

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 30, 1961

PHONE CH 3-6691

DEARNLEY-MEIER REPORTING SERVICE, Inc.

ALBUQUERQUE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 2369

TRANSCRIPT OF HEARING



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 30, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Sunray Mid-Continent Oil Company)
for a dually completed oil-producing salt water)
disposal well, Eddy County, New Mexico. Appli-)
cant, in the above-styled cause, seeks permis-)
sion to dually complete its State "O" Well)
No. 3, located in Unit O, Section 12, Township)
19 South, Range 28 East, Eddy County, New)
Mexico, in such a manner as to permit the)
production of oil through tubing from perfora-)
tions at 1763 feet to 2178 feet and to dispose)
of produced salt water through the casing-tubing)
annulus into the Rustler Anhydrite and Yates)
formation through perforations at 386 feet to)
884 feet.)

Case
2369

BEFORE:

Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 2369.

MR. MORRIS: Application of Sunray Mid-Continent Oil
Company for a dually completed oil-producing salt water disposal
well.

MR. WHITE: Charles White, appearing on behalf of the
applicant as Resident Counsel, and have associated with me Mr.
William Loar of Tulsa, Oklahoma, and he will be the active
Counsel in this case.

MR. LOAR: We will have one witness, Mr. Examiner.

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

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You may swear the witness.

R. E. STATTON,

called as a witness herein, having been first duly sworn on oath,
was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LOAR:

Q Will you please state your name and occupation?

A My name is R. E. Statton. I am a Petroleum Engineer
working for the Sunray Mid-Continent Oil Company.

Q You are the District Engineer for Sunray Mid-Continent
at Hobbs; is that correct?

A Yes.

Q Have you testified before the Commission previously as a
Petroleum Engineer?

A Yes.

Q And were your qualifications accepted at that time?

A Yes.

MR. UTZ: He is qualified.

Q (By Mr. Loar) Mr. Statton, are you familiar with the
Millman East Queen Grayburg Pool in Eddy County, New Mexico, and
the Sunray Mid-Continent State "O" Lease located in there?

A Yes.

Q Will you please refer to what has been marked as Exhibit
No. 1, and briefly discuss that Exhibit?

A Exhibit No. 1 is a well and lease plat showing the wells



and leases in the vicinity of our State "O" Lease. Our leases are colored in yellow. The proposed salt water disposal well is marked with a red arrow. Most of these wells produce from the Millman East Queen Grayburg Pool, with the exception of one well in the northwest of the northwest of Section 18, 19 South, 29 East, which produces from the Seven Rivers Formation. There are also some wells that either do or are now producing from San Andres in the southwest of Section 14.

Q What is the State "O" Lease now producing?

A This lease produces 102 barrels of oil per day, and approximately 5 barrels of water per day.

Q And what are you presently doing with this water?

A We are disposing of this water in open pits.

Q And is that the practice in the field?

A Yes.

Q Now then, is this water corrosive?

A We recently pulled tubing on our No. 3 well and found no evidence of corrosion on the tubing or the pump. However, our offset operators have experienced some corrosion.

Q In your opinion, is this water the type that can be treated easily --

A Yes.

Q -- and commercially?

A Yes, to the point the corrosion would be negligible in this amount of water.

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Q Now, will you refer to what has been marked as Exhibit No. 2, and discuss what Sunray proposes to do with the water from the State "O" Lease.

A Exhibit No. 2 is a schematic diagram of the No. 3 State "O", which shows a 8 5/8-inch casing set at 586 feet with cement brought to the surface, with 5 1/2-inch casing set at 2,231, with cement brought up to 884 feet as determined by a temperature survey. And, it shows that our producing interval is within 1,763 feet and 2,178 feet, and that the water to be injected will be injected down the annulus between the 8 5/8-inch casing and the 5 1/2-inch production casing into an injection interval between 386 feet and 884 feet.

Q And what type of formation is that, Mr. Statton?

A That is salt anhydrite with some shale stringers in it and the upper Yates.

