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

6 January 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Penroc Oil Corporation for salt water disposal, Lea County, New Mexico.	CASE 9287

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:

For the Applicant:

MR. STOGNER: I'll call next Case Number 9287, the application of Penroc Oil Corporation for salt water disposal, Lea County, New Mexico.

The applicant has requested that this case be continued to the Examiner's hearing scheduled for January 20th, 1990 -- 1988.

(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. 9287, heard by me on 16 January 1988.

Michael E. Stogner, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
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20 January 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Penroc Oil Corporation for salt water disposal, Lea County, New Mexico. CASE 9287

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:

For the Applicant: W. Thomas Kellahin
Attorney at Law
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I N D E X

E X H I B I T S

E X H I B I T S

MR. CATANACH: So we'll call Case 9287, which is the application of Penroc Oil Corporation for salt water disposal, Lea County, New Mexico.

Are there appearances in this case?

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Penroc Oil Corporation.

Mr. Examiner, may the record reflect that Mr. Merchant is already under oath. He has been qualified as an expert petroleum engineer and we're prepared to go forward with his exhibits in this case.

MR. CATANACH: The record will so indicate, Mr. Kellahin.

MOHAMMED YAMIN MERCHANT,

being called as a witnes and having been previously sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Merchant, would you take a moment and look at what I've marked as Exhibit Number One, which is the plat of this area on which you've identified the well loca-

tion. For the record would you simply state the name of the well and where it is located?

A Okay. The name of the well is George McGonagill No. 1. It's located in the northeast quarter of the northeast quarter, Section 2, Township 18 South, Range 35 East, Lea County, New Mexico.

Q Where is this well in relation to the well we discussed in Case 9297?

A This well is approximately four miles to the northeast of the earlier discussed case.

Q And in fact if we look at the southwest corner of this display, Exhibit One, we find Section 8 where the prior well is located, do we not?

A That is correct.

Q So as we move to the north and east we're looking at the George McGonagill Well?

A Yes, sir.

Q Would you describe for the Examiner what has been the history of that well?

A This well was originally drilled to the Abo by the then Aztec Oil and Gas Corporation in 1961. They were unsuccessful. After extensive testing they were unsuccessful to making a completion in the Abo. It was plugged and abandoned. Later on it was re-entered by Buddy Westbrook out of Hobbs to be completed in the San Andres, and it

was later abandoned. In fact, immediately after the recompletion attempt because San Andres was watered out.

It was then, the third time it was reentered by Apollo Energy, which is my previous company, and we came up the hole to the Upper San Andres and we tested the Abo, it wasn't no good, and we came up the hole to the Upper San Andres and it was watered out.

So after three different operators, three attempts, the wellbore for all practical purposes is not any good for commercial production.

Q You propose to utilize what footage interval in the San Andres for disposal?

A Okay. Okay, we intend to dispose from a depth of 4790 to 5086 feet, which is all of San Andres.

Q Let me direct your attention now, Exhibit Number Two is simply the C-108, Mr. Merchant, let me direct your attention to Exhibit Three, which is your C-103 for this well.

A Okay, C-103 is an intent filed with the OCD to re-enter the well. It is -- it is already open in the Upper San Andres and we intend to drill out the CI bridge plug set at 4970 and add additional perforations in the San Andres before -- prior to putting injection, which is similar, by the way, to the Rice salt water disposal wells.

Q Okay. The source of the water to be disposed of in the subject well is what source?

A The source, there'll be multi-source. Number one, we'll utilize, if necessary, for our State "AF" lease, which is constantly in a disposal bind with Rice Engineering.

We hope that "AF" No. 3, the earlier case, will take care of the No. 1 Well. If it don't, we'll utilize the produced water from the Devonian from the "AF" coming to the George McGonagill lease.

The second purpose for the disposal well in George McGonagill is the severe need of disposal facilities in the Buckeye area. As most of us are aware, most major oil company problems in Buckeye area which is no disposal for the San Andres and Abo water, mostly San Andres, and the water will be trucked in within a mile from the wellbore -- well site.

Q Let's go to the tabulation of information that starts on Exhibit Four and have you discuss some of the more -- some of the rest of the information.

For example, what do you anticipate to be the maximum daily disposal rate?

A The maximum daily disposal rate is 5000 barrels a day. The average daily rate is approximately 2500 barrels a day and that's going back talking to Rice Engine-

ering. They said their wells can take over 300 barrels an hour on vacuum.

So based on experience in the San Andres, especially the lower San Andres, in the southeast New Mexico area, most of these wells will take 2-to-3000 barrels a day on vacuum easily.

Q The Commission guidelines for a surface limitation pressure of .2 psi per foot of depth will be a limitation, then, that is acceptable for you for disposal purposes in this well?

