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

21 November 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Chaveroo Operating Company for salt water disposal, Lea County, New Mexico. CASE 8761

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
Energy and Minerals Dept.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin
Attorney at Law
KELLAHIN & KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STOGNER: We'll call next Case Number 8761.

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

MR. STOGNER: Call for appearances.

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

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

Will the witness please stand and be sworn?

(Witness sworn.)

DARRELL McBRIDE,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A I'm Darrell McBride, Operations Engineer, for Chaveroo Operating.

Q Mr. McBride, have you previously testified before the Division?

A No, sir, I haven't.

Q Mr. McBride, would you tell the Examiner when and where you obtained your engineering degree?

A I graduated from Texas A & M in 1973 with a Bachelor of Science degree in mechanical engineering.

Q What has been your employment experience since graduation in the field of petroleum engineering?

A I started out as a drilling fluid engineer with Magnibar (sic) and later I was -- I owned and operated my own drilling fluid company and drilling company, and the last six years I've been a consulting engineer.

Q Have you been retained by Chaveroo Operating Company to examine the data surrounding their application to convert a Vacuum-Grayburg-San Andres well is salt water disposal?

A Yes, I have.

Q Pursuant to that employment, Mr. McBride,

have you compiled under your direction and supervision the documents that are attached to the Commission Form C-108?

A Yes, sir.

MR. KELLAHIN: We tender Mr. McBride as an expert engineer, Mr. Stogner.

MR. STOGNER: Where is your place of residence at the present?

A Brenham, Texas.

MR. STOGNER: I'm sorry, where?

A Brenham, Texas, B-R-E-N-H-A-M.

MR. STOGNER: Mr. McBride is so qualified.

Q Mr. McBride, obviously Exhibit Number One is the Commission Form C-108.

If you'll turn past form and if you'll turn to Exhibit Number Two, sir, would you identify what that exhibit is?

A Okay. Exhibit Number Two is a tabulation of our surface casing, intermediate and liner of the disposal well.

Do you want me to elaborate on the casing and the cementing?

Q Not just yet. Would you identify the location for the proposed disposal well in terms of its sur-

face location?

A Okay, the surface location, legal, is Section 36, Township 17 South, Range 35 East, Lea County.

The proposed injection well was previously named the State G-36 Well No. 1. I think the identifying letter for that section is Lima, L.

MR. KELLAHIN: I apologize, Mr. Stogner, for the poor quality of the reproduction on the exhibits. Perhaps the one in your file is more clearly reproduced.

MR. STOGNER: Are we on page one or page two?

MR. KELLAHIN: We will be the first attachment after the C-108, which is marked as Exhibit Two, and that will be the summary of the wellbore information on the disposal well.

Q Mr. McBride, would you summarize for the Examiner what the formation is that you intend to dispose of produced water into?

A Okay, the formation is the Grayburg-San Andres and probably portions of the Upper San Andres.

Q All right. Would you identify for the Examiner the footage interval --

A Okay.

Q -- for the disposal?

A The well is perforated 4804 to 86; 4881 to 4914. There's another producing interval at 4890 to 4910, and a lower section of 5112 to 5212.

Q What is the total gross interval, 4804 to 5212?

A 4804 to 5212, correct.

Q And that corresponds to the Vacuum-Grayburg-San Andres Pool?

A Yes, sir.

Q What is the current status of the well, Mr. McBride?

A The well was -- there was an attempt to produce it two years ago and the operator, all he could get out was salt water. I think he had rates of, one day, up to 700 barrels a day, and he never could get any produced oil out of it.

Q Who is the operator?

A Apollo Energy.

Q And have you obtained from Apollo the documentation to allow Chaveroo to operate this well as a salt water disposal?

A Yes, sir, we're still working on this.

Q What do you propose to dispose of in the disposal well?

A We propose to dispose of water produced

-- produced water from the Abo.

Q Can you approximate for the Examiner the maximum daily rate of disposal?

A Our maximum daily rate we're requesting is -- isn't it 500 barrels?

Q Yes, sir.

A 500 barrels a day.

Q And will you comply with the Commission guideline to set the surface pressure limitation at .2 times the footage depth from the surface to the top perforation?

A Yes, sir. We would probably change that to satisfy Rice Engineering and if it doesn't go on gravity, you know, we'd go about putting pressure on it. They have a disposal well within the half mile limit.

