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

25 July 1984

EXAMINER HEARING

IN THE MATTER OF:

Application of Phillips Oil Company for salt water disposal, Lea County, New Mexico. CASE 8279

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce
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I N D E X

E X H I B I T S

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MR. STOGNER: We will now call Case Number 8279.

MR. PEARCE: That case is on the application of Phillips Oil Company for salt water disposal, Lea County, New Mexico.

MS. AUBREY: Karen Aubrey, Kellahin and Kellahin, representing the applicant.

I have one witness to be sworn.

MR. PEARCE: Are there other appearances?

(Witness sworn.)

JOHN L. UPCHURCH,

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

DIRECT EXAMINATION

BY MS. AUBREY:

Q Would you state your name and occupation, please?

A John Upchurch. I'm Associate Reservoir Engineer with Phillips Oil Company in Odessa, Texas.

Q Mr. Upchurch, have you previously testified before this Commission and had your qualifications made a matter of record?

A Yes, I have.

Q And are you familiar with the application of Phillips in Case 8279 for permission to dispose of produced water in the Ranger No. 6 into the Ranger Lake Penn formation at an interval from 10,228 to 10,346?

A Yes, I am.

MS. AUBREY: Mr. Examiner, I tender Mr. Upchurch as an expert witness.

MR. STOGNER: Mr. Upchurch is so qualified.

Q Mr. Upchurch, in connection with your application have you prepared or had prepared certain exhibits for the Examiner's consideration?

A Yes, I have.

Q I'd like to refer you to what we've marked as Exhibit Number One. Can you tell us what that is?

A It's a copy of the Form C-108 that I've prepared for the filing of this case.

Q And Exhibit Number Two contains well data on the Ranger Well No. 6?

A Yes, that's correct.

Q And I'd like to refer you to Exhibit Number Three. Can you tell us what that is?

A That's a sketch of the proposed disposal well completion. It shows the approximate setting depth for the injection tubing, the packer, and the injection interval.

Q And could you tell me what you anticipate the maximum injection pressure to be?

A We anticipate the maximum injection pressure to be approximately 2050 pounds, which corresponds to the Division's .2 psi per foot pressure limitation.

Upon completion of the well we plan on running a step rate test to determine the parting pressure of the formation and would ask that we be allowed to administratively increase the injection pressure.

Q Can you tell me what volume of water or fluid you intend to inject?

A Approximately 600 barrels a day.

Q And will this be an open or closed system?

A It will be a closed system.

Q Mr. Upchurch, let me refer you to what's been marked as Phillips Exhibit Number Four. Can you tell us what that is?

A Yes. It's a copy of a Lea County map with a two mile circle centered around the Ranger No. 6, showing the ownership on the offset leases.

Q And Exhibit Number Five?

A That's a copy of the same area with a larger scale, showing the half mile radius around the proposed injection well.

Q And that would be the area of review, is that right?

A Yes, that's correct.

Q Can you tell us what formation the well originally produced in?

A It was originally a Ranger Lake Penn producer.

Q Do you know how long it produced?

A No, not exactly.

Q Have you contacted consenting -- I'm sorry, contacted adjoining operators and received waivers from them for the use of this well as a salt water disposal?

A We have notified all the offset operators of the proposed water injection or water disposal project and to this date received no word from them at all.

Q Let me refer you quickly to your Exhibits Twenty and Twenty-one. Those show your notification of the adjoining operators.

A Exhibit Twenty is copies of the certified mail receipts that we sent to the offset operators and Exhibit Number Twenty-one is a copy of the legal notification that was published in the Hobbs News Sun.

Q And you testified that you've received no -- you have not received any waivers from the adjoining operators. Have you received any objection from them?

A No, we have not.

Q Mr. Upchurch, let's look at Exhibit Number Five now -- I'm sorry, Number Six now, which is a table of the offset wells. Do you have that in front of you, sir?

A Yes, I do.

Q I understand that there's been a typographical error on this exhibit and that the drilling date on the Ranger D-5 is incorrect.

For the Examiner's consideration can you correct that on the record?

A Yes. The drilling date on the Ranger D-5 was erroneously listed as June 15th, 1984.

The well was actually completed June 4th, 1959.

