STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

5 March 1986

EXAMINER HEARING

IN THE MATTER OF:

Application of Marbob Energy Corporation for salt water disposal, Eddy County, New Mexico.	CASE 8841

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Jeff Taylor Legal Counsel to the Division Oil Conservation Division State Land Office Bldg. Santa Fe, New Mexico 87501
For the Applicant:	William F. Carr Attorney at Law CAMPBELL & BLACK P. O. Box 2208 Santa Fe, New Mexico 87501

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DANIEL S. NUTTER

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MR. STOGNER: We'll call next Case 8841, which is the application of Marbob Energy Corporation for salt water disposal, Eddy County, New Mexico.

We will now call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell and Black, P. A., of Santa Fe. We represent Marbob Energy Corporation and have one witness.

MR. STOGNER: Are there any other appearances in this matter?

There being none, will the witnesses please stand to be sworn at this time?

(Witness sworn.)

MR. STOGNER: Mr. Carr?

DANIEL S. NUTTER,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A My name is Dan Nutter. I live in Santa Fe, New Mexico.

Q Mr. Nutter, by whom are you employed and in what capacity?

A I'm a consulting petroleum engineer employed by Marbob Energy Corporation in this particular case.

Q Have you previously testified before the Division and had your credentials as a petroleum engineer accepted and made a matter of record?

A I have.

Q Are you familiar with the application filed in this case on behalf of Marbob Energy Corporation?

A I have.

Q And are you familiar with the proposed salt water disposal well?

A Yes, sir.

MR. CARR: We tender Mr. Nutter as an expert witness in petroleum engineering.

MR. STOGNER: And Mr. Nutter is so qualified.

Q Mr. Nutter, would be briefly state what

Marbob seeks with this application?

A Marbob is seeking approval for the disposal of produced water in its F. M. Robinson Well No. 1, which is located 1850 feet from the north line and 660 feet from the west line of Section 27, Township 17 South, Range 29 East, Grayburg-Upper Pennsylvanian Pool, Eddy County, New Mexico.

Injection would be into the Cisco formation through the perforated interval from 9279 feet to 9290 feet in that well.

Q Mr. Nutter, has Marbob filed Division Form C-108 as required by Division rules?

A Yes, they have.

Q What is the present status of the subject well?

A The present status of the subject well is a temporarily abandoned Canyon producer.

Q Now you indicated that Marbob proposed to dispose in the Cisco formation.

A That is correct.

Q Are there any other Cisco wells within a half mile radius of the proposed disposal well?

A There are no Cisco wells within two miles of the proposed well.

Q Would you refer to what has been marked

for identification as Marbob Exhibit Number One, identify this, and review it for the examiner?

A Exhibit Number One is a plat of the general area. In the southwest quarter of the northwest quarter of Section 27, in the center of the half mile circle, is the well that we propose to dispose of water in. That well is indicated by a gas well symbol. There's a half mile radius circle drawn around the well, as well as a two-mile circle drawn around the well.

Q Does this plat also show the lease ownership in the area?

A Yes, it does. It indicates that the lease ownership is Jack Plemons. It's his Continental State Well -- State Lease.

Q Mr. Nutter, would you now like to go to Exhibit Number Two and identify this, please?

A Exhibit Number Two is the injection well data sheet. I won't go into a lot of detail on the completion of the well but it does indicate -- because I'll cover that later on another exhibit -- however, it does indicate that injection would be through perforations from 9270 feet to 9290 feet and through 2-3/8ths inch plastic coated tubing set in a 5-1/2 inch Guiberson Uni-6 packer at approximately 9215 feet.

As mentioned before, injection would be

into the Cisco formation.

Now with respect to Item 4 at the bottom of this page, has the well ever been perforated in any other zones? List all such perforated intervals and give plugging detail. We have an attachment to the injection well data sheet which describes the previous perforations, but we'll also go into those later on in the testimony.

Q Will you now refer to Marbob Exhibit Number Three, identify this and review it, please?

A Exhibit Number Three is a sketch of the well in its present condition.

You'll note that a 26-inch hole was drilled and 20-inch conductor pipe set at 190 feet cemented with 350 sacks of cement and 12 yards of cement. Cement was circulated.

Then a 17-1/2 inch hole was drilled to 750 feet and 13-5/8ths inch surface casing set with 650 sacks, which was circulated.

