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 Dome Petroleum Corp. for salt water disposal, San Juan County, New Mexico. CASE 7877

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
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For the Applicant: Ken Bateman, Esq.
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I N D E X

E X H I B I T S

MR. STAMETS: We'll call next Case 7877.

MR. PEARCE: That case is on the application of Dome Petroleum Corporation for salt water disposal, San Juan County, New Mexico.

MR. BATEMAN: Mr. Examiner, I'm Ken Bateman of White, Koch, Kelly, and McCarthy on behalf of the applicant and I have one witness and I ask that he be sworn, please.

MR. PEARCE: Do we have other appearances?

(Witness sworn.)

LUBBIE JENKINS,

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

DIRECT EXAMINATION

BY MR. JENKINS:

MR. BATEMAN: Mr. Examiner, before we start the record, this -- the well in question in this application has been the subject of Case Number 6755 with respect to disposal of salt water into the Entrada and a previous administrative order, SWD-188 with respect to the Morrison,

and I ask that the record in both of those cases be incorporated by reference in this one.

MR. STAMETS: Okay, they shall be.

MR. BATEMAN: And for the purpose of today's hearing, I have the case file in Case Number 6755, in case there's any question or necessity for reference.

Q. Would you state your full name for the record, please?

A. Yes, it's Lubbie Jenkins.

Q. Would you spell that, please?

A. It's L-U-B-B-I-E J-E-N-K-I-N-S.

Q. Mr. Jenkins, where are you employed?

A. Dome Petroleum Corp.

Q. And have you previously testified before the Division?

A. No, I have not.

Q. Would you state briefly, then for your record, for the record, your educational and work experience?

A. I received a Bachelor of Science degree in petroleum engineering from Louisiana State University in May of '72.

Since that time I've worked in the oil industry as a production engineer and as a reservoir engineer for Shell Oil, Louisiana Land and Exploration, and for the

last two years for Dome Petroleum Corp.

I'm presently a Senior Reservoir Engineer with Dome Petroleum Corp.

Q. Are you a registered professional engineer in any state?

A. Yes, in the States of Texas and Louisiana.

Q. Have you testified before any other conservation commission?

A. Yes, I have.

Q. Which one?

A. Before Colorado and Louisiana.

Q. In your present capacity of Senior Reservoir Engineer are you familiar with the area known as the Snake Eyes Entrada in San Juan County, New Mexico?

A. Yes, I am.

Q. And with the well in question, which is the Santa Fe 20-2?

A. Yes.

MR. BATEMAN: I offer Mr. Jenkins as an expert professional engineer.

MR. STAMETS: He is considered qualified.

Q. Mr. Jenkins, prior to this -- well, before we begin, would you state briefly what Dome desires in connection

with this application today?

A. Yes. In the Snake Eyes Pool we have a large amount of produced water that we flood with from inception, and we initially disposed of the water in the Morrison interval and at one point in time it became, the pressure, we could not meet our pressure limitation and still dispose of all our water, and we put in an application to dispose of water into the Entrada, and that's where we are now. We were disposing, at the time we put in our application to begin injection into the Entrada, we were disposing of 4000 barrels of water a day and that wasn't enough capacity as what we need.

We went to the Entrada and we've been putting in six to eight thousand barrels a day in that interval. And we're presently to the point that we -- we have one of our wells that cut back because we still don't have the -- an adequate amount of capability to dispose of into the Entrada zone and maintain our pressure limitations that we -- so we're putting in an application to commingle injection into the two zones that we've injected in the past, that being the Morrison and into the Entrada that we're presently injecting, down a common tube, and we're going to enlarge the tube over a 3-1/2 inch diameter is what we have now. We're going to a 4-1/2 inch tubing, hopefully to drop the pressure

in the tube to maintain ourselves where we can dispose of the water and meet the pressure limitations that will be imposed on us.

Q. Mr. Jenkins, in preparation for this hearing have you reviewed the record and exhibits in Case Number 6755?

A. Yes, I have.

Q. And to your knowledge has there been any change in the circumstances reflected in that -- that case record with respect to other productive wells in the area, the production of fresh water, the compatibility of fluids, and so on?

A. I'm not aware of any changes.

MR. BATEMAN: Mr. Examiner, rather than reiterate all that testimony, if you're willing we'd like to incorporate the record in this one.

MR. STAMETS: That's fine.

Q. Mr. Jenkins, would you refer to what's been marked Exhibit One and state for the record what the current circumstances are with respect to injection of water in the Santa Fe 20-2?

A. We're injecting water produced from two wells at a rate presently around 7000 barrels of water per day. We're producing from the two producing wells at 70 barrels of oil a day. We have about 35 barrels of excess -- well,

of shut in oil that we feel we could produce if we were able to dispose of -- of the additional water that would be produced as we produced the -- opened the well up and produced more oil, we'd be producing more water. If we can dispose of the water, we feel that our production will come up by an additional 35 barrels of oil per day. The present capacity that we have is -- we're maxed out at our capacity injecting into the Entrada. There is nothing that we can do to increase its capacity with the present pressure limitation.

Q. So if I understand your testimony, the approval of the application, in your opinion, would permit the production of an additional 35 barrels of oil per day, is that correct?

A. That's correct.

Q. Is the well capable of being recompleted or reworked so that you can dispose of water in both the Morrison and the Entrada?

A. Yes, it is.

Q. Would you refer to what's been marked Exhibit Two and explain to the Examiner how that could be done?

A. This is a proposed sketch of how we propose to recomplete the well to allow disposal into both zones simultaneously.

We're presently disposing, as testified, into

the Entrada zone through those -- through the perfs shown on this schematic.

