BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Roswell, New Mexico

October 13, 1971
Examiner Hearing

IN THE MATTER OF:

Application of Jack L. McClellan for a waterflood project, Chaves County, New Mexico.

Case No. 4610

BEFORE: DANIEL S. NUTTER, EXAMINER

TRANSCRIPT OF HEARING

MR. NUTTER: We will call next Case No. 4610.

MR. HATCH: Case 4610. Application of Jack L. McClellan for a waterflood project, Chaves County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox appearing for the applicant. We have the same witness, Mr. Johnson.

Let the record show that he has been sworn and qualified in this case.

MR. NUTTER: The witness is qualified and still under oath.

JOE JOHNSON

having been previously duly sworn, according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Johnson, are you familiar with the application of Jack L. McClellan in Case 4610?

A Yes, I am.

Q What is proposed by the applicants in this case?

A We propose waterflood permit or permit to begin waterflood work in the Sulimar field.

(Whereupon, Applicant's Exhibits 1 through 18 were marked for identification.)

Q Mr. Johnson, in connection with the preparation for the waterflood project, did you do any work for Mr. McClellan?

A Yes. We analyzed the prospect of waterflood and prepared a report concerning the flood ability of the interval.

Q And it is on the base of this report that this waterflood project was initiated; is that correct?

A This is correct.

Q Now, referring to what has been marked as the Applicant's Exhibit No. 1, would you identify it?

A This is a location map indicating the location in the Sulimar field located approximately 50 miles southeast of Roswell, Chaves County.

Q And Exhibit No. 2, would you identify that exhibit, please?

A Exhibit No. 2 are the well records indicating the completion date, elevation, total depth of the casing information, top of the Queen, sub-sea data, net effective pay, completion interval, producing zone, treatment, initial potential on each of the wells in the Sulimar field.

Q It also shows the present status of the wells in some instances; is that correct?

A Yes.

Q Other than those that are shown as shut-in or dry holed are they presently producing?

A Yes.

Q Now, referring to what has been marked as Exhibit No. 3 would you identify that exhibit?

A These are the most recent well tests obtained on the wells in the Sulimar field. It also indicates on the right hand side the status of the wells at the present time.

You will note that in the Pubco and City Service that we did not have exact well tests. These are estimated tests.

Q Now, does the 80-acre production indicate that the Sulimar has reached an advanced stage of completion?

A Yes, sir. We are estimating at this time that we probably are in the range of about ninety percent complete, primary reserves.

Q And it is suitable at this point for secondary recovery?

A Yes, sir.

Q It is at the stripper stage?

A Yes, sir.

Q Is there anything else you want to add in connection with that exhibit?

A No, sir.

Q Now, Exhibit No. 4, would you identify that exhibit?

A This is the map indicating the -- it is a geologic structure map contoured on top of the Queen sand in the Sulimar field.

Q It also indicates the gas-oil and water-oil context based on completion information and has the water-oil content or the determining factor; is that correct?

A Yes, sir, along the -- along the east side, and we have the sand pinch-out line along the north side. We also have the same pinch-out position along the west side with the small gas cap located along the west side.

Q And to the south what is it?

A To the south we have combination of the same pinch-out as well as the water.

Q That is reflected by the dry holes which are on the south and east sides?

A Yes, sir.

Q Also to the north? Now, referring to what has been marked as Exhibit No. 5 would you identify that exhibit?

A This is an isopach map contoured on the estimated net effective oil pay, thickness in the Sulimar field. This also indicates the pinch-out position that we are previously referring to.

Q And this substantially encloses the area that you propose to flood, does it not?

A Yes, sir, it does.

Q Is it relatively close producing zone in there?

A To the best of our knowledge it is closed.

Q And it would be suitable then for effective control of the flood?

A Yes, sir.

Q Now, referring to Exhibit No. 6 would you identify that

exhibit?

A Exhibit 6 is the oil production history in each of the leases and in the Sulimar field from the beginning of production through July 1971.

It indicates that the total recovery to date from the field has been 516,812 barrels.

Q Do you have any estimate on what could be anticipated from secondary recovery?

A We are estimating similar production.

Q Same production?