A That is correct. I mentioned earlier I do not foresee any surface pressures but if there is, they shouldn't exceed that .2 psi per foot.

Q Let's turn now to the second page of that tabulation. I think it's been marked as Exhibit Five. Do you propose to treat the injection interval, Mr. Merchant?

A Initially there may not be a need but since we don't know exactly what it will do we'll put some kind of treatment on it.

Q Based upon your studies of the area do you find any geologic or hydrologic connection between the disposal interval and any underground sources of drinking water?

A There's a fresh water well located east, east of the subject well but we do not see any problem be-

cause of the proper cementing and casing practices.

Q Can you approximate where the water well that's east of your location?

A Yes, approximately a mile and a half east, Tom.

Q And do you know the ownership of that well?

A R. D. Lee and Bill Lee.

Q And they are the same owners of the surface at which the disposal well is to be located?

A That is correct.

Q And have you obtained the concurrence of Mr. Lee and his father with regards to the use of this well for disposal purposes?

A Verbal, yes; written, I don't have one, but it's a minor problem to submit one if that's necessary.

Q Do you have the necessary approvals for the utilization of this wellbore for commercial disposal purposes?

A From the --

Q From the Lees.

A Yes, sir, I do.

Q So you can utilize off -- off lease produced water for disposal in this well.

A That is correct.

Q Other than the Lees' water well to the east, are you aware of any other sources of fresh water?

A No, I'm not aware of any.

Q Can you approximate for us, Mr. Merchant, the depth at which the Lee water well is producing?

A It's between 150 to 200 feet subsurface.

Q Do you know whether or not that is Ogallala water or some other fresh water source?

A It's Ogallala water.

Q Do you know whether or not there are shallow fresh water sands occurring below the base of the Ogallala in this area?

A Not to my knowledge.

Q Have you made an examination of the wellbores within a half mile radius of the disposal well?

A Yes, sir, I have.

Q Let's turn to Exhibit Number Six and complete our discussion on the George McGonagill No. 1 Well. You have tabulated the perforation information and the casing information.

Let's turn, sir, to Exhibit Number Seven which shows the current wellbore sketch for that well and have you talk about both of those exhibits at the same time.

A Okay. The current wellbore sketch shows the surface casing set at 320 feet, cement circulated to

surface. The 8-5/8ths is set at 3498 and once again cement circulated to surface, using 1365 sacks of cement.

When the well was originally plugged back in 1962 or 63, part of the production casing was pulled and that's why you see a 5-1/2 casing stub at 2888, and during extensive testing of the Abo, as well as the San Andres, by Apollo Energy, that casing stub was tested many, many times, pressure tested, and it is in good shape.

The wellbore sketch also shows the presently open perforation from 4790 to 4846, which was noncommercial. I believe it was two barrels of oil and 350 barrels of water.

And the proposed wellbore sketch also shows the additional perforations we will make in the San Andres.

The wellbore sketches also show the Abo perforations from 8780 to 9080, which were abandoned back in 1982 or '83 when we re-entered it.

Q Let's draw your atttention now to Exhibit Eight, which is the proposed completion for disposal.

A The proposed well will have a 2-7/8ths plastic-coated tubing set at approximately 4600 feet inside a plastic-coated Bake Model AD-1 packer, injecting into the perforations from 4970 to 5086.

MR. CATANACH: Tom, I've got

that marked as Exhibit Number Eleven.

MR. KELLAHIN: Okay, would you mind remarking those for me?

MR. CATANACH: Sure, what should that be?

MR. KELLAHIN: The proposed wellbore schematic I have as Number Eight.

MR. CATANACH: Okay.

Q Number Nine, Mr. Merchant, let me direct your attention to that. It's the portion of a log that shows the perforations in the McGonagill Well. Can you identify that for us?

A Once again, this is a copy of the portion of acoustic log run on this well back in 1961 and it shows the interval which we propose to open from 4790 to 5086.

Q Okay.

A That's all I have.

Q All right. Let's review the information with the Examiner on those wells within the half mile radius that penetrate the San Andres formation, either have produced from the San Andres or produced below that interval.

My Exhibit Ten is your tabulation of information on the Apollo Energy Lee No. 1 -- No. 2 Well in Section 2?

A That is correct.

Q All right, sir.

A Okay, the Lee No. 2 (unclear) is located one location, a little more than one location, west of the George McGonagill No. 1. It was originally drilled by ARCO Oil and Gas and by Sinclair in the 1960's and was plugged and abandoned as an Abo dry hole.

