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 Chaveroo Operating Company for salt water disposal, Roosevelt County, New Mexico.	CASE 8843

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

I N D E X

DARRELL McBRIDE

MR. STOGNER: Call next Case Number 8843.

MR. TAYLOR: The application of Chaveroo Operating Company for salt water disposal, Roosevelt 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, and I have one witness to be sworn.

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

(Witness sworn.)

DARRELL McBRIDE,

being called as a witness and being duly 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. I'm operations engineer for Chaveroo Operating, Houston, Texas.

Q Mr. McBride, have you previously testified before the Division as a petroleum engineer and had your qualifications accepted and made a matter of record?

A Yes, I have.

Q And pursuant to your employment by Chaveroo Operating Company have you prepared or caused to be prepared certain exhibits in this case?

A Yes.

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

MR. STOGNER: Mr. McBride is so qualified.

Q Mr. McBride, if you'll turn past Exhibit One, which is the Form C-108, let me direct your attention to Exhibit Number Two, which is the plat of the area in question.

First of all, sir, would you identify for Mr. Stogner the proposed disposal well by name and by well location?

A Okay. If you'll look in Section 24, the legal is 310 from the south line and 1310 from the west line. It's Tucker No. 5. That map there would probably help you (not clearly understood.)

MR. STOGNER: Thank you.

A I have a half mile radius circle drawn around the proposed salt water disposal well and --

Q The Tucker Well No. 5, is that an existing well that at one time produced in the Chaveroo-San Andres Pool?

A It was a well that was drilled last year. I drilled and completed it. We had -- after acidizing the well we had -- it produced high rates of water so we just decided to temporarily abandon the well.

Q You propose to uitilize this well as a disposal well for water produced from what formation?

A San Andres.

Q And the wells that produce the San Andres water that will be disposed of in the well are located generally where, Mr. McBride?

A All the producing wells in this area are from the San Andres. The closest well, probably, that would be producing from any other interval would be at least over three miles.

Q And is this a disposal well for water produced by Chaveroo Operating Company --

A Yes, sir.

Q -- on its San Andres wells?

A Yes, sir.

Q All right. Within the half mile area of review, Mr. McBride, have you made a tabulation of all the wellbore information from wells that penetrate this zone?

A Yes, I have.

Q And how have you shown that to us?

A Okay. We can go to Exhibit Four.

Q All right.

A On Exhibit Four here I have nine wells that -- that are either temporarily abandoned or still producing from the San Andres interval.

Q Have you located on the ownership plat by number the wells that are shown on Exhibit Number Four?

A Yes, I have.

Q All right. Let's start with the first well, Mr. McBride, on Exhibit Number Four, and have you go through each of the wells and describe whether or not in your opinion they are adequately cased and cemented with regards to the potential that fluids disposed of in the San Andres formation in the disposal well could use any of those wells as a method to migrate into some other formation?

A Okay. If you'll notice the first well there is a well that we presently operate, Tucker No. 1. Perforated interval on all these wells will basically be the same subsea depths. The elevation in this area does not change over ten feet and the producing interval does not

change over ten feet, so we can -- I don't think there'll be any problems that we're all producing from the San Andres interval; all zones -- it's all in a confined area.

If you'll notice, we had 8-5/8ths set here at 363.61 feet; cement circulated and on the long string they ran 4-1/2 and it's set at 4495. Calculated top on it was 29.41.

Okay, the next well would be the Shell Oil Company Shell Brookfield Federal No. 1. It had 8-5/8ths set at 368 feet and cement circulated on it.

The producing -- producing string had -- was set at 4677 feet and cement circulated on it, 675 sacks.

The Atlantic Tucker No. 3 had 347 feet of surface set and it circulated 225 sacks. The long string was 5-1/2 set at 4465 and they used 700 sacks there and it calculated that it circulated.

The Tucker No. 2, the surface was set at 361 feet, cement circulated, 250 sacks. The 4-1/2 was set at 4483, calculated top on it is 2893.

