STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 10140

EXAMINER HEARING

IN THE MATTER OF:

Application of OXY USA, INC., for a Waterflood Project, Lea County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

October 31, 1990

ORIGINAL

CUMBRE COURT REPORTING
(505) 984-2244

A P P E A R A N C E S

FOR THE DIVISION:	ROBERT G. STOVALL, ESQ. Legal Counsel to the Division Post Office Box 2088 State Land Office Building Santa Fe, N.M. 87504-2088
FOR THE APPLICANT:	W. THOMAS KELLAHIN, ESQ. Kellahin, Kellahin & Aubrey Post Office Box 2265 Santa Fe, N.M. 87504-2265

I N D E X

E X H I B I T S

APPLICANT'S EXHIBITS:

EXAMINER STOGNER: This hearing will come to order again. Call next case, No. 10140.

MR. STOVALL: Application of OXY USA, Inc., for a waterflood project, Lea County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe Law Firm of Kellahin, Kellahin & Aubrey, appearing on behalf of the Applicant, and I have one witness to be sworn.

EXAMINER STOGNER: Will the witness please stand to be sworn.

MR. KELLAHIN: Mr. Examiner, Rebecca Egg is a petroleum engineer with OXY. She has appeared before the Division on past occasions and she is my witness today.

EXAMINER STOGNER: Ms. Egg, you've also been qualified as a geologist before the Division, is that correct?

THE WITNESS: Yes, I have.

EXAMINER STOGNER: Ms. Egg is so qualified.

REBECCA A. EGG

the witness herein, after having been first duly sworn upon her oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Ms. Egg, let me have you take what is marked as Exhibit No. 1 and simply identify for us what this shows?

A. Exhibit 1 is a map showing the leases in the Mescalero San Andres field. Highlighted in pink is our State BN lease, the lease in which we hope to get approval to initiate a waterflood pilot.

Q. This waterflood pilot project is a lease waterflood, then?

A. Yes, it is.

Q. When we look at the southwest quarter of Section 14, the Wells 1, 2, 3 and 4 are oil wells drilled on 40-acre spacing?

A. Yes, they are.

Q. From what formation do they produce?

A. They produce from the San Andres.

Q. Let's take a look, in connection with Exhibit No. 1, at Exhibit No. 2 and have you show us what is the producing interval and the proposed injection interval for the injector well.

A. Exhibit 2 is a cross-section that runs from northeast to a southwest direction, from the State BN #1 to the State BN #2, crossing our proposed location

for the State BN #5, the injection well.

Marked on this cross-section are the perforations that are currently in the two producing wells, the BN #1 and BN #2. This also shows our proposed injection interval in the State BN #5 as being part of the San Andres.

Q. Describe in general terms what the plan is for drilling the injector and utilizing this injector for purposes of a waterflood project. What's the plan?

A. We plan to drill the State BN #5 in the center of the State BN lease and inject water that we currently collect from the San Andres producers.

Q. What is your anticipated result once you do that?

A. We hope to show that we can indeed recover secondary oil in this field.

Q. What is the current status of the four producing wells in the southwest quarter of Section 14?

A. One well produces approximately eight barrels of oil per day. Another is down to five, and the other two are marginal, really uneconomical, at one or two barrels of oil per day, as are many of the other wells in the Mescalero San Andres field.

Q. As a reservoir engineer, based upon your study of this area, do you have a general range of expectation of the additional oil recovery that you might expect if this is a successful operation?

A. A reservoir model, a black oil model was run on a 160-acre tract in this field, showing that we can anticipate a recovery of 12 percent of the original oil in place through secondary recovery.

Q. Have you prepared a display that shows the Examiner the reservoir parameters and your recovery predictions for the project?

A. Yes. Exhibit 3 gives some basic information concerning the reservoir in this field, and it also shows some reserve numbers and recovery prediction for the field as a whole.

Q. Let's turn now to Exhibit No. 4. Would you identify and describe that?

A. Exhibit 4 gives our last well tests that were submitted to the State for the four wells on the State BN lease.

Q. When we look at the San Andres reservoir that's being produced by these four wells, they produce oil, some gas and some water?

