

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. 1929  
Order No. R-1647

APPLICATION OF RICE ENGINEERING  
AND OPERATING, INC. FOR A SALT  
WATER DISPOSAL WELL IN SECTION  
33, TOWNSHIP 20 SOUTH, RANGE 37  
EAST, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 6, 1960, at Santa Fe, New Mexico, before A. L. Porter, Jr., 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 8<sup>th</sup> day of April, 1960, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, A. L. Porter, Jr., 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 seeks an order authorizing the disposal of produced salt water into the San Andres formation through its E-M-E SWD Well No. M-33, located 165 feet from the South line and 165 feet from the West line of Section 33, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, with the proposed injection interval from 4500 feet to 5100 feet.
- (3) That the applicant proposes to complete the said disposal well as follows: 9-5/8 inch OD casing set at 300 feet with cement circulated to the surface, 7-inch OD casing set at 4500 feet and cemented with approximately 700 sacks of cement, with 5-1/2 inch plastic-coated casing as the injection string. The annulus between the 7-inch and the 5-1/2 inch casing will be filled with sweet oil, naphtha, or kerosene as a protective measure.
- (4) That the applicant's proposed salt water disposal program will not jeopardize the production of oil, gas, or

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CASE No. 1929  
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fresh water in the area and is consonant with sound conservation practices.

IT IS THEREFORE ORDERED:

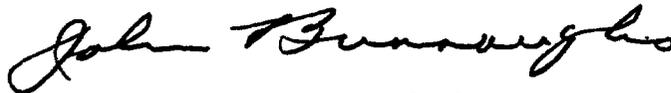
(1) That the applicant be and the same is hereby authorized to dispose of produced salt water into the San Andres formation through the E-M-E SWD Well No. M-33, to be located 165 feet from the South line and 165 feet from the West line of Section 33, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, with the injection interval from 4500 feet to 5100 feet.

PROVIDED HOWEVER, That disposal shall be through plastic-coated inner casing and that the casing-casing annulus shall be kept full of sweet oil, naphtha, or kerosene.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



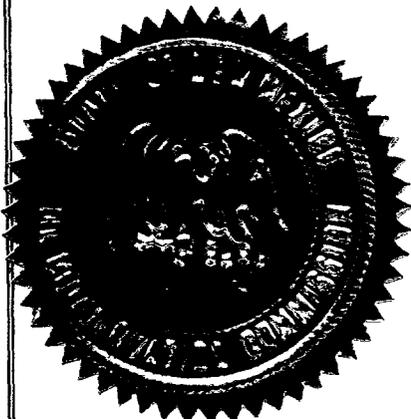
JOHN BURROUGHS, Chairman



MURRAY E. MORGAN, Member



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



BEFORE THE  
OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO  
APRIL 6, 1960

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IN THE MATTER OF: :

CASE 1929 Application of Rice Engineering and Operating, :  
Inc. for an order authorizing a salt water dis- :  
posal well. Applicant, in the above-styled :  
cause, seeks an order authorizing the disposal :  
of produced salt water through its E-M-E SWD :  
Well No. M-33 to be located 165 feet from the :  
South and West lines of Section 33, 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 in- :  
terval from 4500 feet to 5100 feet. :  
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BEFORE:

A. L. Porter, Jr., Examiner

T R A N S C R I P T    O F    P R O C E E D I N G S

MR. PORTER: The committee meeting will come to order. We  
will consider first Case 1929.

MR. PAYNE: Case 1929. Application of Rice Engineering and  
Operating, Inc. for an order authorizing a salt water disposal well.

MR. KELLAHIN: Kellahin & Fox, Santa Fe, representing the  
applicant. We will have one witness, Mr. Abbott.

(Witness sworn)

W. G. ABBOTT,

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

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



## DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A My name is W. G. Abbott.

Q By whom are you employed and in what position?

A I am a division manager of Rice Engineering and Operating, Incorporated, in Hobbs, New Mexico.

Q Have you testified before this Commission as an engineer and had your qualifications accepted?

A Yes, sir.

Q Mr. Abbott, are you familiar with the application in Case 1929?

A Yes, sir.

Q Will you state briefly what is proposed in this application?

A We would like to secure a petition under Rule 701 to drill a salt water disposal well in the lower San Andres formation. And, also, we would like an exception to Rule 104 so we can locate this well 165 feet from the South line and 165 feet from the West line of Section 33, Township 20 South, Range 37 East.

Q Now, do you have a plat showing the well location and lease ownership in the vicinity of the well?

A Yes, sir.

(Whereupon, Exhibit A was marked for identification.)



Q Referring to what has been marked as Exhibit A, would you state what that is?