Following this an 11-inch hole was drilled and 8-5/8ths inch intermediate pipe was set at 3470 feet, with 1225 sacks of cement in three stages. Cement circulated on that string of pipe.

Following the setting of the intermediate pipe a 7-7/8ths inch hole was drilled to a total depth of 11,060 feet. It was plugged back to 10999 feet and 5-/12

inch pipe -- after which 5-1/2 -- before 5-1/2 inch pipe was run at 11062.

These depths are confusing because at various times in the well file the depth of the well is given as 11060, 11062, and 11063. However, upon initial completion it was plugged back to 10999. That's pretty well established.

The 5-1/2 inch pipe is indicated to have been set at 11062 with 1220 sacks of cement in two stages. The top of that cement is at 5850 feet.

Upon setting the 5-1/2 inch pipe the Morrow formation was perforated from 10911 to 29. It was acidized and tested. The calculated absolute open flow upon initial completion was 7,198 MCF per day plus 42 barrels of condensate per day.

This went on producing the well until -- from the Morrow, until 5-29-79, about two years later, when the perforations in the Morrow formation were squeezed with 150 sacks and an attempt was made in the Atoka formation.

This formation was perforated from 10363 to 65. It was acidized and tested. It was shut in on 6-26-79 after it was determined that the recompletion was unsuccessful in the Atoka.

In November of 1979 they squeezed these perforations in the Atoka with 75 sacks and plugged back to

10200 feet and perforated in the Canyon formation. Perforations in the Canyon are from 9835 feet to 50 feet. This formation was acidized and tested and on 5-22-80 the well flowed 73 barrels of oil, 14 barrels of water, and 431 MCF of gas per day.

The well has since quit producing from the Canyon. The tubing has been pulled and it sits there with the perforations still open in the Canyon but no tubing in the well.

Q Will you now go to Exhibit Number Four and review the proposed completion for the well?

A Exhibit Number Four is an adaptation of the previous exhibit. The first thing we will note is that the -- at the bottom the old Atoka perforations have been squeezed. Those are the perforations from 10363 to 65.

The old Morrow perforations from 10911 to 29 have also been squeezed.

The present Canyon perforations from 9835 to 50 feet will be squeezed upon approval by this Division of this application.

We'll then set cast iron bridge plug topped with two or three sacks of cement at approximately 9500 feet and perforate in the Cisco formation from 9270 to 9290 feet.

We'll then run 2-3/8ths inch plastic

lined tubing, set it in the Guiberson Uni-6 packer at approximately 92 feet -- 9215 feet, and load the annulus with an inert fluid.

After this a pressure gauge will be attached at the annulus between the tubing and the long string of 5-1/2 inch pipe.

And injection will commence.

Q And with this gauge on the surface it will be possible to pressure test the well in accordance with the Federal Underground Injection Control Program --

A Yes, it will be possible to determine if there's any leakage in the tubing, casing, or packer.

Q Will you now go to Exhibit Number Five?

A Exhibit Number Five is the data sheet. This indicates that the average daily rate of injection would be 2000 barrels per day. The maximum would be 5000 barrels per day.

I might point out at this time that this will not be a commercial disposal well. It will be primarily for the disposal of an excess amount of waterflood injection -- waterflood production from the Grayburg formation in the event that the injection system for the Grayburg waterfloods in this area are shut down because of failures of injection pumps and so forth.

Also, some San Andres water that's

produced by the Applicant on other leases in the general area would be disposed of into the Cisco formation.

The system will be open. It's anticipated that the injection may go into the Cisco on a vacuum; however, if it doesn't go in on a vacuum, the injection rate would not exceed 0.2 of a pound per foot down to the uppermost perforation in the well, which is at 9270 feet, or a maximum pressure of 1854 psi.

Source of the disposal water, as I mentioned, is the San Andres, and also some of this Grayburg waterflood water.

Disposal is to be into a zone that is not productive of oil or gas within two miles of the disposal well. A review of the records revealed that there are not any analyses of water from this zone on file. Water analysis reports were checked with Halliburton and the Western Company and they could not find any record of any water analysis.

A review was made with the Artesia Oil Conservation Division Office for material on this zone in this area and we anticipate that the formation water will contain lower chlorides than our disposal water but that it will be compatible with the formation.

I might point out that exactly one township to the west in Section 27 of Township 17 South, Range

28 East, there is a disposal well in which San Andres Water is going into the Cisco formation and there have been no compatibility problems with that water.

