STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
Santa Fe, New Mexico

21 January 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Sage Energy Company for salt water disposal, Lea County, New Mexico. CASE 9068

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Legal Counsel to the Division
Oil Conservation Division
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant:

MR. CATANACH: Call next Case 9068.

MR. TAYLOR: Application of Sage Energy Company for salt water disposal, Lea County, New Mexico.

The applicant has requested that this case be continued.

MR. CATANACH: Case 9068 is continued to the February 4th Examiner's docket.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9068, heard by me on 10/21, 1987.

David R. Catanach, Examiner
Oil Conservation Division

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SANTA FE, NEW MEXICO

4 February 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Sage Energy Company for salt water disposal, Lea County, New Mexico. CASE 9068

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Commission: Jeff Taylor
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I N D E X

I N D E X CONT'D

E X H I B I T S

E X H I B I T S CONT'D

MR. STOGNER: This hearing will come to order.

We'll call Case Number 9068.

MR. TAYLOR: The application of Sage Energy Company for salt water disposal, Lea County, New Mexico.

MR. STOGNER: Call for appearances.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, Sage Energy Company, and I have one witness to be sworn.

MR. STOGNER: Are there any other appearances?

MR. NEAL: Mr. Examiner, my name is J. W. Neal of Hobbs, New Mexico. In connection -- in association with me is Mr. Mike Comeau of Santa Fe, New Mexico.

We appear on behalf of Protestant, Johnny Etcheverry of Lovington, New Mexico.

We have two witnesses.

MR. STOGNER: Are there any other appearances?

Will all witnesses please stand at this time to be sworn.

(Witnesses sworn.)

MR. STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

Mr. Examiner, we have taken the previously filed Commission Form C-108 that was prepared by Mr. Hardy and for purposes of the hearing in order to make clear the testimony, we have marked as exhibits the attachments, then to the C-108.

In addition we have a water analysis to introduce and, if necessary then, the final exhibit, Exhibit Number Eighteen, is the log itself for the proposed disposal well.

JAY H. HARDY,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Hardy, for the record would you please state your name and occupation?

A My name is Jay Hardy and I'm a petroleum

engineer with Sage Energy Company in Midland, Texas.

Q Mr. Hardy, as a petroleum engineer have you previously testified before the Oil Conservation Division?

A Yes, I have.

Q And what specific function have you performed for your company with regards to this particular application?

A I was the one that did the engineering work on it and a lady under my direction prepared the exhibits here.

Q Would you turn first, sir, to what I have marked as Exhibit Number One and locate for us on Exhibit Number One the proposed disposal well?

A The proposed disposal well is the New Mexico State No. 1, which is in the northeast of the northeast of Section 31, 14 South, 34 East. It's the well with the half mile radius circle around it.

MR. STOGNER: What section was that again?

A 31.

MR. STOGNER: Okay.

Q Within 31, then, in the center of the half mile radius circle is a small black dot or a circle with the letter "1" up at the northeast corner?

A That's correct.

Q And that is the disposal well.

A That's correct.

Q Have you as an engineer on behalf of your company, Mr. Hardy, made an examination of the wells that are contained within the area of review identified by the half mile radius circle?

A Yes, I have.

Q And have you made yourself aware of the rules and regulations of the Division with regards to the preparation of the C-108 and the processing of the application for approval of the salt water disposal well?

A Yes, I have.

Q And are you familiar with the wells that your company operates in this immediate area?

A Yes, I am.

MR. KELLAHIN: We tender Mr. Hardy at this time as an expert petroleum engineer.

MR. STOGNER: Are there any objections?

MR. NEAL: No objection.

MR. STOGNER: Mr. Hardy is so qualified.

Q Mr. Hardy, let's start, first of all, by identifying Exhibit Number One. What is the source of that

exhibit?

A This exhibit is just a land map which is updated, as far as I can tell, showing Sage Energy's acreage and the wells in the area of review.

Q Have you found it suitable and reasonably accurate to such an extent that we might use it as a diagram to locate wells and talk about wells and operators in the immediate area?

A Yes, I have.

Q All right, let's do that, then. First of all, with regards to your application, Mr. Hardy, have you caused the offset operators and mineral owners to be notified pursuant to the rules?

A Yes, I have.

Q And of those operators or owners notified, have you received any objection from anyone?

A I have not received any from the mineral owners; however the surface owner did file a letter of protest.

Q All right, and what is that surface owner?

A Mr. Etcheverry, John Etcheverry.

Q Let us take a moment, Mr. Hardy, and have you identify for the Examiner to the best as you know what the area is over which Mr. Etcheverry has a surface inter-

est.

A Right. Well, Mr. Etcheverry has the minerals that are in the -- the mineral lessor in the southwest of Section 29, and then his ranch composes all of the sections in this area, the surface.

Q All right. Let's focus on Section 29. You've indicated that in the south -- in Section 29 it's your understanding Mr. Etcheverry has the surface as well as the minerals?

A That's correct.

Q What arrangement does Mr. Etcheverry have, if any, with your company with regards to the leasing of his minerals?

A We do not have a lease on Mr. Etcheverry's land at this point other than we do own the well that is in Section 29 in the northwest of the southwest.

Q All right. If we look at the southwest corner of 29, do you or do you now have an oil and gas lease under your control from Mr. Etcheverry?

A That's true, we do.

Q All right, and is that oil and gas lease from Mr. Etcheverry to the best of your knowledge limited by depth or is it from surface to the Granite?

A To my knowledge it's from the surface to the Granite.

Q And on that 160-acre tract, then, what, if any, wells does Sage Energy Company operate?

A Sage operates the one well there which is in the northwest of the southwest, and it has a "1" by it.

Q Right on the edge of the half mile radius circle?

A That's correct.

Q All right. What is the current status of that well, briefly, Mr. Hardy?

A Right. That well is a pumping well; makes 5 barrels a day and it might make one barrel of water per week.

Q And it's producing from what formation?

A It's producing from the Bough C.

Q When we go to the proposed disposal well, can you summarize for the Examiner what has been the history of that well?

A Right. The New Mexico State No. 1 was a producing well up until 1983.

Q Producing from what formation?

A Producing from the Bough C, and it was temporarily abandoned at that time and Well No. 3 was drilled as a replacement well to Well No. 1.

Q Number Three is the well to the south of the proposed disposal well?

A Right, it's approximately 500 feet to the south of No. 1.

Q The replacement well is called what, sir?

A The replacement well is the New Mexico State No. 3.

Q All right, and the No. 3 Well was drilled and completed approximately when?

A In 1983 in the Bough C.

Q All right. Does your company within Section 31 where the disposal well is located have any other producing wells?

A We have one other producing well right on the edge of the circle to the south there. It's the New Mexico State No. 2.

Q And again what formation does that well produce from?

A That well is from the Bough C and it was drilled in 1972.

Q While we're looking at the No. 2 Well, can you tell us approximately what its current oil and water producing rates are?

A No. 2 produces approximately 22 barrels of oil and 40 barrels of water.

Q That's on a daily basis?

A That's right.

Q And if we go back to the replacemet well, the No. 3 Well?

A The No. 3 produces 32 barrels of oil and 45 barrels of water. Both wells are pumping it.

Q Within this area, Mr. Hardy, can you identify for us based upon your review of the wells and the information, what, if any, are the likely producing formations?

A The only formation that we're aware of is the Bough C at 10,000 feet and and we are currently drilling a well to that zone in Section 30.

Q Has any other operator in the immediate area been able to establish production in other than the Bough C?

A Not to my knowledge.

Q The Bough C under Commission regulations is spaced upon what spacing pattern?

A In this field here it's 160-acre spacing.

Q Would yo describe for us what is the reason that your company is seeking a utilization of this well for salt water disposal purposes?

A The reasons are twofold. Number one is that the operator that we are currently using to dispose of our water doubled his rate from 24 cents to 50 cents a bar-

rel as of the first of the year to us, and the second is that we are going to test the viability of a dump flood to see if we can bank up some oil into Well No. 3.

Q Let's focus a moment on what you are currently doing with the produced water. Where is it going?

A The produced water is going to the Sage Oil Company's Midwest Shell State No. 1.

Q Let's find that. Is that located on the plat?

A Right. That well is noted on the plat as SWD. It's in the northeast of the southwest.

Q In Section 32.

A In Section 32.

Q All right. Now let me make sure I understand, are Sage Energy Company, of which you are an employee, and Sage Oil Company the same or are they different companies?

A They're totally different companies.

Q Have you ever had any interest in Sage Oil Company?

A No, we haven't.

Q All right. The disposal well that Sage Oil Company operates in 32, to the best of your knowledge, puts that produced water into what formation?

A To my understanding, it's in the San An-

dres zone.

Q And is this a commercial disposal facility?

A This is a commercial, to my knowledge it is a commercial disposal facility.

Q They take water from you and from others to the best you know?

A That's correct. They take my water and their own water. I'm not sure who else they take.

Q Do you have any knowledge, Mr. Hardy, of what the current disposal rate is of the Sage Oil Company into that disposal well?

A I think it's around 2000 barrels a day.

Q And do you know, sir, whether or not they're disposing of that water under pressure or vacuum?

A It is -- it is under pressure.

