BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 25, 1967

IN THE MATTER OF:

Application of Amerada Petroleum Corporation for a waterflood project, Lea County, New Mexico.

Case No. 3669

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The next case will be Case 3669.

MR. HATCH: Application of Amerada Petroleum Corporation for a waterflood project, Lea County, New Mexico.

MR. ERICKSON: At this time, I would like to enter my appearance. My name is George E. Erickson, Jr., Attorney for Amerada, address, Post Office Box 2040, Tulsa, Oklahoma, associated with Mr. Jason Kellahin. I have one witness, Mr. Jack Evans.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1 through 4 were marked for identification.)

MR. UTZ: Are there any other appearances? You may proceed.

J A C K E V A N S, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ERICKSON:

Q Mr. Evans, will you state your name, residence and place of employment?

A My name is A. Jack Evans, from Tulsa, Oklahoma, where I am employed by Amerada Petroleum Corporation as Petroleum Engineer, Petroleum Conservation Engineer.

Q You are presently serving in that capacity in Tulsa: Have you done any work in this area during your employment with Amerada?

A Yes,sir, I have.

Q Would you describe, very briefly, for the Examiner the length of time that you served? I believe you served in Hobbs; is not that correct?

A Yes, sir. I graduated from Texas A & M with a Bachelor of Science degree in Petroleum Engineering in 1960. I went to work for Amerada at that time, and have been employed by Amerada since then, and I have worked in Hobbs for three years.

MR. ERICKSON: Mr. Examiner, Mr. Evans has not previously testified before the Commission. I move that his qualifications be accepted.

MR. UTZ: He is considered qualified to testify in this case.

Q (By Mr. Erickson) Are you familiar with the subject matter of this application, Mr. Evans?

A Yes, sir, I am.

Q I would like to direct your attention now to what has been marked for identification as Exhibit 1 and ask you to describe that exhibit.

A Exhibit 1 is a portion of a map of the Vacuum Pool in Lea County, New Mexico with special reference to Section 23 of Township 17 South, Range 34 East. The Amerada State "VA" Lease in the Southwest Quarter of Section 23.

Q That is shown in Unit K, is that not correct? It would be in Unit K?

A The Southwest quarter would be the Amerada Lease where we are concerned. Units K and M are the two well units, or location units, where we're concerned, or applying for water injection permission. The two wells are indicated with a red triangle.

Q These are the proposed injection wells that are the subject matter of the application, is that correct?

A Yes, they are.

Q Shown as number 3 and number 6?

A Yes, sir.

Q The names of the leases and locations of neighboring wells are shown on this plat, is that correct?

A Yes, sir.

Q Mr. Evans, are there any waterflood projects being conducted in the immediate area?

A Mobil Oil Corporation is currently operating a waterflood in this area on their State-Bridges Lease on

Exhibit 1. You'll notice a series of triangles which indicate water injection wells for the Vacuum-Grayburg-San Andres zone. Mobil has been operating this waterflood for some time.

Q Mr. Evans, if this application is granted, where do you propose to obtain your water for this project?

A We propose to buy from Mobil, water from their injection system, pressured water, which is from the Ogalalla Fresh Water Sand.

Q In the event that in the future you obtain production from this project, what would you expect to do with the water produced?

A The produced water we would expect to reinject.

Q How many barrels do you propose to inject per day per well?

A We propose a maximum of 500 barrels per day per well, with a maximum of 1500 to 1600 pounds surface pressure.

Q Now, Mr. Evans, I invite your attention to what has been marked as Exhibit No. 2 and ask you to describe that exhibit please.

Q Exhibit No. 2 is a performance curve on the Amerada State "VA" Lease which is the subject lease, southwest quarter of Section 23, the lease was drilled in 1938 with the exception of well number 6. Now, number 1, 2 and 3 were

drilled in 1938. Number 6 has just recently been drilled. This curve shows the marginal status of the three producing wells on the lease.

Q What is the production from well number 3?

A Well number 3, which is one of the wells to be converted to injection, produced 4 barrels of oil, and no water, for September of 1967.

Q And if this application is approved, that would be the only injection well that is not producing oil, is that correct?

A That is correct.

MR. UTZ: These are all monthly. That's all right.

A Yes, sir.

Q (By Mr. Erickson) Now, I invite your attention to what has been marked for identification as Exhibit No. 3, and also what has been marked as Exhibit No. 4 for identification and ask you to describe them.

A Exhibits 3 and 4 are scamatic diagrams, subsurface scamatics, of the State "VA" Number 3 and the State "VA" Number 6, located in Units K and M, in Section 23, proposed, or the intent of this exhibit is to show that the water injection will be confined to the Grayburg-San Andres zone on the State "VA" Number 3 which is the Exhibit No. 3. We

show 13 inch surface casing set at 227 feet, 9-5/8 inch intermediate set at 1641 feet, and 7 inch casing producing strings set at 4311 feet. Total depth of the well is 4662 feet.