Q Mr. Nutter, what is currently being done with the water that Marbob proposes to dispose in this -- in the subject well?

A Well, it's being injected into the water-flood at this time.

Q Would you refer to Exhibit Number Six and identify that, please?

A Exhibit Number Six is an analysis of the San Andres water that's being produced in the area. You'll note that the chloride content is 102,908 parts per million of chlorides. It's expected that this water is nastier than the actual formation water insofar as chlorides are concerned.

Q Are there any fresh water zones in the area?

A No, there are no fresh water zones within a mile of this well.

Q And so there are no fresh water wells within that area, either.

A That's correct.

Q Have you examined available geologic and engineering data on this area?

A Yes, and we found no evidence of any open faults or hydrological conditions between the disposal zone and underground sources of drinking water.

Q Would you now go to what -- and exhibit -- Marbob Exhibit Six-A is also an affirmative statement confirming what you've just stated --

A That is correct.

Q -- concerning open faults.

A That is correct.

Q Would you now go to Exhibit Number Seven and identify that, please?

A I won't go into a great deal of detail on this. I didn't prepare it. It's a geological report prepared by Jack Allen, a consulting geologist in Roswell, New Mexico.

The formation tops are indicated on the first page of his report. These are operators tops of formations as reported by the driller of the well. I will mention that Allen suggests that there should be no problem for disposing the water because of high porosity, including a fracture porosity, (not clearly understood) 20 percent in the area -- in the -- in the well.

So it's not anticipated there will be any problems at all and I'll get into why there won't be any problems disposing into this zone in a minute.

Q Mr. Nutter, Exhibit Seven, Mr. Allen's report, was prepared for Marbob Energy Corporation, was it not?

A That is correct.

Q And this report is kept in the records and was taken from the records of Marbob Energy?

A That is correct.

Q Would you now go to what has been marked as Marbob Exhibit Number Eight, and review this for Mr. Stogner?

A Within the area of review, which is the area within a half mile radius of the disposal well, there is only one well that has penetrated the disposal zone. That would be Atlantic Richfield Company's F. M. Robinson Federal Com No. 1. This well is located 1825 feet from the south line and 2220 feet from the west line of Section 27, Township 17 South, Range 28 East -- 29 East.

That well was plugged and abandoned December the 11th, 1977, and if you'll look at your plat 1, Mr. Examiner, you'll see that that well is indicated to be located in Unit K of Section 27.

Q Will you now go to Exhibit Number Nine?

A No, I want to finish with this one first.

Q All right.

A This well was plugged -- as I mentioned,

was plugged and abandoned in December of 1977. You'll note that the plugs have been set in the well. It looks like it's very adequately plugged and should provide no avenue of escape for the waters that are disposed of into the Cisco formation in the subject well.

Q Are you now ready to go to Exhibit Number Nine, Mr. Nutter?

A Yes, sir, I am.

Q Would you do that, please, and identify that for the Examiner?

A Exhibit Number Nine is a log of the Atlantic Richfield Robinson Gas Com No. 1. This is the subject well that we're asking for disposal, and indicated at 9270 feet to 9290 feet is the proposed disposal zone. That's pretty far back in the log.

Q Would you now identify for Mr. Stogner what is marked as Marbob Exhibit Number Ten?

A Marbob Exhibit Number Ten is a copy of the well file for the subject well and I'm going to go into some of the things that I alluded to previous to this.

It's a complete copy of all the documents that are in the well file and on the sixth page into the exhibit, which is a C-103, Mr. Stogner, dated 2-24-75 -- 77, and approved 2 -- February 25, '77.

This is a report of spudding the well on

2-13-77; setting the 20-inch casing at 190 feet.

They resumed drilling to 750; ran the 13-3/8ths to 750; cemented with 350 sacks of cement followed by another 300 sacks of cement; circulated 10 sacks of cement.

The next page over shows they finished drilling the hole to 3470; ran the 8-5/8ths inch casing; set casing at 3470 and a lot of cement jobs and there was some lost circulation problems in cementing that, but finally they did get the complete cement job on the well.

The next page is the C-103, dated 5-10-77 and approved May 16th, '77.

This shows that they ran the 5-1/2 inch casing and it was set at 11062. They cemented the casing in two stages and in the sixth line down you'll notice it says the top of the cement is at 5850.

They perforated the Cisco. Now this is our disposal zone. They perforated the Cisco from 9179 to 9184, and swabbed the Cisco 8-1/2 hours. They recovered 52 barrels of load water, 84 barrels of formation water, and a small trace of oil.

