STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

APPLICATION OF YATES PETROLEUM)
CORPORATION FOR A PRESSURE)
MAINTENANCE PROJECT, LEA COUNTY,)
NEW MEXICO) CASE NO. 10381
_____)

REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING

BEFORE: Michael E. Stogner, Hearing Examiner
September 5, 1991
9:15 a.m.
Santa Fe, New Mexico

This matter came for hearing before the Oil Conservation Division on September 5, 1991, at 9:15 a.m. at the State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Linda Bumkens, CCR, Certified Court Reporter No. 3008, in and for the County of Bernalillo, State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: LINDA BUMKENS CCR
Certified Court Reporter
CCR NO. 3008

ORIGINAL

I N D E X

September 5, 1991
Examiner Hearing
CASE NO. 10381

E X H I B I T S

YATES PETROLEUM CORPORATION
Exhibits 1 through 8 21

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
General counsel
Oil Conservation Commission
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Santa Fe, New Mexico
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FOR YATES PETROLEUM CORPORATION: CAMPBELL, CARR, BERG & SHERIDAN P.A.
BY: MR. WILLIAM F. CARR, ESQ.
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Santa Fe, New Mexico

MJW PRODUCING COMPANY: KELLAHIN, KELLAHIN & AUBREY
BY: MR. W. THOMAS KELLAHIN, ESQ.
117 North Guadalupe
Santa Fe, New Mexico 87501

MR. STOGNER: Call the hearing to order. Call Case Number 10381.

MR. STOVALL: Application of Yates Petroleum Corporation for a pressure maintenance project, Lea County, New Mexico.

MR. STOGNER: Call for appearances.

MR. CARR: May it please the, Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge & Sheridan. We represent Yates Petroleum Corporation in this case, and I have one witness.

MR. STOGNER: Are there any other appearances?

MR. KELLAHIN: Yes, Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey, appearing here on behalf of MWJ Producing Company.

MR. STOVALL: You just can't resist appearing in at least one of Carr's cases each week.

MR. KELLAHIN: We go out and look for them.

MR. STOGNER: Do you have any witnesses, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. STOGNER: Are there any other appearances? You may continue, Mr. Carr.

MR. CARR: We have one witness to be sworn.

MR. STOGNER: Will the witness please stand and be sworn?

(At which time Teresa Padilla was duly sworn.)

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is very Teresa Padilla.

Q. Where do you reside?

A. Artesia, New Mexico.

Q. By whom are you employed and in what capacity?

A. I'm employed with the Yates Petroleum Corporation as a petroleum engineer.

Q. Miss Padilla, have you previously testified before this Division?

A. Yes, I have.

Q. At that time, were your qualifications as a petroleum engineer accepted and made matter of record?

A. Yes.

Q. Are you familiar with the application filed in this case on behalf of Yates Petroleum

Corporation?

A. Yes, I am.

Q. And are you familiar with the Saunders Upper Penn Field which is the subject of this case?

A. Yes.

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

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No, sir.

MR. STOGNER: They are.

Q. (By Mr. Carr) Would you briefly state what Yates Petroleum Corporation seeks with this application?

A. Yates Petroleum Corporation is requesting authorization to initiate a lease pressure maintenance project on it's Woodpecker lease, which is located in Section 21 of Township 14 South, Range 33 East, and this is in Lea County. We're proposing to convert four producing wells to injectors.

Q. Have you prepared certain exhibits for presentation here today?

A. Yes, I have.

Q. Would you refer to what has been marked for identification as Yates Petroleum Corporation

Exhibit No. 1 and identify this for Mr. Stogner and then review it for him?

A. Okay. Exhibit Number 1 is a map. It's a land map which would show the extent of the Saunders Field in Lea County, and this is outlined in red, and it also shows the Woodpecker lease, which is located in the north half of Section 21, 14 South, 33 East.

Q. The red line on this exhibit shows the geologic limit of the actual field?

A. Yes, it does.

Q. And the tract -- this particular lease -- is that a state, federal, or fee lease?

A. This is a state lease.

Q. Would you now go to Yates Exhibit Number 2?

A. Okay. Yates Exhibit Number 2 is also a map which shows the proposed injection pattern, and if you'll look at that it shows our four wells that we're proposing to convert to injectors: The Woodpecker Number 1, the Number 4, the Number 5 and the Number 8. It also shows that we're proposing a pilot, an initial pilot, in this project to be the Woodpecker Number 5.

