

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

October 9, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Newmont Oil Company
for a unit agreement, Lea County, New Mexico

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) Case 3876
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Application of Newmont Oil Company for
a waterflood project, Lea County, New Mexico.

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) Case 3877
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BEFORE: Elvis Utz, Examiner

TRANSCRIPT OF HEARING

(Whereupon, Applicant's Exhibits
Numbers 1 through 8, inclusive,
were marked for identification.)

MR. UTZ: The Hearing will come to order, please.

Cases 3876 and 3877 will be consolidated for purposes of
testimony and separate orders will be written on each case.

MR. HATCH: Case 3876, application of Newmont Oil
Company for a unit agreement, Lea County, New Mexico.

Case 3877, application of Newmont Oil Company for a
waterflood project, Lea County, New Mexico.

MR. RUSSELL: John F. Russell appearing on behalf
of the applicant and I have one witness, Mr. Guthrie.

(Witness sworn)

MR. UTZ: Do we have other appearances in either of
these cases? You may proceed.

WRIGHT M. GUTHRIE,

called as a witness, having been first duly sworn, was
examined and testified as follows:

DIRECT EXAMINATION

BY MR. RUSSELL:

Q Will you please state your name, address, name of
your employer and the capacity in which you are employed?

A My name is Wright M. Guthrie. I'm employed by
Newmont Oil Company in Houston, Texas as a Chief Petroleum
Engineer.

MR. UTZ: That's W-r-i-g-h-t?

THE WITNESS: W-r-i-g-h-t, yes, sir.

Q (By Mr. Russell) Mr. Guthrie, have you previously qualified to testify before this Commission?

A No, sir.

Q Will you give a brief resume of your educational background and practical experience?

A Yes, sir. I obtained a Bachelor of Science in Petroleum Engineering from the University of Texas in Austin, Texas in August, 1951, subsequently to which I went to work for the then Stanlon Oil and Gas Company in Northwest Texas and worked for them until December, 1956 at which time I went to work in Houston, Texas for a consulting firm of Butler, Miller and Lentz until August, 1961, at which time I quit and went into an independent engineering consulting operation in Houston, Texas.

Two years later, I went to work for Pritchard and Abbot, an evaluation engineering firm with principal offices in Fort Worth. I was employed as their District Engineer in Houston, Texas.

In February, 1966, I went to work for the Newmont Oil Company as an engineer in Houston, Texas, and I have been in this capacity to the present.

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

MR. UTZ: Yes, sir, they are.

Q (By Mr. Russell) Mr. Guthrie, are you familiar with the application of Newmont Oil Company in Cases 3876 and 3877?

A Yes, sir.

Q Now, I'll refer you to what has been marked as Exhibit A and ask you to identify it.

MR. RUSSELL: I only had two. I can get you one more of those.

MR. UTZ: All right.

A This is the unit agreement for the proposed Young-Queen Unit, Lea County, New Mexico setting forth the proposed terms of the agreements.

MR. UTZ: Do you wish to call that Exhibit A, rather than Number 1? It's marked Number 1 here is why I asked you.

MR. RUSSELL: I meant, referring to what was identified as Exhibit Number 1.

Q (By Mr. Russell) Has this unit agreement received the preliminary approval of the USGS and the New Mexico Land Commissioner?

A Yes, sir.

Q Who is designated as the operator of the Unit?

A Newmont Oil Company.

Q And what formation is covered by the unit agreement?

A The Queen Sands, Two Members.

Q Can you identify them?

A Yes, sir. The upper member is called the Red Sand, the lower member is called the Penrose Sand.

Q And what is the total acreage included in the proposed unit?

A There's approximately 1328 acres included.

Q And what is the participation formula for the unit?

A The participation formula is based on one-third cumulative oil production to 1165, one-third, a yearly production during the year 1964, and one-third acreage as outlined in proration units.

MR. UTZ: One-third, what?

THE WITNESS: Acreage.

Q (By Mr. Russell) Now, who are the working interest owners in this unit?

A The working interest owners, aside from Newmont Oil Company, CRA International, Incorporated, Beard Oil Company, Janice Lee Anderson, K. V. Doll, F. W. Holloway, Bruce Anderson, Neil Anderson, John Beard and Benjamin Hitchins.