They swabbed 10 hours, recovered 145 barrels of formation water, with a trace of oil.

They swabbed a total of 431 barrels of water from the Cisco in 3 days.

They reset the packer at 8069 and

squeezed those Cisco perforations from 9179 to 9184.

They perforated up in the Abo formation form 6482 to 86; swabbed the Abo, 6482 to 96, for 11 hours; recovered 88 barrels of load water, 76 barrels of formation water, a trace of oil.

They squeezed the Abo formation perforations and went ahead to the next page.

Now we'll note here on the next page, this is a report of lost circulation problems that they had in drilling this well through the area of interest, the zone of interest that we've got here.

It notes here that on 3-20-77 they lost full returns at 9265. They mixed 400 barrels of lost circulation material. They were unable to regain circulation. They drilled dry from 9269 to 9404 feet. This was where they completely lost circulation and this is the zone that we will be disposing in. It's a lost circulation zone.

I mentioned that Allen, in his report, had said that with all these fractures and high porosity is why we anticipate this will be a good disposal zone.

That was the ninth page, so about -- about five pages over to the next sheet, Mr. Examiner, is a C-103 dated 5-16-77, approved May 31, '77.

This is where they perforated the Morrow at 10911 to 10929. They took a 4-point back pressure test

on May 18th, 1977, and the calculated absolute open flow was 7,198,000 cubic feet per day.

The well was shut in waiting on a pipeline connection.

The next sheet is the 105 file for the well. It shows that the 4-point test was made with that 7998 calculated absolute open flow. 42 barrels of condensate, zero barrels of water. The condensate had a gravity of 53-3.

About six pages on over, then, you'll find the notice of connection when Transwestern Pipeline connected the well on September the 14th of 1977 in the Grayburg-Morrow Pool.

The third sheet over from that is a C-103 filed February 16th, 1979, and approved February 22nd, 1979, where they proposed to plug and abandon the Morrow.

And the next page if the C-101 that was filed on the same date and approved February 22nd, 1979, a proposal to complete in the Atoka formation.

Two sheets over from that is the final report on plugging the Morrow formation and the next sheet is the report on plugging -- on perforating the Atoka from 10363 to 365. I won't go into the details but the last line there says "recompletion unsuccessful; pending approval to P&A, final report."

The next page, we find that they have plugged the Morrow formation, a notice of intention to plug the Morrow formation. They erroneously marked this as a subsequent report, but this should be a notice of intention to plug and abandon the Atoka formation.

The following sheet is the C-101 where they're proposing to plug and test the Canyon from 9835 to 50, and you'll notice on the next sheet they still filed a 320-acre plat for the Canyon. They anticipated getting a gas well in the Canyon.

About three sheets over, then, is the report on the Canyon where they had determined it was not a successful -- where they reported having plugged from 10363 to 365 in the Atoka, and were going to set -- they -- they set a 30-foot cement plug on top of the packer at 10326, but it didn't hold, so they set a cast iron bridge plug at 10200, dumped two sacks of cement on top of that, and the Atoka zone was plugged and abandoned.

So then they went on up into the Canyon and the next sheet is the 105 on the Canyon, a 24-hour test indicating there were 73 barrels of oil, 431 MCF of gas and 14 barrels of water produced on the test in the -- in the Canyon.

About four sheets over you'll notice that they filed a new plat. This was when the Canyon was reclas-

sified from a gas well to an oil well and there's only 40 acres dedicated as a wildcat Canyon well.

That's -- about three or four sheets over, then, is a notice of gas connection in which Phillips Petroleum Company reports that they connected the casinghead gas on the wildcat Canyon Pool on April the 21st of 1981.

That's the final report on the well. There was no temporary abandonment report filed by ARCO, but the next form that is filed in this well file is the C-104, which was filed by Marbob on January -- on January the 9th of 1986, for a change of ownership from ARCO to Marbob Energy Corporation.

The 104 was approved by Les Clements on January 26th, -- 22nd, 1986.

Then there are some copies of the scout reports in the well file. That is the complete well file that you've got on this well.

Q Would you now go to Exhibit Number Eleven, production information, and review that for Mr. Stogner?

A Yes, sir. We're attempting to show that this was a productive well and we have copied the pages from the annual reports by the New Mexico Oil and Gas Engineering Committee from 1977 through 1984, and you'll see that the well has been producing from the Morrow until such time as

it was recompleted in the Canyon, but it shows production from the Morrow and the Canyon formations over a number of years there.

