STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 9902

EXAMINER HEARING

IN THE MATTER OF:

Application of Hanson Operating Company for salt water disposal, Chaves County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

April 4, 1990

ORIGINAL

A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico

FOR HANSON OPERATING, INC.:

CAMPBELL & BLACK, P.A.
Attorneys at Law
By: WILLIAM F. CARR
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico
87504-2208

I N D E X

	Page Number
Appearances	2
GARY CURTIS FITZSIMMONS	
Examination by Mr. Carr	3
Examination by Examiner Catanach	14
Certificate of Reporter	21

E X H I B I T S

HANSON EXHIBITS:

Exhibit 1	4
Exhibit 2	12

* * *

WHEREUPON, the following proceedings were had at 11:45 a.m.:

EXAMINER CATANACH: At this time we'll call Case 9902, the Application of Hanson Operating Company for salt water disposal, Chaves County, New Mexico.

Are there appearances in this case?

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. I represent Hanson Operating, Inc., and I have one witness.

EXAMINER CATANACH: Will the witness please stand and be sworn in?

GARY CURTIS FITZSIMMONS,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Will you state your full name for the record, please?

A. My name is Gary Curtis Fitzsimmons.

Q. Mr. Fitzsimmons, where do you reside?

A. 305 North Washington, Roswell, New Mexico.

Q. By whom are you employed and in what capacity?

A. Hanson Operating Company as chief geologist.

Q. Mr. Fitzsimmons, have you previously testified before the Oil Conservation Division?

A. Yes, I have.

Q. Were your credentials as a geologist accepted and made a matter of record at that time?

A. Yes, they were.

Q. Are you familiar with the Application filed in this case?

A. Yes, I am.

Q. Are you familiar with the proposed injection well?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) Would you briefly state what Hanson seeks with this Application?

A. We are seeking authority to dispose of salt water in the Hanlad "A" State Number 1, located in Section 28, 10 South, 27 East.

Q. Would you refer to what has been marked as Hanson Exhibit Number 1 and identify this for Mr. Catanach?

A. Okay, this is the OCD Form C-108 which has a list of questions by the State, with the answers

attached.

Q. Okay. We're talking about the Hanlad "A" State Well Number 1?

A. Yes, we are.

Q. What is the current status of that well?

A. That well is producing one barrel of oil per day from the San Andres Formation.

Q. And how long ago was this well actually drilled?

A. It was drilled in the latter part of 1986.

Q. Mr. Fitzsimmons, let's turn to the plat which is contained in Exhibit 1 on page 6. I would ask you to identify this and review the information set forth on this exhibit.

A. Okay, it's a land plat that shows the locations of the well, of all the wells in the area, of the proposed injection well. It has a circle with a radius of one-half mile centered on the injection well. The area colored in yellow is the acreage that is held by Hanson Operating. And the white area that is overlapped by the circle is owned by Yates Petroleum.

Q. And the circle shows the area of review for the proposed injection well --

A. Yes, sir.

Q. -- is that correct?

A. Yes, it does.

Q. Does Exhibit Number 1 contain tabular data on all wells within the area of review that penetrate the injection zone?

A. Yes, it does. There's eight wells that are attached, and each tabulation has a schematic of the well bore and the casing, the cement program, and then the date of drilling completion and the stimulation procedure we used.

Q. And you're talking about pages 7 through 14 of Exhibit Number 1?

A. Yes, I am.

Q. Are all of these wells currently producing oil wells?

A. Yes, they are.

Q. And they're all producing from the Diablo-San Andres pool?

A. Yes, they are.

Q. And when you talk about eight wells that penetrate the injection interval, you're also including in that number the Hanlad "A" State Number 1; is that right?

A. Yes, I am.

Q. Are there any plugged or abandoned wells within the area of review?

A. No, there are not.

Q. Mr. Fitzsimmons, let's go to the first plat or schematic on page 7 of Exhibit Number 1, and I would ask you to review for Mr. Catanach the current downhole mechanism or -- of the proposed injection well.