Q. Now, Miss Padilla, Yates is seeking approval for the entire project at this time; is

that correct?

A. That is correct.

Q. How soon do you hope to see a response for injection in your Number 5 well that you're using as the pilot injector?

A. We anticipate a response within four to six months.

Q. And on receiving a response would Yates be ready to immediately go forward with the full lease pressure maintenance project?

A. Yes, we would.

Q. Now, if I look at Exhibit Number 2, what is the status of the property in the south half of Section 21?

A. The south half of Section 21 consists of the Swan lease, the VB have been state lease. It consists of the Swan Number 1, 2, and 3; the Swan 1 being a producing pumping well -- oil well -- and the Number 2 being a salt water disposal well. Number 3 has been -- the Number 3 well has been shut in for a couple of years.

Q. With the disposal well, into what formation is water being disposed?

A. The water is being disposed into the Lower Canyon and dolomite.

Q. Who operates the south half of Section 21?

A. Yates Petroleum -- Yates Company, et al.

Q. Let's move to what has been marked as Exhibit Number 3, and would you identify that, please?

A. Exhibit Number 3 is the C108 application requesting authorization for this project.

Q. And into what zones does Yates propose to inject water?

A. Yates Petroleum is proposing to inject into Bough Formation, and there are several intervals: the Bough AB, the Bough C and Bough D.

Q. Will Yates be injecting into each of those zones?

A. Yes.

Q. And are all the wells that are going to be utilized in this pressure maintenance project existing wells, or will there be any additional drilling related to the project?

A. They are all existing, producing wells.

Q. And what is the status of the wells on the lease in our half of 21 at this time?

A. They are all pumping oil wells.

Q. Looking at Exhibit 3, does this exhibit contain plats that show each of the proposed

injection wells and identify the area of review and wells -- other wells in the area?

A. Okay. On pages five and six it shows the schematic and tabular forms on the four proposed injection wells.

Q. Before we go to that, let's identify the actual plats in the exhibit.

A. I'm sorry. I misheard you. The plats are shown on pages seven through ten, and for each injection well we drew a half-mile circle, and also a two-mile circle.

Q. Do these plats show the lease ownership in the area?

A. Yes, they do.

Q. And you've got a half-mile circle being the area of review for each of the four proposed injectors?

A. That's correct.

Q. Now let's go back to the tabular information, and I'd ask you to just identify that for the Examiner.

A. This is the tabular information on the disposal wells?

Q. Yes.

A. Okay. On page five and six, the tabular

date is listed on page five with the schematic format of the four injection wells on page six.

Q. Does this tabular information include all information required by the Division on its form C-108?

A. Yes, it does.

Q. Now, behind this exhibit, would you identify -- or behind page five, would you identify the schematic drawing for Mr. Stogner?

A. Okay. On page six, the Woodpeckers Number 1, Number 4, Number 5 and 8 are shown after we convert the producing wells to injection wells. We will run plastic-coated tubing into the wells, and a nickel-plated packer, and the setting depths of each are shown on each schematic with all the perforations.

Q. So, it will be basically a rather simple conversion?

A. That's correct. That's correct.

Q. Will the annular space in each of these wells be filled with an inner fluid and a pressure gauge placed on each well so that the pressure and the annular space can be monitored?

A. Yes.

Q. And this will be done in accordance with

the Federal Underground Injection Program?

A. Yes, they will.

Q. Are they plugged and abandoned wells within any of the areas of review?

A. Yes. There are two plugged wells, and they are shown -- the schematics of these wells are shown on page 16 and 17. They are the West State Number 2 of Poco Producing, and the States E Number 1 which is on the Swan lease.

Q. And this shows all plugging detail on each of these wells?

A. Yes.

Q. And these are the only plugged and abandoned wells in any of the four areas of your review?

A. The four areas of review, correct.

Q. Miss Padilla, will you identify the information set forth on page 11 through 15 of this exhibit?

A. Okay. Pages 11 through 15 show the tabular form and well data on each of wells within the area of review for the four injection wells.