A Approximately the same, roughly 5 to 600,000 barrels.

Q And is that oil? Would it not otherwise be recovered if you did not institute a waterflood project?

A Yes, sir.

Q Now, referring to Exhibit No. 7 would you identify that exhibit, please?

A Exhibit 7 is a reservoir performance curve. This is the total field and indicates the primary performance up through July 1971.

It is anticipated that this decline which is being shown now would continue down to an economic limit and would reach a primary economic limit probably in about a two to three year point through the installation of the flood which we anticipate to be in the immediate future.

We assume we will have a decline in production as

shown on the extension followed by eleven and then an increase in production with the performance of the flood shown on the dashed line.

Q And then that reflects the ultimate secondary recovery to which you have just testified?

A Yes, sir.

Q Now, we come to a series of exhibits, Nos. 8 through 15 inclusive. Would you discuss those as a group, please?

A These are reservoir performance curves of each of the leases involved in the Sulimar-Queen field indicating the primary production to date, the declined trend now being indicated or estimated of the future decline that would be indicated on the property without a flood, and the primary economic limit which would be reached.

All of these are virtually the same type of curve and marked with oil production barrels per month on the left side as opposed to time.

Q And this does not reflect any effect of the waterflood project in your estimation?

A No.

Q Now, is it shown on your Exhibit No. 7?

A This is correct.

Q Is there any particular one you wish to point out any information on, Mr. Johnson?

A No. They are all about the same.

Q They are all about the same?
A Yes.
Q Now, does this include all of the leases which would be affected by your proposed waterflood project?
A Yes, it does.
Q And it shows the performance to date?
A Yes, sir.
Q On all of those individual lease bases?
A Yes, sir.
Q Now, referring to what has been marked as Exhibit No. 16 would you identify that exhibit?
A Exhibit 16 is a plat of the waterflood area or the Sulimar field, also has been marked as the proposed well to be converted to injection status in triangle symbol, the outer edge limit reservoir is also shown on the plat.

It basically indicates the wells that we anticipate converting to injection status with this flood.

Q And have you found it necessary to change your flood pattern from that originally proposed on a plat which was filed with the Oil Commission in connection with this case?
A Yes. We have changed it recently.
Q And in your opinion will a waterflood injection pattern as proposed here be an effective waterflood project?
A Yes, sir, it will.
Q And would you control it by raising injection in the various

wells rather than by necessarily the location of the injection wells?

A Yes, sir. It would have to be controlled in order to center on producing wells.

Q And that would be done by the injection rate?

A Yes, sir.

Q Now, would you refer please to Exhibit No. 17?

A This is the legal description of each of the leases along with the lease name and lease number.

Q And does that cover include all of the area then that would be affected by the waterflood project?

A Yes, sir.

Q Now, referring to Exhibit No. 18 would you identify that exhibit?

A This exhibit is the proposed injection wells that were shown on the previous map exhibit. It also gives their unit position, section, township and range.

MR. NUTTER: 16 is the map, 17 is this list of leases, then this would be 18?

THE WITNESS: Yes, sir.

MR. KELLAHIN: This is the last exhibit.

MR. NUTTER: Okay.

Q (Mr. Kellahin continuing) And that gives the unit location of each of the proposed injection wells?

A Yes, sir, it does.

Q Now, Mr. Johnson, this originally was projected as a unit area with a waterflood project, was it not?
A Yes, sir, it was.
Q And it caused some problems in connection with the unit agreement. What action have you determined to take at this time?
A We will go to a cooperative type project.
Q And do all of the working interest owners agree that this can be done in this phase?
A Yes, sir.
Q Have you received approval from the United States Geological Survey?
A Yes, sir.
Q And they agree to a proposed waterflood project?
A Yes, sir.
Q On a cooperative base?
A Yes.
Q Were Exhibits 1 through 18 prepared by you or under your supervision?
A Yes, sir, they were.

MR. KELLAHIN: At this time I will move the introduction of Exhibits 1 through 18.

MR. NUTTER: Applicant's Exhibits 1 through 18 will be admitted in evidence.

Q (Mr. Kellahin continuing) Do you have anything further to

add, Mr. Johnson?

