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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
August 28, 1969

EXAMINER HEARING

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IN THE MATTER OF: )

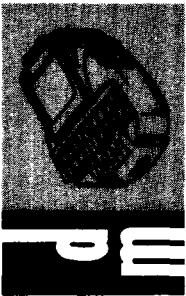
Application of Harvey E. Yates )  
Company of Artesia for several )  
pressure maintenance projects, )  
Eddy County, New Mexico )

Case No.

4209

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BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING



MR. UTZ: Case 4209.

MR. HATCH: Case 4209. Application of Harvey E. Yates Company of Artesia for several pressure maintenance projects, Eddy County, New Mexico.

And, again, what part can we leave off here? I have Harvey E. Yates Company of Artesia.

MR. LOSEE: Not of Artesia --

MR. HATCH: Just "Harvey E. Yates"?

MR. LOSEE: Yes, sir. "Harvey E. Yates Company". You don't say "oil company", do you?

MR. UTZ: We say whatever you say --

MR. LOSEE: All right.

A. J. Losee, appearing for the Applicant.

I have one witness, Mr. Mahfood, who was sworn in the previous case.

MR. UTZ: Let the record show that Mr. Mahfood has been sworn in the previous case. Appearances? You may proceed.

EDDIE MAHFOOD

the witness, called by Mr. Losee, having first been duly sworn upon his oath, testified as follows:

DIRECT EXAMINATION

BY MR. LOSEE:

Q. You are Mr. Eddie Mahfood of Artesia, New Mexico, a consulting petroleum engineer?

A. Correct.

Q. And your qualifications have been previously accepted by the Examiner?

A. Yes, sir.

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

MR. UTZ: Yes, sir.

Q. (By Mr. Losee) Please refer to what has been marked as Exhibit Number One, Mr. Mahfood, and explain what is portrayed on that?

A. Exhibit One is a lease map of the proposed waterflood area. The yellow outline is the outline of the Harvey Yates operated properties, which will be waterflooded -- I'm sorry -- which will receive benefit from this waterflood.

Q. What lease; there are two leases involved here in this area, are they not? One of them is the Lillie Yates --

A. That's right. The Lillie M. Yates -- the

Lillie M. Yates and Harvey Yates lease -- now there are some other leases, which will receive some benefit, we hope. And that's Bob Johnson lease, in which there are two wells -- Numbers One and Three.

Q. Now, Mr. Mahfood, is the Bob Johnson lease up there in Section 5 in the southwest quarter of the northwest quarter --

A. That is correct.

Q. And the Lillie M. Yates is in the southwest quarter of the southeast quarter of Section 6?

A. That's right also.

MR. HATCH: Just a minute, let me get this; I'm a little bit slow -- that first lease is the Bob Johnson, the southwest of the northeast?

MR. LOSEE: Yes, sir -- of the northwest.

MR. HATCH: Of Section 5?

MR. LOSEE: On Section 5, yes, sir.

And then, six, the Lillie M. Yates is a forty-acre lease, as I understand it, in the southwest of the southeast.

THE WITNESS: Also -- there is no forty-acre lease there -- in Section 7, of the northwest of the northeast.

Q. (By Mr. Losee) Whose lease is that?

A. That is also the Lillie M. Yates.

Q. I see. The Lillie Yates is the eighty acres --

A. Eighty acres; correct.

MR.. HATCH: That is southeast of the southwest of  
Six?

MR. LOSEE: Yes.

MR. HATCH: And the southwest --

THE WITNESS: No, the northwest of seven.

MR. HATCH: Of seven?

THE WITNESS: Yes, sir.

MR. LOSEE: And the remainder of the acreage  
outlined in yellow, is the Harvey Yates -- the Page and  
Yates lease.

THE WITNESS: Correction -- there is the Yates  
Federal in the southeast quarter of the southwest of Section  
6.

MR. LOSEE: All right. That is the Yates Federal?

THE WITNESS: Yes, sir, the Yates Federal. Also,  
this note, too, Number Two well in Section 7.

MR. LOSEE: All right. Did you get the other two  
leases?

MR. HATCH: Well, let him go ahead --

MR. UTZ: What is this H. E. Y. at the top there?

THE WITNESS: Harvey Yates -- Federal.

MR. LOSEE: Federal.

MR. UTZ: Oh, I see.

THE WITNESS: It's a Federal lease -- all of these are Federal leases.