MR. KELLAHIN: Mr. Examiner, at this time we'd request that you take administrative notice of the disposal order that authorized Sage Oil Company to utilize the well we've been discussing in 32 for disposal. It's Order No. R-7150, and I have a copy available for your reference if you desire to utilize it.

MR. STOGNER: Is this my copy of it --

MR. KELLAHIN: Yes, sir.

MR. STOGNER: -- Mr. Kellahin? I will take administrative notice on Case No. 7738, Order No. R-7150, issued in that case.

Thank you, Mr. Kellahin.

Q Let's talk about your disposal well, Mr. Hardy.

A Yes, sir.

Q Do you propose that this be a commercial disposal well?

A No, we do not.

Q Do you propose that the water disposed of into your well would exceed a pressure, would be at a pressure in excess of the Division guidelines of .2 psi per foot of depth?

A It would not exceed that.

Q Okay. What will be the immediate needs of your company for the utilization of this well for disposal purposes?

A The only need here would be to pull the tubing out of the hole, plastic coat it, run it back in, and set it on a packer above the Bough C zone.

Q Do you anticipate utilizing the disposal well for the water produced from the No. 3 Well?

A Yes, I do.

Q And do you propose to utilize the well

for the water produced from your No. 2 Well?

A Yes, I do.

Q And all those wells are on the same lease?

A That's correct.

Q What type of lease are you dealing with, Mr. Hardy?

A This is a total -- 100 percent Sage Energy lease.

Q And who is the mineral owner?

A State of New Mexico.

Q Do you propose to utilize the surface area in Section 31 for any surface discharge of produced water?

A No.

Q What is the reason or economic justification that has caused you to seek to have this well approved for disposal purposes?

A Right, the Sage Oil Company increased our rate, doubled it to 50 cents a barrel, and based on 100 barrels a day we're talking about $50.00 a day, which is roughly equivalent to 2-1/2 barrels of oil per day, which would lower our economic limit of the two wells on the New Mexico State, and allow us to produce at least another two years, possibly recover an additional 2000 barrels, based on

2-1/2 barrels times 365 times (unclear.)

Q In your opinion your company would realize additional oil recovery from the reservoir, that it might not otherwise recover, if the application is approved?

A That's my opinion.

Q Do you have any other economic ways to dispose of the produced water other than to continue to pay Sage Oil Company or to get your own?

A I could truck the water, which would cost me $1.20 a barrel.

Q All right, but the trucking alternative is a dollar what a barrel?

A $1.20.

Q All right. I believe you've indicated that the current drilling in the area has demonstrated only the Bough C to be productive?

A That's correct.

Q Do you have any knowledge of your company or other companies planning additional drilling to the Bough C in this area?

A Our company is currently drilling a well in Section 30 to the Bough C and we possibly may drill another well, depending on the results of this well.

Q Do you have any further plans to develop Mr. Etcheverry's lease in Section 29?

A It is a possibility that we might do that.

Q All right, sir. All right, let's turn now to some of the specifics, if you will, Mr. Hardy, of the application, and have you next turn to what is marked as Exhibit Number Two. Would you identify that for me, please?

A This is the wells in the area of review with the type completion, the location, the date completed, TD, plugback depth, casing program and cement, and the perforations and the current status of the wells.

Q If we go back to Exhibit Number One, we've talked about three of the four wells on Exhibit Number Two up to now, have we not?

A Yes, we have.

Q All right, would you describe for us the fourth well there, that's on Exhibit Number Two?

A Right. The fourth well is the Mark Production Company Southland State, which is in the northwest of the northwest of Section 32. That was an oil well in the Bough C, plugged in 1976.

Q In analyzing the producing wells in the area of review, Mr. Hardy, do you have an opinion as to whether any of those wells are completed or drilled in such a fashion that they would serve as a conduit by which water disposed of in the Bough C would migrate out of the Bough C

and go to some other formation or onto the surface?

A To my knowledge they're completed in such a way that that could not happen.

Q You've satisfied yourself as an engineer in reviewing the data that that likelihood is not possible in this area?

A That's my opinion.

Q All right, sir. Let's go to the next exhibit, which is Exhibit Number Three, and have you first of all identify for us the well that's described in Exhibit Three by locating it for us on Exhibit Number One.

A The well that we're talking about there last was operated by Mewbourne Oil Company, the Shell State No. 1, which is in the southeast of the southeast of 30, and it was P&A'd on 12-21-84.

Q Have you caused the records for that well to be reviewed and the essential information placed on Exhibit Number Three?

A Yes, I have.

Q Do you have an opinion as an engineer, Mr. Hardy, as to whether or not that well has been adequately plugged and abandoned in such a way that disposal of produced water reinjected back into the Bough C would not migrate through this wellbore, the plugged and abandoned wellbore, to some other formation?

A In my opinion this well is cemented and plugged in such a way that there would not be any migration out of the Bough C.

Q For your disposal well, do you propose to introduce into the Bough C anything other than Bough C produced water?

A No.

Q Let's turn to Exhibit Number Four, now, and again have you identify the well located -- or identify the well on Exhibit Four and locate it for us on Exhibit One.

A That's the Mark Production Company Southland State No. 1, which is in the northwest of the northwest of Section 32, and that well was plugged in 1976. It was a producer in the Bough C.

Q This is the east offset to the disposal well?

A That's correct.

Q Have you reviewed the records and prepared Exhibit Four or caused Exhibit Four to be prepared in such a way to accurately reflect the essential plugging data?

A Yes, I have.

Q And have you reviewed that information in order to reach an opinion about the adequacy of the plugging

job?

A Yes, I have.

Q And what is your opinion?

A My opinon is that there will not be any migration into or out of the Bough C into the San Andres or any other zone up the hole there the way it's been plugged.

Q Do you have an opinion as to whether or not the San Andres formation in this area is capable of producing oil?

A To my knowledge it's not capable of producing hydrocarbons at all.

Q Do you know whether or not there's information to determine that there was water present in the San Andres formation prior to the time that Sage Oil Company started utilizing that formation for disposal purposes?

A Yes, I do.

Q And what is that opinion?

A We have some casing failures from the San Andres. It's a very corrosive formation water.

Q And that causes you to tell you what?

A That there's no hydrocarbons in it and it does need to be protected in the San Andres.

Q Within the immediate area do you know whether or not there is any potential that fresh water sands could be contaminated or their quality diminished by the

utilization of the Bough C in your disposal well for produced water?

A There's no open faults or any conduits to the fresh water sands from the Bough C to my knowledge.

Q What is your understanding of the general depth at which fresh water is being produced and utilized for beneficial purposes?

A Approximately 200 to 250 feet.

Q Can you locate for us while we're looking at Exhibit Number One where we might find a source of fresh water that's being utilized?

A Yes, there is a fresh water well in the northwest of the southwest of Section 29 that's right there adjoining the John Etcheverry No. 1.

Q It's in the northwest of the southwest of 29?

A Right.

Q Okay. Are you aware of any waterflows of produced water onto the surface in this immediate area?

A No, I'm not.

Q Okay. All right, let's go to Exhibit Number Five, now, Mr. Hardy, if you please.

A I think we've discussed most of this already but let's go through it and let me ask you a couple of questions.

The -- whether or not you anticipate exceeding a maximum daily average of 200 barrels?

A I do not anticipate that, no.

Q The current use of the well is for approximately 100 barrels a day, I believe you said?

A That's correct.

Q And what is the reason to establish a difference of an additional 100 barrels?

A Well, I may need a little excess capacity based on the current drilling and future drilling that we're thinking about doing.

Q How has the water cut maintained itself of the two high volume water producing wells on the State lease?

A The water cut does increase.

Q With regards to a pressure on the salt water disposal well, do you anticipate having to inject, reinject the produced water back into the Bough C by utilization of a pump or a compressor?

A No, I don't.

Q Would you identify for us what is the injection interval, then, within the Bough C?

A The injection interval within the Bough C is the perforated interval from 10,401 feet to 10,410 feet.

Q Do you anticipate any need to artificial-

ly fracture or stimulate the disposal well in order to make it usable for disposal purposes?

A No, I don't.

Q Please turn to Exhibit Number Six. What is the purpose of the geology summary you have presented on Exhibit Number Six?

A I think the geologist is pointing out the fact that this is mainly a lime and (not understood) and he also talks about the deposition of the lime and how it was deposited.

Q And it's submitted pursuant to the C-108 filing rules?

A Right.

MR. STOGNER: Let's go ahead and break in on this case.

(Thereuon a recess was taken from this case for the hearing of further testimony in Case Number 9058.)

MR. STOGNER: We were in the middle of Mr. Jay Hardy's testimony and we just finished up with Exhibit Number Six, is that right, Mr. Kellahin?

MR. KELLAHIN: Yes, sir.

MR. STOGNER: Okay, we'll continue from that point then.

JAY H. HARDY,

resuming the witness stand, testified as follows, to-wit:

DIRECT EXAMINATION CONTINUED

BY MR. KELLAHIN:

Q Mr. Hardy, let me direct your attention to Exhibit Number Seven. Would you identify that exhibit for us?

A That's the schematic and the completion of the New Mexico State No. 1, which is the proposed disposal well.

Q Have you caused the Commission records and your own records to be reviewed so that the essential information for the tabular data and the schematic are accurate and correct to the best of your knowledge and information?

A I have.