Q And have all of these working interest owners indicated their acceptance of the unit agreement?

A Excuse me, Attorney. I left out two people here. Two other working interest owners are Mintex Oil Company and F. B. Jackson, Junior. All but two of these, the last two mentioned, have indicated, verbally or in writing, that they will approve the unit agreement.

Q Let me refer you to what has been identified as Applicant's Exhibit Number 2 and ask you what that is.

A Exhibit Number 2 is a plat of the Young Field area showing the outline of the proposed unit, the wells to be involved as water injection wells and showing the tract numbers with Tract 1A being a tract which will not be committed to the unit in its entirety.

Q Now, Tract 1A, there are two of those, are there not?

A Two sections, yes, sir.

Q And they are the two tracts which you stated the working interest owners had not agreed to the unit, is that correct?

A Yes, sir.

Q But under USGS requirements, they had to be included within the unit in its preliminary form?

A Yes, sir.

Q And it is anticipated that the unit itself will have to be contracted to exclude those two tracts, is that correct?

A Yes, sir.

Q All right. Now, Tract Number 9 which is up on the northwest corner, that is a State of New Mexico Oil and Gas lease, is it not?

A Yes, sir.

Q And all the rest of the leases appearing here, are Federal leases?

A Yes, sir.

Q Now, have you given all of the overriding royalty interest owners or their production payment, if any, an opportunity to join the unit?

A Yes, sir.

Q That is being circulated at this time, is it not?

A Yes, sir. The unit agreement.

Q All right. Now, going back to Exhibit Number 2, you have the proposed unit, including the tract which will later come out, included within your proposed waterflood, is that correct?

A Yes, sir.

Q And you indicate two phases of the waterflood?

A Yes, sir.

Q Now, when would you anticipate going into the final phase?

A As soon as we have determined that the initial phase area is performing satisfactorily to justify water injection in the final phase.

Q Now, are you in the process at this time of a lease-line agreement with Mintex as to Tracts 1A?

A We have had agreement with Mintex that they would sign a lease-line agreement, yes, sir.

Q On Tract Number 1A, which is on the north portion of the unit as outlined, what well is that that is in the lease-line agreement which would be converted to injection?

A I'm sorry, Mr. Attorney, I'm going to have to ask you to repeat that.

Q On Tract 1A which is on the north end of the unit, there is shown there a proposed injection well, is that correct?

A Yes, sir.

Q And that is one that is included within your lease-line agreement with Mintex?

A Yes, sir.

Q And then Tract 1A which is on the west side of the unit which is designated as an injection well to be drilled, that is also included?

A Yes, sir.

Q And although the two tracts will be deleted from the unit, are you asking that the Examiner or the Commission approve these two wells in Tract 1A for injection if the flood is approved?

A Yes, sir.

Q All right. Now, will you explain the green symbols.

A The green symbols are the proposed water injection wells in the initial phase of the waterflood development which will be single completions in the upper Queen-Sand Member. These are located on the plat in the initial phase.

Q Now, the red squares.

A The reds are dual injection wells, proposed dual injection wells for the final phase where water will be injected into both members of the Queen Sand, the upper red and the lower Penrose Sand.

Q And then the black squares.

A The black squares are single injectors to go into the final phase where water will be injected in the lower Penrose Sand.

Q Now, there are some injection wells which you, at this time, propose to include as single injection wells and some as dual, is that correct?

A Yes, sir.

Q Is there a possibility that after this gets into operation that some of the single injection wells may be converted to dual?

A Yes, sir. If performance so indicates, we would like to have authority to do so.

Q And you would present, in connection with all wells, all pertinent data for completion except the interval of the dual completion wells if you go to them, is that correct?

A The ones that are not already proposed as duals, yes, sir.

Q All right. Now, I refer you to what has been marked as Applicant's Exhibit Number 3 and ask you to identify that.

Off the record. Did I give you a set of everything other than the marked one?

MR. UTZ: Yes, sir.

MR. RUSSELL: I think I did, and I think I marked that.

MR. UTZ: Yes.

Q (By Mr. Russell) All right. Explain that.

A Exhibit Number 3 is a schematic diagram of our single completion water injection wells showing water injection down to tubing, below a packer, into perforations where present, or open hole, if that be the case.