A Exhibit A shows the location of the proposed salt water disposal well, which is in the southwest quarter of the southwest quarter of 33, 20, 37, and also the wells in this immediate area. Also shown on this Exhibit A, in red, is a trace of a cross-section, AA Prime, which will be brought up later.

Q Now, the circle is a half mile radius?

A Yes, sir. Half mile radius around the proposed well.

Q Now, in reference to the location of the well, what is the reason for that location, Mr. Abbott?

A Well, topographically, the water will gravity down our gathering lines to this proposed location, and by placing the well in this location, we won't have to pump the water. It will gravity to the location and gravity into the well.

Q Now, what is the lease ownership on the area where the well is located?

A Gulf has both the minerals leased and also the surface leased for this location.

Q It is a State lease, is it not?

A Yes, sir.

Q Have you made application for any lease or other authority from the State Land Commissioner?

A Yes. We have secured a relinquishment of grazing rights for two and a half acres around this well. We got that relinquish-



ment from Gulf Oil Corporation, and we have applied to the State Land Office for application for a business lease for the two and a half acres surrounding that well.

Q Now, this well has not been drilled, has it?

A No, sir.

Q Do you have a diagram of the proposed application of the well?

A Yes.

(Whereupon, Exhibit B was marked for identification.)

Q Referring to what has been marked as Exhibit B, would you discuss that Exhibit, please?

A Exhibit B is a diagrammatic sketch of this proposed casing program for the well, M-33. We propose to set nine and five-eighths inch casing at three hundred feet, and then the seven inch casing at forty-five hundred feet; and complete the well in an open hole section from forty-five hundred feet to fifty-one hundred feet. This is in the lower San Andres formation.

Q Now, how do you propose to complete the well for water injection, Mr. Abbott?

A We plan to run an injection string of plastic line five and a half inch casing, as tubing, and that will be swung in the well. And then in the annular space between this five and a half inch tubing string and the seven inch, we propose to load it with sweet oil or a naphtha or kerosene. In that way we will protect



the inside of the seven inch casing and also the outside of the five and a half inch tubing string. And then by recording pressures in this annular space, we can tell when the well is declining in capacity, and also detect any mechanical troubles in the well.

Q What was the size of the tubing again?

A That's five and a half inch OD.

Q Now, is this a type of application that you have used in other injection wells?

A Yes, sir. We have used this application in other disposal wells, and it has worked very satisfactorily.

Q In your opinion, does it adequately protect the fresh water zones or any producing zones that may be encountered in the well?

A Yes, sir, it does.

Q What volumes of water will you anticipate injecting into the well?

A We think that the maximum will be about fifteen thousand barrels per day.

Q Based on your experience with the San Andres formation and in other wells, in your opinion, will that formation take that volume of water?

A Yes, sir, it will.

(Whereupon, Exhibit C was marked for identification.)

Q Now, referring to what has been marked as Exhibit No. C, would you discuss that?



A All right. Exhibit C is a cross-section of this red trace, AA Prime, which is shown on Exhibit A. It shows the wells, Shell State "J" No. 2, Shell State "J" No. 3, and then the proposed salt water disposal well, and the Continental Myer B-4, #17, and the Murrey Wallace State No. 4. Those wells are completed in the Grayburg -- I mean the oil producing wells are completed in the Grayburg, and shown in red on this cross-section. And our proposed disposal zone is shown in blue.

Q Do you have a list of the well completions within a half mile radius of the disposal well?

(Whereupon, Exhibit D was marked for identification.)

A Yes, sir. This is listed as Exhibit D. This Exhibit D shows the wells within a half mile radius of SWD M-33. It shows the operator and the lease, well number, and the completion interval, subsea elevation, and the completion zone, and some other remarks for certain wells.

Q Now, are there any San Andres wells within a half mile radius of the subject well?

A No, sir, there are not.

Q In your opinion, will use of this location for salt water disposal impair correlative rights in any manner or cause waste?

A No, sir.

Q Will it result in the prevention of waste?

A That's right.



Q And were Exhibits A through D prepared by you or under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits A, B, C and D.

MR. PORTER: Without objection, the Exhibits will be admitted.

(Thereupon, Exhibits A,B,C and D were received in evidence.)

MR. IRBY: May I ask a question?

MR. PORTER: Yes.

CROSS-EXAMINATION

BY MR. IRBY:

Q I note on your Exhibit C that when you start up at the top with a plus three hundred, above sea level, and you end down below with a minus sixteen hundred, that confuses me when I compare it to your Exhibit B. And it also confuses me with respect to sea level datum in Lea County. Could you explain to me these elevations on Exhibit C?

A Yes. The sea level is marked there, and that is a zero datum. The ground elevation in this area is approximately thirty-five hundred feet, so that would be a plus thirty-five hundred.