Q. So the information on page five was tabular data on the injection wells, and on pages 11 through 15 you have tabular information on all the remaining

wells in the area; is that correct?

A. That is correct.

Q. How thick is the Bough Formation in this area?

A. Well, as I mentioned before, the Bough Formation has several intervals. The Bough AB is roughly 100 foot thick, the Bough C is 50 foot thick, and Bough D roughly 50.

Q. And that's the total interval that you just intend to inject into?

A. That is correct.

Q. And what is the source of the water that you proposed to inject?

A. The water that we're proposing to inject is actually produced water from the Saunders Field from our Woodpecker wells and Swan lease, and it also incorporates some of our other wells to the northeast. So this is from the Saunders Field. The Tulk Penn is another Upper Pennsylvanian Pool to the west which we expect to use this produced water which is compatible with our Saunders water and --

Q. Will you also be using water from the Lazy J Penn Field?

A. Yes. This field is just north of the Saunders Field.

Q. And are all of these Upper Penn Fields?

A. Yes, they are.

Q. Would you expect there to be any problems with the compatibility of the water that's being injected into the Bough Formation?

A. No. No, we do not. I think I failed to mention that we're proposing for the pilot to use all produced waters from these three fields, and once we initiate the expansion, we would also include fresh water from the Ogallala.

Q. And would you have to drill a well for that purpose?

A. Yes, we would.

Q. Now, what are you currently doing with the water from the Woodpecker lease, the Tulk field, the Saunders lease, and the Lazy J Penn Field?

A. The waters are presently being disposed in the Swan BB State Number 2 disposal well.

Q. And that's the well that is in the south half of 21 immediately south of this proposed pressure maintenance project?

A. That's correct.

Q. What volumes does Yates propose to inject in this pressure maintenance project?

A. We're proposing to inject anywhere from

1,000 to 1500 barrels of water per day, anticipating a possibility as high as 2,000 barrels of water per day.

Q. The maximum that you would ever need you anticipate being 2,000 barrels a day?

A. Roughly.

Q. And will the injection system be an open or closed system?

A. This would be a closed system.

Q. Do you propose to inject under gravity, or do you anticipate utilizing pressure?

A. Initially we're thinking that the injection wells -- the formation should take the water by gravity. We do anticipate pressures and --

Q. At this time, do you know exactly how much pressure you may need to get the water into the Formation?

A. No. No, we don't.

Q. Is it possible that a 2/10 pound per foot of depth pressure to the top of the injection interval would be suitable for this project?

A. It may be possible. I guess we'll have to wait to see how the injection goes.

Q. If you need to increase the pressure above that limitation, do you recommend that the order

that results from this hearing contain an administrative procedure whereby Yates could come back to the division and with step rate tests establish that by increasing the pressure the formation will not be damaged?

A. Yes.

Q. Okay. Does Exhibit Number 3 contain water analysis of the injection fluid that you're proposing to utilize in this project?

A. Yes. The water analysis of produced waters and also the fresh water are shown on pages 18 through 25 of the exhibit.

Q. And what you have is one analysis for each of the potential sources of supply?

A. Yes. The first one being the Saunders, then the Lazy J, the Tulk Penn, and then the fresh water, in that order.

Q. And what are the fresh water zones in this area?

A. The fresh water zones are the Ogallala and the Chinle.

Q. And do you know the approximate depths of those zones?

A. Roughly to about 250 feet.

Q. Are there any fresh water wells within a

mile of any proposed injection well?

A. We located three fresh water wells within the area. The map will show the location of these wells on page 26. They're denoted be A -- letters A, E and B, and these are--- these are water wells to the Ogallala.

Q. Do you have a water analysis on the water from each of these wells?

A. Yes. These are located on page 27 through 32 in the C-108.

Q. And these water analyses contain the dates which each of the samples was taken, do they not?

A. That is correct.

Q. Are logs of each of the wells involved in this proposed pressure maintenance project on file with the Division?

A. Yes, they are.

Q. Would you now go to what has been marked as Yates Exhibit Number 4 and identify that for Mr. Stogner?

A. Exhibit Number 4 shows the primary and secondary recovery predictions for our projects. It shows that we anticipate and ultimate primary of one million seventy-two thousand barrels of oil, which would give us a primary recovery factor of the

original in place of 31 percent. We calculated original oil in place of 3.4 million barrels of oil, and anticipate -- project -- a 20 percent secondary to primary of 214, 500 barrels of oil. This would increase our recovery factor from 31 percent to 38 percent.