Q Would you describe for us what the status of the well was when it was a producing well and then describe for us what action you'll take to convert it for disposal, and then finally, lead us through Exhibit Number Seven, so that we can all understand the cement tops, the casing string settings, and the way the well was drilled and produced?

A The New Mexico State No. 1, when it ws temporarily abandoned in 1982, was a producing well, approximately 5 to 6 barrels of oil a day and 35 to 40 barrels of water a day.

Q It was producing from the Bough C?

A Yes, it was, producing from the Bough C.

Q If we look at the schematic, Exhibit Seven, there are perforations shown on the schematic?

A That's correct. It was -- it was producing from those perforations shown there at 10,401 to 410.

Q What caused you to make the decision not to continue to produce this as an oil well?

A This well developed holes in the casing across the San Andres and mud damage to the formation itself limited it's capacity. So that's why we attempted --

Q Mud damage to what formation?

A Mud damage to the Bough C at 10,401 to 410.

Q Let's go back and turn to the second page of Exhibit Seven, and have you discuss for us the last entry on the bottom of that exhibit, and describe what action Sage Energy Company took at various times to repair the casing leaks that you have just discussed.

A All right, on the back page there, Item Six details what Sage Energy did to repair the casing

where the holes developed from 5215 to 42. That was on March the 5th of '78. We cemented that with 250 sacks of light, plus 50 sacks of H, plus 50 sacks of neat, or the equivalent in order to adequately isolate the hole in the casing there and restore the well to production.

Q All right, let's talk about the '78 repair.

A Okay.

Q If we go back to the front of the page, show us approximately where you have isolated the casing leak, the 1978 casing leak.

A Right. Well, the holes were there at 5215 to 42, which was below the 8-5/8ths. That is not to scale, you have to just kind of imagine that.

Q Oh, I understand. What -- what is the bottom of the 8-5/8ths casing?

A Okay, the bottom of the 8-5/8ths is at 4260.

Q All right.

A And the idea was to circulate cement past the casing seat of the 8-5/8ths, and I tink we did that with the 350 sacks, and it calculates that it did.

Q All right, and it was then -- what did you do? There's -- there's pressure information, what is this?

A Right. We squeezed the well at that interval to 1500 pounds. That was the maximum pressure that we put on it.

Q Is, you'll have to tell me, Mr. Hardy, is that standard engineering technique to repair a casing leak such as this?

A Yes, it is.

Q Were there any other tests run to determine the adequacy of the repair to the casing leak in '78?

A No, there were not.

Q How did you satisfy yourself that at least subsequent to that casing leak repair, that you in fact had made the repair?

A We no longer had the water that we were producing. We isolated the water, the San Andres water. We didn't have that any more.

Q All right. You restored production, then, after '78, in the Bough C?

A That's correct.

Q What then happened?

A Well, then we produced along until April 21st, which is that second entry of '81, and the squeeze gave way at the same interval, 5212 to 42.

This time we cemented again with 200 sacks of H and we went to 2000 pounds, high pressure, and

that's what that entry is there.

Q Afte the repair of the casing leak in '81 --

A Uh-huh.

Q -- were you able to restore production in the Bough C?

A Yes we were.

Q Do you have an opinion as an engineer as to whether the second casing leak repair is adequate and continues to be adequate for the casing leak at that time?

A In my opinion it's adequate.

Q What are the reasons upon which you base that opinion?

A We never, even though we abandoned the well in '82, we never got the San Andres back, and with that volume of cement, we've obviously isolated the San Andres, in my opinion.

Q For now taking the well and converting it into a reinjection of produced water back into the Bough C, the proposal --

A Our proposal is to run plastic-coated 2-inch tubing. It does say 2-7/8ths there, but with this volume of water we'd run the current tubing in the well, which is 2-inch, and set it on a Baker Model R packer above the perforations at 10,301, and we would put treated packer

fluid on the back side between the 2-inch tubing and the 4-1/2 inch casing.

Q How would you propose to monitor the well so that in the event there is a leak somwhere above the top of the Bough C and below the surface, that Sage Energy Company is in a position to detect it?

A We would install a gauge on the annulus there and monitor that, and then the State does require an annual pressure test, which we would conduct.

Q Is that the typical way, to the best of your knowledge, that these disposal wells are managed and monitored?

A To my knowledge.

Q Are you satisfied as an engineer that if the well is completed for disposal as you have suggested, and in conformance to the Division rules, people like Mr. Etcheverry here will not have to be concerned about having this disposal water migrate out of something other than the Bough C formation?

A Yes, I am.

Q It's going to stay there?

A It's going to stay there.

Q Until we produce it out of another well.

A That's correct.

Q All right, let's talk about that. If you

go back to Exhibit Number One, we've got the disposal well in the Bough C at 100 to 200 barrels a day.

A Right.

Q What, if any, adverse impact do you see to that type of operation on your production immediately to the south in the No. 3 Well some 500 feet away?

A The adverse situation would be that if we were not able to bank up any oil because it was so depleted. The water might show up in the No. 3 without any attendant oil production. That would be a disadvantage.

Q Is the No. 3 located in such a way that Sage Energy Corporation is going to be in a position to know, and in fact will know, if there is a problem with the disposal well in its disposal of produced water back into the Bough C?

A Yes, I think so, because of the close distance there to the No. 1.

Q All right. Do you have an opinion as to whether the No. 3 Well can serve as an adequarte monitoring device, if you will, to insure that the disposal well is not causing Bough C oil to be moved off of and away from the properties owned by others beyond the control of Sage Energy Company?

A Right. I think it is so close that it will show up there first, obviously, because of the proxi-

mity of the well, and assuming radial disposal, we will actually sweep oil off of our lease onto the adjoining leases.

Q Do you have an opinion, Mr. Hardy, as to how the proposed disposal for you in this instance is similar or dissimilar to a waterflood-type operation where you're attempting to enhance oil recovery and to produce oil that you would not otherwise recover?

A It would be similar in technique.

Q What are the similarities?

A Well, the similarities are that you are looking oil bank response by putting the water in the producing formation, and it might serve as a pilot flood, really.

MR. NEAL; If the Examiner please, I believe this is limited to a disposal and I believe the -- one of the State of New Mexico letters, Exhibit Number Fifteen, refers to disposal only.

Are you saying we're getting into a waterflood hearing now?

MR. KELLAHIN: No, sir, I was asking the witness to characterize as an expert, first, how this disposal operation would compare to a normal injection well for a waterflood.

MR. NEAL: I fail to see the materiality. If he's going to inject water, he's going to

inject water. If he's going to be not a disposal well but an injection well for secondary recovery, well, that's maybe something else.

MR. KELLAHIN: Well, I think it's very much relevant, Mr. Examiner.

While this is a disposal well and it's for limited purposes, Mr. Hardy has told us that there is a secondary benefit to the disposal in that it gives him a way to analyze oil response in his well immediately offset. It does have some inherent beneficial uses to him other than as a disposal well, and we were attempting to contrast that to what is more commonly assued to be a commercial disposal well where you just dump gobs of barrels of oil in the ground, and you're not setting it up on a small project as this.

We are not intending by what we're saying to ask you to approve a waterflood, certainly not. This is a limited disposal well for the produced water on the Sage Energy leases, and that was all I intended to accomplish.

MR. STOGNER: The primary purpose for this well is salt water disposal, is that correct?

MR. KELLAHIN: Absolutely.

MR. STOGNER: And this just happens to be one of the beneficial uses because of the

proximity of the recovery well. The primary purpose is salt water disposal and the case will be limited to that.

Q Let's turn now, Mr. Hardy, to the question of whether or not you have an opinion on whether the disposal program into the Bough C will cause harm to the Bough C formation.

A This is produced formation water going back into its own formation and I don't see any damage or harm to the formation at all.

Q Do you have an opinion as to whether or not it will enhance your oil recovery from your existing wells operated by Sage Energy Company?

A It has the possibility of enhancing that.

Q Let's turn to Exhibit Number Eight and have you help me identify the rest of these exhibits.

What, sir, is Exhibit Number Eight?

A That's our legal notice to -- that was published in the Lovington Daily Leader concerning our application.

Q And page two is the affidavit or certificate of publication?

A That's correct.

Q Exhibit Number Nine.

A Exhibit Number Nine is the list of offset operators to the proposed disposal well.

Q All right, let's take a moment and take each of those four and identify for the examiner what your understanding is of their interest in the area.

A Right, as shown on Exhibit One, Mr. Roberts has the northwest quarte of the northwest quarter of 32. He has that 40 acres there.

Q All right, sir.

A And we waived objection.

Elk Oil has a little piece of Section 32 in the area of review there, which would be the northwest quarter of the southwest quarter, and they waived objection.

And then the State of New Mexico, Commissioner of Public Lands, did reply that he had received our notice.

Q Okay, and then lastly is Mr. Etcheverry.

A Mr. Etcheverry, right.

Q Let's turn to Exhibit Ten and have you briefly identify the remaining exhibits.

A Okay, now which is this?

Q Exhibit Number Ten is the -- what's Exhibit Number Ten?

A Exhibit Number Ten is the waiver from Mr. D. G. Roberts, waiving objection to our application.

MR. NEAL: If the Examiner please, in the interest of time, the Exhibits Ten through

Fifteen are self-explanatory and we have no objection.

MR. KELLAHIN: All right, we would move the introduction of the corresondence, Mr. Examiner, and leave it to you to look at them.

