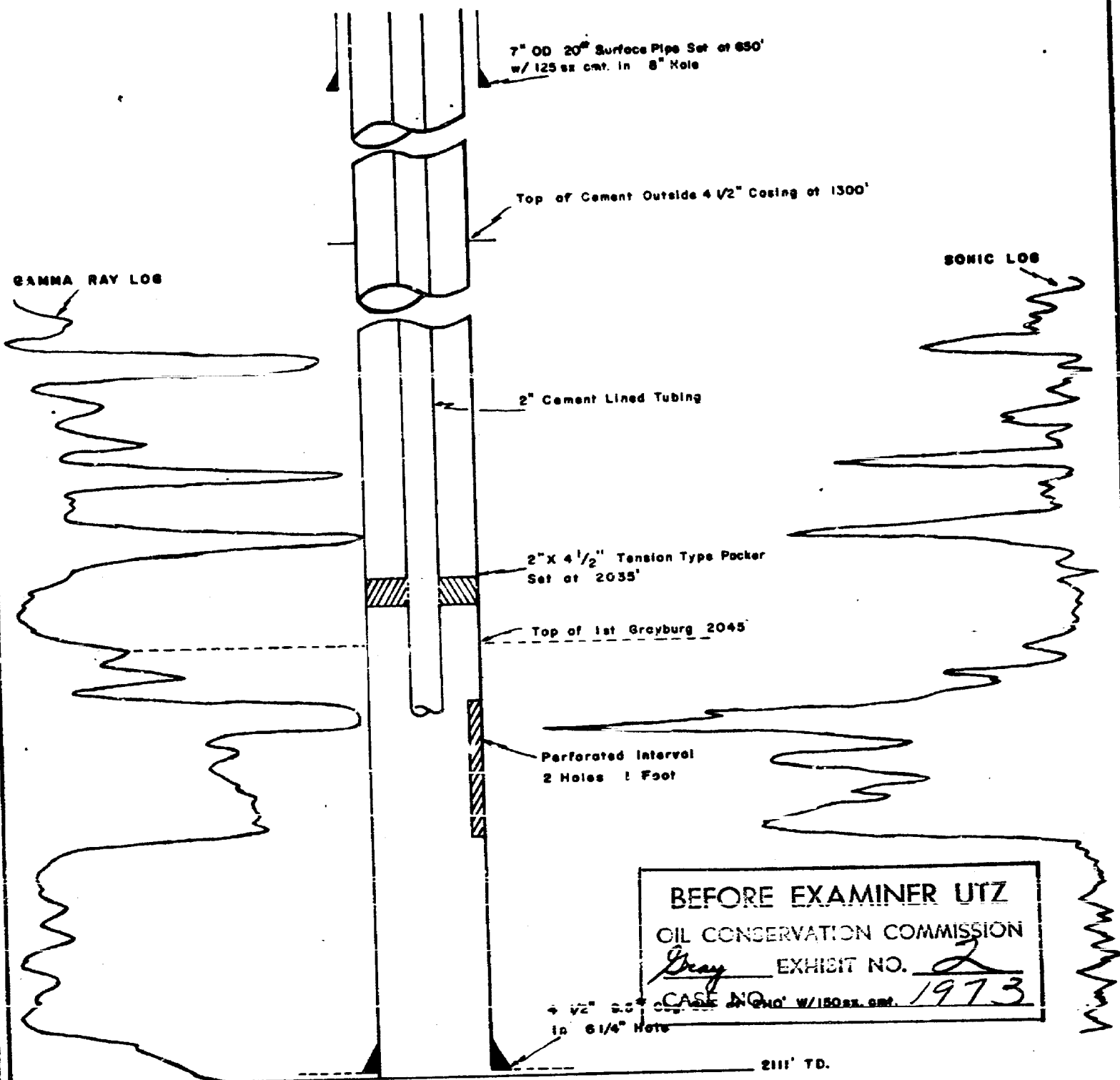
● OIL WELL



BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 1
 CASE NO. 1973

PLAT OF *Resler-Yates-State* LOCATIONS
 in
 EDDY COUNTY, NEW MEXICO
 GRARIDGE CORP.
 SCALE 1"=600'
 PROPOSED INJECTION
 INJECTION WELL
 OIL WELL
 Wells Completed in Pays
 Other Than 1st GRAYBURG

**TYPICAL INJECTION WELL COMPLETION
BRARIDGE CORP.
ARTESIA FLOOD NO. 2**



Note: All Depths On This Sketch Are Approximate

5/31/60

AVAILABLE WELL DATA
Furnished by Western Development Co.

