BEFORE THE
OIL CONSERVATION COMMISSION
FEBRUARY 25, 1959

IN THE MATTER OF:

APPLICATION OF RICE ENGINEERING AND OPERATING, INC.,

CASE 1605

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TRANSCRIPT OF HEARING

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BEFORE THE
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IN THE MATTER OF:

Application of Rice Engineering and Operating, Inc., for an order authorizing a salt water disposal well on an unorthodox location. Applicant, in the above-styled cause, seeks an order authorizing the disposal of produced salt water through its E-M-E SWD Well No. H-20 to be located 2475 feet from the North line and 165 feet from the East line of Section 20, Township 20 South, Range 37 East, Lea County, New Mexico. Applicant proposes to inject the produced salt water into the San Andres Formation in the interval from 4450 feet to 5000 feet.

Case 1605

BEFORE:
E. J. FISCHER, Examiner.

TRANSCRIPT OF HEARING

MR. FISCHER: Next case on the Docket is Case 1605.

MR. PAYNE: Case 1605: Application of Rice Engineering and Operating, Inc., for an order authorizing a salt water disposal well on an unorthodox location.

MR. KELLAHIN: Jason Kellahin of Kellahin and Fox, Santa Fe, New Mexico, representing the Applicant. We have one witness, Mr. Abbott.

(Witness sworn.)

W. G. A B B O T T, a witness called by and on behalf of the Applicant, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please?

A W. G. Abbott.

Q By whom are you employed, in what position?

A Division Manager, Rice Engineering, Inc., of Hobbs, New Mexico.

Q Are you familiar with the application and the subject matter therein, Case 1605?

A Yes, sir, I am.

Q Mr. Abbott, have you previously testified before this Commission as an engineer and had your qualifications accepted?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualification accepted?

MR. FISCHER: Yes, sir, they are.

A We are, in this application, we are asking for two things: One salt water disposal well and also an unorthodox location for this disposal well. We want to locate the well 2475 feet from the North line and 165 feet from the East line of Section 20, Township 20 South, Range 37 East. This is shown in Exhibit A.

Exhibit A shows the wells in this immediate area, and also there is a key there that shows the producing zone of the oil wells in the area. We want to dispose of this salt water in the lower part of the San Andres formation.

Also, on this Exhibit A is a trace of a cross-section AA Prime which will be brought up later.

Q (By Mr. Kellahin) In connection with Exhibit A, Mr. Abbott, is there any production from the San Andres in the vicinity of the proposed disposal well?

A No, there isn't.

Q What is that production in there?

A That is Grayburg, and then there are a couple of dual completions in the Queen formation with the Grayburg gas wells.

Q I notice on Exhibit A you have a radius described around the proposed well. What is the size of that?

A That is a half mile radius around the proposed well.

Q Referring to what has been marked as Exhibit B, state what that shows?

A Exhibit B is a diagrammatic sketch of the proposed completion. We propose to set eight and five eights O.D. 46 pound J-55 casing at 300 feet and cement it to the surface. Then we will set seven inch O.D. J-55 20 pound casing at 4450, then we will complete open hole in the San Andres formation between 4450 and 5000 feet.

Q In the operation of the disposal well, how do you propose to make your installation?

A Well, we will have this 7-inch casing set. Inside of that, we will run 5½-inch casing at, tubing in the well and

hang that 5½ inch from the surface with no packer, and that 5½ inch will be set to the bottom of the seven inch; then we will displace in the annular space sweet crude, either a naphtha or kerosene, of the calculated gravity; so we can displace the salt water in the annular space down to the bottom of this 5½-inch casing and at the same time apply approximately 50 pounds to this annular space at static conditions. Therefore, the -- incidentally, this tubing, 5½-inch casing as tubing, will be plastic line, will be inside of it; and the outside will be protected by this oil balance method of using the sweet oil.

Under static conditions, as I was going to say, we will have approximately 50 pounds on a casing, then as we inject water at any certain rate, we will have a reflection on that of a pressure at the surface; therefore, if we get any leak in the tubing, it will be reflected immediately at the surface through this pressure guage. It is a method we have used successfully in the Hobbs Pool.

Q Is it your opinion that is a sufficient protection against corrosion?

A Yes, sir, it is.

Q Has it been your experience in the Lea County area that it protects against corrosion or leakage?

A Yes. I don't know how serious corrosion will be, but with that protection we feel that the well will be adequately protected. And, also, we realize that the salt water disposal

well is very important in that when you lay the lines to that well, if you happen to lose the well because of a mechanical difficulty, it realizes quite an expenditure to replace it.

Q What volume of water do you propose to inject in this well?

A Approximately 15 thousand barrels a day by gravity.

Q The injection will be by gravity feed?

A Yes, sir.

Q Are you familiar with the San Andres formation in this area?

A Yes.

Q In your opinion, will this take the volumes of water contemplated?

A We think it will, yes, sir. We have tested a well two miles north of this well, and it was the Amerada-Atkins Number Two. We tested that at 544 barrels an hour by gravity, and that was down 5-inch casing and through perforations. So with an open hole completion like this, we hope to get that much water in the well.

Q What is the source of this water?

A This water is gathered from the operators that are members of the Eunice-Monument-Eumont Salt Water Disposal System.

Q What pools would the major portion of water come from?

A From the Monument Pool.

Q Now, referring to what has been marked as Exhibit C,

state what that shows?

A Exhibit C is a cross-section which is outlined by the tracing on Exhibit A, the AA Prime, showing four producing wells surrounding this proposed salt water disposal well. This points out the location in the section that we will be disposing of the water. You can see that on this cross-section that the deepest oil well in this area producing will be at approximately a minus 325 feet, while the top of this proposed salt water disposal zone will be approximately 1040 feet minus 1040 feet.