Humble Federal No. 8, surface was set at 330 feet, that being our most shallow surface set in the area. Cement was circulated, 225 sacks. The long string at 5-1/2 set at 4499 and 650 sacks were used and it calculated that it circulated.

Humble Federal No. 7, the surface was set

334 feet, circulated 225 sacks, long string at 5-1/2 set at 4497. It calculated to be circulated, 650 sacks.

Tucker Well No. 4, set at 334 feet and circulated 225 sacks, long string, 5-1/2, set at 4499, used 300 sacks. Calculated top on it's 2,387.

The Federal A No. 1, surface was set at 362 feet and calculated -- well, it circulated with 250 sacks. Long string, 4-1/2, set at 4430, calculated top on it was 3653.

The Federal A No. 3, surface was set at 356. It circulated with 250 sacks. Long string set at 4422, top calculated to be at 3645, with 150 sacks.

Q Would you go through the tabulation on Exhibit Number Four, now, and identify which of the nine wells listed is a plugged and abandoned well at this time?

A None of these nine. These are all --

Q These are all producing wells?

A These are all producing or temporarily abandoned.

Q You subsequently have prepared wellbore schematics on all plugged and abandoned wells.

A Yes, sir.

Q Let's go back now to Exhibit Number Three, which is the injection well, Mr. McBride, and have you describe the method that you -- in which this well is

completed and would be utilized for disposal.

A Okay, the 8 and 5 was set at 1754 and circulated cement with 16 -- was 660 sacks of cement.

The long string was 4-1/2. It was set at 4530. Was cemented with 300 sacks of 50/50 POZ and the top of the cement, according to bond log, was calculated to be at 2000 feet.

It is our intentions to run 2-8ths tubing, plastic lined tubing, to 4000 feet, use a tension-type Baker packer, set at -- the perforating interval is from 4137 to 4464, and we've already done a light acid job on this well with 10 point injection packer, and our maximum -- want me to go over the maximum data now?

Q Sure, what is the maximum rates that you propose to dispose of in the well?

A Maximum daily rates will be about 400 barrels a day. We have a closed system. Our maximum injection pressure should be 850 pounds according to 0.2 pounds per foot.

Q The 850 psi stays within the 0.2 guidelines of the Division.

A Yes, sir. We expect the well to take it on vacuum.

Q Let's turn now, Mr. McBride, to the schematics of the plugged and abandoned wells and have you go

through each of those, starting with Exhibit Number Five, identifying for us the well location and describing for us whether or not, in your opinion, each of these wells has been properly plugged and abandoned so that they will not be a source by which fluids disposed of in the disposal well could migrate into some other formation.

A Okay. The Atlantic Tucker No. 1, if you'll notice it on your map it's No. 10, is in very close proximity to the injection well. This well had 344 feet of surface set and circulated with 225 sacks. Upon plugging they set a 25-sack plug from 350, that's right below the shoe, up into the surface pipe.

All right, they shot the casing off at 1,013 and they set a 35-sack plug on top of the 5-1/2, and below they circulated 10-pound mud and set a cast iron bridge plug at 4000 feet, and then put 5 sacks of cement on top of that.

The long string had 300 sacks of cement. Well, it had 600 sacks of cement circulated on it and according to calculations it would have circulated.

Q Are you satisfied that that one has been properly plugged?

A Yes, sir.

Q All right, let's turn to Exhibit Number Six and have you identify the location of this well and

describe whether or not in your opinion this well has been properly plugged.

A Okay. There's one point I'd like to bring out that we ought to keep in mind, that our water producing interval is 125 feet.

Q For fresh water?

A For fresh water.

Q All right.

A 125 to 135 feet, and all of our surface pipe has covered that, and they've all circulated cement.

Q All right, sir.

A The Atlantic Tucker No. 2 -- I'm starting from the bottom and coming up -- they had -- they set 5-1/2 at 4460 and they cemented with 500 sacks and that calculates that it circulated.