RESLER YATES STATE No. 27 G-28-18-28

10" casing set at 282'; 8 $\frac{1}{4}$ " casing set at 942'; 7" 20#, J-55 casing set at 2618' and cemented with 100 sacks in 1948. Hole re-completed in 1956 shows perforations at 2192' to 2208', 2306' to 2340', 2532' to 2544' and open hole 2618-2791'. A bridge plug was set at 2550' and one at 2200'. Well was fractured and bridge plugs drilled out, well made 100 BOPD, no water. Approximate top of 1st Grayburg is 2078'. 80 quarts of nitro was used at 2088-2101'. The 1st Grayburg was not perforated.

RESLER YATES STATE No. 43 H-28-18-28

10" casing set at 296'; 8 $\frac{1}{4}$ " casing set at 969'; 6-7/8", probably 17# & 20# lapweld, casing set at 2187'. Squeezed with 25-30 sacks cement at shoe. TD of 2821' with oil shows at 2780-2821', 2744-49', 2661-63', 2417-21', 2127-33', and 2109-33', and hole fillup 700' with fluid. 375' oil in hole at 2494'. Couldn't bail hole down at 2735-40'. Approximate top of 1st Grayburg 2109'. 120 quarts of nitro was used at 2108-36'.

RESLER YATES STATE No. 47 H-28-18-28

10" casing set at 295'; 8" casing set at 945'; 6-5/8" lapweld set at 2157' or 2300'. TD of 2827' with shows at 2783-2803'; 2397' (5') Premier. Acidized 2783'-2803' with 1500 gallons acid in 6 $\frac{1}{4}$ " hole. Hole was shot with 180 quarts of nitro from 2096-2119'. Approximate top of 1st Grayburg is 2107'. Made water in some zone above 2157'.

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<i>Gray</i>	EXHIBIT NO. <u>3</u>
CASE NO.	<u>1973</u>

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 1, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Graridge Corporation for approval of the unorthodox locations of three water injection wells. Applicant, in the above-styled cause, seeks approval of an unorthodox location for three water injection wells to be located in the SE/4 NE/4 of Section 28, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

Case 1973

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 1973.

MR. PAYNE: Application of Graridge Corporation for approval of the unorthodox locations of three water injection wells.

MR. CAMPBELL: I am Jack M. Campbell, Campbell and Russell, Roswell, New Mexico, appearing on behalf of the applicant.

MR. UTZ: Are there other appearances in this case?
You may proceed.

(Witness sworn.)

B. G. HARRISON

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION



DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6611

ALBUQUERQUE, NEW MEXICO

BY MR. CAMPBELL:

Q Will you state your name, please?

A B. G. Harrison.

Q Where do you live, Mr. Harrison, and by whom are you employed?

A Breckenridge, Texas, employed by Graridge Corporation.

Q What capacity?

A Manager of Secondary Recovery.

Q How long have you been employed in that position?

A Approximately two years now.

Q Are you a petroleum engineer?

A Yes.

Q Have you previously testified before this Commission and its examiners?

A Yes, I have.

MR. CAMPBELL: Are the witness's qualifications as a petroleum engineer acceptable?

MR. UTZ: Yes, sir, they are.

Q Mr. Harrison, are you acquainted with the application of Graridge Corporation in this case?

A Yes, I am.

Q I refer you to what has been identified as Exhibit No. 1 in this case and ask you to state, please, what that is.

A This is a plat of a portion of the Yates State Lease in



Eddy County, New Mexico, being in Range 28 East, Township 16 South. On this plat are indicated the three injection well locations which are referred to in this application. Those being indicated as solid circles with dashed circles and being numbered Wells 384, 385 and 386.

Q For the record, will you please refer to the identifying number on the proposed injection wells and give the proposed well locations?

A The location?--

Q The surface location of each of the proposed injection wells from the plat.