A. Okay, we have an original hole size of 12-1/4 that we set surface casing in. That was 8-5/8. We set the surface casing at 500 feet, cemented with 400 sacks of cement, and we circulated back 50 sacks of cement.

We set a 5-1/2 production string to 2132 feet. We cemented that with 350 sacks of cement and circulated back 48 sacks to surface.

And we set tubing, 2-3/8 tubing, to 2100 feet, and the particulars to how we set that tubing up is annotated on the sheet.

Then we perforated the San Andres zone from 2034 to 2082 feet. Originally we acidized the perforations. We subsequently went in and re-acidized the perforations.

The technique we use to stimulate the reservoir is, we go in, pressure up until we get a pressure breakover. At that point we've opened up fractures in the zone, and this pressure breakover ranges from 1800 feet to 2700 feet, 1800 being the minimal.

And once we've established that fracture opening, we drop down a little bit, let the acid sit on there, complete the acid etch, and then we're finished with the stimulation.

And this is the procedure we use in all the wells in the Diablo field that we have.

Q. At the present time, the Hanlad State "A" Number 1 well is only capable of marginal production?

A. Yes, one barrel of oil per day.

Q. And are you aware of anything you could do to substantially improve the ability of this well to produce oil?

A. No, it's just one of the poor wells in the field. It's one of the lowest structurally in that area. It just doesn't have the potential.

Q. Let's go to page 3 of Exhibit Number 1, and I'd ask you to review the schematic that is set forth on that page of the exhibit.

A. Okay, this schematic essentially is the same one I just enumerated for the "A" 1.

What we plan to do on our injection program is to re-enter the well and go into the same plumbing that we have and just open up a wider interval in the San Andres and inject water back into the zone that we've been producing oil out of.

Q. What is the thickness of the San Andres in this area?

A. Well, we did not penetrate the full section of the San Andres. It's -- We did penetrate over 630 feet, the lowermost 48 feet containing porosity in the San Andres.

Q. And so that is -- You will be injecting into the lowermost portion of the San Andres that -- into which you -- that has been penetrated by your well?

A. Yes.

Q. What is the source of the water you propose to dispose of?

A. Well, we're partners in a well that was drilled to the Montoya with Stevens Operating, and the water is Montoya water, the Montoyas found at 6200 feet, approximately, in this area.

Q. What is presently being done with this water?

A. At the present time, we're trucking that water off to the racetrack, San Andres Racetrack field to the east, and we're disposing it in the Cibola Plains 29-9, located in 10 South, 28 East, Section 29, in the San Andres zone.

Q. So the water is currently going into the San Andres, but in another pool?

A. Yes.

Q. What volumes do you propose to inject?

A. We're anticipating about an average of 350 barrels of water per day.

Q. And what would be your maximum injection volume?

A. 700 barrels of water per day.

Q. Is this going to be an open or a closed system?

A. A closed system. None of the water is going to be open to atmosphere.

Q. Will you be injecting by gravity or under pressure?

A. Under pressure.

Q. And what will be the injection pressure that you propose to utilize?

A. Well, we're anticipating an average of 1400 pounds, with a maximum of 1800 pounds.

Q. And is this pressure in excess of the .2 pound per foot of depth that is customarily used for injection wells?

A. Yes, it is.

Q. Do you anticipate that injecting at this higher pressure would in any way cause the injection fluid to escape from the San Andres interval?

A. No, I don't. That's based on the fact that

all the wells that we operate in the field have been fractured, and the minimum pressure to obtain this fracturing has been 1800 pounds.

In addition, the type of pressures we're using, we don't anticipate a fracture height of more than 150 feet. And with the 300-plus feet of San Andres above us, we simply have not used enough pressure to be able to frac through that.

Q. Mr. Fitzsimmons, would you refer to pages 16 and 17 of Exhibit Number 1 and identify those for Mr. Catanach?

A. Okay, this is a study we did to determine water compatibility, and we had to go to the field to the east to get the San Andres water to use for our study because we don't produce water -- or very little water from the San Andres -- in our field. So that's why we're using the 29-9 water for the San Andres analysis.