It was re-entered at a later date, in the early eighties by Apollo Energy, which is formerly myself, and we were unsuccessful in recompleting it in the Abo and we abandoned that zone. We came up to the San Andres, perforated it, tested it, and it was all water, and as this exhibit will show, it was properly plugged and abandoned.

Q You have prepared a schematic of that wellbore and that's marked as Exhibit Number Eleven?

A That is correct. It shows the San Andres perfs from 4222 to 4232 and also the Lower San Andres perfs from 5082 to 5094, as well as the Abo perfs, sets of Abo perfs, from 8400 feet all the way down to 8992, which were properly abandoned at various times.

Q Is that the only plugged and abandoned well within the half mile radius that produced from or penetrated through the Abo?

A Through the Abo?

Q Yes, sir.

A No, there is one more -- a couple of other wells.

The second one is the Cities Service State BJ No. 1, which is still producing from the Abo from 8904 to 8952.

Q Well, I didn't make myself clear. The Apollo Lee No. 2 Well is the only well that's plugged and abandoned.

A Oh, I'm sorry, yeah. That's the only well I know of which is plugged, yes.

Q Okay. Let's go the producing wells now and looking at Exhibit Twelve, that starts the two-well summary with the Cities Service BJ No. 1 and then the Cities Service BJ No. 3 Wells?

A BJ No. 1 and BJ No. 3 both are Abo wells drilled in the mid-sixties and are currently producing about 7 or 8 barrels a day and as the information on it shows, that they are both -- both have proper casing and cement jobs.

Q Exhibit Thirteen is the information on the Hondo Oil Lee 946 State No. 3 Well and then the Penroc Lee No. 1 Well.

A Once again the information on this exhibit shows that it does have proper casing and cement in both these producers, both Hondo as well as Penroc's well

within that half a mile radius.

Q I direct your attention now, Mr. Merchant, to Exhibit Number Fourteen and have you idenitfy that.

A Exhibit Number Fourteen is once again a water analysis from Halliburton.

The first one is a water well, the fresh water well belongs to the Lee Cattle Company or the Lee -- R. D. and Bill Lee, and the second one is an analysis of produced water off the Devonian well, off State "AF" No. 1.

Like I mentioned earlier, that the well will be -- if approved, will be open for commercial disposal and we will be taking water, predominantly San Andres, in the Buckeye area.

Q Prior to utilization of this wellbore for disposal of other waters from other formations, is it acceptable to you to submit water analyses to the District Office of the Division and have a determination made by the District Office as to the compatibility of the fluids?

A I don't have a problem submitting that information.

Q Let me discuss with you now Exhibits Fifteen and Sixteen. One is a tabulation of disposal wells in the area and the other is a plat.

Would you brief the Examiner on what

other disposal facilities are being utilized in the area and what formations in which they dispose of fluids?

A Okay. The -- going from top to bottom, the first -- the first three are Rice Engineering Disposal wells.

The first one is open hole from 4885 to 5855, a ratehr large open hole.

The second one is perforated from 4973 to 5713, and third one is 5230 to 5755.

You will note that they are all in the San Andres.

The (unclear) next to the BTA -- BTA No. 2 in Unit letter G and the BTA No. 2 in Unit letter E, they are -- the first one is completed open hole in the Abo as a disposal well and the second one is in the San Andres. To my knowledge the two BTA wells are being utilized only by BTA. compared to the three Rice wells, that are being utilized for commercial disposal.

Q Then finally, looking at Exhibit Seventeen, that's the notices, would you describe what you've done with regards to notification?

A This is again certified mail notices to all the offset operators, as well as the surface owners, which in this case is R. D. Lee.

MR. KELLAHIN: That concludes

my presentation, Mr. Examiner.

We would move the introduction of Mr. Merchant's Exhibits One through Seventeen.

MR. CATANACH: Exhibits One through Seventeen will be admitted into evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Merchant, I have a question on the Cities Service State BJ No. 1 Well. It's on Exhibit Twelve.

A All right.

Q That long string of 5-1/2 inch casing is set at 9009 and cemented with (unclear) sacks; top of the cement at 5085. That is below the -- the injection -- your injection zone in your proposed disposal well.

A That is -- that is correct and that was one reason, even though the half a mile radius, if you look on this -- on the plat, we barely missed it. I don't have a, you know, reason for saying why. It is that way. There's not something I can do about it.

Q But it is within one-half mile --

A Well, --

Q -- of your well?

A Depending on how the bird flies, or how you make that circle, if you make that circle with a very

sharp pencil, it's outside the half mile radius, the BJ No. 1.

Q Well, have you -- have you actually looked at both well locations and actually figured out the distance between the two?

A That's out of the half a mile radius.

Q It is out of the half mile radius?

A Yeah. But the cement is, like you mentioned of the long string, is only to 5085.