A. Yes, they do.

Q. Is there sufficient water being produced

out of the reservoir that that can satisfy all your needs for water injection into the injector?

A. It is likely that it will. We currently collect from the entire field about 250 barrels of water per day which is currently disposed of through another system. We plan to use the San Andres produced water as our injection water.

Q. Do you desire to have the flexibility, however, to use other makeup water to supplement the reinjection of the produced water in order to have an effective and efficient operation?

A. Yes, we do. If the injection well will take more than 250 barrels of water per day on the vacuum, we would like to have the option of using Ogallala water to make up the additional water.

Q. In terms of pressuring up the reservoir, are you satisfied initially that you can stay within the .2 psi per foot of depth guideline the Division uses as a benchmark for surface injection limitation?

A. Absolutely. Because of the fractured nature of the reservoir, we definitely do not want to inject at high pressures.

Q. Let me ask you to direct your attention now to Exhibit No. 5. Exhibit No. 5 is the C-108 form and the attachments for this project?

A. Yes.

Q. For Exhibit 5 you, in fact, have numbered all the pages of that exhibit?

A. Yes.

Q. Let's turn beyond the form itself and direct you to page 5. This schematic shows what?

A. Page 5 is a plat of the State BN lease.

Q. The plan is that the injector is identified as the #5 well, and it will be physically located, then, within the northeast quarter of the southwest quarter?

A. Yes, that's correct.

Q. What's page 6?

A. 6 is the survey plat from John West Surveys, showing the location of the proposed injection well.

Q. And page 7?

A. 7 is a map showing the area of the Mescalero San Andres field and the surrounding sections.

Q. I recognize that this is on a small scale and it's a little difficult to read. Let me have you describe for us whether or not you and others working with you have made an inventory of all the wells that either are completed in or penetrated through the San

Andres within the half-mile radius circle shown on this display?

A. Yes, those wells have been investigated.

Q. As part of that investigation and in compliance with the Form C-108, have you caused to be prepared a tabulation of that wellbore information?

A. Yes. That information is included in the application.

Q. All right. When we go to page 8, that is a summary of the project?

A. Yes, it is.

Q. Describe for us the significant parts that you have not already discussed.

A. This exhibit gives some details about the injection well that we're proposing to drill.

Q. Let me invite your attention to the injected interval. It says 4100 to 4200 feet through perforation?

A. Yes, that's correct. We plan to inject into the top part of the San Andres where most of the reservoir volume is located. Some of the wells are also perforated in the lower part. We would like the option at some future date of also waterflooding the remainder of the San Andres, just depending on the results of this pilot.

Q. So you're seeking approval of the injection of water into the San Andres formation and not necessarily limited to this specific hundred-foot interval as shown on this display?

A. That's correct.

Q. And that would give you additional flexibility for future operations if you decided to flood some other portion of the San Andres?

A. Yes.

Q. Do you see any problem in doing that? Is there any problem in flooding other portions of the San Andres?

A. No, but to properly evaluate the pilot, we want to first attempt to flood the portion of the reservoir that appears to be most applicable to flooding, most amenable.

Q. The operation of the injector will be in compliance with Division rules, and you'll have some way to monitor the annular space between the tubing and the casing?

A. Yes. We plan to do that as the Division requires.

Q. You'll otherwise complete your injector well as the Division requires?

A. Yes.

Q. Let's turn now to the tabulation of the wellbore information within the one-half-mile radius. Have you prepared for the Examiner and included in the exhibit schematics for any plugged and abandoned wells?

A. Yes, we have. The schematics for the wells that are listed as #1 and #2 and then also in this exhibit there are two more wells that were drilled and abandoned are included in the exhibit.

Q. Let's talk about the plugged and abandoned wells. As an expert, do you find any of those wells that you want to comment on?

A. There is one wheel, the C. H. Juni White #2. That schematic is on page 14 of Exhibit 5.

Q. Okay.

A. In that well there's no record of a plug being set across the surface casing shoe. However, we feel that the primary cement as the two bridge plugs and the three cement plugs that are set between the San Andres and the Ogallala, would be sufficient to protect that fresh water supply.