Q. So your increase, when you compare your primary recovery to secondary, is only 20 percent?

A. That is correct.

Q. But this does translate into over 200,000 stock tank barrels of oil?

A. That is correct.

Q. Let's go now to Exhibit Number 5, and I'd ask you to identify that for Mr. Stogner and then review it, please?

A. Okay. Now, Exhibit Number 5 shows that the project is actually economic. As we just mentioned, the secondary -- with a secondary to primary recovery of 214,500 barrels of oil, and an investment of $608,400, our development cost would only be $2,84 per barrel of oil. We ran or our economics at $20.00 per barrel of oil, and discounted it at 15 percent. We expect our project, the pilot, and expansion to pay out in roughly three years, and expect a rate of return of 67 percent.

The lease production for the pilot and the expansion with the way we anticipated the project to progress, would increase the oil production from having no pressure maintenance project at declining -- the lease would actually decline down to about 50 barrels of oil, we'd expect the oil production to increase over and above that 160 barrels of oil per day.

Q. Now, Miss Padilla, when you talk about 160-barrels-of-oil-per-day increase, what you're talking about, if I understand it, is an increase at the point in time when your pressure maintenance project is operating at it's peak?

A. At it's peak. That is correct.

Q. And that 160-barrels-of-oil increase is production at that point in time compared to where you project production from this lease would be without pressure maintenance?

A. It would actually increase up to 210 barrels of oil per day.

Q. Now, have similar applications for lease pressure maintenance projects been approved in this general area?

A. Yes, they have.

Q. Would you refer to Exhibits 6 and 7,

identify those projects for the Examiner, and then review them using these two exhibits?

A. Okay. Exhibit Number 6 is a map which would show the three offset projects with respect to the Woodpecker lease as far as their locations, and Exhibit Number 7 shows some tabular data concerning the offset Bough floods. The three offset floods will be the Midwest Nonambre pressure maintenance project to the northeast of the Yates' lease, and the other two would be the Sage Energy-West Tres Papalotes Penn Unit just to the southeast of Yates' well,, and also in the Saunders field would be the Amerada Saunders Permo-Penn. This would be actually the pilot project in the southern part here, and the expansion, the waterflood itself, just to the north.

On Exhibit Number 7 we show the ultimate all primary and secondary production, and show the secondary to primary ratio. The first two floods show an average of only 31 percent or .31 secondary to primary ratio. While the pilot and expansion on the third flood -- it's pretty obvious that they've failed. So what we did is we actually projected a 20 percent secondary to primary recovery due to this.

Q. And in conducting your review of this field and developing this proposal, have you examined the available geologic information and engineering information on this field?

A. Yes, I have.

Q. As a result of that examination, have you found any evidence of faults or other hydrologic connections between the injection interval and any underground source of drinking water?

A. Yes.

Q. And have you found any hydrologic connection between those zones?

A. No, I have not.

Q. In your opinion, will granting this application enable Yates Petroleum Corporation to produce oil from its Woodpecker lease that it otherwise would not be able to recover?

A. Yes.

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

A. Yes, I do.

Q. You provided notice of this application, in fact, sent a copy of the application to those

interest owners to whom the application needs to be sent, did you not?

A. Yes, we did.

Q. And copies of those transmittal letters are included in Exhibit 3?

A. Yes.

Q. Is Exhibit Number 8 an affidavit from the Campbell firm indicating -- they're showing that notice of today's hearing has been provided to those interest owners?

A. Yes.

Q. Were Exhibits 1 through 7 prepared by you or compiled under your direction?

A. Yes.

Q. And Exhibit Number 8 is the affidavit and notice letters?

A. Yes.

MR. CARR: At this time, Mr. Stogner, we will move the admission of Yates Petroleum Corporation Exhibits 1 through 8.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No objections.

MR. STOGNER: Exhibits 1 through 8 will be admitted into evidence at this time.

(Yates Exhibits 1 through 8 were

admitted in evidence.)