MR. STOGNER: Ten, Eleven, Twelve, Thirteen, and Fourteen, I believe, is that correct, Mr. --

MR. NEAL: I believe Fifteen, too.

MR. KELLAHIN: Fifteen is the --

MR. STOGNER: Response that you mentioned earlier.

MR. KELLAHIN: I think that's what it is. Fifteen is -- for the record let me quickly identify them.

Exhibit Ten is the Sage letter to Roberts.

Eleven is the Elkhorn waiver to Sage.

Twelve is the Sage letter to Elk Oil Company.

Thirteen is Sage Energy's notice to the Oil Commission.

Fourteen is Sage's notice to

the Land Commissioner.

Fifteen is the Land Commissioner's waiver back to Sage.

Sixteen is the notice of Sage to Mr. Etcheverry.

MR. STOGNER: We will take note of those exhibits.

Q Let me turn your attention now, Mr. Hardy, to Exhibit Number Seventeen, and would you identify that exhibit for us?

A That's the water analysis of the Etcheverry No. 1, the fresh water well which is located in the northwest of the southwest of 29.

Q And this is submitted pursuant to the filing requirements of the C-108.

A That's correct.

Q All right, let's turn now, sir, to Exhibit Number Eighteen, which is the log for the disposal well, and ask you to identify that.

A This is the compensated acoustic log that was run on the New Mexico State No. 1 when the well was drilled 12-8-71.

Q Would you locate for the Examiner the perforated interval in the Bough C that will be utilized for disposal?

A Right. The perforated interval is from 10,401 to 10,410, and it may be marked on the 5-inch, or should be.

Q Okay. Take us back up and show us what the approximate disposal interval is in the San Andres that is being utilized by Sage Oil Company in their commercial disposal facility in the adjoining section.

A It's my understanding that they are utilizing the San Andres interval from 4156, if you're looking at the 2-inch scale, to 5943, which is the top and the bottom of the San Andres.

MR. STOGNER: What were those figures again?

A 4156.

MR. STOGNER: 4156.

A Yes sir, to 5943.

MR. STOGNER: 5943. Thank you, Mr. Hardy.

MR. KELLAHIN: That concludes my examination of Mr. Hardy, Mr. Examiner, and we would move at this time the introduction of Exhibits One through Eighteen.

MR. STOGNER: Are there any objections?

MR. NEAL: Mr. Examiner, I

would like to ask on my cross examination specific questions concerning a couple exhibits, but generally speaking I don't have a problem with them.

MR. STOGNER: At this time Exhibits One through Eighteen will be admitted into evidence.

Mr. Neal, your witness.

CROSS EXAMINATION

BY MR. NEAL:

Q All right. Mr. Hardy, how long have you been with Sage Energy?

A How long?

Q Yes, sir.

A Since 1980; March of '80.

Q And directing your attention to the, I believe, Exhibit Three, Four, and Five, those wells were not drilled by Sage, were they?

A That's correct.

Q And how did you acquire those?

A Okay. The Mewbourne Shell State, is that one of them that you're talking about?

Q Exhibit Three, I believe that's the Mewbourne Oil Company?

A Okay, that --

Q Is it Exhibit Three?

A Yeah. That well was plugged by Mewbourne in '84 and we acquired the acreage.

Q Okay. All right, is that the situation with the Mark Production Company Well, or Southland State Well in Exhibit Number Four?

A That's correct.

Q All right. Now what is your source of information as to the preparation of Exhibits Three, Four, Three and Four?

A Okay, that is from the Commission in Hobbs, New Mexico, their plugging --

Q You personally have no personal knowledge of what was done at the time of the plugging or except what was on your examination of the records.

A That's correct.

Q As to whether, in fact, that plugging was ever inspected or anything like that, or invoices submitted to show that it was actually, so you didn't do any checking on that.

A No, I did not.

Q Do you know of anything that the Oil Conservation Commission specifically inspected and was there any report in the file?

A All I know is that the plugging record

filed by Mewbourne is in the file but I don't know any other.

Q Well, now, I believe you testified that the San Andres is very corrosive.

A Uh-huh.

Q Okay, and so as to what the present condition of that casing is in the San Andres, you don't have any personal knowledge --

A I would not.

Q -- at this time.

A No, sir, I would not know.

Q And that would also be true -- strike that question.

Go to your proposal on the Exhibit Seven and, as you have testified to, that you had two leaks in '78 and one in 1981, approximately three of four years apart.

Have you made any tests at this time to determine whether or not the corrosive action on the San Andres area has in fact not created any leaks or anything?

A I have not.

Q And in 1978 I believe you testified that your opinion was that what you all done had stopped the leak and cured the problem.

A Right.

Q And it turned out that that was in error,

wasn't it?

A That is correct.

Q So in 1981 you had the same thing to do over.

A That's correct.

Q So it could be just as easy to say we could have the same problem today.

A That's correct.

Q So there is a possibility that even though reports may show things done, that there is a possibility of water, contaminated water, and produced water, getting into fresh water zone in (not understood.)

A Through the San Andres, you're talking about?

Q Well, the puncture of the hole from the Ogallala down to the Bough C, it's possible for that to occur.

A I would say that there's possibly holes, there could be holes in the San Andres but I don't --

Q Now directing your attention to Exhibit Number One, I believe you referred to the southwest quarter of Section 29 as some minerals being owned by Mr. Etcheverry.

A Uh-huh.

Q And I believe you indicated to the Exam-

iner that there was no depth limitation in the lease. As a matter of fact, there is a depth limitation below the deepest well drilled isn't it? Isn't that true?

A To my knowledge, I think I said, and if what you say is true, well, there is one.

Q Mr. Etcheverry says there is a limitation you'd have no reason to --

A I wouldn't.

Q -- doubt that. Now he also owns the remainder of Section 29 also --

A That's correct.

Q -- on the minerals.

A That's correct.

Q And he also owns the surface.

A Uh-huh.

Q He also owns the -- down in Section 5 he also has the north half and the south half for 320 acres in Section 5, or do you know?

A I really don't know.

Q Okay. And he -- now, in regard to the disposal well operated by Sage Oil Company, your company has actually constructed a line from this proposed disposal well to the other disposal well, haven't you?

A That's correct.

Q And the only reason you are abandoning

that is because -- or not using that facility any more, is because Sage Oil Company has raised their price.

A That's -- that was the primary reason.

Q All right. What was the cost of the pipeline across from your proposed disposal well to the present -- the old salt water disposal well operated by Sage?

A Well, we used -- used tubing, I believe, that the actual cost, I really -- I don't know.

Q It's a pretty good distance across there, isn't it?

A Uh-huh.

Q You had to acquire right-of-way and is that reasonable to -- are you going to abandon the facility?

A Uh-huh.

Q Okay, and so that cost is gone.

A Uh-huh.

Q That's an economic cost that you have to figure in your operation, don't you?

A Well, we would figure it but it's not --

Q You don't use it any more so it's gone.

A Yes.

Q Okay. Now, the well that's located, Mr. Etcheverry's well located in 29, I believe you testified it was making 5 barrels and about a barrel of water a week?

A That's right.

Q Have you made any study to determine whether or not by the injection of the -- using this proposed location as an injection well, and you inject 200 barrels, whether or not there will be any change in pressures or other characteristics under Section 29?

A There would not be any change. The change would be subsequent to the change that would take place in our Well No. 3.

Q The -- it will occur, though; something's going to occur that's going to change it.

A Over a period of time.

Q And have you obtained his consent to affect that change or whatever that characteristic may be?

A No.

Q The -- it is an economic benefit to you to be able to inject this salt water into this proposed disposal well.

A Uh-huh.

Q It's not an economic benefit to him, however, is it?

A I would think it would be.

Q On Section 29?

A Uh-huh.

Q How is that going to occur?

A If -- if we're talking about banking up

oil here, we're going to sweep oil off our northeast quarter of our northeast quarter onto Mr. Etcheverry's southwest quarter of 29.

Q If you also bank oil, you're also going to be forcing water over there, too, aren't you?

A That's true.

Q And that could be a sitution where it could drown out the production.

A Not until after Mr. Etcheverry receives a good bank of oil.

Q That has some speculation, I take it, as to whether or not he's going to receive any bank of oil.

A I would show up in Well No. 3 that he would not receive any bank of oil before it would even occur on his lease.

Q Right.

A If it showed up in No. 3 as just water breakthrough, we would shut the operation down.

Q But the waters then would be on Mr. Etcheverry.

A It wouldn't be very far on him.

Q Well, it would be on him; regardless of one foot, it would be on him, wouldn't it?

A One foot.

Q Six inches it would be on him.

A I really don't know that.

Q Well, you're not saying that it wouldn't occur.

A And I'm not saying it would.

Q All right. Now, the - there are other ways of disposing of water which you testified to, such as trucking.

A That's correct.

Q And that is a common, every day operation in the oil fields in Lea County, isn't it?

A That is true.

Q And it becomes -- again you want to do it the cheapest way you can.

A That's true.

Q And that is the economic benefit to you, is to get it out as cheap as possible.

A Yes.

Q Now, I believe you testified that -- well, first, I don't think you've answered my question. Have you performed a study, yourself or anybody in your organization, as to the effect of the disposal of the force that will be moving underneath the disposal well to other areas?

A No, I haven't.