The Morrison sandstone is presently isolated behind packers and that zone, whenever we would rework the well, we'll pull out the packer that's isolating that zone and be able to -- to expose it below the packer that's shown at 4750 so that both intervals, the Morrison and the Entrada, would then be open to injection at the same time. This would involve opening no more interval than is already open. It would be using existing perforations that are presently in the well.

Q. Now as I understand it, you would substitute 4-1/2 inch tubing for the existing 3-1/2 inch tubing, is that correct?

A. Correct.

Q. And set the packer at 4750 feet.

A. Correct.

Q. And how would you determine whether there's any packer leakage or leakage in the tubing?

A. By -- by use of pressure gauges, surface.

Q. Now, what volumes of water do you -- would you expect then to inject if the well were recompleted?

A. We're looking at putting away roughly 10,000 barrels a day at the present.

Q. Given your experience with the Morrison and both the Morrison and the Entrada, do you expect any difficulty in disposing of that volume of water?

A. I don't really expect any difficulty at -- at the pressure that we're presently limited to, the 1155 pressure in the Entrada. The Morrison zone was taking around 4000 barrels a day when we left it and the Entrada is taking around 7000 barrels a day now, and I really don't anticipate any problem if we can maintain the 1155 surface pressure limitation.

Q. With respect to that, what was the surface pressure limitation in the Morrison?

A. The Morrison had a surface pressure limitation, my memory fails me here, I don't have it jotted down, of 950, approximately.

Q. And how would you anticipate -- or would you anticipate any problem with fracturing if you do recomplete the well and continue to inject at 1155?

A. No, we -- we don't anticipate any problem with fracturing the Morrison, based on work that was done when the Morrison was perforated. The Morrison was perforated and fracture treated, fracture stimulated, at the same time the Entrada interval was fractured and stimulated.

During that stimulation we -- we were able

to determine what the frac gradient was in the Morrison, and using the fluid that we will be injecting down the salt water, it was demonstrated that during that fracture stimulation, that our frac pressure, surface pressure would be 2200 pounds; would be the pressure required to frac the Morrison, and that was by actual performance during the stimulation, and therefor, if we had a surface limitation of 1155, which we presently have in the Entrada, we wouldn't be -- we wouldn't be in danger of fracturing the Morrison because we've been able to tell during the fracture stimulation that was done that we would have to go up to 2200 pounds to -- to begin the fracturing of the Morrison.

So we don't feel we'd be doing any damage to the Morrison now.

Q. In your opinion, then, Mr. Jenkins, would the approval of this application be in the best interest of conservation and the prevention of waste and the protection of correlative rights?

A. Yes, it would.

Q. Were Exhibits One and Two prepared by you or under your direction?

A. Yes, they were.

MR. BATEMAN: Mr. Examiner, I offer Exhibits One and Two at this time. I have no further direct

testimony.

MR. STAMETS: Exhibits One and Two will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Jenkins, on -- when was this frac test done, or fracture done on the Morrison?

A. It was done at the time of inception when, when injection began into the Morrison. The start of injection in the Morrison was -- was in the fall of '79. I don't have the exact date but it would have been just prior to that, at that time that the frac was done.

Q. The -- did you ever submit copies of that to the Division, copies of that fracture information?

A. I do not know.

Q. What about the instantaneous shut-in after frac, do you have that figure?

A. That was 2200 pounds.

Q. That was the ISIP?

A. Yes, sir.

MR. QUINTANA: I have one question. I'm trying to recall my conversations with our District Office and with your office when this came through.

Is it not so that you talked with Frank Chavez of our District Office and he asked that -- or that you were going to run -- you would run injection bombs down the different zones and find out just exactly what they can take?

A. If that's a requirement, that's something we can certainly do; that is something that's possible to be done, is to run the survey down the tubing while the well is injecting and measure the relative volumes that -- that can go into each zone.

MR. QUINTANA: If I recall my conversation with -- between the two offices, I think our District Office had required, had recommended to us that that be done, that injection volumes for both zones be determined, and then after that a step rate test run to determine the lowest fracture for whichever zone and we would restrict you to that lowest fracture pressure for whichever zone was the lowest, if I recall my -- according to my notes here, and then the one last other thing that I remember talking to our District Office, that he wanted -- Frank Chavez wanted to reserve the right to run a spinner test any time that he felt that injection conditions had changed, that would be incorporated into the order. For example, he, for whatever reasons, he wanted that incorporated.

Do you recall that conversation or were you

even contacted --

A. No, I wasn't in contact with him on that. We would not have a problem with that.

One thing that I might mention, though, I don't feel we would need the step rate test since we are injecting presently, or the limitation with .2 psi per foot is 1155 in the Entrada, I don't see --

MR. QUINTANA: That's the upper zone, right?

A. That's the lower zone.

MR. QUINTANA: The lower zone.

A. I don't think we have a problem with the Entrada. The only question comes on the Morrison and if your ISIP on the Morrison is 2200 pounds, with all the perfs open I don't think we have a problem either with the Morrison, because the -- the fracture pressure is more than 1000 pounds above the 1155 that we'd like to use for our limitations.

So I don't think we'd have the need of the step rate test to demonstrate at what point damage would occur, because we just won't be going above the present limitation for the Entrada.

MR. STAMETS: Could you send us a copy of that fracture test, or not test, but the record in the fracture in the Morrison?

A. Certainly.

MR. STAMETS: That would be valuable, I think.

Are there other questions of this witness? He may be excused.

And I believe we'll recess the hearing until 1:15.

If there is nothing further, we'll take this 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. 7877, heard by me on 5-25 1983.

Richard L. Stamets, Examiner
Oil Conservation Division

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