Q. What does your investigation show you to be the deepest point at which fresh water is produced in this immediate area?

A. We were given the information from the

Artesia office that the base of the Ogallala is at 150 feet in this area.

Q. With the exception of this one wellbore which, nevertheless in your opinion is adequately plugged, do all the other producing and plugged wells have casing strings set deep enough to protect fresh water sands?

A. All other wells have surface casing set below 350 feet.

Q. In making your investigation of the producing and plugged and abandoned wells within the area of review, do you find any that give you concern about the mechanical integrity of those wells?

A. No.

Q. You don't see any evidence that there's open faulting or fracturing that would cause injection fluids to migrate out of the San Andres and move up into the shallow fresh water sands?

A. No, I have no evidence of any fracturing above the San Andres.

Q. And the mechanical integrity of all the wellbores you've examined is such that you can isolate out the injected fluids from the San Andres and keep them separate and apart from the fresh water sands?

A. Yes.

Q. Have you made an analysis or had an analysis made in your behalf to show the compatibilities in the event that you have to take Ogallala water and use it as makeup water in order to have sufficient volumes for injection?

A. Yes. The compatible study is included in Exhibit 7.

Q. All right. And what does it show?

A. This shows that there is some scaling tendency for calcium carbonate scale between the fresh water and the San Andres water. However, it wasn't so great that we could not treat for this problem and eliminate it through chemicals.

Q. As part of the operation plan you simply treat it and take care of the scaling problem?

A. That's correct.

Q. And Exhibit No. 6, I think you commented on, it's a supplement to the C-108 and shows the tabulation of a schematic, the wellbore information for two other wells?

A. Yes, we had missed two drilled and abandoned wells that were within that half-mile radius on the initial application.

Q. With that supplement, then, have you tabulated all the plugged and abandoned wells within

the half-mile radius?

A. Yes.

Q. And this is a State of New Mexico oil and gas lease in the southwest quarter of 14?

A. Yes.

Q. Have you received any objection from any of the parties notified of your application?

A. I'm aware of no objections being filed on this.

MR. KELLAHIN: Mr. Examiner, we'll mark and introduce, if we may, Exhibit No. 8, which is the certificate of mailing.

EXAMINER STOGNER: The State of New Mexico is the surface owner, is that correct?

MR. KELLAHIN: That is our understanding, and the last return receipt card shows notice to the Oil & Gas Division of the State Land Office.

That concludes my examination of Ms. Egg. We move the introduction of Exhibits 1 through 8.

EXAMINER STOGNER: Exhibits 1 through 8 will be admitted into evidence.

EXAMINATION

BY EXAMINER STOGNER:

Q. You have a location of 1410 from the south, 1405 from the west, is that correct?

A. That's correct.
Q. Will you start a water injection immediately upon completion?
A. Yes, we will. The model predicts that it's going to take a year to see response in any case, so we're anxious to get on with it since we do have some uneconomical leases in the field.
Q. Are there any plans to check production on this well or put this well on production prior to injection?
A. If we were to swab some oil during its completion, we might want to just get a test for science's sake. But, as I said before, we don't have any plans for installing any pumping equipment. We plan to put the well on injection right away.
Q. And such a test would be in the best interest of planning the waterflood, is that correct?
A. It would possibly allow a check upon expects that are a result of the modeling. We anticipate--
Q. It would be for waterflood testing purposes only, right?
A. Yes.
Q. You have this design to go down to 4500 feet, yet the injection interval of 41- to 4200, you

did request, perhaps in the future, to open up more zones and flood in other areas, is that correct?

A. There is some pay that occurs in some wells in the lower part of the San Andres, and we would like to allow ourselves the future option of perhaps also putting those zones on waterflood.

EXAMINER STOGNER: Are there any other questions of this witness? If not, she may be excused.

Does anybody else have anything further in this case? If not, this case will be taken under advisement.

(Thereupon, the proceedings concluded.)

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL November 14, 1990.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ
CSR No. 91

My commission expires: May 25, 1991

do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10140 heard by me on 31 October 1990

Michael E. Stogner, Examiner
Oil Conservation Division