Q Now, the -- you're presently drilling a

well just to the north of the disposal site, too, aren't you?

A Well, it's to the north, right. It's two locations away.

Q And that would be in Section 30?

A That's correct.

Q Is that a state lease also?

A Yes, it is.

Q All right. So you have no way of keeping, or do you have a way of keeping the water that you're going to be disposing in Section 31, which you're asking authority to do, are you going to be able to keep that off of Mr. Etcheverry, any of that water?

A Well, are you talking about his lease in 29?

Q Yes, sir.

A Well, once again it's going to show up in No. 3, like I've already stated.

Q Granted, but my question is, is there any way that you can keep the water from getting on Mr. Etcheverry in Section 29?

A Well, I can, by shutting down the disposal well.

Q But that's the only way.

A Yes.

Q Okay. Well, let's see, the lease, as I understand it, in Section 31, in which this disposal well will be located, is a state oil and gas lease.

A Yes, sir.

Q Is that one lease for the east half or is that in two or three different leases?

A That's one lease.

Q One lease, and does that -- does that same lease cover Section 30 or is it another lease?

A That's another lease.

Q All right, and is the interest that you have in Section 32, they're separate leases, are they not?

A That is correct.

MR. NEAL: I believe that's all.

MR. STOGNER: Thank you, Mr. Neal.

Mr. Kellahin, any questions?

MR. KELLAHIN: Yes, sir, just a brief question.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Hardy, Mr. Neal ws leading you through a hypothetical where one or more of the plugged and

abandoned wells offsetting the disposal experienced either undetected or new casing leaks in the San Andres formation, for whatever reason; for example, in the Mark Production Well in the northwest of 32 and the Mewbourne Well in the southeast of 30.

If that occurs, Mr. Hardy, do you have an opinion as to whether or not your disposal in the Bough C formation some 6000 feet below the San Andres is going to have any effect on the occurrence of those casing leaks?

A Well, my opinion, the way the wells were cemented in the Bough C with 300 sacks, plus or minus, I don't think it would affect it all.

Q You've reviewed the cementing programs when those two wells were plugged and abandoned?

A Yes, I have.

Q And if the water present in the San Andres corrodes the casing that may be in contact with that water, do you have an opinion as to whether those cementing programs are adequate to leave that water confined to the San Andres?

A In my opinion they are.

Q Do you see any reasonable way that disposal in the Bough C formation will cause that Bough C water reinjected into that formation to migrate up into the San Andres?

A It has no way that I can see how it could. We're not putting it under pressure, we're just dumping it in there and it's going to stay there.

Q In the event the producing well, let's take the example where despite two cementing jobs in the San Andres you encounter a further casing leak somewhere, how is that monitored to protect salt water from migrating somewhere else?

A Well, it's monitored by the pressure tests on the annulus and if there were, if it failed the test, well then we would come out of the hole and squeeze it until we isolated the San Andres, if that's the problem.

Q Do you have any -- I realize in response to Mr. Neal's question, you have not done a calculation of pressure interferences among the various wells to see how the fluids are going to migrate, but based upon what you know now, Mr. Hardy, do you have an opinion as to how long you might reasonably anticipate, as an engineer, it would take before you would see salt water influence in the No. 3 Well?

MR. NEAL; We're going ot object ot that. He's already testified he has not performed any studies of that. I think it calls for speculation and is entirely improper.

MR. KELLAHIN: I think it's

well within the reason of his expertise and whether or not he's done a detailed study doesn't go to the admissibility nor the appropriateness of that type of question. Here's an experienced engineer and he ought to be allowed to answer that question.

MR. NEAL: He's asking for an opinion and any time you've got an opinion you've got to base it on something and it's got to be the facts that are in the case and in the evidence and he says he hasn't done any of that, and it's not proper. We object to it.

MR. STOGNER: Objection overruled.

MR. NEAL: Exception.

Q Mr. Hardy, to you remember the question?

A Right. Based on the production there, which is over 100,000 barrels in No. 1, and if we're talking about 100 barrels a day, it would be quite some time before we would see it.

Q At this point have you determined within a range of period of time as to what you might anticipate that to be?

A I really haven't. I would have to -- I would -- it would just be an estimate.

Q What goes into a study by an engineer to make that type of analysis to determine the length of time a

particular volume of water would have to be disposed of at this depth to migrate a certain distance?

A Right, that could be calculated by determining the gas saturation and the time to fill up, which is based on the daily injection.

You're talking about hydrocarbon pore volume gas saturation and that could be calculated, the length of time, because once you get fill-up, then you get response, if you get fill-up.

Q Is that a type of calculation that is made by a petroleum engineer?

A Yes, it is.

Q Are there any other types of professional people that make those type of studies and calculations?

A There probably are but I'm -- not to my knowledge.

Q All right. It's within the disciplines of your profession, are they -- is it, Mr. Hardy?

A Yes, sir.

Q Would that be the kind of calculation that you would anticipate a geologist, your geologist to do for you?

A No, I would not.

Q And why not?

A He is not technically oriented and he

wouldn't feel he could even start it.

Q All right, sir. Thank you.

RECROSS EXAMINATION

BY MR. NEAL:

Q I'm sorry I didn't ask this on direct, but this is going to have a 2-inch tubing rather than 2-7/8ths?

A Yes.

Q What surface pressure to anticipate? Are you going to pump it in or are you -- it's going to go on a vacuum or --

A Gravity.

Q You're not going to have a pump there, or anything?

A No, we're not, no, sir.

Q What is the -- in the Bough C, what is the characteristics of the amount of fracturing pressure that it takes in that particular formation?

A Are you talking aobut a frac gradient?

Q Yes, sir.

A I really don't know what the frac gradient is.

Q That is also within your profession discipline --

A Right.
Q -- is it not?
A Yes.
Q But you haven't calculated that.
A No, I haven't.

MR. STOGNER: No further questions?

MR. NEAL: We have two witnesses, Mr. Examiner. It will be very short, I anticipate.

MR. STOGNER: Well, I've got a few questions here for Mr. Hardy.

MR. NEAL: Oh, I'm sorry.

MR. STOGNER: Trying to get my mind straight here what's going on.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Hardy, when a well -- when Well No. 1 was P&A'd in 1982, what was its production at that time, daily production?
A It was 5 barrels of oil and about 32 barrels of water.
Q Okay, and when was this well first put on production?
A It was put in 1972, I believe. Let me --

I've got --

Q So it produced for about ten or eleven years.

A Yes, sir.

Q Okay. Let's go to the Well No. 2 and No. -- yeah, I'm sorry. Yeah, the No. 2 Well, that's the one down in the southern part of Section 31, is that correct?

A Yes, sir.

Q And that's producing at 22 barrels of oil per day --

A Uh-huh.

Q -- and 20 barrels of water.

A Right.

Q All right. Let's go up to the well up in the southwest quarter of Section 29, that's the No. 1 Well, and that's producing from the Bough C, is that correct?

A That's correct.

Q Okay. Now will water be coming off of that well and being disposed of?

A No, sir.

Q No, okay, so it was just your No. 2 Well --

A And No. 3.

Q -- and No. 3, and the No. 3 being located where?

A No. 3 is approximately 1000 feet south of the north line there.

Q Okay, that's the one immediately ofsetting.

A Yes, sir.

Q Are you anticipating drilling any other wells in this particular lease?

A On the New Mexico State lease?

Q Yeah.

A Not at this time.

Q Okay, so just these two wells will be disposing of into this particular well.

A Well, I'm also drilling a well to the north in Section 30, which -- that water will be disposed of, if it makes a lot of water.

Q And that well is going into the Bough C also?

A Yes, sir.

Q Okay, what lease is that?

A That's the New Mexico State 30 lease; 30 No. 1 is our well, and that's located 1980 from the south line, 800 feet from the east line in Section 30.

Q On the No. 2 Well, how long has that thing been producing?

A Since 1972.

Q Since 1972. What do you estimate to be the producing life of that well, or the existing producing life of the well?

A The No. 2 by itself?

Q Yeah.

A Oh, it will be another ten years.

Q What's the economic production limit on that particular well at this time?

A I would estimate 4 barrels, 3 to 4.

Q Is it normal operating procedure to take a Bradenhead test on these wells out there, on the disposal wells?

A Yes, sir.

Q Okay, and what does a Bradenhead test consist of and what does it show?

A Well, we have pressure up on it, put a gauge on the Bradenhead and we have to pressure up to I believe it's 500 pounds, and it's witnessed by the State.

Q And what is the purpose of this Bradenhead?

A Is to test the integrity of the casing annulus. Of course it showed the tubing also, but we can -- we can pressure test the tubing if we think it's bad, but it's to test the integrity of the producing -- producing casing.

Q Okay.

A Or injection casing.

Q How as the leaks on the 8-5/8ths discovered or was that the 5-1/2.

A 4-1/2 -- oh, 5-1/2 in that particular well. Well, we had a tremendous amount of water and mud come in on that, so we suspected the San Andres, and then we pressure tested it and found it.

Q I show you to be limiting, on Exhibit Number -- Number Five, the water is going to be disposed of on a vacuum.

A That's correct.

Q Okay, and you do not foresee any time that this well will need to be pressured up?

A No.

Q Okay, so you have no objection to limiting this --

A To a vacuum.

