STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF:	)	
	)	
APPLICATION OF STEVENS OPERATING CORPORATION FOR APPROVAL OF SALT WATER DISPOSAL, CHAVES COUNTY, NEW MEXICO,	)	CASE NO. 10199

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

January 10, 1991
10:31 a.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on January 10, 1991, at 10:31 a.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Deborah F. LaVine, RPR, Certified Court Reporter No. 252, in and for the County of Santa Fe, State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: DEBORAH F. LAVINE, RPR
Certified Court Reporter
CCR No. 252

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I N D E X

January 10, 1991
Examiner Hearing
Case No. 10199

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A P P E A R A N C E S

BEFORE: DAVID R. CATANACH, Hearing Examiner

FOR THE DIVISION:
ROBERT G. STOVALL, ESQ.
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FOR THE APPLICANT:
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Attorneys at Law
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EXAMINER CATANACH: At this time, we'll call case 10199.

MR. STOVALL: Application of Stevens Operating Corporation for approval of salt water disposal, Chaves County, New Mexico.

EXAMINER CATANACH: Appearances in the case?

MR. CARR: May it please the examiner. My name is William F. Carr with the law firm Campbell & Black, P.A. of Santa Fe. I represent Stevens Operating Corporation. I would request the record reflect that my witness Donald G. Stevens has previously been sworn and remains under oath.

EXAMINER CATANACH: The record shall reflect that.

DONALD G. STEVENS

the Witness herein, having been previously sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

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

A. Donald G. Stevens.

Q. Mr. Stevens, you are the operator of the proposed salt water disposal well which is the subject of this case?

A. That's correct. Stevens Operating Corporation is.

Q. Are you familiar with the application filed in this case and the proposed disposal well?

A. I am.

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

EXAMINER CATANACH: They are.

Q. (By Mr. Carr:) Would you briefly state for Mr. Catanach what Stevens Operating Corporation seeks with this application?

(Applicant's Exhibit No. 1 was marked for identification.)

A. We propose to convert a currently shut in gas well called the Stevens Operating Corporation Number 1 Hanlad state located in the northeast quarter, southwest quarter Section 16, Township 10 South, Range 27 East to an injection well to inject into the Fusselman formation the produced water from the Stevens Operating Corporation McBride states numbers 1, 2, and 3 wells located in Section 28, same township and range.

The page 3 of Exhibit 1, which is the Exhibit 1 being the C-108 as required by the OCD, shows the schematic of the proposed injection well in that Hanlad state well. It shows that the surface casing and intermediate casing was circulated, shows the perforations in the currently shut in Pennsylvanian gas zones, shows the perforations in the Fusselman formation for injection of the produced salt water therein.

This is a little unusual in that we would like to keep the shutin gas well available for producing at a later date. We currently have a packer at 6795, and the perforations in the Pennsylvanian zone are above that. We

would propose putting in another packer above those perforations and in fact having two packers with the gas zone sealed off from the annulus and from the injection zone. The reason for that is, one, there is some gas in there. It's not very prolific, but it certainly has some value. There is no other well in the nearby area where we can inject water to a good aquifer in the area such as the Fusselman in this well. And at some time in the future, we would propose to produce the well. We feel this methodology would allow us to save that zone for further production at a further time.

Now the original idea we had was to produce that well up the annulus or through another string. However, the well makes enough water that it needs to have an annulus of its own. So we don't think we could make a dual out of it, which is the reason for setting it up at this time.

Q. Exhibit 1, the C-108, was prepared by you?

A. Yes.

Q. Was this C-108 provided to all leasehold operators within a half mile of this proposed disposal well?

A. Yes, it was.

Q. Was a copy also provided to the surface owner?

A. It was.

Q. And was it provided by certified mail?

A. It was.

Q. Who is the surface owner?

A. It's Plains Producing or the Wintonburg estate. They own all the fee acres to the east, and they own the state lease on which this well is located.

Q. What is the current status of this well?

A. It is currently receiving under a C-103 approval from the Artesia office water, produced water, from the McBride wells on a testing basis to see if it will take it in the manner we would hope, and it is. It's taking all the water on a vacuum.

Q. When we look at the well data sheet for the proposed disposal well, do you propose to fill the annular space with an inert fluid?

A. We do and with a corrosion inhibitor.

Q. And will there be a pressure gauge at the surface which will enable you to monitor the pressure in the annular space as required by the federal underground injection control program?

A. Yes, and it will be monitored daily.

Q. And in this well, are you proposing to use lined tubing? Or, again, do you request authority, as you did in the immediately preceding case, to use unlined tubing?

A. In the immediately preceding case, we would like to use the unlined tubing and use a corrosion inhibitor on the same basis and the same reasoning as the previous case. We have to use corrosion inhibitor and scale inhibitor to quite a

large degree in our heater treaters to break the water out from the oil. The oil is very paraffinic and requires considerable treatment and heat to properly break the oil out. As a consequence, the scale goes up with the temperature. We therefore have a fair amount of corrosion inhibitor and scale inhibitor in the water going to this well. We will inject and currently are injecting additional corrosion inhibitor and scale inhibitor in order that the well may be protected without the lining as we had stated in our previous hearing.