All right, they came up the hole during plugging. They set a cast iron bridge plug at 4000 feet with 5 sacks of cement on top of it. They circulated 10-pound mud above that. They shot the casing off at 1202 with 35 sacks of cement on top of stub. They moved up and set 35 sacks across the shoe.

All right. We had 8-5/8ths set at 335 feet. They circulated cement with 225 sacks.

And set a 10-sack plug at the surface.

Q (Some words lost at turning of tape) and

identify the location of this well and describe the method in which it's been plugged.

A Okay. Tucker No. 3 is another well in very close proximity to the wells on the northeast corner of Tucker 5.

This well was cemented with 300 sacks of cement on the long string; calculated top on that cement would be about 3500 feet.

When they came back in to plug it they set the cast iron bridge plug at 3508, circulated 10-pound mud above that and shot the casing off at 1322; spotted 35 sacks on top of the stub. They come up and set 35 sacks across the base of the shoe at the surface pipe.

The 8-5/8ths circulated cement at 381 feet, and they put 10 sacks at the surface.

Q Okay, are you satisfied this well's been properly plugged?

A Yes, sir.

Q All right, let's turn to Exhibit Eight and identify where this well is.

A This is the Federal 24 No. 1. You need to note on this that there are 2 Federal 24 No. 1's. This one is No. 13, and I've got it noted on your map.

The long string was cemented with 325 sacks of cement. That brings cement up to about 3200 feet.

Plugging this well they spotted cement at a 50-sack plug of H (sic) at 4000 feet.

The top perforation was 4131. They shot the casing off at 3100, plug shot and spotted 50 sacks across the top of the stub and they set 50 sacks across the shoe.

The surface pipe was 7-inch and it was set at 1780 and cement circulated on it, and they set 10 sacks at the surface.

This well has been plugged properly.

Q All right, let's to to the next exhibit, which is Number 9?

A 24.

Q The 24 Well.

A 24 No. 1.

Q Yes.

A Same name but different location. It's close to being outside of our half mile radius but I went ahead and included it, too.

The long string was cemented with 150 sacks of cement and during plugging, the top perforation being at 4152, they came up and set a 50-sack plug from 4000 to 4162.

They moved up the hole, shot casing off at 3300; spotted 50 sacks across the stub.

The 7-inch was set at 1824. They set 50 sacks across the shoe and the 7-inch is set for surface at 1824; the cement was circulated from there to surface.

They set 10 sacks on top.

I'm satisfied that this one has been plugged properly, too.

Q All right, sir, let's go to Exhibit Number Ten.

A This is the Federal 24 No. 2. They reached a total depth of 4700, set 4-1/2.

Q This is Well No. 15 on the plat?

A Yes, sir.

Q Okay.

A They cemented with 150 sacks on the long string. This brought it up to about 3000 feet on the -- evidently cement did not come up that far because of the shallow 3640.

Top perforation being about 4150. They set 50-sack plug from 4160 to 4000 feet.

Show the casing off at 3640 and spotted 50 sacks across the stub; moved up to the base of the surface, which was at 1817, and they spotted 50 sacks across the shoe.

The surface pipe, the 7-inch, set at 1817 and surface -- cement did circulate on this.

They did a top job with 10 sacks.

This again protected the water zones.

Q Are you satisfied that this well has been properly plugged?

A Yes, sir.

Q All right, let's go to Exhibit Number Eleven.

A This is the Humble Federal No. 6. This is a well that's on one of our leases at this time. This well was P & A'd. They have set 5-1/2 to 4499, cemented with 650 sacks, cement did circulate on the long string.

Top perforation is at -- was at 4080. They put a cast iron bridge plug at 4000 feet; put 5 sacks on top of that.

They moved up the hole and set 25-sack plug from 2900 to 3000 feet.

They moved up the hole and shot the casing off at 1088; spotted 35 sacks across the stub; put 35 sacks across the shoe, which was -- of the surface pipe at 338 feet.

Cement on surface did circulate.

And spot topped off with 10 sacks.