The injection line will have a meter at the surface to show the total volume of water or the volume of water injected into the wells. Each such single completion will be so equipped.

Q Now, this is a schematic of the plan of converting all of the single injection wells. We'll follow this plan, is that correct?

A Yes, sir.

Q Now, I refer you to Exhibit Number 4 and ask you to identify it.

A Exhibit Number 4 is a schematic diagram of dual water injection wells wherein water will be injected down tubing for the lower zone and down the tubing oil string casing annulus above a packer into the upper zone. Now, here again, both strings of injection water will be measured by meter.

Q Now, I refer you to Exhibit Number 5 which is, really, a supplementary exhibit to Exhibits 3 and 4 and ask you to explain that exhibit in relation to your two schematic drawings.

A Exhibit Number 5 shows for all wells proposed as injection wells, the operator, the location, the completion date, the number of injection zones proposed, surface casing data showing the size and depth set, oil casing data showing

the size and depth set, and the producing interval of the upper and lower Queen Sand members in each of the wells involved.

The dual and single completion, proposed for single and dual completion, will be done in a general sense in compliance or in accordance with Exhibits 3 and 4 as applicable.

Q Would you read the headings across the top? Instead of going down for each well, show the pertinent data on that exhibit as applied to your schematic drawings or have you gone through that?

A I have read the heading above each one.

Q Each one?

A Yes, sir.

Q And each well is identified by number so that you can distinguish the intervals in each well, the setting of the casing and so forth?

A That's correct.

Q Now, I'll refer you to Exhibit Number 6 and ask you to identify that.

A Exhibit Number 6 pertains to Exhibit Number 5 for each injection well and shows for each one of the wells, the oil string casing data, calculated depth to top of cement around the oil string in all, but one instance, where we had a temperature survey, and there, we show the depth to the top of

the cement from temperature survey.

Q Now, do you have a similar exhibit as to the casing string?

A I beg your pardon, sir?

Q Do you have a similar exhibit covering the cement as to the --

A Surface casing?

Q Surface casing.

A No, sir, I don't have an exhibit to that extent. However, I can state this with respect to surface casing, that of the 16 proposed injection wells, in five, fifty sacks of cement were used; in one, seventy-five sacks of cement were used, and in all others, two hundred sacks or more were used.

Q Now, where is the source of your water for this flood?

A The water source will be from the Ogallala water sands purchased from Yucca Water Company.

Q That is what is classified as fresh water, is it not?

A Yes, sir.

Q And at some point, you will be reinjecting produced water?

A Yes, sir.

Q Do you plan to treat that produced water?

A Yes, sir.

Q How do you plan that? What is your program?

A We'll put a corrosion inhibitor in the produced water to protect all casing and tubing in the well.

Q Now, did you identify whether or not the water would be injected through tubing?

A Yes, sir.

Q Is that just in single or dual completions?

A The water will be injected through tubing in both types of completions.

Q And what type of tubing is that?

A This will be bare steel tubing.

Q Now, is this similar to your other waterflood operations in this area?

A Yes, sir.

Q And in your opinion, what protection is afforded here for possible contamination of any other formation or water?

A Well, in the case of single injectors, we will be injecting below a packer. In the case of dual injectors, we will be injecting below and above a packer, that injection above a packer into a casing annulus where we will have cement above the zone into which we injected, behind the oil string casing.

Q Now, what is your proposed program and what has it been in your other projects for determining leaks under this injection program?

A There are two general ways that we determine leaks; one, where volumes of water injected show a sudden change of increase; two, where casing pressure on the annular space between the tubing and the casing is detected as increasing by a pressure gauge which is available and examined by our pumping personnel, our waterflood personnel, regularly.

Q Now, do you have well logs on all of these proposed injection wells, other than, of course, the one to be drilled?

A All but one. On one, the Mintex injection well --

Q The one in Tract 1A?

A The one in Tract 1A, Mintex Number 4, which we were unable to obtain a log on. As best I can tell, it has never been logged.

MR. RUSSELL: Now, off the record, Mr. Examiner. We have fifteen logs?

THE WITNESS: Fifteen logs.

MR. RUSSELL: Do you want each one of them identified? They're held together with a rubber band.

MR. HATCH: One package is enough.

MR. RUSSELL: All right.