Q Now then, what pressures do you anticipate, what volume of water are you presently producing?

A Approximately 5 barrels per day.

Q What volume of water do you anticipate will be the ultimate daily production from this lease?

A We will expect to produce perhaps as much as 10 to 20 barrels per day. In the event the drilling well shown on Exhibit No. 1 in the southwest quarter of Section 7, is completed as a commercial well, we would then drill a No. 5 well, which could increase our water production up to maybe a total of 40 barrels



per day.

Q Now, you are basing these water figures on a survey of other wells in the field; is that right?

A Yes.

Q And in your opinion, based on the present development of the field, will the well drilling in the southwest southwest southwest of Section 7 be a commercial well?

A I do not believe that it will be.

Q All right, sir. What pressures do you anticipate will be required to get the volume of water that you can anticipate into the formation?

A A small amount of water will go in on vacuum. However, we do not know in what amount, and we may have to inject a pressure somewhere between zero and 200 pounds.

Q Now, you say, "a small amount". Do you mean that approximately 10 barrels a day will probably go into the formation at zero pressure top hole?

A We are hoping that it will.

Q You have run injectivity tests on this well?

A Yes.

Q And based on the information you have obtained from that, what volume do you think you will be able to put in at atmospheric pressure top hole?

A Well, we think we will be able to put this 4 to 5 barrels a day in, possibly more than that.



Q Now, you said "a small amount". I was trying to get a number from you.

A Yes.

Q So at the present time you are disposing of this water into a pit located approximately where?

A The pit is located in the extreme northeast corner of the north half of the northwest quarter of Section 13.

Q Slightly north and east of Well No. 1; is that correct?

A That is correct.

Q That is also where the tank battery is; is that right?

A Yes.

Q Now then, you are faced with this problem: of either enlarging the pit to take care of your present water production, or finding a suitable underground disposal source or spot for your water; is that right?

A Yes, sir.

Q Now then, in your opinion is this the best, or is injecting into this well in the method outlined, the best way to dispose of this water?

A Yes, sir.

Q And are you doing this in an attempt to try to get along with your surface lessee?

A Yes, sir.

Q This is State land; is that right?

A Yes, sir.

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Q And he is a lessee of the grazing rights from the State?

A Yes, sir.

Q Will you please refer to Exhibit No. 3, and point out what that reflects.

A Exhibit No. 3 is a Gamma ray neutron log of the New Mexico State "O" No. 3. In addition, it shows the top of the salt at 370 feet, and that we tested 1/2 barrel salt water per hour in the top of the salt while drilling the hole. It shows 8 5/8 casing at 386 feet. It shows the top of the cement on the outside of our production casing at 484 feet; and it shows that our injection will be into salt. The injection interval, excuse me, the injection interval will be in salt, anhydrite, shale strings, and sand dolomite, and shale, with the injection interval being between 386 feet and 884 feet.

Q Then, Mr. Statton, working in connection with the geologist in charge of this area, do you believe that there is an impervious formation at or near the base of your 8 5/8-inch casing?

A Yes, sir.

Q And do you believe that there is an impervious formation at or near the top of your cement, or 884 feet?

A Yes, sir.

Q Now, does that impervious formation extend over a wide area?

A Yes, sir.

Q Now then, based on this log and the other information

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available in the drilling of the well and the samples and consultations with the geologist working on the well, have you made some calculations as to the likely footage which will take this water?

A Yes. I have calculated 44 feet with 9.8 percent porosity that will most likely take this water.

Q And based on 10 barrels a day injection, what would be your fillup in approximately 20 years?

A 2.9 acres.

Q So, selecting the 44 feet most likely to take this water, the most you can anticipate is that approximately 3 acres around the well would be filled up.

A Yes, sir.

Q And there is a larger interval which might take the water, or might not?

A Yes, sir.

Q Now then, if you are permitted to inject water in this fashion into this interval, will you be able to detect leaks in the production casing?

A Yes, sir.