I'm satisified that all water sands are protected on this one, too.

Q Let's turn now to a water analysis, Mr.

McBride. Would you describe Exhibit Number Twelve for us?

A Okay, this is a sample of injection water that we're taking off some -- all the wells to the south and to the east of the proposed salt water injection well.

Water is coming out of the San Andres formation. Chlorides are 89,155 parts per million.

This is typical San Andres water from the area.

Q All right, let's have you turn now to the water analysis on any fresh water that is produced in the area.

A Okay. The only fresh water well in the area that can be located, this is a hard area for finding water, producing interval is from 125 to 135 feet. Understand that the aquifer pinches out to the west. This aquifer is quite prolific to the -- to the east, but in this area you're lucky if you find a 10-foot producing -- 10 foot area of porosity.

This is the only well that I know of, probably, within four miles, and it's located pretty close proximity to our well. I've got it located on the map. It's between -- between the wells 10, 8, 5, and 7, if you'll notice.

Mr. Examiner, do -- do you see that?

MR. STOGNER: What was that?

A Do you see the fresh water well located in the Tucker Pond?

MR. STOGNER: Tucker Pond, yes, okay.

A That's the only producing water well that we know of within about a four or five mile area.

Q Do you have an opinion, Mr. McBride, whether or not the utilization of the Tucker 5 as a disposal well in the San Andres formation would endanger any fresh water sands?

A No, sir. This being the only sand in the area that's been productive in -- this a ranching area and they've been looking for water there for years. This is one of the only producing wells in the area and at 125-135 feet we -- the shallowest surface pipe we have set at 330 feet, and it circulated cement, so I feel that everything there has been -- should be sealed off; no problem.

Q Mr. McBride, are you aware of any geologic features or open faulting or any hydrologic connections by which water disposed of in the San Andres formation could migrate up through and into the shallow fresh water sands?

A The only way they could migrate vertically would be through another wellbore and I think all these wells have been sufficiently plugged and if they did, they would have a hard time circulating up that -- if cement was

circulated properly on the back side of all the 8 and 5 surface pipes.

Q Exhibit Number Fourteen is a tabulation of operators and owners within the half mile radius.

Mr. McBride, other than Chaveroo Operating Company, can you identify for us any other operators within the half mile area?

A Mr. Graham - well, no, the only other operator, Shell Oil Company, has temporarily abandoned their well, and it's highlighted as being No. 2. It's up in the northwest quarter, northwest corner of our circle.

And Homer J. Kyle operates two wells down here, the No. 10, or correction, No. 8, and that's all. That's the only other two operators. We -- we operate all the rest.

Q The other leases identified on the plat, Yates and the others, are all leases operated by Chaveroo?

A Well, those leases are inactive at this time.

Q All right. Who is the owner at the surface of the proposed disposal well location, to the best of your knowledge, Mr. McBride?

A Okay, these are fee leases. Surface grazing rights are owned by Tommy Tucker.

Q And have you provided notice to Mr.

Tucker of your application?

A Yes. Yes, I have.

Q Okay. Mr. McBride, were Exhibits One through Fourteen either prepared by you or caused to be prepared under your direction and supervision?

A Yes.

MR. KELLAHIN: We move the introduction of Exhibits One through Fourteen, Mr. Stogner.

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

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

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. McBride, let's go back to Exhibits Number Six, Seven, Eight, Nine, Ten, and Eleven. Those are the schematics of the plugged and abandoned wells.

I noticed on Exhibit Number Six and Exhibit Number Eleven, for those particular wells there was at least 500 sacks of cement used to cement the 5-1/2 and in the well described in Exhibit Number Eleven there was in excess of 500 sacks; however, both casings were shot off.

A You going to calculate tops we have?

Q Yes, could you explain that a little bit?

A Well, a lot of times when you're cementing the San Andres will take -- will take cement, you'll lose returns and your cement will not -- will you'll exceed frac gradient at times.

That was one of the problems in the area when we first started producing these wells. They were cementing and the hydrostatic got too -- well, it was too high for the formation to hold it and you'd break the formation down.