And then we have an analysis done on the Stevens water or the Montoya water out of the Stevens well.

The results of the analysis shows that the waters are compatible. We'll possibly have a little bit of scaling problem with calcium carbonate, but that's very minimal to clean up with hydrochloric acid.

So we don't anticipate any problems with the water mixing.

Q. Are there any fresh-water zones in the area?

A. None whatsoever.

Q. Are there any fresh-water wells in the area?

A. None.

Q. And how did you ascertain that?

A. Well, we did our own study. First of all, we drilled with cable tool in the area, and cable tool is a very good way of determining the type of waters you run into. Very little water, and it's all been salty, sulfur water.

And to confirm our conclusions I called up the State and talked to Ken Fresquez of the New Mexico State Engineering Office, and he confirmed our conclusion.

Q. Is the log on the proposed injection well on file with the Oil Conservation Division?

A. Yes, it is.

Q. Mr. Fitzsimmons, is Exhibit Number 2 an affidavit and copies of notice letters confirming that notice of today's hearing has been provided in accordance with Division rules?

A. Okay, let's find it here. Okay, I have it here. Yes. Yes, it is.

Q. Are you aware of any similar applications that have been granted for injection in the same general area and pool that are involved in this application?

A. The one that I do know of has been previously mentioned. It's the Cibola Plains 29-1, which we are presently injecting our Montoya water in.

Q. Other than that, are you aware of any others?

A. Not that I can confirm.

Q. Have you examined available data on the area, and as a result of your examination, have you found any evidence of open faults or other hydrologic connections between the disposal zone and any possible source of underground drinking water?

A. I did extensive analysis in the area, and I have found no indications of San Andres faulting and no indications of open fracturing. In addition, there is no fresh water in the area.

Q. 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. Yes, in my opinion.

Q. Were Exhibits 1 and 2 prepared by you or compiled under your direction?

A. It was not prepared by me, but it was compiled by David Sweeney, our production manager, and --

Q. Have you reviewed the exhibits?

A. -- with my knowledge and approval.

Q. Have you reviewed the exhibit?

A. Yes.

Q. Can you testify as to its accuracy?

A. Yes, I can.

MR. CARR: At this time, Mr. Catanach, we would move the admission of Hanson Operating Company Exhibits 1 and 2.

EXAMINER CATANACH: Exhibits 1 and 2 will be admitted as evidence.

MR. CARR: That concludes my direct examination of Mr. Fitzsimmons.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Fitzsimmons, how many wells do you operate in the pool?

A. Oh, the exact number I can't say right offhand --

Q. Approximately.

A. -- but it runs about 12, 13 wells.

Q. What is the closest producing well that you

will have to this salt water disposal well?

A. Well, the closest producing well -- unfortunately, I can't -- It's just to the north and to the northeast. They're producing right now. And it's the -- I don't know the names of the --

Q. Is that in Section 27?

A. Section 28 and Section 27. Okay, it's the 2-A and the Number 3. 2-A will be in the 28, and Number 3 is in Section 27.

Q. Do you propose to inject into the same interval that's currently being produced in those wells?

A. Yes, we do. The interval is the P-1 porosity unit of the San Andres formation, and you go through over 300 feet of tight carbonate rock before you go into the P-1, and even -- As you go into the P-1 the porosity develops, but you have zones of better porosity and zones of poorer porosity.

And it's only in those zones of better porosity that you actually get your oil production, and when we go and fracture, that's the zones that are really opened up.

Q. Are your producing wells -- What state of production are they in? Are they marginal wells?

A. No, the A-1 is the -- well, is the only one

of two wells so far that have been marginal for us. The other one was completed as a dry hole. It's not fantastic production, but it's making us happy.

Q. What effect have you determined the disposal into this same zone will have on any of your producing wells?

A. Well, at the very least the structural position of the 1-A, the most effect that I can see is that it could serve as a possible flood well to flood some of that oil to the north. But the way that the porosity comes and goes through there, there's no way of really determining communication.