Q All right. Let's turn, sir, to the exhibit marked Exhibit Four, which I think is the 2-mile radius plat, and then have you turn following that to Exhibit Number Five, which is the plat showing the half mile radius circle.

A Within that area of review, Mr. McBride, have you made a study of all the wells that have either been produced from this formation or penetrated through this formation?

A Yes, sir.

Q Following Exhibit Number Five, then, have

you attached as Exhibit Number Six a tabulation of the well-bore information for those wells in the area of review?

A Yes, sir, I have. We have six wells and two have been P&Ad.

Q Of the six wells four, then, are still producing at a depth below the disposal formation?

A No, sir. Yes, sir. Yes, sir, that's correct.

Q Of those four wells, Mr. McBride, have you made a determination that the casing string that runs through the disposal formation has been adequately cemented to isolate the formation from the casing in those producing wells?

A Yes, sir. If surveys on the casing weren't run we used calculation and calculated cement tops.

Q In all cases, then, the cement calculates are measured to cover the injection interval?

A Yes.

Q As to the two disposal wells, Mr. McBride, have you made a determination that those wells have been adequately plugged and abandoned to isolate off this injection interval?

A Yes, sir. Cement was placed across the San Andres interval and surface casing (not clear).

Q Have you made inquiries, Mr. McBride, as

to the location of any fresh water sands, if any, within the area of review?

A Yes, sir. There's approximately three producing water wells within the half mile radius.

The producing interval is 65 feet.

Q In each case were the disposal well and the other wells in the half mile radius, do they all have cement down through a depth that will protect the fresh water sources?

A Yes, most definitely.

Q Let's turn to the Exhibit Number Seven, which I think is a schematic of one of the P&Ad wells?

A Yes.

Q All right, which one is this?

A This is Mac Jones. This well was originally, they had a plugging problem on it at the surface. They never did circulate cement on the intermediate. The Commission came back and made them drill it back out and as you can see, they've got quite an extensive amount of plugs in there.

Q As of today are you satisfied that this well has now been plugged and abandoned properly?

A Yes, sir.

Q Okay, let's turn to Exhibit Eight and have you identify that schematic.

A Okay, this is a Texas Pacific well. They had circulated cement on their intermediate from 8 and 5 set at 46; well, it's set at 4600 and they have a plug across the Glorieta interval and a plug across the -- I don't know what interval that would be, from 6800 to 7036 -- probably Bone Springs.

And they have another one across the Abo interval, top of the Abo.

Q In your opinion as an engineer, has this well been properly plugged and abandoned?

A Yes, sir.

Q If you'll turn now to Exhibit Number Nine, Mr. McBride, this is your written summary of the proposed operations for the disposal project?

A Yes, sir.

Q Would you identify for the Examiner what well, or wells, will produce the Abo water that you will dispose of in this well?

A Yes, sir. If you'll look at what's in the --

Q Let's look at Exhibit Four and have you show us where the Abo well is.

A This well is located in Section 30 in the upper -- well, mid-upper righthand corner of your map there. You know, Chaveroo is written. It's in the northeast quar-

ter quarter of Section 36 -- Section 30, excuse me.

Q That well produces on a daily basis what volume of water?

A The volume of water is around 3 to 400 barrels a day.

Q Have you made an investigation, Mr. McBride, to determine whether or not the Abo produced water from this well is compatible with any formation water found in the Grayburg-San Andres Pool?

A Yes, sir, we have. We have a water analysis on the produced water and on the water in the interval, from produced -- produced water from the original well we're going -- we're going to inject into, and we gave it to a chemical company here in Hobbs and they said it should be compatible, no problem.

Q Would you identify what exhibits, beginning with Exhibit Ten, address the question of the water analysis and the compatibility?

A Okay, Exhibit Ten is an exhibit of the produced water from the injection well. This sample was taken '73.

Q Exhibit Eleven?

A Exhibit Eleven is a sample of water from a fresh water well taken off of Mr. Lee's place, R. D. Lee's place. This place is about, probably it's about 600 feet

from the injection well, producing from an interval at 600 feet. That's fresh water.

Q All right, sir, next on Twelve?

A Okay. This is another irrigation well he has, which is an additional 600 feet from that well.

