STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
25 May 1983

EXAMINER HEARING

IN THE MATTER OF:

Application of Yates Petroleum Corporation for salt water disposal, Lea County, New Mexico.

CASE 7872 and 7838

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

E X H I B I T S

MR. STAMETS: Call next Case 7872.

MR. DICKERSON: Let me ask, Mr. Examiner, we think we can expedite the remainder of these cases if we are allowed to consolidate Case 7872 with 7838, which is the last one on Yates docket.

MR. STAMETS: I see no objection. We will call both of those cases and consolidate them for purposes of testimony.

Seeing none, let's proceed thusly.

MR. PEARCE: Case 7872 is on the application of Yates Petroleum Corporation for salt water disposal, in Lea County, New Mexico, and Case 7838 is on the application of Yates Petroleum Corporation for salt water disposal, Lea County, New Mexico.

MR. DICKERSON: Chad Dickerson, Mr. Examiner, and on behalf of the applicant we'll call one witness, who has already been sworn.

DAVID BONEAU,

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

DIRECT EXAMINATION

BY MR. DICKERSON:

Q. Mr. Boneau, you are the same witness who previously testified and were previously qualified, were you not?

A. Yes, sir.

Q. Mr. Boneau, do you have a preliminary statement which you could make which might clarify and simplify the purpose of Yates' application in these two consolidated cases?

A. Yes, and I'd also like to include the next -- or the rationale behind the next two cases, if that's not completely out of order.

These four cases, Dick, involve water disposal here, here, here, and here. The point is Yates has drilled wells which I've scribbled in the circle, here, up here, here, and here, which are producing from the Bough at about 9800 feet, drilled within the last year and producing about 1500 barrels of oil per day and about 2000 barrels of water per day.

We're looking for a place to put this water.

MR. MR. STAMETS: Should we call all four of these cases, Chad?

A. We talked about it.

MR. DICKERSON: We're willing, but I'm afraid we're going to --

MR. STAMETS: Okay.

MR. DICKERSON: -- get covered up with paper if we --

MR. STAMETS: Fine.

MR. DICKERSON: -- do that.

MR. STAMETS: Let's don't do it, then.

A. And maybe this is not regional, but I would never understand it if I didn't do this myself, so I hope it helps you.

The closest well is one called Swan "VB" No. 2, which is one of the ones we're hearing now. We're testing that one as an oil well. It's a marginal oil well and I'm not sure, but if it makes an oil well, we don't want to use it for a disposal well. If it doesn't, we want to be able to use it. That's really the first choice for a disposal well.

There's a well over here called Midwest State which we'd like to re-enter because the well looks fairly decent on the log. If we re-enter it and it looks -- and it does not produce, it's really the second choice as a disposal well.

There's a well down here called LDM Amoco "GX" State is a -- we're thinking about re-entering but its log doesn't look as good and it's like, if the first two work out as oil wells, it's probably going to be the disposal well, we hope.

The last choice is one down here called Hondo State where we have to inject into the San Andres. It probably is not as good a disposal zone as the Canyon zone we could inject in these other wells.

We went through all this convoluted thing and here we are talking about these two. The rest of the cases aren't (inaudible.)

Does that make any sense?

MR. STAMETS: In a roundabout sort of way, yes.

Q. So to briefly summarize Mr. Yates' purpose here is to obtain approval of salt water disposal program.

Would you refer the Examiner to what we have marked Exhibit Number One on both cases, both with regard to your well in Case 7872 and the well in Case 7838, and just briefly point out the portion of that exhibit with reference to each of these wells to enable the Examiner to see the -- mechanically how Yates proposes to enter these wells and dis-- pose of this water?

A. Exhibit One in each case is the C-108 form with all its attachments. I'd refer first to the, well, I think it's the fatter one, the one that involves Swan "VB" State No. 2.

The current status of that, as I mentioned, it's perforated in the Bough "A" and the Bough "C" at 9793 to 9950. That well has 13-3/8ths inch cement circulated at 449 feet; has 8-5/8ths inch casing at 4192, circulated to surface. It has 5-1/2 inch casing run to 10,156, cemented with 925 sacks up to about 7800 feet top of cement.

Q. Mr. Boneau, before we proceed any further with Exhibit Number One, the C-108, refer to what is marked Exhibit Number Two and describe what is contained within the area of review for these two proposed injection wells.