Q I'll refer you to what has been identified as Exhibit Number 7 and ask you what that is.

MR. UTZ: Exhibit Number 7 has how many parts?

MR. RUSSELL: How many are there?

THE WITNESS: Fifteen.

MR. RUSSELL: Fifteen.

A There are fifteen radioactivity logs on all of the proposed injection wells.

Q With the exception of the one you mentioned previously?

A Yes, sir.

Q Is there anything in particular in any of those well logs that you want to call to the attention of the Examiner?

A No, sir.

Q I will now refer you to what has been identified as Applicant's Exhibit Number 8 and ask you to identify it, and it may be twenty-two on your copy.

A Exhibit Number 8 or 22 or whichever may be the case as you have identified it there.

Q Exhibit 8.

A Exhibit 8 shows for the proposed Young-Queen unit, tabulation of oil production cumulative to June 1, 1968, with

the exclusion of one well which is now plugged and abandoned.

Q What is your average production per well per day within this proposed unit area?

A The average daily rate of oil production from the producing wells in the proposed unit area is approximately two barrels per day.

Q Now, in your opinion, would the approval of this unit and the waterflood project give each owner his fair share of the oil and also protect correlative rights and prevent waste by premature abandonment?

A Yes, sir.

Q Were these exhibits, with the exception of One, the unit agreement, and Seven, the well logs, prepared by you or under your direction and supervision?

A Yes, sir.

MR. RUSSELL: I would like to move the introduction of Applicant's Exhibits 1 through 8.

MR. UTZ: Without objection, Exhibits 1 through 8, including 7, with 15 parts, will be entered into the record.

(Whereupon, Applicant's Exhibits 1 through 8, inclusive, were admitted in evidence.)

MR. RUSSELL: I have no further questions of this witness.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Guthrie, I think we better talk about the number of wells that you are requesting here. I'm a little confused in that respect.

A All right.

Q Your Exhibit Number 7 shows some seventeen wells. I count something like twenty-two on your Exhibit Number 2. Is it my understanding that you are requesting approval at this time for all injection wells in both phases?

A Yes, sir.

Q Now, how many wells are there?

A The injection wells in both phases currently drilled, according to my count, are sixteen, with the one to be drilled on Tract 1A not included here in this tabulation.

Q That isn't included on Number 5?

A That's correct, sir.

Q So there's sixteen on Number 5?

A I believe that's correct.

Q I miscounted. Sixteen is correct. One well to be drilled is in Section 19. It would be in the southeast to the northeast?

A Yes, sir.

MR. HATCH: We need a location of where it's going

to be drilled.

MR. UTZ: Unit or foot location?

MR. HATCH: Should be a foot location.

Q (By Mr. Utz) Do you have a foot location on that well?

A No, sir, I don't. Of course, this well is a well that we, as operators, will not be drilling and will be drilled by an offset cooperating operator. I can only surmise that it would be approximately 660 from the east line of Section 19 and 1980 from the north line of Section 19 on the approximate location shown on this map. Is that sufficient?

Q That's good enough.

MR. RUSSELL: We assume that if this does go on, that Mintex will have to make application. We're trying to get it so that they can do it administratively because we still have to show intervals to be perforated.

MR. HATCH: This will really be, in effect, two waterflood projects?

MR. RUSSELL: That is correct.

MR. HATCH: This is not to be in the unit?

MR. RUSSELL: That is correct.

MR. UTZ: But you're asking for approval of their wells in this order, are you not?

MR. RUSSELL: If I can do it.

MR. HATCH: We can approve this thing on a stipulation arrangement if Mintex will give us the information.

MR. RUSSELL: In other words, furnish the location and the proposed intervals of injection?

MR. UTZ: Our problem is, John, that we do list all the wells in the order and we should have a proper location.

MR. RUSSELL: We'll furnish that information, by the way.

MR. UTZ: You will furnish it.

MR. RUSSELL: And I would move that it be made a part of the record.

Q (By Mr. Utz) In that regard, do you have anywhere on these exhibits the correct footage locations listed for each well?

A No.

Q Exhibit Number 5 has the section but not the locations.

A No, sir, I do not.

Q Will you furnish us with that information, please, sir?

A Yes, sir.

MR. RUSSELL: Now, that's to be the footage rather than unit, correct?