Q -- order to a vacuum, anyway, there would not be an administrative procedure in the order to increase the production or even give it any pressure; that if any amendments have to be done, it will have to be done through an amendment at this point.

A That's -- I mean I don't want you to --

Q But you said you were going to take it on

a vacuum.

A That's correct.

Q And you do not anticipate that you'll need to pressure up.

A I'm not going to start doing that, no, it will be on a vacuum.

MR. KELLAHIN: If we have to make a change, Mr. Examiner, we would be happy to come back to a hearing to obtain one.

A That's right.

MR. STOGNER: I have no further questions of this witness.

Are there any other questions of Mr. Hardy?

MR. NEAL: I'd like to ask a couple, please, sir.

MR. STOGNER: Continue.

RECROSS EXAMINATION

BY MR. NEAL:

Q What is your estimate on the economic life of the well up in Section 29?

A It's a 5 barrel well.

MR. KELLAHIN: I'm going to object, Mr. Examiner. It's irrelevant. We've said we're not

taking any water out of that well for the system. It has nothing to do with this case.

MR. NEAL: For all purposes?

MR. KELLAHIN: Sir?

MR. NEAL: That's true for all purposes of this hearing, that the well in 29 has nothing to do with it.

MR. KELLAHIN: Yeah, Mr. Hardy said he was not going ot take water out of that well and put it into the disposal well.

MR. STOGNER: I think this question is pertinent, Mr. Kellahin. After all, that is the reason Mr. Etcheverry is here, so we'll see if Mr. Hardy can answer the question.

Q Good.

A It has a very flat decline. I'm just estimating, I'd say it has another five, six years.

Q Now when you testified as to the sweep of this oil, and so forth, you were talking about, you were not referring to the rest of the minerals in Section 29 owned by Mr. Etcheverry.

A No.

MR. NEAL: That's all.

MR. STOGNER: Are there any other questions of Mr. Hardy? He may be excused.

MR. NEAL: May I proceed, Mr. Examiner?

MR. STOGNER: Yes, please.

JOHN ETCHEVERRY,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. NEAL:

Q State your name, please.

A John Etcheverry.

Q Mr. Etcheverry, you're the protestant of this application of Sage Eneregy for a disposal well?

A Yes, sir, I am.

Q Would you relate -- refer to what's been introduced as Exhibit Number One of the applicant and tell the Commission your mineral ownership in the immediate area of this disposal well?

A Well, I own the minerals under Section 29, 14, 34.

Q Now speak up where the --

A All of the minerals in Section 29 in 14, 34; the south half of Section 25 in, I guess it would be 14, 33; the east half of the east half of the minerals in Sec-

tion 1 of 15, 33; the east half of the northeast quarter, Section 12, 15, 33; the east half -- I mean the west half of the west half, Section 6, 15, 34; the east half of Section 6, 14, 34; all of Section 7, 14, 34; all of Section 18 or 14, 34; the north half of the outh half and the south half of the north half, Section 5, 14, 34.

Q Now, directing your attention to Section 29, which is -- you've been present during this hearing and heard Mr. Hardy testify as to the well situated in the southwest quarter of 29?

A Yes, sir.

Q And to the effect of some 5 barrels a day and a barrel of water.

A Yes, sir.

Q Now, is there a depth limitation in that lease, Mr. Etcheverry?

A Yes, sir, there is.

Q What is the depth limitation?

A They earned 100 feet below the depth drilled.

Q And has there been any wells drilled deeper than the Bough C formation?

A Not on Section 29.

Q So everything below that area is open and owned by you?

A Yes, sir, it is.

Q Are the other quarters in Section 29 leased at this time?

A No, sir, they're not.

Q Have you given your consent to the injection or change of any characteristic under your property?

A No, sir, I haven't.

Q Whether it's from this disposal well or from some forces from another lease forcing things onto your property?

A I've given no permission.

Q Do you object to having any physical change in your property from other sources under Section 29?

A Yes, sir, I do.

MR. NEAL: That's all.

MR. STOGNER: No other questions, Mr. Neal?

MR. NEAL: No questions.

MR. STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Stogner.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Etcheverry, in Section 29, when did you first acquire your mineral interest? Do you remember approxiamtely when?

A 1964; my dad's death, I inherited half.

Q Came from your family, then?

A Yes.

Q And so the surface and the minerals have been in your family?

A Yes, sir.

Q You also own the surface?

A Yes, sir, I do.

Q And in the southwest quarter of 29 there is an existing oil and gas lease?

A Yes, sir, there is.

Q And your family executed that lease to what company, do you recall?

A Mewbourne and Milton Royalty.

Q And then it was subsequently assigned to Sage Energy?

A Oil companies operate under three or four names; you never know.

Q Okay. But at the time you executed that

oil and gas lease you owned both the surface and the minerals?

A Yes, sir, I did.

Q And the balance of the section, then, is unleased as to the minerals?

A Yes, sir, it is.

MR. KELLAHIN: I have nothing further.

MR. NEAL: But you own all of Section 29 to the surface?

A Yes, sir, I do.

MR. NEAL; As well as the minerals.

A Yes, sir.

MR. NEAL: That's all.

MR. STOGNER: I have no questions of Mr. Etcheverry but I do have another question of Mr. Hardy, I'd like to ask.

JAY H. HARDY,

being recalled and remaining under oath, testified as follows, to-wit:

RECROSS EXAMINATION

BY MR. STOGNER:

Q This Bough C formation, is this a part of the -- what pool is it a part of?

A Tres Papillotes West here.

Q Okay, and that has special pool rules, does it not?

A That's correct.

Q Okay, what are the special pool rules?

A 160-acre spacing.

Q Okay, and how about the location of a well?

A I believe it has to be 500 or 550 from the line.

Q For the record and to save us time, Rule 4 in Case -- in Order No. R-4286, as amended, says that each well shall be located within 150 foot of the center of a governmental quarter quarter section or line.

Does you well meet these specifications?

A The proposed disposal well, you mean?

Q Yes.

A I think it does.

Q So this well, whenever it was produced --

A Uh-huh.

Q -- did not need -- or it was a standard

location and there was no need to getting an unorthodox location.

A To my knowledge, that's correct.

Q Okay. In drilling an orthodox location does one need to -- well, let me -- let me start over.

In drilling at an orthodox location, that's a standard location, are there any provisions in our rules and regulations to contact offsetting operators?

A An orthodox location?

Q An -- a standard location.

A Standard location. I don't think so.

Q And you didn't need to get any permission from anybody to drill a standard location, other than your bond and meeting the New Mexico standards.

A That's correct.

Q In essence has that well when it produced changed the configuration of your offset operators?

A Not to my --

Q I mean as far as the pressure goes?

A Oh, --

MR. KELLAHIN: You're referring to the reservoir itself?

MR. STOGNER: Yeah, the reservoir itself, an area of drainage; a certain well has an area

of drainage.

A Okay.

Q Have you done any figuring on that, the area of drainage? Did it affect properties outside the proration unit, and how far out, anything like that?

A The No. 3 Well?

Q The No. 1.

A The No. 1. The No. 1 Well, if you figure area of drainage it would be outside the Section 31 --

Q Uh-huh.

A -- due to the volume of oil that was taken out of it. But the thing that we discovered in Well No. 3, which is 500 feet away, was another pay zone, so some of the oil in No. 1 may have come out of that pay zone.

MR. STOGNER: I have no further questions.

Are there any other questions of Mr. Hardy before I let him go?

If not, he may be excused.

Mr. Neal, do you have any other witness?

MR. NEAL: I have one more.

MR. COMEAU: Mr. Examiner, we'd call John Shomaker.

MR. STOGNER: All right.

JOHN W. SHOMAKER,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. COMEAU:

Q Would you state your name and address, please?

A My name is John W. Shomaker, and I'm from Albuquerque.

Q And what's your occupation, Mr. Shomaker?

A I'm a consulting geologist and hydrogeologist.

Q Can you tell me what a hydrogeologist is?

A Yes, sir, he's a person who studies the movement of fluids in the ground, particularly water.

Q Have you ever testified as an expert before the Oil Conservation Division before?

A No, sir.

Q You have testified, have you not, as an expert before other New Mexico administrative agencies?

A Yes, I have.

Q Including the State Engineer?

A Yes, sir.

Q And the Coal Surface Mining Commission?

A Yes, sir.

Q Okay. Could you give us a brief summary of your educational background and professional training and work experience?

A Yes, sir. I have a degree, a Bachelor's degree in geology from the University of New Mexico in 1963; a Master's in geology from UNM in 1965. I Master's degree in hydrogeology from the University of Birmingham, England, in 1985.

I worked for the U. S. Geological Survey from 1965 through 1969 as a hydrologist.

Worked as a geologist for the New Mexico State Bureau of Mines from 1969 until 1973.

And I've been in private consulting since 1973.

Q Have you published any scholarly articles, Mr. Shomaker?

A Yes, sir.

Q Can you give us an idea of their subjects and how many?

A I've forgotten how many. The subjects are partly in the realm of coal and coal exploration and partly in the realm of groundwater.

Q Do you publish frequently?

A No, sir.

Q Do you - I saw a bibliography and it appeared that you've participated in publication of twenty articles, something like that?

A Since 1973 I haven't published very many things because consulting practice by its nature often results in proprietary information.

Q And you've been keeping a little busier since you've been in private practice?

A Yes.