Q Is the other information listed on Exhibit Number Six correct --

A Yes.

Q To your knowledge?

A To my knowledge it is correct.

Q Now let me refer you to Exhibits Seven through Twelve -- Seven through Sixteen. Can you tell us what those are?

A Yes. Exhibits Seven through Sixteen are wellbore sketches of all the wells in the area of review, the half mile circle, that have been previously plugged and abandoned.

Q Are there any producing wells within the area of review?

A No, there are not.

Q Do Exhibits Seven through Twelve show the injection zone, the proposed injection zone in the Ranger

No. 6?

A Yes, they do.

Q So that from these schematics you can draw a correlation between the proposed injection zone and the top of the cement in the wells shown on Exhibits Seven through Sixteen.

A Yes, you can.

Q Let me take you quickly through each one of those, Mr. Upchurch, and have you explain to the Examiner where the top of the cement is in each of these plugged and abandoned wells.

A Okay. Starting with the Ranger No. 3, the correlate Ranger Lake Penn Zone is 10,334 to 10,344. The cement outside the 5-1/2 inch production casing as at 855 feet and inside the casing is at approximately 10,135 feet.

The Ranger D No. 5, the correlative zone is 10,241 to 10,327. Outside of the 5-1/2 inch casing the top of cement is --

MR. STOGNER: Is that listed on Exhibit --

A Yeah, it is. It's inadvertently left off of there. It's at 900 feet.

Inside the casing the cement's at 9900 feet.

On the No. 10, cement outside the pipe is at 308 feet and inside it's at 9926 -- 9752, excuse me.

No. 11, outside the pipe the top of cement is at 3075; inside it's at 9950.

No. 15, the correlative zone was not perforated in this well. It's at approximately 10,200 feet. The top of cement outside the pipe is at 7200 feet. There is cement inside the pipe at 10,410 feet, cast iron bridge plug at 9995, and again cement at 9780.

The Ranger Lake Unit Tract 2 Well W-4, top of cement outside the pipe is at 2810 and inside the pipe is at 10,240.

On the Ranger Lake Unit Tract 2 No. 9, top of cement outside the pipe is at 308 feet and inside the pipe is at approximately 9460.

Q Mr. Upchurch, let me ask you to stay on Exhibit Thirteen for a moment. I note that there's no intermediate plug set in that well. Can you explain that, please?

A At the time that this well was plugged and abandoned the -- this propose abandonment procedure was approved by the Conservation Division. It doesn't quite meet up to what they require today but I believe it's adequately plugged to protect against any damage to the fresh water in the area.

There's sufficient cement inside the casing to prevent water flow coming in from the correlative Ranger Lake Penn zone and top of the cement outside the pipe is sufficient to prevent water to come up outside the 5-1/2

inch casing.

MR. STOGNER: When was this well, the Tract 2 No. 9, when was it plugged and abandoned?

A That's listed on Exhibit Six and it was in '71.

MR. STOGNER: Thank you.

A Going on, the next well is Ranger Lake Unit Tract 2 No. 14. The correlative zone is 10,224 to 10,326. It has cement below that at approximately 12,800 and above that at approximately 10,196; cement outside the pipe is at 9395.

The State 22 No. 1, the zone is 10,286 to 10,370. Cement inside the pipe is approximately 10,240 and outside the pipe at 5,650.

The State "BF" No. 1, the zone is 10,226 to 10,333. There's cement inside the pipe at 10,080 and outside the pipe at 7120.

Q Mr. Upchurch, let me refer you to Exhibit Number Seventeen. Does that indicate what proposed stimulation program you intend to perform on this well?

A Yes, it does.

Q Going on to Exhibit Eighteen, is that a fresh water analysis of all fresh water wells within a one mile radius?

A Yes, it is.

Q Mr. Upchurch, as an expert can you state that you have examined the available geologic and find no

evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water?

A Yes, that's correct.

Q Sir, will a pressure gauge be installed on the annulus?

A Yes, it will.

Q Let me ask you some questions about the sources of produced water. Can you tell us what formations the produced water comes from?

A The produced water that will be injected into the No. 6 comes from two wells that are presently producing and one well that is shut in waiting for water disposal capabilities.