MR. HATCH: The unit, we have that information in the file.

MR. RUSSELL: But you want --

MR. HATCH: So the unit, I think would be sufficient there.

MR. UTZ: These old wells are not always correct.

THE WITNESS: Would this be for all wells in the unit?

MR. UTZ: No, just your injection wells. So if you would give us your locations on those and we'll check them against our file.

MR. RUSSELL: Yes, sir.

Q (By Mr. Utz) To boil this down, you'll have eleven dual injectors, is that correct, and six, including the wells to be drilled, single injectors that you're requesting at this time?

A I believe, sir, that it would be five dual injection wells, with the remainder, singles.

MR. RUSSELL: They are the purple ones, are they not?

THE WITNESS: The dual are the red ones as indicated on Exhibit 2. I believe Counsel had mentioned that should performance indicate otherwise, we would ask that we might be allowed to convert others to dual injection with your

permission.

MR. UTZ: Five and twelve, then; twelve singles.

What? Well, all right.

You've got one, two, three, four, five, six, seven, eight, nine singles for your initial phase. You've got two black ones on the bottom. That's ten and eleven. Then you're going to drill a single. That's twelve, isn't it?

A Yes, sir.

Q Seventeen wells in all?

A Yes, sir.

Q Now, you mentioned at some point that you would reinject your produced water. Can you give us anything definite as to what point that will be when you start producing water or so much water or what?

A No, sir, I can only guess and if that's permissible here, I would say it would be within the first year.

Q Well, if you produce any water before then, what will you do with it?

A We're now disposing of it. We'd certainly dispose of it within the rules of the New Mexico Conservation Commission.

Q Which would probably be reinject it?

A Yes, sir.

MR. RUSSELL: Which you had indicated would be

treated before reinjecting, is that correct?

A Yes.

Q You previously testified that it would be treated before reinjecting?

A Yes, I must have said something funny. I don't know what it was.

Q Well, we've had a few hearings that have got salt water injection from open pits and so forth.

A Yes, sir, I'm aware of this.

Q And you did state that you would treat the produced water before reinjecting it, correct?

A Produced water, yes, sir.

Q And for that reason, you are not using lined tubing. You are using bare tubing?

A Yes, sir.

Q Now, do you anticipate any problem with reinjecting treated water as far as formation problems are concerned, plugging up formations? In other words, is it compatible? Do you anticipate it will be compatible with your other water formations?

A We anticipate that it will be, yes, sir.

Q Have you done this before?

A We have done it in nearby areas using Queen water from another well in another injection project; the Queen

produced water and Yucca or Ogallala fresh water.

Q And you haven't had any problems to date?

A Well, there have been minor which we have been able to handle by treatment of one sort or another.

MR. UTZ: Are there any other questions of the witness?

Oh, you wanted administrative approval in this order, did you not, for additional injection wells?

THE WITNESS: Yes, sir, or duals instead of singles, or vice versa.

MR. UTZ: Are there any other questions?

MR. LONG: Mr. Examiner, may I pose a question to the witness?

MR. UTZ: This is Mr. Malcolm Long with the State Land office.

MR. LONG: You used the terminology, you gave initial phase and final phase, and on your exhibit, you show the two areas. I presume your proposed tract participation with your unit agreement will hold true as set up for both phases?

MR. RUSSELL: I believe that is correct. Of course, there is tract participation --

MR. LONG: Because there's quite a differential in that area, if you will so note.

MR. RUSSELL: Frankly, all I can say at this point is, we're going to have to revise the unit area and participation which will have to be approved by you and by the USGS.

MR. LONG: That's what I wanted to know.

MR. RUSSELL: Yes, that will be done.

MR. UTZ: Is that all you have?

MR. LONG: Yes.

MR. UTZ: Are there other questions? The witness may be excused. Any statements in these cases? The cases will be taken under advisement.

You would consider this more of a five-spot pattern than a peripheral pattern, would you not?

THE WITNESS: Yes, sir. It's certainly not peripheral, but it doesn't conform to five-spot, either, exactly.

I N D E X

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, CHARLOTTE J. MACIAS, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Charlott Muias
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the former hearing of Case No. 3877, heard by me on 10-9-1968.

Thomas A. [Signature], Examiner
New Mexico Oil Conservation Commission