Just point out to the Examiner any wells which are pertinent to the proposed disposal wells.

A. Okay. These wells are both in the south-east quarter of Section 21 of Township 14, 33. As such they have similar but not exactly the same areas of review.

Within the areas of review are the Yates producing wells in the north half of that section, the Woodpecker No. 2, Woodpecker No. 5, Woodpecker No. 6, I think also Woodpecker No. 3.

There's a producing well in Unit I called

the Swan "VB" No. 1, which is within the area of review. Those are all oil wells producing from the Bough formation.

Within the area of review of the Hondo Well is a well called Texaco "AN" No. 1 in Section 22, which produced oil for a long time. It was plugged in 1976, I believe, and also within the area of review is a well, an MWJ Well in Section 28 called Saunders 28-A No. 1, which is a producing oil well that was drilled in 1981, I believe, by MWJ.

Is that anything like you're talking about on that?

Q. Okay, and the -- all surface owners and leasehold operators within the area of review have been notified by certified mail of Yates' application in this case, have they not?

A. That's correct.

Q. Now, with further regard to your exhibits C-108, Mr. Boneau, --

A. Let me finish what I started to say about that --

Q. Okay, excuse me.

A. -- Swan Well. The Swan Well has those perforations in the Bough now. In order to make it a water injection well we would -- we would deepen the well from its

present total depth of 10,156 to approximately 10,350 feet and inject into that open hole interval plus some perforations at the very bottom of the 5-1/2 inch casing that's -- that's installed there.

There is a picture of that proposed operation included as, oh, approximately pages 6 and 7 and 8 of the C-108 for that well.

So in that case the productive -- the proposed injection interval is the Cisco Canyon. It would require that the well be deepened, that a packer be set up in the casing and we inject into some perforations and then approximately 200 feet of open hole.

Q. What's the estimated volume of water to be disposed of in each of these two wells, Mr. Boneau?

A. Well, actually it's different in the two wells. The Canyon zone we think will take a minimum of 2000 barrels a day, which is what we have to dispose of right now. It probably will take as much as 4000 barrels a day under injection pressure about 2000 pounds which is the allowed pressure of .2 psi per foot.

The San Andres zone, which is the proposed injection zone in the Hondo State, that we've not really yet discussed, would probably take only about 1500 barrels a day, and the allowed injection pressure there is roughly 1000

pounds at a depth of about 5000 feet. We feel we'd probably need about 1500 pounds to inject into that zone and we would require approval of that injection pressure, or we'd require some mechanism to show that that injection pressure was reasonable.

Q. But for current purposes what pressure do you expect to require to be utilized in order to inject at your hoped for rate?

A. Well, we're asking for the standard injection pressure of .2 psi per foot, so 1000 pounds in the Hondo State, 2000 pounds in the other one.

On the Hondo State I'd ask for an administrative mechanism where we could run a step rate test or some such thing and go to this, perhaps, 1500 psi.

Can I just outline the situation with the Hondo State?

Q. Yes, please do.

A. The well has a long and checkered history. It was drilled in 1951 by Atlantic as their State "U" No. 1 with surface casing set at 377 feet and 9-5/8ths inch casing set at approximately 4100 feet.

They ran logs and abandoned the well.

In 1961 Carl Westland re-entered the well, ran 4-1/2 inch casing to total depth of 10,025 feet, and pro-

duced the well for a couple of years and then converted operations over to a firm called McGrath and Smith, which produced the well for approximately another -- another year.

In 1964, after total production of about 11,000 barrels, the well was P&A'ed and the 4-1/2 inch casing was shot off at approximately 6000 feet and pulled, so that it's, we feel, practically impossible to re-enter that, and what we're talking about doing is injecting into the San Andres and the San Andres exists in the open, essentially the open hole region between the bottom of the intermediate casing at 4100 feet and the top of the stub of the 4-1/2 inch casing at about 6200 feet. So there's 1000 foot interval of San Andres in there that we would propose injecting into open hole under a packer in the tubing, you know; not -- not really an ideal situation and that's partly why it's fourth on our priority list.

Q. Mr. Boneau, would you very briefly summarize the lithology of each of these proposed injection formations and any facts which you feel are pertinent with regard to the formations immediately above and below those injection zones, as far as forming a base and cap for this injection zone?

