STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
10 NOvember 1982

EXAMINER HEARING

IN THE MATTER OF:

Application of Getty Oil Company for amendment of Division Order No. R-6965, Lea County, New Mexico. CASE 7722

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
Legal Counsel to the Division
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Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.
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I N D E X

E X H I B I T S

MR. NUTTER: Call next Case Number 7722.

MR. PEARCE: That is on the application of Getty Oil Company for amendment to Division Order No. R-6965, Lea County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm CAmpbell, Byrd, and Black, P. A., of Santa Fe, appearing on behalf of Getty.

I have one witness who needs to be sworn.

(Witness sworn.)

LARRY K. LOFTON

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A My name is Larry Lofton and I live in Midland, Texas.

Q By whom are you employed?

A. Getty Oil Company.

Q. In what capacity?

A. As a reservoir engineer.

Q. Have you previously testified before this Commission or one of its examiners and had your credentials accepted and made a matter of record?

A. Yes, I have.

Q. Were you the engineering witness in Case Number 7506 on March 16, 1982, concerning the well which is the subject of this hearing today?

A. Yes, I was.

Q. Are you familir with the subject well?

A. Yes.

Q. Are you familiar with the general area?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. Mr. Lofton, will you state briefly what Getty seeks in this application?

A. Getty seeks to re-enter the State "P" Well No. 1, the proposed injection well and add additional perforations to what were granted in the original order.

Q. Now the original order approved injection

through perforations from what depths?

A. From 8900 to 9300 feet.

MR. CARR: Mr. Nutter, at this time we would request that the record in Case 7506 and the resulting order, R-6965, be incorporated into this proceeding by reference.

MR. NUTTER: The record in Case Number 7506 and the resulting order will be incorporated by reference in this case.

Q. Mr. Lofton, did Order No. R-6965 require that Getty perform certain work on the subject well and surrounding wells prior to injection?

A. Yes.

Q. Was that work performed?

A. Yes, it was.

Q. Will you please refer to what has been marked for identification as Getty Exhibit Number One, identify this and explain what it shows.

A. Exhibit One is three Form C-103's for the three wells in question. The last two Form C-103's, as submitted by our Levelland office to the Commission are for the State "U" No. 1 and the H. L. Batt No. 1, which is within a half mile radius of the proposed injection well, and these two forms detail work that Getty performed in cementing,

putting cement across the Abo formation as requested in the original order. And the first C-103 Form, which deals with the State "P" No. 1, the subject injection well, this details work that we did in plugging the well back and putting it to injection service from 8900 feet to 9300 feet.

I might add that all this work was done to the satisfaction of Commission representatives from Hobbs.

MR. NUTTER: Okay, do you have a copy of that order, 6965, with you?

If you'd just read it into the record, that part, Mr. Carr or Mr. Lofton, either one, that required work on certain wells.

MR. CARR: Order paragraph one provided in part, and I quote, provided further that no injection of salt water shall take place in said State "P" Well No. 1 until the Getty Oil Company H. L. Batten Well NO. 1 in Unit B of Section 5, and the Getty Oil Company State "U" Well No. 1 in Unit D of Section 4, both in Township 17 South, Range 37 East, N.M.P.M., Lea County, New Mexico, have either been cemented or shown to have adequate cement across the -- and above the Abo formation in a manner prescribed by the supervisor of the Division's District Office at Hobbs.

MR. NUTTER: And so as a result of that paragraph, Mr. Lofton, you went in and you perforated

these wells and squeezed cement in the required interval, is that correct?

A. Yes, sir, we did --

MR. NUTTER: On both of those --

A. -- cement --

MR. NUTTER: On both of those wells?

A. Yes, sir.

MR. NUTTER: And then this first page of Exhibit Number One is the work that you did on the disposal well.

A. Right.

MR. NUTTER: Okay, go ahead.

Q. And all this work was supervised by the Hobbs office, is that correct?

A. That's correct.

Q. Would you now refer to what has been marked for identification as Getty Exhibit Number Two, explain what this is and what it shows?

A. This is a schematic diagram of the State "P" Well No. 1, the proposed injection well. On the left side it shows the present status or condition of the hole as it is now, and on the right it shows what we would hope to have the original order amended to.

On the present configuration it indicates

the perforations from 8900 to 9300 feet, as well as the 3-1/2 inch -- or 3-1/2 inch internally plastic-coated tubing, which is set with a packer at 8815. And the only difference in the present configuration and that which we hope to have amended is the additional perforated interval from 8450 to 9300 feet, and, of course, moving our packer and tubing up the hole and setting it approximately 8375.

Q. And, Mr. Lofton, will you now refer to what has been marked as Getty Exhibit Number Three and review this for Mr. Nutter?

A. This is a step rate injection test that was performed on the State"P" Lease after we had perforated 8900 to 9300 interval. It indicates injection pressures for the various injection rates in the well. This -- I might point out that we were able to inject water up to 4.1 barrels per minute without any positive surface pressure. It was taking the water on a vacuum. Injection rates above that point, however, required that we put positive injection pressure on the wellhead. The 4.1 barrels per minute, roughly, corresponds to 5900 barrels of water a day.

MR. NUTTER: Okay, let's see. 4.1, that's where you first started getting pressure.

MR. NUTTER: That corresponds to how many barrels a day?