We don't see, in most cases, much interference from one well to the next.

Q. Well, could there possibly any detrimental effect to your producing wells?

A. No, not that I can see, because I don't think that the flood around that well would be to the extent that it could affect any of our other production, and most of it should probably go downdip.

We consider that well as being the limiting well for the field development. Most of the field develops to the north. To the south, we don't hold it as having much potential.

Q. Downdip would be to the south?

A. Yes, sir.

Incidentally, that dry hole on the map, you probably -- That is not to the San Andres. That's a clean dry hole.

As a matter of fact, all three of those dry holes in Section 28 were TD'd in the Queen formation, which is around 1000 feet, so they did not penetrate the San Andres.

Q. Mr. Fitzsimmons, are you requesting a pressure of 1400 pounds for this well?

A. Well, that's the engineer's best estimate of what we would probably need to inject the water. It's just a matter of how the injection program goes as to what injection pressure we would use. If we could get by with a lower injection pressure, we would.

But the maximum that he proposed is 1800 pounds, which again is less than what we find in the fracture break- -- the pressure breakover point when we acidize these wells and fracture them.

Q. Are you aware in a normal situation you would be given approximately 407 p.s.i.?

A. Yes, I'm well aware of that. It just won't work in this area. All these wells had to be stimulated to produce oil in the first place. And if -- At 400 pounds, we wouldn't even have a field there.

Q. Well, I would have to say that unless you submitted some further evidence, that that's all you're going to get, I would venture to guess, unless there was some evidence in this case actually regarding the fracture nature of the San Andres formation.

A. I didn't quite understand what you were saying.

Q. Well, in order to -- I think in order for us to approve a pressure of 1400 pounds or so, I think we need some evidence in this record.

A. I didn't bring with me, but we have the completion procedures, and the pressures we use in all the wells in our acidizing and fracturing process that we go through. Would that supply the kind of information you're looking for?

Q. Well, in part. But in an initial -- In a new well, doesn't the reservoir pressure also have something to do with the amount of pressure it takes to fracture?

I mean, if you've got a high bottom hole pressure, doesn't -- wouldn't that increase -- wouldn't that tend to increase the fracture pressure?

A. Well, I'm a geologist; I don't know. I can't answer that.

Q. Well, would you be willing to conduct some

tests on the well, some injection tests?

A. Yes, we would, if it's required by the State, yes, certainly.

Q. Well, I would say, then, submit that evidence if you care to, and we'll take a look at that and we'll just go from there and see what we can come up with --

A. Okay.

Q. -- in terms of the pressure.

MR. CARR: Mr. Catanach, are you talking about continuing the case for submission of additional information?

EXAMINER CATANACH: I'm not talking about a continuation, Mr. Carr, just a --

MR. CARR: Or would you -- Are you considering an order with a .2 pound-per-foot pressure limitation with a procedure that would permit us to submit additional data to the Division and have that subsequently increased?

EXAMINER CATANACH: Well, that's included in -- That's standard language in every order, so --

MR. CARR: Just wanted to be sure that's the direction we were going and not just a continuance of it.

EXAMINER CATANACH: If you would like me to review the data that you believe might help get --

MR. CARR: Yes.

EXAMINER CATANACH: -- initially a higher pressure, then you can submit that after we take the case under advisement.

MR. CARR: Okay.

EXAMINER CATANACH: If you want to go the other way and just get the .2 p.s.i., then we could just look at that maybe later on. Whichever way you guys want to do it.

I believe that's all the questions I have at this time. The witness may be excused.

MR. CARR: We have nothing further. We will submit additional information to you, but we would prefer that the Order provide that we are able to come back in with an additional showing to increase the injection pressure at a subsequent time.

EXAMINER CATANACH: Okay. At this time, then, we'll take Case Number 9902 under advisement.

(Thereupon, these proceedings were concluded at 12:07 p.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9902, heard by me on April 4 1990.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL April 17, 1990.

STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990