A No, sir, I do not.

MR. KELLAHIN: That completes our presentation.

CROSS-EXAMINATION

BY MR. NUTTER:

Q Mr. Johnson, since you have had to abandon the unit consent here at least for the time being and proposed to launch this waterflood project on a cooperative base, it would appear that all of the injection wells on your Exhibit No. 16 belong to Mr. McClellan with the exception of one City Service injection well on the far south end of the pool; is this correct?

A Yes, sir, this is correct.

Q So in effect, what you are doing here today is acting as agent for City Service requesting authority for them to operate a waterflood project?

MR. KELLAHIN: If the Examiner please, I think we will work out a designation of operator arrangement of some kind where it will all be operated under one control. At least this is what we anticipate pending unitization.

THE WITNESS: Yes, sir.

Q So you are seeking authority today for City Service under a water injection well on their federal lease?

A That's right.

Q And then of course Mr. McClellan is asking for water

injection on various of his leases in the Pubco lease in the north half of the northeast quarter of Section 26 which I believe is all of the acreage that they have in the area.

A Yes, sir.

MR. KELLAHIN: That's correct.

Q That is productive?

A Yes, sir.

Q That doesn't have an injection well on it?

A No, sir. Here again we anticipate making an agreement with City Service and Pubco along with the McClellan group so that the cooperative type flood can be conducted.

Q Well, until such time as the acreage has been unitized or until such time as some sort of cooperative arrangements have been made and evidence thereof submitted to the Commission, each one of these leases would have to stand on its own as far as allowable is concerned and not --

A Yes, sir, of course.

MR. KELLAHIN: If the Examiner please, I believe there is no lease without a producing well.

MR. NUTTER: Right.

Q (Mr. Nutter continuing) Now, Mr. Johnson, you didn't go into the rates of injection and the source of water and such as that.

A The source of water will be coming from Double Eagle. We will be purchasing this water. Rate of injection

anticipated to be in the order of 2400 to 3000 barrels of water per day.

Injection rates will be as I said earlier -- will be set in accordance with flood proposition and rates for each individual well set there in accordance with this.

Q Well, apparently if you are going to inject 2400 to 3000 barrels of water per day you have got seven injection wells, so it will be in the neighborhood of 300 to 400 barrels per day?

A Yes, sir, this is correct.

Q Do you have any idea yet as to pressures that would be required?

A I would anticipate about 1000 barrels.

Q How many barrels of water do you expect is going to be required for fill-ups before you start getting a response?

A We anticipate response in about a six-month period in the order of 400,000 barrels.

Q 400,000?

A Yes, sir.

Q Now, your total cumulative primary production from the pool to date was somewhere in the neighborhood of 500?

A 517.

Q And 17,000 barrels? Have you made a calculation as to what you can anticipate on secondary recovery?

A Yes, sir. We gave that a minute ago.

Q I missed it.
A It would be in the order of around 600,000 barrels.
Q 600,000?
A Yes, sir.
Q Now, the mechanism is going to be utilized here for the construction of the injection wells, Mr. Johnson?
A Injections wells will be running tubing, setting packer approximately fifty feet above the producing interval.
Q A little slower, please. Packer fifty feet above the producing interval?
A Yes, sir. Loading the back side of the hole it is not anticipated initially to use plastic tubing, plastic-coated tubing. We anticipate control of the corrosion rate so that this will not be necessary.
Q And how will that be achieved?
A Through chemical injection.
Q I see. Control corrosion by treatment of the water then?
A Yes, sir, also control of scale hopefully.
Q Now, when you mentioned that you would load the back of the hole you mean the annulus between the tubing and casing?
A Yes, sir.
Q With inert fluid?
A Yes, sir.
Q And can you equip those well heads with a pressure gauge on that annulus?

A Yes, sir.

Q So it would detect leakage?

A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Johnson? He may be excused.

(Witness excused)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Not in this case, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case No. 4610? If no one has anything further in Case No. 4610 we will take that case under advisement.

I N D E X

E X H I B I T S

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

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

Court Reporter

I hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4610 heard by me on 10/13, 1971.

Examiner
New Mexico Oil Conservation Commission