A These wells are located in the Northeast Quarter of Section 28 and in the Southeast Quarter of that Northeast Quarter, by coordinates, Well No. 384 is 2300 feet from the North line of the section and 1300 feet from the East line. Well No. 385 is 1820 feet from the North line, 730 feet from the East line. Well No. 386 is 330 feet from the East line and is 330 feet from the South line of the Northeast Quarter Section of Section 28.

Q Referring to Exhibit 1, will you state what prior action has been taken before this Commission with regard to the wells shown on that exhibit designated as wells completed in pays other than 1st Grayburg?

A Wells No. 27, 47 and 43 are presently owned and operated by Western Development Company. At the time that these wells were



approved as unorthodox locations and as injection wells by the Commission it was thought that by the time we were ready to convert the wells to injection they would be in a depleted state and that these locations could be used, the wells could be purchased from Western Development Company and converted to injection.

Q What has occurred since that time to change those plans?

A Well tests made by Western Development Company indicate that Well No. 27 is capable of making 9.94 barrels of oil per day, Well No. 47 is capable of making 7.28 barrels per day, Well No. 43 is capable of making 22.10 barrels per day, this production all being from zones below the 1st Grayburg.

Q So that you concluded with Western that it would be unwise to convert these wells to water injection wells at this time?

A Yes. We have the Resler State No. 14, this well was approved by the Commission for a dual completion and due to its very nominal production from zones below the 1st Grayburg. However, in order to not do damage or possible damage from the wells present, 27, 47, 43, we thought it would be better to drill twin wells and preserve the present production.

Q That is the basis for this application, is it?

A Yes. This has been checked out and approved by Western Development Company. They were to send a letter to the Commission. I don't believe it has arrived yet. Mr. Bill Macey is writing this letter to the Commission to indicate that they are in full



accord with Graridge in this application and that they, along with Graridge, after approval by the Commission for proper recompletion method on 27, 47 and 43 to contain fluids, injected fluids, within the 1st Grayburg, that they are willing to go along with remedial measures on these wells to make sure that no oil or water is produced through these wells from the 1st Grayburg.

Q Now, at the time of the hearing on the Well No. 14, the dual completion, I believe you introduced evidence including a copy of the contract between Graridge and Western Development concerning the obligation to rework the 1st Grayburg portion of the pay in that well to protect it against the water injection, did you not?

A Yes, I believe so. I wasn't present for that hearing, but I believe that's part of the testimony.

Q Is that contract still applicable to this situation where you are proposing to drill twin wells and inject water in those wells adjacent to the presently producing wells?

A Yes, these wells were a part of that same contract made with Western Development when these leases were originally purchased from them.

Q Now, I refer you to what has been identified as Exhibit No. 2 and ask you please to state what that is.

A The title indicates this is a typical injection well completion in Artesia Flood No. 2. No specific well was picked for this although we did use a gamma ray and sonic log from the Resler



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Yates State No. 307 to indicate the 1st Grayburg zone. In these wells, as is indicated, 7" O.D. surface pipe is run and set near 650 feet and cemented with 125 sack in 8" hole, cement circulated. 4- $\frac{1}{2}$ " casing then is run following drilling of the well through the 1st Grayburg and logging, 4- $\frac{1}{2}$ " casing is run and set through and perforated and usually either acidized or given a light frack treatment. Then, prior to water injection, 2" cement-lined tubing with a tension type packer is run and the packer set some few feet above the perforated interval in the 1st Grayburg section.

Q I now refer you to what has been identified as Exhibit No. 3 and ask you to state what that is.

A This is available well data that was furnished to us by Western Development Company on the three twin wells, wells Resler State No. 27, No. 43 and No. 47. This is all of the available information from their well records at the present time. There are no logs on any of these wells and logs will have to be run prior to remedial work.

Q Will it be necessary to do some remedial work based on the information indicated on Exhibit No. 3?

A We feel that with the information on Well No. 27 that no remedial work will be necessary here. As can be seen there, they have a 10" casing set at 282', 8 $\frac{1}{4}$ " casing set at 942' and oil string of 7" J-55 casing set at 2618 and cemented with 100 sacks. There's been some work done on the well. Zones from 2192 to 2208



2306 to 2340, 2532 to 2544 have been perforated in this well and an open hole zone 2618 to 2791 is existing in the well.