Q Then,--

A Then, anything below this zero datum would be a minus elevation. To get the depth of the well, you take the ground elevation plus the minus elevation.



Q Well, now, above sea level we have about thirty-five hundred feet?

A Yes, sir.

Q Then, my problem is a difference in scale above sea level and below sea level; is that correct? On your Exhibit C? Those numbers above sea level should be one thousand, two thousand and three thousand?

MR. UTZ: No.

MR. IRBY: Oh, he doesn't carry it all the way up?

A No. This is just the lower part of the section.

Q (By Mr. Irby) I understand. I have one more question with respect to Exhibit B,--

A Yes, sir.

Q --and that is your cement around the seven inch casing. Could you tell me where the top of that will be?

A We will use sufficient cement, calculated to bring that back and tie it into the base of the surface casing set at three hundred feet. As you know, in that area, and most of Lea County, there is quite a salt section, and sometimes it's just about impossible to bring the cement back that far because so much of the cement goes into the salt section. When we drill our wells, we carry a saturated salt mud through that salt section to try to keep the salt section from leaching out around the well bore. But still there is quite a volume to be filled there with cement. We feel that this completion is probably as good or better than any of the



oil wells in that area. And we plan to use seven hundred and fifty sacks of cement on that seven inch casing, which is probably five times as much cement as was used on any oil wells. We feel that our salt water disposal wells are completed in such a method that we will not have any danger of contamination of the oil producing zone or the fresh water zone.

MR. IRBY: That's all the questions I have. And I offer no objection to the admission of the Exhibits.

MR. PORTER: The Exhibits will be admitted.

QUESTIONS BY MR. PORTER:

Q Mr. Abbott, roughly speaking, this well was located in the south end of the E-M-E area?

A Yes, sir. At the present time, the area south of the north township line 21 south is under study, and this will take water from just north of that line.

Q Does that include the area which is not now connected to the disposal system that is within the area outlined by the order--

A Yes, sir.

Q --on the south end of the pool?

A Yes, sir.

Q Approximately how much water does that amount to at the present time?

A There is not too much water produced there at the present time. I believe it is in the order of six hundred barrels a day.

Q And that covers quite a wide area, some several sections?



A Yes, sir. It runs from this well west.

QUESTIONS BY MR. PAYNE:

Q Mr. Abbott, is this well to take care of the wells listed by you in proposal six?

A This will be proposal seven.

Q Proposal seven?

A Yes, sir.

Q Now, proposal five, those wells that went into effect April 1st?

A Yes, sir.

Q And that had been accomplished?

A Yes, sir.

Q And the target date on proposal seven is June 1st?

A Yes, sir.

Q Mr. Abbott, are there any wells producing from the San Andres formation outside your circle here, say, within three-quarters of a mile?

A No, sir, there are not.

MR. PAYNE: That's all. Thank you.

QUESTIONS BY MR. NUTTER:

Q Mr. Abbott, you stated you were going to use the cement to reach up into the surface pipe, a seven inch pipe?

A Yes, sir.

Q You had planned to use enough cement to reach up into that surface pipe, or will it just be a calculated volume?



A Well, this seven hundred fifty sacks we plan to use is based on forty percent fill, assuming we have--will get forty percent fill. So, actually, this volume would fill something like seven thousand feet of area outside of the seven inch pipe. We think that we will tie in the surface pipe, but we definitely don't know if it will.

Q Well, in the event that your volume of cement wasn't sufficient, you would add extra cement, I presume, to bring it up to the surface pipe?

A Not unless the Commission so orders because it might take a thousand or eleven hundred sacks.

Q So, your proposal is to use seven hundred sacks?

A Yes, sir.

Q Now, you plan to use five and a half inch tubing for injection?

A Yes, sir.

Q What will be the setting of that tubing?

A That will be at the setting depth of our seven inch pipe.

Q And the annulus to be filled with sweet oil or natural?

A Yes, sir.

MR. NUTTER: Thank you.

MR. PORTER: Anyone else have questions?

QUESTIONS BY MR. UTZ:

Q What is the closest San Andres producing well in this area?



A Possibly up in the--right on top of the structure of the Monument pay. Must be seven or eight miles away.

MR. UTZ: That's all.

MR. PORTER: Anyone else have questions of the witness?  
You may be excused.

(Witness excused)

MR. KELLAHIN: Were the Exhibits admitted?

MR. PORTER: Yes, sir, they were. The record will show that they were admitted.

MR. KELLAHIN: That's all we have.

MR. PORTER: Anyone have anything further to offer in this case, 1929? If not, we will take the case under advisement, and proceed to the next case.

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