Q Do you belong to any professional societies?

A Yes, sir.

Q Okay, can you tell me what those are?

A Yes. I belong to the Geological Society of America, the American Association of Petroleum Geologists, the American Institute of Hydrology, the National Water Well Association, which is now -- the technical division is now called the Association of Groundwater Scientists and Engineers, and there are some others.

Q Okay. Have you held any offices in these organizations?

A Yes, sir.

Q Okay, can you tell me what those were?

A Yes, sir, I've been President of the New Mexico Geological Society. I've been Secretary of the Amer-

ican Institute of Professional Geologists, a national certifying organization.

Q I take it you have a great deal of academic and practical experience with groundwater flows and their effects on surrounding areas?

A Yes, sir.

Q Are you familiar with the application of Sage Energy to have a proposed salt water injection well?

A Yes.

Q And in connection with that have you made various investigations and studies?

A Yes, sir.

MR. COMEAU: At this time, Mr. Examiner, I'd like to tender Mr. Shomaker as an expert.

MR. STOGNER: If there is no --

MR. KELLAHIN: Objection, in what area? I'm sorry, Mr. Examiner.

MR. COMEAU: In the area of geohydrology.

MR. KELLAHIN: No objection.

MR. STOGNER: Mr. Shomaker is so qualified.

Q Mr. Shomaker, let me hand you what we've previously marked as Etcheverry Exhibit One and ask you to identify that exhibit.

A Yes, sir, this is my resume.

Q And does it fairly and accurately outline your educational history and work experience?

A Yes, sir.

MR. COMEAU: Mr. Examiner, we'd move the admission of Etcheverry Exhibit One.

MR. KELLAHIN: No objection.

MR. STOGNER: Exhibit One will be admitted into evidence.

Q Okay. Mr. Shomaker, in your investigation of the salt water injection well application, could you tell us what you did?

A Yes, sir, I was asked to form an opinion as to whether the proposed injection would cause an increase in pressure or change in pressure on lands belonging to Mr. Etcheverry.

A Okay. Mr. Shomaker, do you have what's been marked as Exhibit Two in front of you?

A Yes, sir.

Q Okay, and are these documents documents that you prepared or were prepared under your supervision and reflect the results of your studies?

A Yes, sir.

Q Okay, and could you just go through these documents, if you would, quickly, and identify them and tell

us what they are?

A Yes, sir. The first page is a sketch map which shows the area of the injection well and a large surrounding area, and other wells whose records were examined are also spotted on that map.

The second page is a graph titled Pressure Change with Time at Southwest Corner Section 29, Township 14 South, Range 34 East.

The third page is a graph titled Pressure Change with Time at Southwest Corner Northwest Quarter Section 29, Township 14 South, Range 34 East.

The third part of the exhibit is an excerpt containing three pages from a report titled The Oil and Gas Fields of Southeastern New Mexico, a symposium published by the Roswell Geological Society, dated 1967.

The last section is an excerpt, containing four pages, titled The Oil and Gas Fields of Southeastern New Mexico, 1977 supplement to a symposium published by the Roswell Geological Society and dated 1977.

Q Can you tell me the procedure you followed in making the calculations that are reflected on these exhibits and what information that you used to make these calculations?

A Yes, sir. In order to determine whether or not a significant pressure change would take place in

Section 29 within the injection zone in that stratigraphic horizon, I chose to make a finite difference calculation using a standard groundwater flow modeling program, although this is not a grounwater flow model.

The elements that go into that are the area which is -- under which the particular groundwater reservoir, in this case oil and gas reservoir, lies. I have very little knowledge of the limits of that area, so I relied on a map prepared by or published by the Roswell Geological Society, which is a part of the fourth section of Exhibit Two.

I also relied on a -- in part on a map in the third part of Exhibit Two.

For the purpose of the calculation the area was divided into blocks, each assigned a transmissivity, which is the product of permeability and thickness, and a value for a storage coefficient.

I chose values of -- a value of transmissivity to represent the entire area in the absence of -- of directly applicable data and that value was based on a permeability figure of published in the Roswell Geological Society Symposium, 46 millidarcies.

I reduced that by a third and applied it uniformly over this area, recognizing that that's a very gross simplification, and I made -- then made calculations

at two points, one being the southwest corner of Section 29, the other being the southwest corner of the northwest quarter of Section 29, using storage coefficients which I believe bracket the range of possible conditions, one being a published value for porosity of 0.83 or 8.3 percent, and the other being a value based on a standard assumption in groundwater studies of a value of storage coefficient of 10 to the minus 6th times the thickness of the zone in feet, and the result of that rounded is .00001, which would represent nearly complete water saturation.

In both instances and in both points of measurement, I found that there would be a change in pressure, which is essentially the essence of my testimony.

Q Okay. It's your opinion, then, that this injection well will increase the water pressures underground.

A Yes, I should --

Q Okay.

A I should say that my opinon has to do with the incremental effect of this well.

Q I understand, yes, and do you have a further opinion as to whether these increased pressures will cause salt water to migrate onto Section 29 that wouldn't otherwise go there in the absence of this injection well?

A I believe that -- that the pressure gra-

dient that will be established by the injection would cause flow and that it would cause flow of fluid across the boundaries of --

Q Okay --

A -- Section 29.

Q -- so I take it the answer to my question is yes?

A Yes.

Q Okay. Now, with these increased pressures and flows, assume for me, if you will, Mr. Etcheverry wanted for whatever reason to inject salt water in Section 29, all right, would that -- would the proposed Sage injection well make that, Mr. Etcheverry's use, more expensive or more difficult?

A To the extent that the pressure were increased in the same zone in Section 29, there would be an incremental influence on -- on an injection well in that section.

Q Okay. So Mr. Etcheverry would have a harder time or more expensive time making use of his own land by reason of this proposed injection well.

A Yes.

MR. COMEAU: That's all we have.

MR. STOGNER: Mr. Kellahin,

your witness.

MR. KELLAHIN: No questions, thank you, Mr. Examiner.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Etcheverry -- I mean, I'm sorry, Mr. Shomaker --

MR. COMEAU: Oh, excuse me, Mr. Examiner, if I might, I need to move the admission of Exhibit Two.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No, sir.

MR. STOGNER: Exhibit Two will be admitted into evidence.

Q (By Mr. Stogner) Mr. Shomaker, if you would go back to these graphs --

A Yes, sir.

Q Part of your exhibit there, and what am I looking at here again?

A In both cases these are plots of the results of the calculation and they represent the change in pressure that would occur under the assumed conditions at two places.

Q Between these two points.

A Well, yes, sir. One graph has to do with the change in pressure that would occur over time at the southwest corner of Section 29, and the other graph has to do with the change in pressure that would occur over time at the southwest corner of the northwest quarter.

Q Okay, now what pressure are we talking about?

A Talking about the incremental change in pressure as a result of injecting at the proposed injection well. These pressures would be superimposed on whatever conditions exist at those points.

Q Are you assuming a starting pressure of zero or --

A We're assuming a starting pressure of whatever the starting pressure is. These -- these pressure changes are the calculated, superimposed effects. These would not be the measured pressures. They would be the change in the measured pressure.

Q Now does this also hold true since that well's going to be injecting or proposed to be injecting and on vacuum?

A Yes, sir.

Q We would still see a pressure difference, then.

A Yes, we would.

Q Now, are we assuming a radial type of configuration here or are we taking into account the Well No. 3, which is due south?

A We're not taking into account any other wells. This is an incremental change and it's radial except for the fact that the calculation has boundary conditions imposed on it. It's assumed to be a bounded reservoir.

Q Okay, and boundary, when you talke about boundary reservoir, are we talking about a certain length?

A Yes, sir.

Q A mile boundary, or what?

A We're talking about the boundary that's shown on the sketch map.

Q That's with the large dashed --

A Yes, sir.

Q -- line?

A Right. And I hasten to add that the dimensions and the locations of those boundaries are conjectural to a large degree.

Q So if I'm looking at that point there where 30 -- where Sections 29, 30, 31, and 32 come together, and I go over here and assume that the pressure is -- is 500, do I follow the hoizontal line from the pressure of 500 and run up against that line that you have marked S=0.00001,

and I would then read up in this particular -- this particular point it would take me a little over a year to fill up?

A That would be the pressure -- the change in pressure that would be experienced at the end of a year under those circumstances, yes, sir.

Q Can we calculate what the pressure was at one of these points when -- virgin pressure, before the well started producing, I mean before the formation started producing?

A Not from the work I've done, no, sir.

Q So that doesn't take into account the pressure changes that have already taken place due to production.

A That's right.

Q With these calculations can I come up with a figure showing me how long it would take that point there to get back to virgin pressure?

A If you knew the virgin pressure, yes, sir, and assumed that all the conditions assumed in this calculation were correct.

Q But that doesn't necessarily mean that if it took me ten years to pay out on that well or before I plugged and abandoned that Well No. 1, that it would take me ten years before I filled it back up again.

A No, sir, because it wouldn't take into

account the change in -- in gas saturation.

Q Nor the fact that it was on a pump?

A Well, I think, whether pumping or flowing would not make a difference. What would make a difference is the change in gas saturation, which is implicit in the range of storage coefficients that are used.

So you would not be able to go back from these graphs and -- and reconstruct the life of the well, so to speak.