MR. UTZ: All right.

Q. (By Mr. Losee) Now, does this map show the producing and injection wells?

A. Yes.

Q. And the abandoned wells?

A. Yes, sir. The triangles indicate the proposed water injection wells. The full circles indicate the current wells, and the broken circles indicate temporarily abandoned wells.

These temporarily abandoned wells will be put back on production and will provide a source of the water that will be used for the water injection.

Q. What zones are presently or have produced in this area?

A. The Seven Rivers and the Queen only.

Q. Which you propose to flood in this application?

A. That is correct.

Q. Give a brief history of this pool, please?

A. This pool was -- this study area was discovered in the Wright Yates Federal Number Two, which is the Unit C of Section 7.

That well blew out while they were penetrating the Seven Rivers formation, and after it was contained, they drilled on down into the Queen.

Q. That was in what year?

A. This was in 1949; July of 1949.

Q. Please refer to what has been marked as Exhibit Two and explain what is portrayed by this?

A. Exhibit Two is a well completion data for this area. It contains all the wells completed in the Seven Rivers Yates and the Seven Rivers-Queen -- I'm sorry -- the Seven Rivers-Queen. And in addition, there are a few additional wells included.

Q. Outside of the project area?

A. Outside of the project area, yes, sir.

Q. But they are noted on the data sheet?

A. Yes, sir.

Q. What is the accumulative production from the

project area?

A. Through May of '69, the accumulative production is two hundred seventy-nine thousand eight hundred and nine barrels of oil. Current production is one hundred sixty-five barrels of oil per month for the six wells, which amounts to at least one barrel of oil per day per well.

Q. Are there any wells making over a barrel a day in that?

A. Well, no well is making more than two barrels a day.

Q. In your opinion, have the wells in this project area reached an advance or stripper state of completion?

A. Yes, sir. In my opinion, they are in the stripper stage.

Q. Do you have an opinion as to the ratio of secondary oil that will be recovered in comparison to primary oil?

A. Yes, sir. Primary oil was just eleven percent of the original oil in place. And therefore, I would suspect it would be much greater than one to one.

Q. Please refer to what has been marked as Exhibit Three and explain what is shown by this log?

A. Exhibit Three is an acoustic log of the Harvey



Yates Page Federal Number Eight. It is the only electric log of any well in this study area.

In red, is the oil pays. In blue are areas that produce water -- zones that produce water.

The Seven Rivers formation and the Queen are both identified.

Q. Please refer to Exhibit Four and explain what is shown by this diagrammatic sketch?

A. Exhibit Four is a diagrammatic sketch of the Lillie Yates-Harvey Yates Number Two, proposed for injection.

You will notice there is just one string of casing, and this is true for all of the wells in this area.

It is proposed to fill the annulus space between the casing and the hole to the surface with ready mixed cement.

It is proposed to run tubing on a tension packer and to fill this casing annulus with fresh water, inhibited fresh water.

It is proposed to leave the open hole section as is, until such time that a substantial amount of this Seven Rivers oil is recovered and provide that no excessive loss of water is experienced above the Queen formation -- the strata above the Queen formation.

Q. And also, how long do you think it will take to recover a substantial portion of the Seven Rivers oil?

A. I estimate one to two years. At that time the Queen formation should be pressured up and we propose then to go in and set liners, to exclude the Seven Rivers -- exclude the, all the open hole section to the top of the Queen.

Q. And would you cement --

A. And it will be cemented. By delaying running of these liners here, we hope to protect the Queen from being damaged when we set those liners.

We also hope to recover a substantial amount of oil from the Seven Rivers which would otherwise be lost.

Q. Now, is your Exhibit Four-A the portrayal of the same well with the liners run in it?

A. That's correct.

Q. Please refer to what has been marked as Exhibit Five and explain what is shown by this?

A. Exhibit Five is a diagrammatic sketch of the injection, Page and Yates Number Six.

Here again, we see one string of casing, estimated to be cemented to the surface -- at least, the

operator tells me it is. We propose to set a packer and run tubing -- a tension packer to about three hundred and ninety feet, to leave the open hole section as is until such time as it becomes necessary to -- until such time as is opportune to set liner.

And as previously stated, the time will be one to two years.