Q Mr. Nutter, was a copy of the application filed by Marbob provided to each operator within the area of review and also to the surface owner?

A Yes, it was. The Exhibit Number Twelve is a copy of the letters. These letters to the offset operators were to all operators in both the shallow zones that own shallow rights, as well as operators that own deep rights. The rights in this area are split, deep and shallow, but all operators of either deep or shallow rights were notified.

Q Now, Mr. Plemons and Mr. Boyd only own shallow rights, is that correct?

A That is correct.

Q And the owner of the deep rights was also notified of the application.

A That is correct.

Q Was notice of the hearing provided in the newspaper as required by Oil Conservation Division rules?

A Yes, sir. You'll notice that Exhibit Number Thirteen has an ad for boats for sale and it also is a legal notice that Marbob published in the Artesia Daily Press for notifying the public that this well would be con

verted to salt water disposal.

If you're interested you can buy a fish and ski boat fully rigged for $11,500.

Q Mr. Nutter, in your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A It will not cause waste inasmuch as there's no hydrocarbons in the disposal formation.

It will protect correlative rights in that it will permit the operator to conduct an efficient waterflood operation and also to dispose of water from the other formations into the San Andres.

That San Andres, by the way, will be flooded eventually.

Q Mr. Nutter, were Marbob Exhibits One through Thirteen either prepared by you or compiled under your direction and your supervision?

A Yes, they were.

Q And can you testify of your own knowledge as to the accuracy of these exhibits?

A Yes, sir, except for the well file. I don't know how accurate that is. I presume it's accurate.

Q And the well file is part of the public records of the Oil Conservation Division?

A The well file is part of the public records of the Oil Conservation Division.

MR. CARR: At this time, Mr. Stogner, we would offer into evidence Marbob Exhibits One through Thirteen.

MR. STOGNER: Exhibits One through Thirteen will be admitted into evidence at this time.

Q Mr. Nutter, what are Marbob's immediate plans for this well?

A We have a rig ready, ready to go in and plug that well back to 9215 and perforate and -- or set the packer at 92 -- to test the injection --

Q Is the --

A -- plug it back to 9500.

Q Is Marbob ready to go forward with the work on the well in the immediate future?

A As soon as possible.

Q Do you therefore request that any order resulting from this hearing be expedited to the extent possible?

A Yes, sir, and we'd be happy to provide the examiner with an order, if he'd so desire.

MR. CARR: Mr. Stogner, that concludes my direct examination of Mr. Nutter.

MR. STOGNER: Thank you, Mr. Carr.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Nutter, I have a question on Exhibit Eight.

A Exhibit Eight?

Q That's the schematic of the F. M. Robinson Federal Com Well No. 1.

A That's the plugged and abandoned well?

Q Right, plugged and abandoned well that went through this particular formation.

A Okay.

Q I show you have a 200-foot plug from 8920 feet to 9120 feet, and then you've got another plug, another 200-foot plug down at 10,000 and what?

A Something didn't show up there. I can tell you what that is. I don't know why that didn't show up on the Xerox there, but I've got the plugging report here.

That bottom plug was at 10790 to -- 590 to 790.

Q Thank you. Now between 9120 feet and 10590 feet, what is in that particular space?

A That would be the Atoka in there, I be

lieve. The plug at the bottom would -- okay, in this well the Cisco is at 9020, so the Cisco straddles that area that's -- the top of the -- that's in the top of the Cisco.

The plug from 10590 to 790 would straddle the top of the Morrow because the top of the Morrow is reported at -- now wait a minute. That straddles the -- yeah, that straddles the top of the Morrow because the top -- I think that's a plug just above the top of the Morrow, Mr. Stogner.

Q Okay.

A They've got a -- they've got a misprint on their -- on their C-1 -- well, it's the Federal Form 9333. They've got a misprint on this. They report the top of the Morrow being at 11690. The top of the Morrow is at 10690.

So that plug right there straddles the top of the Morrow formation.

The other plug above that straddles the top of the Cisco formation.

The plug at 7135 to 7285 straddles the top of the Wolfcamp formation.

And I believe the plug at 5250 to 5400 probably straddles the top of the San Andres or the top of the Glorieta. I don't know for sure. I don't have a depth on the San Andres and Glorieta given in this well file.