Q In the San Andres formation is any water encountered?

A Yes, sir.

Q In large volumes?

A Yes, sir, it has a good aquifer. It seems to cover quite an area.

Q The injection of water will create no problems that do not presently exist in regard to that?

A No, sir.

Q In your opinion there is sufficient separation to protect any producing horizons in the area?

A Yes, sir, there is.

Q Referring to what has been marked as Exhibit D, state what that is?

A Exhibit D shows the leases in this, wells in this half mile radius of the disposal well with the completion interval and the completion zone and any remarks about the well. This exhibit

shows the producing zones in the wells in that area.

Q Referring to what has been marked as Exhibit E, state what that is?

A Exhibit E is a list of the operators that are members of the Eunice-Monument-Eumont Salt Water Disposal System.

Q Will all of these operators be contributing to this particular disposal well?

A No, not specially. Many will not, but they belong to this unitized salt water disposal system. Of course, quite a few of the operators' water will go directly in this well.

Q And it is available, will be available, for the use of the entire system if need be?

A Yes, sir.

Q Referring to what has been marked as Exhibit F, I note that disposal well is located on a lease belonging to the Texas Company. Do you have any permission from them to use it for that purpose?

A Yes, sir. This next exhibit is a photostatic copy of a letter from the Texas Company written by O. F. Sebesta, Assistant Division Manager of the Texas Company, and he advised in this letter that the Texas Company approves of this proposed salt water disposal well.

Q Mr. Abbott, this application also includes an application for an unorthodox location for the disposal well. For what reason is it necessary to have an unorthodox location?

A The reason is because of the topography in that area. In our salt water disposal systems, we try to design them for gravity drainage over an area, and by locating the well in the 165 feet from the lease line instead of the 330 location, we can drain about six feet in elevation, I mean it is six feet lower in elevation at that place on the lease and will cut down the size of our lines that will be necessary to bring the water to that well.

Q Will a location such as that in your opinion have any adverse affect on adjoining leases?

A No, sir, I can't see where it would.

Q Were Exhibits A through E prepared by you or under your direction and supervision?

A Yes, sir.

Q And Exhibit F is a copy of a letter which is in your files?

A Yes, sir, it is.

Q Will you be willing to produce the original if requested by the Commission?

A Yes, sir.

MR. KELLAHIN: At this time we would like to offer into evidence Exhibits A through F inclusive.

MR. FISCHER: Without objection they will be received.

MR. KELLAHIN: That is all the questions I have.

MR. FISCHER: Any questions of the witness?

MR. NUTTER: Yes.

MR. FISCHER: Mr. Nutter.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Abbott, are there any wells within a two-mile radius of this proposed disposal well which are producing from the San Andres?

A I don't believe there are. I can't say for certain, but in that area of the Monument Pool, most of the completions are in the Grayburg. Now, there is not too much difference in the Grayburg and San Andres in that particular area. Most of the Grayburg wells in that area seem to have a good water drive similar to the San Andres production.

Q Do you know where the nearest well is that is producing from the San Andres?

A No, I can't say that I do. It may be that some of the wells within two miles of this proposed well have been San Andres producers but have been plugged back to the Grayburg. There is a possibility of that, too.

Q What will hold the sweet oil in that annular space surrounding the 5½-inch pipe?

A The hydrostatic head of the salt water, of the San Andres water, will be about from 500 to 800 feet from the surface, and when we put this oil blanket that will decrease that water level, it will stay there in that position.

Q In other words, you will have enough water in the

San Andres formation to stand in the oil high enough to exert a hydrostatic head against that sweet oil?

A Yes, sir.

Q Is the San Andres water in this area a static water?

A Well, I can't answer that. I imagine it is fairly static.

MR. NUTTER: That is all. Thank you.

EXAMINATION BY MR. FISCHER:

Q Has the Texas Company agreed to your proposed casing program on this well?

A As yet we have not gotten a letter from them where they have said they do. We have sent them a letter recently with the proposed casing program. We hope to hear from them shortly.

Q Do you have any idea or could you make an estimate of the amount of water in barrels per day you would eventually be putting into this well?

A It would be close to 15,000 barrels a day.

Q What will you start out in the well?

A Well, when we start building our system, as we get to a lease that is making water, we will connect that lease and it may take a couple of months to reach that 15,000 barrels a day or approach it.

MR. FISCHER: That is all I have. Any other questions of the witness?

MR. PAYNE: Yes.

EXAMINATION BY MR. PAYNE:

Q Mr. Abbott, have you gotten the approval of the lessor on the lease where the disposal well is to be drilled, or do you feel that is necessary?

A Well, we have. The surface owner is the State of New Mexico, and it is leased to a man for grazing purposes and we have gotten a relinquishment of grazing leases for two and a half acres surrounding this well; then we have applied to the Land Office to get a business lease for that two and a half acres.

Q You don't contemplate any right of way problems?

A No, sir, not on that particular lease.

Q Mr. Abbott, would you be willing to submit to us a complilation very similar to your Exhibit D giving us the same type of information for all wells completed within a two-mile radius of the proposed disposal well?

A Yes, sir, we can do that.

MR. PAYNE: Very good. Thank you.

MR. FISCHER: Any other questions? No further questions, the case will be taken under advisement. The witness may be excused.

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JOHN CALVIN BEVELL, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript by me; that the same is a true and correct record, to the best of my knowledge, skill and ability.

WITNESS my hand and seal this 2nd day of March, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

John Calvin Bevell
NOTARY PUBLIC

My Commission Expires:

January 24, 1962

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1605, heard by me on Feb. 25, 1959.

E. J. Fischer, Examiner
New Mexico Oil Conservation Commission