Q. When the Seven Rivers oil is recovered --

A. Substantially, yes -- and the Queen's pressure is down.

Q. Refer to your Exhibit Number Six, being the sketch of the Page and Yates Number Seven --

A. Yes, sir. This Exhibit Six is the diagrammatic sketch of the Page and Yates Number Seven.

We propose to fill the casing annulus to the surface with ready mixed cement. This is the surface casing -- the annulus between the casing and the open hole.

Then, the annulus between the tubing and the casing, we propose to fill this with fresh water mud.

You note that no water or flood entry was recorded in this well. It is believed that the open hole section is just hard rock and no fluid will be lost. However, with this fresh water mud, it would give us a mud cake in this

open hole section, here, in case it should develop a leak in the tubing at some later date. In which case, we will detect the leak before any loss can occur to the formation.

Q. What would you do to remedy the leak?

A. We would flood the hole and use it for the packer -- for the tubing, and replace the tubing.

An advantage to this method would be if it became feasible to deepen this well at some later date, we could easily go back in there and deepen the well, like the second Queen, or even deeper. The Grayburg, or some other formation.

Q. Refer to your diagrammatic sketch of the Page and Yates Number Eight and explain what is shown?

A. Page and Yates Number Eight is the only well that has a set path all the way through the Queen formation -- packed with cement all the way to the surface -- the casing was cemented all the way to the surface.

This well is located behind the oil water contact, and after being fracked, it never produced anything but water.

It is proposed to convert this well to -- for injection, and to move the oil from the oil water contact -- to the oil saturated zones.

Q. Here again, will you fill the casing with inhibited fresh water?

A. Yes, sir.

Q. And put a gauge on the surface?

A. Yes, sir.

Q. Please refer to what has been marked as Exhibit Eight --

A. Exhibit Eight is a water analysis taken on August 13, 1969 -- from pipe lines conveying produced water on the Page and Yates lease.

Q. Is produced water the proposed source of water for this injection program?

A. That is correct.

Q. Do you feel that there is an adequate supply on the lease or leases?

A. I feel that after we have returned these shut in wells to production, we will have available some -- approximately five hundred barrels of water per day.

On a full flood, we could probably use a thousand barrels a day, and for that reason this might be qualified as a pilot flood.

Q. Well, if your five hundred barrels or your available water doesn't seem sufficient, there are other

sources in the area; aren't there?

A. Other sources will be negotiated for.

Q. At what rates and at what pressure do you propose to inject water?

A. It is estimated that these wells will take approximately one hundred and twenty barrels a day per well at four hundred pounds well head pressure.

Q. Do you have an opinion as to whether the proposed injection well completions will protect any fresh water that might be present in the area?

A. Yes, sir. I think all surface casing is sufficient, indeed, to protect fresh water in the area.

Q. Were Exhibits One through Eight prepared by you?

A. That is correct.

MR. LOSEE: We move the introduction of Exhibits One through Eight.

MR. UTZ: Without objection, Exhibits One through Eight will be entered into the record in this case.

(Whereupon, Applicant's Exhibits One through Eight, Inclusive, were duly admitted.)

MR. LOSEE: No further questions.

CROSS EXAMINATION

BY MR. UTZ:

Q. Do you consider this water as being fresh water, non-corrosive?

A. Non-corrosive, I would say -- I would say non-corrosive, but it's not fresh -- it's brackish, sir.

Q. You don't intend to plastic-line or coat the interior tubing?

A. Sir, you notice this water analysis shows the water to be pretty much saturated with bicarbonates. We propose to control scale deposits and corrosion with inhibitors.

Q. You will inhibit the water?

A. That is correct, yes, sir.

Q. What was the formation you were going to inject into on that previous case?

A. The Seven Rivers, also.

Q. The Seven Rivers only?

A. Yes, sir.

MR. UTZ: Any other questions?

MR. HATCH: Why don't you have him just mark those -- those different leases -- I got lost --

MR. UTZ: Any further questions?

The witness may be excused and the case will be taken under advisement.

The hearing is adjourned.

(Whereupon, the hearing was adjourned this date at 2:10 o'clock, P. M.)



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STATE OF NEW MEXICO )  
  ) ss  
COUNTY OF BERNALILLO )

I, CA FENLEY, 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.

*CA Fenley*  
\_\_\_\_\_  
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4209 heard by me on Aug 28 1969.

*[Signature]*  
\_\_\_\_\_  
Examiner  
New Mexico Oil Conservation Commission