

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 ap-)
proval of the unorthodox locations of three)
water injection wells. Applicant, in the)
above-styled cause, seeks approval of an un-)
orthodox 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



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

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Eddy County, New Mexico, being in Range 28 East, Township 18 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

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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

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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

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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.

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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

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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 your 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.

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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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