MR. STOVALL: Mr. Carr, excuse me just a minute. The word you used was paraffinic? I'm not sure the reporter got that.

THE WITNESS: Sorry.

Q. (By Mr. Carr:) Do you believe the program for completing the well you have recommended will enable you to assure that you do not have unusual or unique problems with corrosion in the well?

A. Well, we believe so. And in fact as a cross-check, of course, we will have the corrosion coupons by which we will gauge how effective our corrosion inhibition program is and increase it or decrease it depending upon how those coupons come out. And as stated in the previous hearing, at such time that enough metal has been removed by corrosion from the coupons and obviously the tubing, we would propose to replace the tubing prior to a hole or a catastrophic failure which

might result from corrosion otherwise.

The concern we have, as in the same way as with lined tubing, you usually just inject until you get a hole. We would hope that this methodology would enable us to replace the tubing before we got such a hole, not necessarily that it will.

Q. What type of stimulation program do you propose for the well?

A. It has previously been stimulated with 2,500 gallons of acid, 15 percent.

Q. And you anticipate nothing more being needed at this time?

A. Well, the only time we would would be if we experienced higher pressures which would indicate we have some plugging action. And the usual remedy is just additional stimulation with 15 percent acid.

Q. Would you refer to page 5 of the C-108 which is a plat and review that for Mr. Catanach.

A. This plat shows the area of review, a circle one-half mile in radius around the wellbore. No wells in the Devonian are within that area of review. There are two shallow wells producing out of the San Andres within the area of review. The one well just outside the area of review, we have checked. That's the original Honolulu well in the southeast southeast of Section 16. And that well was properly

plugged at the time with a cement plug just above the Fusselman formation.

Q. Now if we go to the schematic drawing that immediately follows this plat, which well is that?

A. That is the Mountain States, the Honolulu well as a matter of fact. Even though it's not within the area of review, we did include it here. And it shows a cement plug between 6700 and 6780.

Q. And this shows all the plugging details required by form C-108?

A. It does.

Q. At what rates do you have propose to inject in this well?

A. 1,000 barrels a day average, 2,880 barrels a day proposed maximum rate.

Q. And the system will be closed?

A. It will be closed with gas links on all tanks.

Q. Do you anticipate that the well will receive this volume under gravity, or do you anticipate having to put pressure on the well?

A. It is currently under gravity. The testing has worked out that there is no pressure required. Possibly some day there will be either through plugging or conceivably through fill up. And in that case, again, our current pump is 750 pounds rated. We wouldn't mind having the .2 pounds per

foot of depth maximum. We wouldn't anticipate using that very much very often.

Q. But you believe that you could satisfactorily inject under that pressure and still keep the water in the injection interval?

A. Yes.

Q. Now, again, would you state what the source of the fluid is that you propose to inject in this well?

A. It's from the Fusselman formation in the McBride state wells in Section 28 some one and a half miles south. And that is out of the Fusselman.

Q. And so there would be no reason to anticipate any problems with the compatibility of the injected fluid with fluids in the formation?

A. Should be none.

Q. And in the C-108 on page 8 is a Water Analysis Report. Could you go to that and simply identify and review that briefly for Mr. Catanach.

A. Briefly, it shows that it is salt water. It doesn't freeze as one would expect. Relatively fresh salt water freezes. It froze quite a bit in December because the waterline is on top of the ground. And this analysis report does not go into the scaling or corrosion potential.

We have a report, quite a lengthy one, that states that the well, the water is subject to moderate scaling

potential when heated to 120 degrees. That's the temperature that we heat in our heater treaters necessary to break out the oil from the water. That also is about the bottom hole temperature of some 128 degrees in the McBride wells. Therefore, we feel that the scaling and corrosion potential is moderate, definitely is there, and should be treated for the tubing's sake and the injection well's sake.

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

A. There are none. There was one one mile east in the northeast, southeast quarter of Section 15 which was drilled to 98 feet by the rancher and showed, I think it was, 145 parts per million chloride, relatively fresh water.

Q. This was in the Yates formation?

A. Yates formation. That well however has gone dry, and the rancher currently pumps water to it from some five miles away. There are no other water wells or fresh water in the area to our knowledge.

Q. No underground source of drinking water that you are aware of?

A. No. I would suspect there are some occasional wells like this one there, like that one in Section 15 in the shallow sands and formations occasionally. But none have been developed in the area.

Q. And the closest one is a mile to the east?

A. Yes.

Q. Let's go to the 10th page of this C-108, the log sections, and I would ask you to review those for Mr. Catanach.

A. Those logs are on the injection well. They demonstrate through the neutron density the tremendous porosity in this Dolomite formation. The permeability log, the Dual Laterolog, Micro-SFL on the right, shows the tremendous permeability and the tremendous water in the perforated interval from 6904 to 44. Again, this reservoir is a wonderful injection reservoir. It's an ocean of water down there that covers all of Chaves and Lea Counties, northern Lea certainly or southern Roosevelt. And we should have no problem injecting into it without undue pressures.