These zones are all below the 1st Grayburg. We have an approximate top here of the 1st Grayburg of 2,078'.

Q With regard to the other two wells, you believe that some remedial work will be necessary?

A Yes. The Resler Yates State No. 43, although it has 7", pardon me, 6-7/8ths lapweld casing set at 2187, which is set through the 1st Grayburg, and the pipe was not cemented on original completion but later squeezed with between 25 and 30 sacks of cement at the shoe. There is some indication in the records that this pipe was possibly ripped opposite the 1st Grayburg and at the present time we are unable to determine whether this was done before or after the squeeze cementing. It will be necessary to make further investigation here probably with a packer test to determine if this zone is still open.

Q With regard to No. 47, do you presently contemplate remedial work?

A Yes. The casing apparently was set through the 1st Grayburg after it had been shot with 180 quarts from 2,096 to 2,119, but we have no records to indicate that this casing was ever cemented, so we feel like it will be necessary to do a squeeze cement job here, possibly run a liner also.

Q The nature and extent of the remedial work required



will be dependent somewhat upon what you find in connection with these tests, will it not?

A Yes, it will. Logs and tests will have to be made to determine whether or not the pipe has been cemented, and if it is in condition to contain fluids within the 1st Grayburg.

Q You are prepared under your contract, and as a matter of prevention of waste, to do whatever remedial work is necessary to insure there will be no transfers with oil production from the 1st Grayburg by your water injection wells?

A The contract states that we, that is Graridge Corporation, will take whatever steps are necessary to recomplete wells 27, 43 and 47 to maintain the fluids within the 1st Grayburg.

Q What do you intend to do with regard to the sequence in which you proceed? Do you intend to drill your water injection wells, if approved by the Commission, first?

A We feel, as I stated, that Resler Yates State No. 27 is satisfactorily completed and that the twin well No. 384, if approved, should be drilled right away and completed. However, with respect to the other two wells, No. 385 and 386, we would like to be able to drill these wells prior to recompleting No. 47 and 43 for informational purposes. We're able to get much better logs in open hole. We would propose to possibly drill these wells prior to remedial work on the two twin wells but not complete these until the satisfactory remedial work has been done on No. 47 and 43.



Q But you would not inject any water in these wells with regard to the two twin wells requiring remedial work until such time as your reports had been filed with the Commission indicating the work you had done, is that correct?

A No, we would not propose to inject any water. However, our contract with Western Development as well as the Commission regulation would prevent us from doing that.

Q Have you discussed personally this matter with the Western Development Company, Mr. Harrison?

A Yes, sir, I have.

Q Have you discussed it with Mr. Macey?

A Yes.

Q Did I understand you to say that Mr. Macey advised you that he was notifying the Commission by letter that Western Development Company had no objection to the application and the issuance of an order authorizing these water injection wells?

A Yes, that's right. I talked by phone with Mr. Macey yesterday and at the time I called him he was preparing this letter and thought that with overnight mail service that the Commission would have it in hand prior to the hearing.

MR. CAMPBELL: I would like to request that if and when that letter is received it be included as a part of the record in this case if there is no objection.

MR. UTZ: There is no objection. We'll enter it as a



part of the record.

Q Mr. Harrison, do you believe that if this application is granted, if you perform the remedial work required by your contract and if you complete your water injection wells as indicated on Exhibit No. 2, that you can inject water in the Artesia Flood here without causing any waste?

A Yes, we do. We chose these particular locations based on the five spot pattern which we have attempted to develop throughout Artesia Pilot Flood No. 2.

Q I was referring to causing any waste insofar as oil from the 1st Grayburg is concerned.

A Yes, that's right.

Q Do you believe that if you are permitted to drill these wells and inject water that it will result in greater ultimate recovery of oil from the water flood project than if you were not permitted to inject water at these locations?

A Yes, we feel that it is very desirable to back these wells, producing wells No. 383 and 307 to back them up as soon as possible. 307 is currently producing 24 barrels per day with no water, and Well No. 383 is producing 24 barrels of oil with one barrel of water. We feel like that a five spot pattern is essential to fluid efficiencies in this particular field.