A. Well, the Cisco Canyon seems to me to be an ideal injection zone. It's a vuggy dolomite with good

porosity. We find that we lose circulation in that zone in many of the wells we've drilled in the area. It contains sulphur water, salt water, and it's separated from the oil producing Bough zones by -- by shales and tight limestone.

The San Andres, as you know, is an approximately 1000 foot section of limestones and dolomite, generally separated, zones that are separated by the tightness of the -- of the -- of the dolomite and anhydrite that separates the porosity zones from the non-porosity zones.

Above the San Andres there are shales that separate it from the other producing zones and the fresh water zones, of course, are the Ogallala, which is about 250 feet below the surface and a mile or two above the injection zones that we're talking about.

Q. Have you studied all the appropriate geological and engineering data, Mr. Boneau, so that you're able to express an opinion on whether there are any apparent open faults or other hydrologic connection between the proposed injection interval and that source of fresh water in the area?

A. I've gone over some of that data myself and I've talked to our geologist on just that question and the conclusion that there's no evidence of open faults or any other connections between the disposal zones and the fresh water zones above.

Q. What, if any, problems do you foresee with the proposed water to be injected as far as its compatibility with the water existing in the area?

A. All the waters we're talking about are brines. The water produced from the wells we're talking about varies in chloride content from 10,000 parts per million up to about 90,000 parts per million. Most of it is in the range of 20,000 parts per million chlorides.

The only measurement of the water from the proposed Canyon injection zone is about 18,000 parts per million chlorides and I think those would be very compatible.

The San Andres injection zone contains more salty water; by that I mean water with a higher concentration of ions and the waters would not be, you know, exactly the same, but they should be compatible.

Q. If you didn't say, Mr. Boneau, what are the closest sources of drinking water in existing wells in the immediate area of these two proposed injection wells?

A. There is one windmill in Section 27 which produces water of about 40 parts per million chlorides and I think there's one T&A'd -- what I call T&A'd windmill, one old windmill from which we're not able to obtain a sample.

Q. So you foresee no problem whatsoever with avoiding contamination of any fresh water sources.

A. No, we're not going to contaminate the fresh water sources.

I need to point out a couple potential problems, I think, to be complete in our discussion of this.

In the -- in the Cisco Canyon we're talking about injecting into a zone which was tested in the adjacent Swan "VB" No. 1. There's a bridge plug above that zone in the Swan "VB" No. 1. We think the bridge plug is holding but we intend to go back in, drill out that bridge plug, and squeeze all that zone in the adjacent well regardless of whether we inject in the Swan "VB" No. 2.

We're producing more water in the Swan "VB" No. 1 than we think we should and we're not sure where it's coming from, but one place it could be coming from is from this zone above the packer and we're going to go in and squeeze that.

So that's something that should be taken care of before we inject in Swan "VB" No. 2 and we intend to do that and you'd be wise to require us to do that.

In the other well, in the Hondo State Well, the obvious problem is that we're injecting into a San Andres zone and the surrounding wells have no cement over the pipe in that zone; they just plain don't.

Q. Mr. Boneau, what, if any, treatment do you

foresee as being necessary to enable Yates to inject into these two proposed zones?

A. Small acid treatments, 2000 to 5000 gallons, ought to do it.

Q. In your opinion, Mr. Boneau, would the granting of this application, or these two applications, be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

MR. DICKERSON: At this time, Mr. Examiner, I move admission of Yates' Exhibits One and Two in each of these cases.

MR. STAMETS: These exhibits will be admitted.

MR. DICKERSON: And if the Examiner has no questions, that concludes our direct examination.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Boneau, on the State Swan "VB" No. 1 you indicated you would squeeze some perforations below the bridge plug. Now would those be zones that would be injected into in the Swan -- or in the No. 2 Well?

A. The logs are real hard to correlate, but I

think so, yes.

Q. Okay.

A. In that well we intend to deepen the well and inject into an open hole interval in the deepened zone. That is not the zone we're talking about in the SWan "VB" 1, but we're also going to put some perforations at the very bottom of the present pipe and those zones probably correlate with this zone in the Swan "VB" 1 that I'm talking about.

MR. STAMETS: Are there other questions of the witness in either of the two cases? He may be excused.

Anything further? I will note that the Examiner has not really had time to thoroughly review the exhibits submitted here and there may be some questions upon which I will contact Mr. Boneau later.

If there is nothing further, the cases 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 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. 7877/7883 heard by me on 5-25 1983.

Richard P. Stamets Examiner
Oil Conservation Division

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