Q That leads me up to the wells in betweeen these two where you are using 3, 325, and even 150 sacks through this same interval.

A If you'll notice -- okay, on my injection well, I've drilled in this area 12 wells for Chaveroo Operating, and we've found that 300 sacks would always bring it up to around 2000 feet.

Q I'm sorry, 200 sacks would bring it where?

A 300 sacks. 300 sacks would bring it up to 2000 feet.

Q 2000 feet.

A I had -- I had a policy in this area before I would cement it, I would sweep the hole with fresh water just to lower the hydrostatic. Of course, you know, a lot of these wells were drilled back in the sixties and

seventies. They were drilling with 10-pound mud and they started pumping 14-pound cement, 16-pound cement, and with that 10-pound mud on top of it, you -- there's no way you can circulate the hole.

Q Did Chaveroo plug and abandon these wells or did the other operator?

A No, sir, Monument Energy plugged and killed those wells.

Q Okay, was there any data in the record showing that --

A Calculated tops or tops of bond logs?

Q No, showing where they had --

A Circulated cement or --

Q No.

A I've got all the records here.

Q Show that they run a 4-point before they --

A Oh, 3-point?

Q Yeah, 3-point, rather, before they shot off the casing?

A Carroll Neely shot all these casing -- shot these wells and pulled the casing and his policy was to go in and start at 2000 feet and he'd shoot it. He'd come up to 1500, and then he'd come up to 1200 and 1000.

And he'd shoot it and if he could pull

it, well, he'd pull it, and if he couldn't, well, he just kept moving up the hole.

Q Okay, when you say 2000 foot off bottom he would shoot it there.

A He would shoot from 2000 feet.

Q Okay.

A And if you'll notice, just about where this casing is pooled is probably within a 200-foot area of how far cement was actually holding.

Q Okay.

A To run a 3-point or bond log, to run a bond log you have to have a hole full of fluid. There's no way you can do that in this area unless you somehow squeeze the perforations off and to run a 3-point, it's just more expense. It's cheaper to run in a shot and shoot it.

CROSS EXAMINATION

BY MR. TAYLOR:

Q Mr. McBride, we're just slightly unclear on your notice again.

On Yates and MTM Energy, are you operating the leases for MTM Energy?

A Yes, sir, those are our leases at this date.

Q Okay, and how about Yates?

A No, sir, those wells, 13 and 15, have both been plugged.

Q Do you know if the leases have expired on them? I notice you have given --

A I have no idea, sir. I'm sure the -- I can give you plugging dates on those wells.

Q Would you check that and if necessary give them notice because we don't want to run into a problem with Yates if --

A Sure, okay.

Q -- they -- if they're still operating or if they still have leases on that and they didn't get notice.

So either notify Yates if it's -- if they hold the leases or, I guess, the U. S. if they -- have the leases have expired or is that who owns this section, the U. S.?

A Western States Producing Company is the --

Q Well, it looks to be Federal leases, is that correct?

A Hold on just a second. They're Federal leases, yes, sir.

Q Well, could you either, could you figure it out and just submit --

A All right.

Q -- something for the file showing that you either sent a notice to Yates or what is the role of Western States here? Does Yates have the -- something from them? They're the original lessee?

A Well, the last people that operated the -- they plugged the well out was SEECO (sic) Production Company out of Midland.

Q Okay, if you could just --

MR. KELLAHIN: We'll inquire and --

Q -- sometime try to figure out what's going on there, because we dont' want to have a problem.

A Okay.

Q We've had those before.

MR. STOGNER: And as the proof of notice requires that all leasehold operators within a half mile of the well be notified.

I'll hold the record open until you provide us some information on that, Mr. Kellahin.

MR. KELLAHIN: Be happy to.

MR. STOGNER: Is there anything further in this case, 8843?

There being none, this witness may be excused and, as I mentioned earlier, I'll hold the

record open on Case Number 8843 pending the notification question.

(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. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division