Q Can I refer you back to Exhibit Number Five?

A Yes, the two wells are Well No. 7 in the southwest quarter of Section 26 and Well No. 13 in the northeast quarter of Section 23.

The No. 13 Well produces from the Ranger Lake Penn. The Well No. 7 produces from -- it's commingled production from the Bough C and the Ranger Lake Penn.

Q Those formations are downhole commingled, then?

A Yes, that's correct.

Q Okay.

A Well No. 16, also in the southwest quar-

ter of Section 26, has been recompleted in the Ranger Lake Penn but is presently uneconomical to produce because of the high water disposal costs.

Q How are you presently disposing of this water, Mr. Upchurch?

A It's being trucked away at a cost of approximately $1.22 per barrel.

Q And have the -- has the produced water from the Ranger Lake -- Ranger Lake Bough C and the Ranger Lake Penn been combined in connection with your disposal operations to date?

A Yes, it is.

Q Have you noticed any incompatibility of those waters?

A No, we haven't seen any problems with the Bough C water that we wouldn't expect on any kind of water disposal.

Q In connection with the well that -- which well is it that's downhole commingled?

A That's the Well No. 7.

Q The No. 7, have you seen any evidence of incompatibility of the produced waters from that well?

A No, we have not.

Q Can you tell the Examiner how you intend to monitor the well for leakage?

A Well, we'll install a pressure gauge on the annular space between the 5-1/2 inch casing and the 2-

3/8ths inch injection tubing and monitor to see if we have any pressure problems there.

Q Do you know whether or not you will be adding to the pressure in the reservoir?

A We don't anticipate adding significantly to the pressure of the reservoir.

Q Let me refer you back to your Exhibit Number Seventeen.

Does that exhibit describe the depth of the fresh water aquifer in the area?

A Yes, it does. The Ogallala aquifer is present in the area at approximately 400 feet.

Q And now can you describe for the Examiner your proposed recompletion operation for salt water disposal?

A Okay. We plan on injection into the Penn, the Ranger Lake Penn zone. The injection rate will be an average of 600 barrels of water per day with a maximum approximately 800.

We anticipate an injection pressure of 2050 pounds. We will be injecting down 2-3/8ths inch plastic lined tubing.

Q Referring you to Exhibit Number Nineteen, will you tell us what that shows?

A Okay. This shows a list of the offset operators along with the surface owners surrounding the Ranger No. 6 Well.

Q In your opinion, Mr. Upchurch, will the granting of this application protect correlative rights, prevent waste, and promote conservation?

A Yes, it will.

Q Were Exhibits One through Twenty-one prepared by you or under your supervision and direction?

A Yes, they were.

MS. AUBREY: Mr. Examiner, I offer Exhibits One through Twenty-one, and that concludes my examination of this witness.

MR. STOGNER: Exhibits One through Twenty-one will be admitted into evidence.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Upchurch, on Exhibit Number Three, which is your proposed completion schematic.

A Yes, sir.

Q You propose to run 2-3/8ths inch tubing. Would that be plastic lined or internally coated?

A It will be internally plastic. Saltaline is what it's called.

Q Going to Exhibit Eighteen, which is your fresh water analyses, is this the -- is this all of the water wells within that half mile radius?

A It's all the wells within a one mile radius.

Q One mile, excuse me. You presented some testimony today about the source water that will be injected into here.

Do you have any analysis run on that or do you have any in your -- in your -- in your office?

A We don't have any recent samples run. If that's required we could get one run and submit it at a later date.

My thinking on that was that since the well, all of the wells come from the Bough C Penn -- Ranger Lake Penn zone it's all commingled. We couldn't get separate samples, anyway, so I just considered it all produced water.

Q And this source water is all off of the Ranger Lake lease?

A Yes, just those three wells that I mentioned.

MR. STOGNER: I have no further questions of Mr. Upchurch.

Are there any other questions of this witness? If not, he may be excused.

Is there anything further in Case Number 8270 this morning?

MS. AUBREY: I have nothing.

MR. STOGNER: Does anybody else have anything further in Case Number 8279?

If not, this case will 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 [illegible] a c[illegible] the [illegible] heard [illegible] on July 25, 1984.

[signature], Examiner
Oil Conservation Division