MR. CARR: And that concludes my direct examination of Miss Padilla.

MR. STOGNER: Thank you, Mr. Carr. Mr. Kellahin, your witness.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Miss Padilla, let me ask you a few follow up questions. Perhaps we could use your Exhibit Number 2 as a reference exhibit?

A. All right.

Q. The well shown on that display that adjoin your project area?

A. Yes.

Q. Are those wells that are completed in, are productive from the Bough member of the pool?

A. With the lease names, is that what you're referring to?

Q. Yes, Ma'am. What are you slowing on this exhibit?

A. The wells that are shown -- like, for instance, the lease state wells to the north of the Woodpecker lease, these are the wells that surrounded our area and that we actually did a feasibility study on, and they are producing or had

produced from the Bough Formation.

Q. So, when I look at the well spotted on Exhibit 2, I'm looking at wells in the Bough Formation that have either been plugged and abandoned or continue to produce?

A. That is correct.

Q. Okay. When we look at the feasibility vertically of this pressure maintenance project, we're looking at the Bough member of this pool?

A. Yes.

Q. Are there any other formations in the Saunders Permo-Upper Penn besides the Bough Formation?

A. Occasionally -- well, it would be called like the Virgilian or the basal Wolfcamp, the Lower Wolfcamp. Occasionally you'll find some perforations in some of the wells, and it's a little bit tighter. It really -- I didn't -- I'm trying to think -- I think it contributed roughly five percent to our lease production total from the nine, ten years that they've been producing.

Q. The primary productive interval within the pool then, in this specific vicinity, is this Bough member and it's components?

A. Yes.

Q. Vertically when we look at Bough A through D?

A. Yes.

Q. Are they separated so that one member, for example, the Bough A is physically isolated from the Bough B?

A. They are isolated -- I don't know how to word this.

Q. Would geologically --

A. Geologically they may be isolated by shale breakers. You could inject into all four formations, and naturally the water is going to take -- the water that's going to be produced first would more than likely be from the most permeable member. If you were to go beyond the fracture pressure for instance, you may have some communication if the perforations are close.

Q. When I look at the injection wells that are shown on the C-108, it appears that you're going to have a plan that would introduce injection water into multiple portions of the Bough Formation?

A. That is correct.

Q. The plan is not to try to isolate the injection into the lower members of the Bough?

A. No.

Q. Okay. At this point from completion and fracture technologies, are all the Bough members communicated, one with the other?

A. I don't feel that -- as far as fracturing or -- I'm sorry. Could you repeat your question again?

Q. Do the completions by the wells in this immediate vicinity put all the Bough members in communication with each other?

A. I don't feel that -- as far as vertical communication?

Q. Yes, Ma'am.

A. No, no.

Q. The concept for the pilot flood is to introduce water into all four members of the Bough?

A. Yes, it is.

Q. What is the concept behind picking this particular pattern for the injection wells within the lease?

A. To get the most recovery. When you've got a heterogeneous carbonate like this they -- somewhat of a five-spot pattern would work out the best.

Q. Among the eight wells within the lease, why did you select these four?

A. The Woodpecker Number 5 in the eastern

portion of Section 21 is a little bit more productive. As you're going to the east there it's a little bit more productive than it is on the west. So we felt since this was such a risky operation we would want to pick one of best wells as a pilot.

Q. Is there a structural component that enters into the arrangement of the injection wells within the Bough Formation?

A. No.

Q. Okay. Do you know if you'll have any effect on producing wells that offset an injector that are beyond the boundaries of the lease?

A. You mean like on the pilot injector or --

Q. Yes, Ma'am.

A. Well, on the pilot injector we intentionally picked the well furthest to the south and away from our offset operators. We anticipate if we're going to see a positive response, that our offset operators would also eventually see an offset of positive response; an increase in all production.

Q. The Number 5 is the initial injector. In what wells then will you use to monitor any injection response from the Number 5 well?

A. Well the Number 2 to the east, the Number 3

to the north and -- well, I'm sure the Number 1 will have some response, the 4 and the 6.