Q And these two wells produce at shallow fresh water sources --

A Yes.

Q -- of about 65 feet?

A Yes, sir.

Q All right. Thirteen?

A Thirteen, this is another fresh water well. This one is, probably, almost about a mile away.

Q All right, Fourteen?

A Fourteen is, this is a sample of the produced water coming out of the Abo well.

Q Okay, Fifteen?

A That's just another form of that sample there.

Q All right. For the disposal well, Mr. McBride, are you going to set some type of pressure gauge or monitoring device on the annular space to detect leaks in your tubing?

A Yes, sir, we'll have a pressure gauge on the back side.

MR. KELLAHIN: Exhibit Sixteen, then, Mr. Examiner, are the return receipt cards indicating notification to the offset operators and the Commissioner of Public Lands as the surface owner.

Q When are you ready to start utilizing this well for salt water disposal, Mr. McBride?

A We would like to start doing it immediately if we could.

Q The well is currently equipped in such a manner that it's ready for salt water disposal?

A Yes, sir. Well, no, sir, we'll have to run a plastic tubing string in there and a packer.

MR. KELLAHIN: That concludes my examination of Mr. McBride.

We move the introduction of Exhibits One through Sixteen.

MR. STOGNER: Exhibits One through Sixteen will be admitted into evidence.

Excuse me, what was the size of the tubing again?

A 2-3/8ths.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. McBride, let's look at Exhibit Number

Six and I'm a little bit confused here.

Where you show the production casing you show sacks of cement and then top of the cement and I'm having a difficult time seeing that, so could you go through these step by step?

Southwest, Incorporated, Well No. 1, that's the first one listed and the cement was circulated in the 5-1/2?

A Well, what they did, they set a liner in there and he circulated it up above the liner.

Q And where was the liner set?

A The liner was set, the top of it was set at 4510.

Q Okay, so the cement was -- and did they set that liner in the 8-5/8ths?

A Yes, sir.

Q Okay. And the cement was circulated back up to the top of the liner.

A Yes.

Q So there's cement all the way in the 5-1/2.

A Yes, sir, 5-1/2 liner cemented.

Q The next well is your disposal well, right?

A No, sir. Yes, sir, that's the disposal

well.

Q Cities Service Petroleum Company State BJ Well No. 1, 5-1/2 inch.

A Calculated top on that is 5058.

Q Okay, and it shows to be -- is this 9009 feet of 5-1/2 inch set?

A Yes, sir, and cemented with 800 sacks.

Q And calculated top is at 5058 feet?

A Yes, sir.

Q So there's a possibility, according to your testimony here, that there -- that the cement is exposed to this injection interval, is that correct?

A Yes, sir, according to that.

Q Is there any oil production above the Vacuum-Grayburg-San Andres in this area?

A Not within two -- well, not within the half mile limit. In fact, Rice Engineering has a well approximately 3/8ths of a mile from our location toward the Vacuum Unit.

If you'll look at Section 35, adjoining section, same survey, we have the same township and range, they have a well that's in the northeast quarter quarter; northeast quarter of Section 35. See Rice Engineering's well?

Q No, I'm still a little bit confused.

A Okay. We're in Section 36 where -- we're in Section 36 --

Q Uh-huh.

A -- with our injection well.

Q It's marked Rice Engineering No. 1?

A Yes, sir.

Q Okay, and that's in the southeast quarter of the northeast quarter.

A Yes, sir.

Q Okay, of Section 35.

A Their injection interval is 5230 to 5755.

Q Do you know when this well obtained its salt water disposal permit?

A I'm not sure.

MR. KELLAHIN: If you don't know, just say you don't know.

A No, I don't know.

MR. STOGNER: I'll take administrative notice on that. That should be on our file here and I'll check into that.

Q To orientate (sic) me a little bit more in this Exhibit Number Four, is the community of Buckeye, New Mexico, on here?

A No, sir.

Q Where does the little community lay?

A Buckeye is probably, it's down in Township and Range 18, 35. It's one of those sections down in there. It's about six miles from there.

Q This is just to orientate (sic) me a little bit here.

All right, let's continue on this listing of Exhibit Number Six.

The Mac Jones State Well No. 2, you have a diagram on that and the Rice Engineering Operating, Incorporated, that was the well we discussed just a moment ago, being in the southeast quarter of the northeast quarter, is that correct?