I might refer to Well No. 17. This well is currently producing 33 barrels of oil and 200 barrels of water and has produced



some 46,000 barrels of water flood oil, we feel like that other wells in this area, including 304 and 307, when properly backed up and properly surrounded by water injection, will perform in a similar manner.

Q Were Exhibits 1, 2 and 3 prepared by you or under your supervision, Mr. Harrison?

A Yes, they were.

MR. CAMPBELL: I would like to offer Exhibits 1, 2 and 3 in evidence.

MR. UTZ: Without objection, Exhibits 1, 2 and 3 will be entered in the record.

MR. CAMPBELL: That's all the questions I have, Mr. Examiner.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Harrison, the No. 386 is actually an orthodox location in the 40 acre unit, is it not?

A Yes, it is.

Q It is crowding less than 660 feet to the No. 32 which is producing from the same zone?

A Yes, sir.

Q What is the distance between those two wells, do you know?

A I don't know. It's something less than 660 feet and something in excess of 500 feet, but I don't have an exact



distance, Mr. Utz.

Q Your No. 385 is crowding the 40 acre line?

A No. I believe it is also located closer than 660 feet to Well No. 307.

Q Oh, yes. And you No. 384 is crowding the 40 acre line, right?

A Yes, it is.

Q As a matter of fact, you are only 20 feet from the line?

A Yes, that is correct.

Q What is the No. 32 producing?

A We do not have any recent well test, although from pumper estimates why it is a very marginal well in the neighborhood of one to two barrels of oil per day. It is producing from the 1st Grayburg.

Q Certainly shown no response from the rest of your water flood then?

A No, it has not.

Q How about the 307?

A The 307 has original potential of one barrel of oil and one barrel of water. The well was subsequently given a fracture treatment after we felt like it should have received some response, and it is currently producing 24 barrels of oil and no water. We feel like that this is water flood production and that this would be very desirable to back this well up as soon as possible.



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Q And you intend to drill producing well by the No. 308?

A The No. 308 is indicated as a producing well location, yes, sir.

Q I note two wells, 383 and No. 26. What zones are they producing from? There is a 26 temporarily abandoned well?

A The No. 26 is a plugged and abandoned well and the 383 is a twin well in the 1st Grayburg.

Q Has that shown response?

A After fracture treatment it is producing 24 barrels of oil to one barrel of water. We feel like that this is a response. I might point out that some test on other wells there in the area on the Timmy Allen State Lease, these are wells which have not responded to water flood. The No. 3, prior to its conversion to a water injection well, was producing 4 barrels of oil, 1 barrel of water. The No. 4 Timmy Allen State was producing 5 oil and no water, and the Timmy Allen No. 6 producing 6 barrels of oil and no water.

Q Down in the South, we're speaking of the Northeast Quarter, it would be the Southeast Quarter, your Wells No. 4 and 6, are they producing from the 1st Grayburg?

A The No. 4 is producing from the 1st Grayburg. I believe the No. 6 probably is producing some oil from the lower zone.

Q Do you intend to produce that well, the No. 6?

A It will be a producer in our proposed pattern.



Q You are injecting water into the 1st Grayburg and you are going to produce from the 1st Grayburg as well as the lower zone from this same well bore?

A We would anticipate plugging back to the 1st Grayburg.

Q I see.

A Prior to any response from the flood in that area.

MR. UTZ: Are there other questions of the witness?

BY MR. PAYNE:

Q Do you feel, Mr. Harrison, that the location of these injection wells will provide a thorough and efficient sweep of the oil by the water flood?

A Yes, as thorough as any location in this vicinity could give us, Mr. Payne.

MR. PAYNE: Thank you.

MR. UTZ: Any other questions? If there aren't, the witness will be excused.

(Witness excused.)

MR. UTZ: Any other statements to be made in this case? If not, the case will be taken under advisement.

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STATE OF NEW MEXICO)
: SS
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 6th day of June, 1960.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:
June 19, 1963.

I do hereby certify that the foregoing is a complete and correct transcript of proceedings in the Examination of the New Mexico Oil Conservation Commission, held on June 1, 1960.

W. A. W.
Examiner
New Mexico Oil Conservation Commission