Q Okay, before I can use one of these graphs here, also, would it -- would I have to assume also that there are no other wells producing?

A That's right. The function of the graphs is simply to show that under the assumed circumstances a change in pressure would occur.

Q That's static in all?

A Yes, sir.

Q I look on the fourth part of this, which is the Roswell Geological Society Report of 1977, if I look over to the first page and ignore all the names on the front page, and go over here, and this particular information was all -- came from the Permo-Pennsylvanian zone in the Bursum formation, is that correct?

A Yes, sir.

Q Okay. Now where is the Bursum formation

in respect to the -- to the Bough C?

A Well, it's my belief that this is the same pay.

Q What was throwing me was the horizontal -- the deepest horizon penetrating, and you all show 10,700 feet, but we're -- we're simply talking the same -- the same little production interval, right?

A That's my -- my opinion, yes, sir.

Q And you used this information off here to come up with your calculations to get this?

A That's right. The boundaries of the -- of the reservoir were taken from that map and the permeability and porosity were taken from the 1966 symposium volume, which has to do, I should say, with the Saunders East Field in a correlative pay zone.

MR. STOGNER: Okay, I have no further questions of Mr. Shomaker.

Are there any other questions?

Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q I have a couple of follow-up questions, from what Mr. Stogner has asked you, Mr. Shomaker.

Am I correct in understanding that the assumption made to prepare this summary on Exhibit Two assumes that in the reservoir the only condition that is changing is the injection of 200 barrels of water into the formation at this location.

A That's right.

Q It doesn't take into account the withdrawals that are taking place simultaneously with that injection?

A That's right.

Q Is it reasonable to expect a person in your profession to be able to do a calculation or make a study where we have a combination of variables?

A One certainly can do that.

Q You can do that. Have you done that?

A No, I have not.

Q In understanding what you did do, I'd like to look at the first attachment after the plat, if you will.

Well, let me ask you this. Do you have to make any adjustments or assumptions about oil and gas production in order to make this calculation?

A Are you assuming water only or are we assuming what we have in the reservoir?

A These curves represent, I believe, a

range of everything from an unlimited thickness of empty poroisty at the one hand in the tiny curve in the far lower left -- or lower righthand corner, to nearly full water saturation in the curve you're pointing at.

Q I think I'm understanding the exhibit then.

If I look at the sharp curve, the first one on -- as you come to as you read the exhibit from left to right, it says nearly full water saturation. This would assume that the reservoir contained virtually all water.

A That's right.

Q All right. If we move down and look at the various curves, the very last curve, hardly a curve --

A Right.

Q -- at the bottom, assumes that there is an absence of any fluid.

A That's right.

Q All right. If we move back up and we find we have a reservoir that has a high gas saturation --

A Yes, sir.

Q -- then assuming the only change in the reservoir that occurs is the injection of the 200 barrels a day, and if I have a reservoir that operates like a high gas saturation reservoir, I would look at your chart and find that it would take five years, approximately, to realize 100

pounds of change in pressure.

Did I read that right?

A You read it right but --

Q Okay.

A -- at the same time that the injection is occurring, the gas saturation would be changing, so --

Q I assume your calculation makes that adjustment, does it not?

A No, it does not.

Q Okay. So as the gas saturation increases because of the injection, which way does the curve go?

A Well, as the total volume of fluid, of all fluids in the reservoir, becomes more and more water, the curves go to the upper side of the graph.

Q Have you calculated to determine how long it takes for these pressure changes to occur over a particular distance?

A That's what the two graphs show for those two points. They aren't in terms of distance, but they're in terms of two points which are at two different distances from the disposal well, one at approximately 792 feet and the other at approximately 3200 feet.

Q Okay, which is the one in the -- I'm looking at the one that is closest to the southwest corner of Mr. Etcheverry's property, the one that's closest to the

proposed injection well.

A Yes, sir.

Q All right, sir, thank you.

MR. STOGNER: Any other questions?

Mr. Shomaker may be excused.

Mr. Neal, do you wish to recall a witness a this time?

MR. NEAL: No, sir, we rest.

MR. STOGNER: Mr. Kellahin.

MR. KELLAHIN: No, sir.

MR. STOGNER: I guess we're ready for closing statements.

Mr. Neal, I'll let your team go first.

MR. NEAL: All right.

MR. STOGNER: And we'll let Mr. Kellahin go last.

MR. COMEAU: Mr. Examiner, I think our position at this hearing is quite straightforward. I think the evidence and Mr. Shomaker's testimony established that under any reasonable, conceivable circumstance, that there is going to be a migration of salt water upon Mr. Etcheverry's land.

Under the law that's trespass.

All right, the question here is whether the Division can authorize a trespass. We don't think that it can.

Now Mr. Etcheverry is not required to demonstrate that he's somehow being injured or deprived of the use of his property. In this country you have a right to keep people off your land, and that's what he wants to do.

He has a right not to have his property used by somebody else without compensation, and that's what he wants to do.

He's not required to demonstrate that he's going to suffer some damage. That's clear under our law in New Mexico and I can provide the Examiner cases on that subject, if you'd like to see them.

There is -- this sort of situation has come up in other circumstances. For example, in Kentucky, interesting case, there was a cavern that was near Mammoth Cave and that's a famous cave area in the State of Kentucky, and so this man was advertising it and charging admission and he had a great number of people going through there and making a lot of money.

Well, lo and behold, the cave went onto somebody else's land, underground, like Mr. Etcheverry's. The adjacent landowner had no access to the cave but nonetheless, the cavern part extended underneath his

land, and the Kentucky court held that that was a trespass and that the adjacent landowner was entitled to, one, stop it, and two, on the basis of a determination of how much of the cave was on his land and how much was on the operator's land, obtain an accounting of the profits that the operator had made. All right?

Now, there was no evidence in that case that the adjacent landowner had suffered any damage. He didn't have any access. He couldn't have set himself up in business himself because he couldn't get down to the cave, that was on his neighbor's land and that's where it was.

And that's the situation that I think we have here, and I can provide copies of those cases to the Examiner if he'd like to see them.

But our position at bottom is that this is a trespass. I think the only evidence in this record is to that fact and I don't think the Commission ought to be a party to authorizing what the evidence in the record before it shows is going to occur and be a trespass.

MR. STOGNER: Thank you, Mr. Comeau. Is there anything --

MR. COMEAU: Well, yeah, I'd like to make one further point.

Sage Energy doesn't have the

right of eminent domain. If they want to inject something that's going to affect our land they ought to go to the Legislature and get the right of eminent domain but thus far they haven't gotten it, and I don't think they plan to do it. And they're getting economic benefit of injecting something that is going under our property.

MR. STOGNER: Is there anything further?

Mr. Kellahin.

MR. KELLAHIN: Thank you, Mr. Examiner.

I find Mr. Comeau's comments interesting, unique, and nonapplicable to the facts that we have before us today.

I think it's very interesting to find very quickly from Mr. Shomaker in his testimony that what he has presented us does not any way match the specific facts of the reservoir. He has provided an interesting calculation that fails to take into effect some of the essential elements of what we all know is occurring out there and has simply provided a static, artificial fact situation for himself by which he calculates a pressure change.

Be that as it may, if you want to take his exhibit in its most generous fashion, and look at the curve upon which he calculates some pressure change

to be incurred at the boundary line closest to Mr. Etcheverry, you can see in the high gas saturation reservoir that Mr. Hardy testified he had here, it's going to be about five years before we see 100 pounds change.

I think you can look at the exhibit and see that even if what occurs, even if what Mr. Shomaker thinks may occur, in fact does occur, there are certain stop-gap preventative things that we will see as a practical matter before Mr. Etcheverry is ever affected, and that is, as Mr. Hardy told you, he is going to see some impact on the No. 3 Well, which is closer to the disposal well than Mr. Etcheverry's property is to that same disposal well.

There are three things that you need to worry about in salt water disposal cases.

That's the protection of fresh water sources. It is undisputable in this case that there is no impact on fresh water sources.

Mr. Hardy's testimony is unrefuted; it's unequivocal, the fresh water sands are shallow and being protected. No one is questioning that.

The other thing you do is to prevent waste and to protect correlative rights.

On the prevention of waste aspect we have an opportunity to grant the application and

give to this operator the opportunity to recover additional oil that he would not otherwise recover because of his economic savings he can realize from the disosal operation.

And this is as clean a disposal operation as you're going to find. He is reinjecting produced water within 500 feet of one of the wells that produces most of the water. He's going it under a vacuum. He's going to do it consistent with your rules. I don't know what else he can do. He's entitled to do it. You've been doing it for years, and if Mr. Etcheverry has a novel notion of underground trespass, then I don't think you are obligated to honor that and change the procedures and rules acting before the Commission all these years. It's going to take a court action, if you would, to tell us if the State of New Mexico wants to adopt for oil and gas business in this particular fact situation the concept of underground trespass, but until that occurs, we are bound to do as we do now. Mr. Comeau has not cited us any New Mexico case law authortiy that requires the Commission to change the practice it has conducted in the past in approving these types of applications and we see no reason to do so now, and we would request that you grant our application.

MR. STOGNER: Thank you, Mr. Kellahin.

Is there anything further in

this case?

In that case, Case Number 9068 will be taken under advisement and this hearing is adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9068, heard by me on 4 February 1987.

Michael E. Stogner, Examiner
Oil Conservation Division