Q And the surface pipe is cemented to surface --

A That is, leaks in this portion that is not cemented.

Q And the surface pipe is cemented to surface?

A Yes.

Q The oil string is cemented from this point to the TD?

A Yes, from 884 feet to TD.



Q And if there are any leaks that occur in the oil string, in general, it will be between --

A From 884 feet to the surface.

Q 884 feet to the surface. You will be able to detect that immediately by an increase in water production?

A Yes.

Q Based on an examination of the field, all available wells, and various methods of handling this water, do you recommend to the Oil Conservation Commission that this is the best way to dispose and handle this salt water production?

A Yes, sir.

Q Were Exhibits 1 through 3 prepared by you or under your supervision?

A Yes.

MR. LOAR: At this time, we would like to offer Exhibits 1 through 3.

MR. UTZ: Without objection, Exhibits 1 through 3 will be entered into the record.

(Whereupon, Applicant's Exhibits Nos. 1 through 3 received in evidence.)

MR. LOAR: That is all we have on this witness, Mr. Utz.

Q (By Mr. Utz) Mr. Statton, is there any possible value to the salt in this area?

A This well is 15 or 20 miles from the nearest potash mines, and I am not aware of any value of the salt.



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Q Is it actually salt, or is it potash?

A I don't know. It's just described as salt on our geological description.

Q What is the depth of the point of the water near this area?

A The fresh water?

Q Yes, sir.

A The fresh water in our well would be located at, well, in this area, would be at a depth of between 95 and 200 feet.

Q You stated, I believe, that your calculation was for 20 years, the rate you intended to inject.

A Yes.

Q Is it possible that the water, instead of concentrating around your well bore, might run off on the stringer quite some distance?

A There is that possibility.

Q Do you have any zones in this salt section that are highly permeable?

A In my opinion, no.

Q It is all pretty tight?

A Yes, sir. We have no cores or anything to go on but --

Q Just the log?

A Just the log. This log, and sample logs.

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

MR. MORRIS: Yes, sir.



MR. UTZ: Mr. Morris.

Q (By Mr. Morris) Mr. Statton, this well in the extreme southwest of Section 7, the Yates Lease, where is that well projected?

A It is projected to the Queen ~~Gray~~ Grayburg Formation. They were drilling 1400 feet the other day, which is already through --

Q Do you foresee that the disposal of salt water, as you propose, would in any way adversely affect production in that well?

A In the drilling well?

Q Yes.

A I would say that it is highly improbable that injection of water in our well would adversely affect production in that well or this Seven Rivers Well to the south of it.

Q And what was the anticipated rate of of injection that would only give you a 3-acre fillup in 10 years?

A That was an average of 10 barrels per day over a 10-year period.

Q You don't foresee using this well for injection of additional quantities of water?

A Not outside what I mentioned, that if we do drill this No. 5 Well, it may be more than that.

MR. PORTER: Do you think the maximum would be 40 barrels?

A That is the maximum.

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Q (By Mr. Morris) Mr. Statton, how far is the nearest well to this?

A It is 990 feet over a 35-acre circle.

Q And your 10-barrel-day calculation is based on twice your present producing rate?

A Yes.

MR. PORTER: I have one question.

Q (By Mr. Porter) Mr. Statton, did you testify that this injection interval included part of the Yates Formation?

A Yes, sir.

Q Is the Yates known to be productive in this area?

A Not in this immediate area. I think that the Seven Rivers Zone has been called Yates before this. On down some 1,285 feet is their perforation in the Seven Rivers.

Q Do you think that is an error in nomenclature, then?

A Yes, sir.

Q It has been called the Yates, but it is Seven Rivers?

A In any event, there are impermeable stringers between the top of our cement and the producing zone.

MR. PORTER: I see. That is all I have.

MR. UTZ: Are there other questions? The witness may be excused. Are there other statements in this case? The case will be taken under advisement.

(Whereupon, the hearing of Case No. 2369 was concluded.)

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