A. 5900 barrels per day.

MR. NUTTER: Okay.

Q. Mr. Lofton, what volume of water was Getty hoping to be able to dispose of in this well?

A. We would anticipate with the addition of high volume lift on this lease water injection rates up to approximately 10,000 barrels per day.

Q. Would it be possible to inject 10,000 barrels per day by putting pressure on the well as presently completed and injecting under pressure?

A. Yes.

Q. Would you explain to Mr. Nutter the reason that you are requesting the additional perforated interval for disposal purposes?

A. With the additional perforated interval that we see in the well, that is available above where we've been granted perforations, we feel like we can inject the volumes we need without having to have any positive surface pressure. It can be able to flow into the reservoir under gravity flow.

Q. And what benefits would Getty derive from this amended order?

A. This will allow us to dispose of all our water without having to purchase injection pumps.

Q. And what, approximately, would be the cost of that pump?

A. Estimated between $15 to $75,000.

Q. Mr. Lofton, would you refer to Exhibit Number Four and review this for Mr. Nutter?

A. Exhibit Four is a space neutron log, which is indicative of the porosity of the formation. This was run October 14th, 1982, on subsequent work done in the State "P" Well, and any kind of response towards the left or towards the depth column is indicative of porosity.

As noted, when we logged the well at depths above 8900 and through 8450 we saw several zones that had what looked to be good porosity which would allow us to put water in those intervals.

Q. If you're permitted to start injecting at a depth of 8450, how would this depth compare with the oil/water contact in the area?

A. This would be at a subsea depth of 4651 feet, and the original oil/water contact in the Lovington Abo Field was 4640 feet, so even increasing our perforated interval to the 8450, it still is 11 feet below the original oil/water contact in the field.

Q. Are there other wells in this field which are disposing of water at shallower depths?

A. Yes. Amoco has three on the west side of the field which dispose of water in the Abo, the first one being the State "E" 18 No. 21B, which disposes at a subsea depth of -4618 feet; the Amoco State "E" 18 No. 22B disposes water in the Abo at a -4591 feet; the Arajo State "B" 4286A No. 2F disposes of water at a depth of -4677 feet; Rice Disposal Company disposes in the Abo SWBC No. 2C in the Abo at a subsea depth of -4671 feet.

Q. And none of these other injection wells are in close proximity to the proposed injection well, are they?

A. The two Amoco wells are on the other side of the field, of course down structure, and the Rice well is -- none of them within a mile, I'd say.

Q. Mr. Lofton, in your opinion will granting this application prevent waste and be in the best interest of conservation?

A. Yes.

Q. Would it impair the correlative rights of any other operator in the field?

A. No.

Q. Were Exhibits One through Four prepared by you or under your direction and supervision?

A. Yes.

MR. CARR: At this time, Mr. Nutter,

we would offer Getty Exhibits One through Four.

MR. NUTTER: Exhibits One through Four will be admitted in evidence.

MR. CARR: That concludes our direct examination of Mr. Lofton.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Lofton, this Exhibit Number Three that shows this injectivity test, I'm having a hard time following these volumes up from the scale at the bottom. Now what is that first point that's at about 500 pounds, is that five barrels per minute?

A. The first point is just a little bit less that 500 psi injection wellhead pressure is, yes, about 5.2 barrels per minute.

Q. And then that next point up, what's that, about 6 barrels a minute?

A. Yes, sir, about 6 barrels a minute at, I'd say, roughly, 750 psi injection pressure.

Q. And then that third point would be about 8 barrels a minute, I guess.

A. Yes, sir.

Q. You're getting up to about 1400 pounds there.

A. Yes, sir, thereabouts.

Q. And that final point, then, would be about 10 barrels a minute, or almost 10 barrels a minute.

A. Yes.

Q. And the pressure got up to about 22 -2300 pounds.

A. Yes, sir.

Q. All right. Now was this injectivity test conducted on the well with the perforations that were originally authorized or have these new perforations been opened and this test was made with the new perforations?

A. No, sir, the -- this test reflects only the perforations from 8900 to 9300, and as yet we haven't added any additional perfs in the well.

Q. You haven't opened up these new perfs yet.

A. No.

Q. And you figure that you've got water into the formation at the rate of 5900 barrels per day on a vacuum.

A. Yes, sir.

Q. And you anticipate that with these additional perforations open you'll be able to dispose as high as 10,000 barrels a day on a vacuum in this well?

A. We're hoping so in order to save the costs.

We think probably this injectivity test is probably the most optimistic it will be is at this point and this injectivity sometimes seems to deteriorate, so --

Q. Okay. Now, you were originally authorized to go into the Abo at 8900 to 9300. Are you still in the Abo by raising these perforations up 450 --

A. Yes, still in the Abo formation, right.

Q. And you're lower in the Abo than some of these other disposal wells, then.

A. Yes, sir, we're lower than the two Amoco wells and we're about on the same level as the Arajo well and the Rice well.

Q. I presume that the plats and everything that are in the original case file, which has been incorporated, will show the location of all these wells.

MR. CARR: Yes, they do.

MR. NUTTER: Are there any further questions of Mr. Lofton? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: Nothing further, Mr. Nutter.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 7722?

We'll take the case 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. 7722, heard by me on 11/10 1982.

, Examiner
Oil Conservation Division