Q All right, let's go back to that second to last plug. What did you say in this particular well the top of the Cisco was?

A The top of the Cisco in this particular well was 9020, so thig plug is from 8920 to 9120, so it goes across the top of the Cisco.

Q What is the top of the Atoka in this well?

A 10284, so it's in between those two lower plugs.

Q Did this particular well produce from the Atoka formation?

A No, it did not. This well didn't produce at all from anything.

Q Now your injection well had production in the Atoka, is that right?

A No.

Q No?

A It was wet in the Atoka. It only produced from the Morrow and the Canyon.

Q But this particular well, being the F. M. Robinson Federal Com Well No. 1, could that act as a -- as a pathway for water to seep from the Cisco into the Atoka?

A No, I don't see how it could, because you've got plugs at 7135. You've got plugs at 5250. Into

-- into the what, again?

Q I'm sorry, from the Cisco into the Atoka.

A Oh, well, yes, it could possibly, because the 200-foot plug at 8920 to 9120 straddles the top of the Cisco and the Atoka is below that, but there's no production in the Atoka, so if there was formation water going from the Cisco to the Atoka it wouldn't be on any consequence.

And it would have to get from the disposal well over to this well, anyway, first, before it could do that, and, of course, our disposal well has several plugs in it below that -- it will have the cast iron bridge plug with cement and adequate protection between the disposal zone and the Atoka formation in the disposal well.

Q Now let's go back to Exhibit Number One here. Although that plug and abandoned well is within a half mile of this particular well, what's your feelings of the disposal water seeping or exending over to that plugged and abandoned well?

A I would doubt that it would ever do that with the volumes that they're proposing because of the tremendous porosity that's present in this zone, and I think it would take an ocean of water before you could even make the water migrate from the disposal well the half mile to the other well. It's got tremendous volume; we're only proposing to dispose of a maximum of 5000 barrels per day and it

will probably be much less than that, closer to the 2000, even it's even 2000.

So I doubt if it would ever migrate to the F. M. Robinson Federal Com No. 1, and even if it did, it wouldn't -- wouldn't harm the Federal Com No. 1.

Q Because there was no production there.

A Because there was no production in the well.

Q Also, staying with Exhibit Number One, you show a well, looks like it's about 100 foot to the south of your proposed disposal well. Could you explain that well?

A Which one?

Q Well, looks like it's -- they're almost touching.

A Okay, you mean the little oil well that's immeditely --

Q Yeah.

A -- south of the proposed disposal well?

Q Yeah, what depth is that?

A Okay, I can give you all the information you need on that well, Mr. -- okay, that well is Jack Plemons Continental State No. 1. It has -- it's got a total depth of 2927 feet, which is 500 -- its total depth is 500 feet above the shoe on our 8-5/8ths inch casing, because our

shoe on our 8-5/8ths inch casing is 3470, so this would be 543 feet above -- our shoe is 543 feet below that well's total depth. That well has casing set at 2717. It has perforations from 2365 to 85, 2640 to 60, and 2665 to 85.

So the disposal in this well -- the disposal in our subject well is at 9270 to 9290.

The disposal zone is 6,343 feet below the TD on that well that's located 150 feet south of the subject well, 130 feet south of the disposal well.

So you'd have to have a -- if that well were to be affected, you'd have to have migration of water vertically 6,343 feet and horizontally 130 feet, which, I think, is extremely unlikely with -- considering that the top of the cement on the disposal well is at 5850. This gives us 3,420 feet of cement from the top of our injection zone to the top of the cement in the subject well.

Then it would have to go up to the 8-5/8ths inch shoe and it would have to migrate another 3930 feet from the top of the shoe up to the TD of the Plemons Continental State No. 1.

So I think it's extremely unlikely that any water would get into that well from the disposal zone at 9270 to 90.

Q Thank you, Mr. Nutter.

MR. STOGNER: I have no further

questions of this witness.

Is there anything further of Mr. Nutter?

MR. CARR: I have no further questions of Mr. Nutter.

MR. STOGNER: If not, he may be excused.

Anything further in Case Number 8841?

MR. CARR: Nothing further.

MR. STOGNER: Mr. Nutter, Mr. Carr, I don't believe that a rough draft order for this particular case will be necessary for me at this time.

Thank you. Case Number 8841 will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that 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. 8941, heard by me on 5 March 1986.

Michael E. Stogner, Examiner
Oil Conservation Division