Q Right, which -- which leaves a potential risk of -- of the -- your injected fluid migrating up the 5-1/2 inch annulus.

A In the area normally most of the water disposal, everywhere I'm familiar with in southeast New Mexico, including on those three Rice wells to the -- to the north, to the north of us there, you notice Rice Engineering have a wellimmediately to the north of the Cities Service well in question and they're disposing water in it right now. And we are much, much further away.

Q Locate those wells for me. You've got your Rice Engineering wells --

(There followed a discussion off the record.)

MR. KELLAHIN: Let's go back on

the record, Mr. Examiner.

Off the record, Mr. Examiner, I have shown you my copy of Exhibit Fifteen, I believe it is, Sixteen, which shows the location of the Cities Service JB No. 1 Well in relation to the three Rice disposal wells and finally in relation to the Penroc proposed location.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Let me ask you, in relation to that exhibit now that's before all of us, Mr. Merchant, have you seen or are you aware or any adverse effect that the Rice disposal has had upon the Cities Service BJ No. 1 Well?

A No effect whatsoever.

Q And what is the relationship of that well to the nearest Rice disposal well? How many feet apart is it?

A Just looking at this map seems like it's 660 feet, they are 660 feet apart; 330 from the property line to Rice's well and 330 from the property line to Cities Service' well, so it's 660 total.

Q Do you see any potential for contamination of the interval being produced in the Cities Service from injection or disposal of fluids in your well from the fact that the annular space in the 5-1/2 inch casing is not

full of cement?

A No, I don't. Rice have been injecting or disposing in there on vacuum or gravity feed, like they call it, for quite a few years, at least 10 or 11 I know of, and they are sitting located direct offset 330 feet of the section line, or 660 from the wellbore.

And the Penroc proposed disposal well is going to be over half a mile and we have good casing and cement having been brought to the surface.

Q On another subject, Mr. Merchant, Rice Engineering has sent a letter to the Commission with regards to your application today to express their concerns about your plan of operation for your disposal well.

And if I might take a moment, Mr. Examiner, I'd like to show you their letter dated January 4th of '88, Mr. Merchant, in which Mr. Goodheart writes a letter to the Commission.

Have you seen this letter before the hearing today?

A No, I have not. This was the first time.

Q Let me ask you to take a moment and read the letter to yourself so that you understand what their concern is.

A I've reviewed the letter.

Q All right. Having reviewed the letter,

Mr. Merchant, would you summarize in your opinion what Rice Engineering is requesting of the Commission?

A Rice Engineering's point is that they are -- they have three disposal wells in the area, which are being operated on a gravity feed system; that they would like to see Penroc's well restricted to some kind of pressure or no pressure at all.

That's all.

Q Do you see a need or a justification to have the Examiner grant you a surface limitation pressure greater than the pressure limitation set forth in the Division memorandum which is a limitation of .2 psi per foot of depth?

A No, I don't. I believe we would not see any pressures as long as we're within the .02 -- .2 psi per foot limitation, we'll be in good shape.

Q Within that limitation and a true vacuum injection do you see any need to honor Rice's request that your disposal be conditioned only upon a vacuum disposal system?

A No, I don't.

Q Why not, sir?

A Because there will come a time, as long as Rice has been disposing in there, there'll come a time, it may not be in my lifetime but it will, where it will

eventually require some kind of pressurized system and I'm not going to sit here today and commit to something I can't live with.

MR. KELLAHIN: Nothing further.

RECROSS EXAMINATION

BY MR. CATANACH:

Q I take it, Mr. Merchant, you haven't done any injectivity tests on that well yet?

A Mr. Examiner, I have not ran any injectivity tests on this well but during the regional testing and completing of the Lower San Andres it was later squeezed, the two Lower San Andres, actually it was done in two stages, earlier by Buddy Westbrook and later on by Apollo Energy, and the third San Andres, Upper San Andressd, which is opened by myself, that in each instance the well would be on a screaming vacuum as soon as you put any kind of water to it during the acid jobs.

Q So you don't think that you could live with just a vacuum system initially?

A Without having any kind of test I don't' think so. I feel pretty comfortable that it will take it on vacuum because that's the history of San Andres in the area, especially the Lower San Andres, but I would like to have the liberty or the approval to live within the limitation of

the .2 psi per foot, and I cannot see how I would be affecting Rice or anybody else because I won't be fracturing anything if I stay within my limitation.

MR. CATANACH: Okay. I have nothing further of the witness.

Is there anything further in Case 9287?

MR. KELLAHIN: No, sir.

MR. CATANACH: If not, it 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. 9287, heard by me on Jan 20 1988.

David R. Catanach, Examiner
Oil Conservation Division