Q. And to the south of that the Number 3 is a disposal well now?

A. The Number 2 Swan, directly south of the Woodpecker Number 5.

Q. Okay. That's the salt water disposal?

A. That's correct.

Q. What are your average current rates for your producing wells in your lease? What do you average?

A. For the whole lease it's roughly 120 barrels of oil per day, about 230 to 250 MCF a day, and 500 water a day. The individual wells --

Q. Do you have a tabulation of that somewhere in the exhibit?

A. Not in the exhibit, I have them on a separate sheet of paper.

Q. That's all right. On average it's about 120 barrels of oil a day?

A. For all eight wells; that's correct.

Q. For this depth what is the maximum oil allowable for your project on an individual-well basis, do you remember?

A. I don't know that I can answer that.

Q. What kind of increase in oil rate would indicate to you as an engineer that you're receiving a positive response?

A. Well, looking at the offset floods there individual well had -- one particular flood had increased eight fold, a high increase of eight fold production leveled out at five fold. This is the Sage Energy which is still a continuing project. It's to the southeast, southeast of Yates.

Q. And that is an injection into the Bough Formation?

A. Yes. Yes. They call it to Lower Bursom, but it's also the Bough AB and Virgilian, which is like just above the Bough AB. I'm sorry. I was talking about the five fold increase. So I took that and I also looked at another offset flood to the northeast that was fairly successful, the Midwest pressure maintenance, and they had a two-fold increase in production, so I took the lower end, and when I projected the positive response I projected it to be a two-fold increase in daily oil production.

Q. In obtaining your original oil in place number on your Exhibit Number 4, summarize for me the parameters you've selected in making that

calculation.

A. The original in place was calculated two different ways: material balance method where we had a fluid study on the Woodpecker Number 3 back in '82 or '83 when it was drilled, and so we used many of those parameters to -- ran a material balance equation.

Q. Did you do a volumetric analysis of oil in place?

A. Yes, we did. I used a cutoff of porosity greater than or equal to 2 percent.

Q. Okay. And the interval that you're mapping for your volumetrics was just the Bough Formation?

A. I did -- let's see -- yes, it would be the Bough Formation. I did the Bough AB and the Bough C, and the Bough D individually, and then summarized them.

MR. KELLAHIN: Okay. Thank you, Mr. Examiner.

MR. STOGNER: Thank you, Mr. Kellahin. Mr. Carr, any follow up?

MR. CARR: Nothing, Mr. Stogner.

EXAMINATION

BY MR. STOGNER:

Q. Miss Padilla, who is the surface owner in the north half of this section?

A. The estate of Mrs. Tulk. I believe it's an attorney by the name of Sanderson.

Q. So the mineral is owned by the state, but the surface is owned by a fee?

A. That's correct.

Q. And their notice of this application, was that included?

A. Yes. It's in the C-108, and I'm sure --

MR. STOVALL: We hope Mr. Carr included it, right?

Q. (By Mr. Stogner) Oh, on page 38, is that the estate of Geraldine Tulk?

A. That is correct.

Q. Let's talk about the present production out there, these eight wells?

A. Okay.

Q. You said in your testimony, or I did not write it down, what is the present production out there?

A. On the lease itself?

Q. Yes.

A. Yes. 120 barrels of oil per day.

Q. And that's over eight wells?

A. Yes. Roughly 500 barrels of water per day, and let's say between 130 MCF a day; 230 to 250.

MR. KELLAHIN: That's an average per well?

THE WITNESS: No. That is the total production for the whole lease. I do have the individual well test data.

Q. (By Mr. Stogner) Would you go over that with me?

A. Sure. The Woodpecker Number 1 -- I'll just give the oil and the water. 3 barrels of oil per day, 20 oil -- I'm sorry -- 20 water -- the Woodpecker Number 2, 19 oil, 93 water; the Number 3 11 oil, 82 water; the Number 4, 2 oil, 7 water; the Number 5 14 oil, 162 water; Number 6, 22 oil, 51 water; Number 7, 10 oil, 67 water, and the Number 8, 24 oil, 52 water. So roughly -- let's see. There's two wells that are producing below ten, and six producing over ten barrels of oil per day.

Q. So therefore, that's the reason this is classified as a pressure maintenance project?

A. That's correct.

Q. Are you requesting any special allowable consideration other than what normal pressure maintenance project would get under the general rules in part 700 of the general rules?