Q With respect to Exhibit 4, I believe this has been changed very slightly from the attachment to the application, is that correct?

A Yes, sir. At the time the application was mailed in, the well had not been drilled. Since then the well has been drilled and although it has not been perforated nor had the tubing set, at least we have the total depth, and the casing seats, they have been altered, as you'll notice on the exhibit. The surface casing is set at 1594 feet, the long string set at 4700 feet, with the total depth of 4700 feet.

Q Mr. Evans, what formation do you propose to inject fluids into, if this application is approved?

A We propose to inject water into the Grayburg-San Andres zone.

Q Where is the fresh water strata penetrated by these wells, located?

A The fresh water strata would be up behind the surface casing, as shown on the exhibits.

Q. Will the injected fluids be isolated from this fresh water strata?

A Yes, sir, they will.

Q Will there be any inert fluid filling the annulus if this project is continued?

A Yes, sir, we would expect to put Kontol treated water in the casing tubing annulus.

Q Would you expect to use pressure gauges?

A On the casing annulus, yes.

Q What type of injection tubing will be used?

A We will use new 2-7/8 inch plastic-lined tubing.

Q In your opinion will the proposal that you have outlined here protect the fr5sh water strata?

A Yes, sir, it will.

Q Do you have any opinion concerning the effect of this waterflood, if it is permitted, on future production from wells 1 and 2, and if so, what is your opinion?

A We would expect to stimulate production up from its marginal position now, and recover substantial additional oil that would otherwise go unrecovered.

Q Mr. Evans, were Exhibits 1 through 4 prepared either by you, or under your supervision?

A Yes, sir, they were.

MR. ERICKSON: At this time, I would move the acceptance of Exhibits 1 through 4 into evidence.

MR. UTZ: Without objection, Exhibits 1 through 4 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits 1 through 4 were admitted in evidence.

MR. ERICKSON: Do you have any questions for the witness, sir.

MR. UTZ: Yes, I do.

CROSS EXAMINATION

BY MR. UTZ:

Q In regard to the open areas behind your pipe where there is no cement, what sort of formation is there? I think you have already stated that the fresh water was behind the surface casing.

A Yes, sir.

Q What would you have behind these open places on your number 3 and the 856 feet behind the 5-1/2 inch casing on number 6?

A Well, sir, we would have nonpermeable formations that would not be giving up fluid nor taking fluid. We would anticipate no damage nor contribution of fluid into the

well from these formations.

Q And you feel that this casing will be protected by the inert treated water?

A Yes, sir, we do.

Q What type of packer do you intend to put around the tubing?

A Well, as far as the name, I wouldn't be --

Q You don't know?

A No, sir, I don't know.

Q It will be retrievable?

A Yes, sir, it will be a retrievable, approved packer.

Q Do you favor using a packer rather than just floating oil, say, on top of the water?

A Yes, sir.

Q You think it's a better engineering situation?

A Yes, sir.

Q You stated that you plan to reinject your produced water. Do you know whether this water will be saline or not after it's produced?

A It would be contaminated as far as, it wouldn't be potable; it would be brackish, more than likely, and have some sulphur content.

Q Do you anticipate any problem treating this water?

A Not at the present time, no, sir.

Q It would follow then, that you do not anticipate any problem in cleaning up your produced water to the point that it wouldn't damage your formation on injection?

A That's right. If chemical analysis indicated injected waters are not compatible, we would separate and inject fresh supply of water into one well and the produced water into the other well. In other words, we would not mix the waters at the surface so that they would be detrimental to the formation if they could not be treated.

Q If they could not be treated?

A Yes, sir.

Q But you don't anticipate any problems?

A No, sir.

Q Are you using produced water for injection in other floods that you have?

A Yes, sir.

Q No problem?

A No problem.

Q Do you have any figures on how much oil you intend to recover by secondary method?

A No, sir.

Q Would it be approximately the same as your primary, as it is in most cases?

A I would anticipate possibly a little less than primary.

Q Do you know what your primary is?

A Approximately 90,000 barrels per well.

MR. UTZ: Thank you. Are there any other questions of the witness? The witness may be excused.

(Witness excused.)

MR. UTZ: Any statements? The case will be taken under advisement.

I N D E X

EXHIBITS	MARKED	OFFERED AND ADMITTED
Applicant's 1 through 4	4	9

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

WITNESS my hand this 24th day of November, 1967.

Ada Dearnley
ADA DEARNLEY

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3669, heard by me on Oct. 25, 1967.

Examiner
New Mexico Oil Conservation Commission