Q. Are all logs on the subject well on file with the Oil Conservation Division?

A. They are.

Q. Mr. Stevens, you've examined the available engineering and geologic data on this area. And as a result of this examination, have you discovered any evidence of faulting or other hydrologic connections between the injection zone and any underground source of drinking water?

A. We don't believe there could be. The only surface fault nearby is the Diablo Dike about three-quarters of a mile north. And that is believed sealed by the tertiary intrusives, which probably caused the dike in the first place.

And there's no connection between this injection zone at 6700 feet and the surface waters that we know of or could conceive of.

(Applicant's Exhibit No. 2 was marked for identification.)

Q. Is Exhibit Number 2 an affidavit and attached letters confirming that notice of today's hearing has been provided in accordance with OCD rules?

A. Yes, it is.

Q. In your opinion, will granting this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. I do.

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

A. They were.

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

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

(Applicant's Exhibits Nos. 1 and 2 were admitted into evidence.)

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Stevens, was the proposed injection well originally drilled to test the Fusselman?

A. Yes, it was.

Q. Was it initially completed in the Fusselman?

A. No. It was originally completed in the Pennsylvanian. Fusselman wasn't tested because it was a seismic fiasco. It was 500 feet low to projections. So the logs indicate water, and the structural position indicate water. The Diablo field, the Fusselman field to the south, again, some 300 to 500 feet higher structurally, obviously is separated from this injection well by faulting or faults, one or more faults. We feel there could be no connection between this zone and the producing zone to the south in the Diablo Fusselman pool.

Q. This well was tested in the Fusselman?

A. Was not.

Q. These perforations, those are the proposed injection perforations?

A. Well, they're actually the current injection perforations which we received from the OCD Artesia to test and see if the zone would take the water as anticipated.

Q. I see. What was the well producing from the Penn when it was abandoned?

A. I think it was -- oh, it may have produced

something on the order of 300,000 a day. The calculated AFC at open flow was somewhere around a million, but the maximum it might have produced would, in our opinion, have been around 300,000 cubic feet of gas per day with about six barrels of water, which was worrisome, made us feel that the reserves were going to be relatively low.

Q. Have you calculated the reserves?

A. No, we haven't. We feel it would be an exercise in futility with that water. The big question is we could make a volumetric calculation, but we feel it would be not worthwhile inasmuch as the water would presumably kill it within a relatively short time. But that again is conjecture.

Q. How long do you propose to utilize the well for injection?

A. We don't know. We'd like to use it as long as it is necessary to move the produced water in the Diablo Fusselman field. There is another well in the San Andres which this commission has approved for Hanson Oil Company which takes part of the producing water. But it's not enough. We're making more water than that well can handle, and that was the reason for using this well.

Q. Your current well configuration would allow you to come back later on and possibly produce the Penn reserves?

A. Yes, we believe that the Penn reserves can't be hurt by being shut in with the dual packer system. Currently

we only have one packer in below the Penn zone, but we would propose pulling that and putting the additional packer in subject to your order and approval.

Q. If in fact you do have a packer or tubing failure, the Penn zone would be subject to some water damage or --

A. It is possible. It certainly could take some water. I can't imagine that the damage would be that much. Those sands to our knowledge are not water-sensitive. But, yes, it could possibly suffer some damage, but not any long-term damage. It would probably just requiring more swabbing to bring the oil in.

Q. Mr. Stevens, how would you determine if you had a failure in your bottom packer?

A. We wouldn't be able to do that. And to our mind, that's another reason for using the corrosion coupon methodology to make sure that the tubing was changed before the metal was reduced to a point where a failure was likely by corrosion.

Of course, we'll be able to determine in setting the bottom packer initially if it's a good seat before setting the upper packer. But subsequent failure we would not be able to determine. I wouldn't anticipate much likelihood of its failure and that such failures would probably be in the upper packer or from the upper part of the hole.

Q. Do you know when the Honolulu well was plugged and

abandoned?

A. I think it was 1951, '50 or '51.

EXAMINER CATANACH: I believe that's all I have of the witness. The witness may be excused. Anything further in this case?

MR. CARR: Nothing further.

EXAMINER CATANACH: 10199 will be taken under advisement.

(The foregoing hearing was adjourned at the approximate hour of 10:50 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10199, heard by me on January 10 1991.

David R. Catanach, Examiner
Oil Conservation Division

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

REPORTER'S CERTIFICATE

I, DEBORAH F. LAVINE, RPR, a Certified Court Reporter and Notary Public, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 11th of February, 1991.

DEBORAH F. LAVINE, RPR
Certified Court Reporter
CCR No. 252, Notary Public

My Commission Expires:
August 6th, 1993