A. No, I don't think so. I'm not aware of that.

MR. CARR: No.

Q. (By Mr. Stogner) Just a little elementary geology lesson, how is this Bough interval of this formation classified? What kind of a reservoir?

A. This is a very vuggy limestone with a lot of fossils, and it's a heterogeneous carbonate because it is a limestone. The Bough C would be the most permeable member that is producing, and then the Bough AB certain portions of it.

Q. Okay. How would you class the reservoir energy or the reservoir in this particular --

A. It's a solution gas drive reservoir, but we've had so much water production that there is a partial water drive, and also looking at the recovery factor -- normally, if you were strictly solution gas drive you would be between 15 and 17 percent, but we have like 31 percent that we're projecting, so we know it's partial water drive.

Q. Were there ever any special pool rules for this pool?

A. I'm just trying -- I'd have to look back.

Q. Do you know if there's any special GOR consideration on this pool, or does it carry the 2,000 GOR limit?

A. I believe it's 2,000, but I can't say that

for sure.

Q. There was some talk about the salt water disposal wells in the south half of 21, that's that Number 2 Swan well?

A. Yes.

Q. What interval is the water being disposed of?

A. Okay. The interval that is being disposed of is like 4 to 500 foot deeper than the Bough limestone, and it is -- let me just get the proper terminology here. It's disposing into the lower cyscal limestone and Canyon dolomite, so it is, you know, it's a different type of reservoir it's disposing into versus what we're going to be injecting into.

MR. STOGNER: Do you have any questions, Mr. Stovall? I'm looking up some additional information here.

MR. STOVALL: No, I don't know anything about water injection.

Q. (By Mr. Stogner) In looking at your Exhibit Number 3, that's the C-108; is that correct?

A. Yes.

Q. I'm looking at tabulation Attachment C of all the wells within a half mile radius?

A. Yes.

Q. You have the top of the cement behind the production casing on all of these essentially?

A. I believe there's only one well that I didn't have that information.

Q. I believe so too. Do you know which one that was?

A. The first one on page 11. New Mexico AT State Number 9. Oh, I'm sorry. That's why, because it's circulated.

Q. Okay. Where am I at here?

A. Okay. Page 11. All of the wells there, see, have -- the first well actually has been cemented circulated.

Q. Okay.

A. I believe there was one well, though, that did not have it. I'd have to --

Q. That was back on page 14, that last well, the Swan Number 3.

A. Yes. And I do have that data, but I don't have it with me.

Q. Could you supply me with that?

A. Yes.

Q. And also on page 15?

A. Uh-huh.

Q. I believe the E Number 1, and the next one the Number 9?

A. Okay.

Q. And the Number 10?

A. All right.

Q. There's four wells. But in your calculations just by looking at the figures and the amount of cement, would you say that they're adequate enough to go far beyond the injected intervals?

A. Yes. Yes, I do. The State E Number 1 -- the cement had actually circulated -- they had cut the casing and it had circulated to that point. I must not have made a note on the tabular form.

MR. STOGNER: Are there any other questions of this witness?

MR. KELLAHIN: No, sir.

MR. STOGNER: You may be excused. Mr. Carr, do you have anything further?

MR. CARR: Nothing further, Mr. Examiner.

MR. STOGNER: Does anybody else have anything further in case number 10381?

(No response)

MR. STOGNER: If not, this case will be taken under advisement.

(The foregoing case was concluded at the approximate hour of 10:00 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11381, heard by me on 5 Sept. 1991.

Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

BE IT KNOWN that the foregoing transcript of the proceedings were taken by me, that I was then and there a Certified Shorthand Reporter and Notary Public in and for the County of Bernalillo, State of New Mexico, and by virtue thereof, authorized to administer an oath; that the witness before testifying was duly sworn to testify to the whole truth and nothing but the truth; that the questions propounded by counsel and the answers of the witness thereto were taken down by me, and that the foregoing pages of typewritten matter contain a true and accurate transcript as requested by counsel of the proceedings and testimony had and adduced upon the taking of said deposition, all to the best of my skill and ability.

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 Bernalillo, New Mexico, this day November 14, 1991.

My commission expires
April 24, 1994

LINDA BUMKENS
CCR No. 3008
Notary Public