A Yes, sir.

Q And you have a diagram of the Texas Pacific well.

A Yes, sir.

Q Your disposal well, the Apollo Energy Company State "G" 36 Well No. 1, who is in present ownership of that well?

A Apollo Energy.

Q Okay, and is there negotiations between --

A Yes, sir, we're negotiating at this time.

Q Okay.

A We've come to an agreement; it just de-

pends on this hearing.

Q Okay.

MR. STOGNER: I have no further questions of Mr. McBride.

Are there any other questions of this witness?

MR. KELLAHIN: No, sir.

MR. STOGNER: Does anybody else have anything further in Case Number 8761?

MR. GOODHEART: I'd like to formally introduce our objection.

MR. STOGNER: Would you step a little closer, sir, and state your name, your company affiliation?

MR. GOODHEART: My name is Loy Goodheart; employed as Division Manager for Rice Engineering Corporation, in Hobbs, New Mexico.

MR. STOGNER: Okay, Mr. Goodheart.

MR. GOODHEART: We have previously submitted a letter to the Commission. Our objections aren't really objections but we're concerned to limit injection into this well by gravity rather than pressure.

You should have been in receipt of that letter.

MR. STOGNER: Yeah, I do not have this letter in my case file. That does not mean that we're not in receipt of this letter. This is the first time I've seen this letter; let me have a little bit of time here to read it.

Please continue, Mr. Goodheart.

MR. GOODHEART: Our only concern is that the Commission would limit pressure injection allotted to this well. We're only separated 18-foot vertically and we -- it's our opinion that is probably, in all probability connected, and we dispose of produced from the entire Vacuum Field from Grayburg-San Andres-Glorieta-Abo, and our only purpose is to protect the integrity of our disposal well because it does handle the majority of the water from the field.

We have no objections to disposal in the interval, only that pressures be limited whereby we can't pressure our -- our injection is by gravity disposal.

MR. STOGNER: Thank you, Mr. Goodheart. Your objection will be so noted and --

MR. KELLAHIN: May I ask Mr. Goodheart a point of clarification, Mr. Examiner?

I know he's not under oath, but I have an inquiry about his well.

MR. STOGNER: Go head, Mr. Kellahin.

MR. KELLAHIN: Mr. Goodheart, is your well the one that Mr. McBride identified on his Exhibit Number Six as being in Section 35?

MR. GOODHEART: Yes, Mr. Kellahin.

MR. KELLAHIN: And what is the current daily rate of disposal into your well, sir?

MR. GOODHEART: It varies from approximately five to -- 5000 to 6500 barrels per day --

MR. KELLAHIN: And --

MR. GOODHEART: -- on gravity injection.

MR. KELLAHIN: And it's be gravity injection.

MR. GOODHEART: We have three other -- pardon me, two other wells that are not within a half mile radius of our well, also operate by gravity injection.

MR. KELLAHIN: When you mean gravity injection, what does that mean in terms of a surface pressure?

MR. GOODHEART: Zero surface pressure.

MR. KELLAHIN: Thank you.

MR. STOGNER: Thank you, Mr. Kellahin.

Again, I thank you, Mr. Goodheart, for your objection and letter and testimony -- I mean the transcript will so state your objection.

Is there anything further in Case Number 8761?

MR. KELLAHIN: One further point of clarification, Mr. Examiner.

I think Mr. McBride testified that he and Mr. Goodheart had spoken and that Chaveroo was in agreement as to the restrictions that Rice had outlined in the letter, but before we accede to those, I want to make it clear that I've understood Mr. McBride, and I'd like to ask him, sir, do you have any objections to the limitations that Mr. Goodheart has suggested for your well --

MR. McBRIDE: No.

MR. KELLAHIN: -- in terms of the daily rate or gravity pressure limitation?

MR. McBRIDE: No, sir, I don't. I think we can get by without a problem.

MR. KELLAHIN: All right, sir, thank you.

MR. STOGNER: Thank you, Mr.

Kellahin.

Is there anything further in Case Number 8761?

There being none, this witness may be excused if I haven't already done so.

This case 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. 8761, heard by me on 21 November 1985.

Michael E. Stogner, Examiner
Oil Conservation Division