BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 5, 1968

EXAMINER HEARING

IN THE MATTER OF:	
Application of Pan American Petroleum Corporation for a waterflood project, Lea County, New Mexico.	Case No. 3782
Application of Pan American Petroleum Corporation for a unit agreement, Lea County, New Mexico.	Case No. 3783

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will call next Case 3782.

MR. HATCH: Case 3782. Application of Pan American Petroleum Corporation for a waterflood project, Lea County, New Mexico.

MR. MALONE: May it please the Commission, Charles Malone of Atwood and Malone, Roswell. We have two witnesses and seven exhibits, and I am wondering whether in order to save the time of the Commission it might be possible to consolidate for purposes of this hearing Cases 3782 and 3783.

MR. NUTTER: We will call next Case 3783.

MR. HATCH: Case 3783. Application of Pan American Petroleum Corporation for a unit agreement, Lea County, New Mexico.

MR. NUTTER: Case 3782 will be consolidated with Case 3783 for purposes of testimony.

(Witnesses sworn.)

(Whereupon, Exhibits A through C were marked for identification.)

J. W. AUSTIN

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

DIRECT EXAMINATION

BY MR. MALONE:

Q Would you please give us your name and address?

A My name is J. W. Austin, I am a staff engineer with Pan American Petroleum Corporation in the Fort Worth, Texas Office.

Q How long have you been with Pan American, Mr. Austin?

A I have been employed by Pan American for twenty-two years.

Q Does the jurisdiction of the Fort Worth Office of Pan American include the area in question in this application?

A Yes, sir, it does.

Q Are you personally familiar with the matters dealt with in the two applications which have been consolidated here for hearing?

A I am.

Q Very briefly, what does Pan American seek by its applications?

A In this application 3783, Pan American seeks the approval of a Unit Agreement for the Cortland Myers Unit area. This unit is proposed for secondary recovery program by means of waterflooding.

Q And 3782 is the request or application for permits for that flood, is that correct?

A That is correct, and testimony for this will be

presented by another witness.

Q Would you go now to what was marked Exhibit A and describe what it depicts, please?

A Exhibit A is a map of the proposed Cortland Myers Unit. This outlines an area of some 240 acres, more or less, composed of two Federal leases. This acreage is all located in Section 22, Township 24 South, Range 37 East. This area includes a total of six wells, all of which are completed in the Langlie-Mattix Pool.

Q What formation is producing in that pool, please?

A In this pool, this is in the Seven Rivers-Queen formation.

Q What is the status of production of those six wells shown on the proposed unit area?

A These six wells are approximately thirty years old, and as such, are producing at the rate of some four barrels a day or less, each, and are now in a stripper stage of production.

Q Does Exhibit A show the injection wells or just the old producing wells?

A Within the proposed unit area it shows only producing wells. There are some injection wells shown to the east of this area and some to the west, in another exhibit to

be presented later we will show this in more detail.

Q What is the type of production which is now being obtained in the areas which surround this proposed unit? Do we have primary or secondary production in those areas?

A In general, to the west this is under secondary type operations, this is the J. E. Knight lease operated by Buckles, in which they have instituted a secondary recovery program which has been under way for some time. Earlier testimony in another case by Amerada proposed an injection well for the south for cooperative program there.

Q Is there anything else with respect to Exhibit A?

A Well, under these particular conditions of the stage of these wells, this application, of course, has been submitted for this unit to permit the secondary recovery operation so we can prevent economic waste and obtain additional recovery from this area.

Q Is it the belief of Pan American, then, and as of yourself as a witness, that additional oil would be recovered if this application were granted and the project carried out as to compared to what would be recovered solely under primary methods?

A Yes, sir. We believe that additional oil can be recovered by this. Due to the surrounding injection programs,

which indicates that such a program will be successful, we think it would also be here.

Q Would you go now to Exhibit B and state briefly what that is?

A Exhibit B is a Unit Agreement for this proposed project.

Q What type of form have you used for that?

A This particular agreement is patterned after the standard Federal form of the Unit Agreement. Now, this particular instrument has been modified to the extent necessary to make it applicable only to a single working interest owner since Pan American owns all the working interest involved in this entire unit area.

Q And all of the acreage is Federal?

A All of the acreage is Federal. There are two Federal leases.

Q Do you have a unit operating agreement?

A Since Pan American owns all of the working interest in this particular area, there is no working agreement for this project. Provision has been made in this instrument that an operating agreement would be developed in the event that more than one working interest owner becomes involved.

Q Is this Unit Agreement shown in Exhibit B the form

generally used by Pan American in New Mexico for this type project and has it been approved by the Oil Conservation Commission in the past?

A It is, yes.

Q What about the question of approval by the United States Geological Survey?

A This approval by the United States Geological Survey in that they own the entire royalty interest, has not been granted at this particular time. Exhibit C has been presented to the Commission. It is a letter from the United States Geological Survey in which they have indicated that they will grant their approval following approval of the probject by the New Mexico Conservation Commission. Pan American, of course, has approved it. There are two overriding royalty interest owners, both of which have ratified this agreement and upon receiving approval of the Commission subsequently by the United States Geological Survey, it will be a one hundred percent signed unit.

Q Is there anything further with respect to these exhibits or the project that you wish to offer, Mr. Austin?

A No, sir. I believe this would cover this particular phase of this project.

MR. MALONE: That completes our direct examination.

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

(Witness excused.)

DAVID G. WIGHT

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

DIRECT EXAMINATION

BY MR. MALONE:

Q Could you give us your name and address, please?

A David George Wight. I'm employed by Pan American Petroleum Corporation as a petroleum engineer in their Fort Worth Division Office.

Q Have you previously testified before this Commission and had your qualifications in this field accepted?

A Yes, sir, I have.

Q What is your college and degree?

A I went to Texas Technological College and received a petroleum engineering degree.

MR. MALONE: Are the qualifications of the witness satisfactory?

MR. NUTTER: Yes.

Q (By Mr. Malone) Would you go now to what is being marked as Exhibit D, and after it has been marked, discuss it, please?

(Whereupon, Exhibits D, E, F & G were marked for identification.)

Q Go ahead, please.

A Our Exhibit D is a plat showing wells completed within a two-mile radius of our proposed Cortland Myers waterflood. Briefly in explanation of the plat, itself, in the lower left-hand corner there's a legend; this will show you the nomenclature used to describe each producer, the numbers indicate the intervals that they produce from, various symbols indicate oil producers or the status of the well at the current time.

Looking a little bit toward the center we'll see that the various formations producing in this area are numbered. The one with which we are concerned here today is Number 2, which is the Seven Rivers and Queen. This is known as the Langlie-Mattix Pool.

Our unit area of 240 acres is outlined in a red and white dashed tape surrounding this unit area to the north, excuse me, to the south, and to the west are current injection wells in the Langlie-Mattix Pool. To the east of our unit area and to the north there aren't Langlie-Mattix Pool producers. Just to the south, as previously discussed, there's a current waterflood that just has recently been

expanded, it's Amerada Langlie-Mattix Woolworth Unit. We are cooperating with them and are participating in this injection well that they are drilling or have drilled along the boundary of our proposed unit.

To the west are some additional injection wells. These are operated by Buckles and on his Knight lease. They are along our unit boundary also and they will be in cooperation with our injection. On our lease we show the three proposed injection wells, Wells 2, 5 and 6. These are located in Units F, J and P of Section 22.

Q Are these injection wells the old wells to be converted or will they be new wells?

A They are the old wells that are currently in the stripper state of production.

Q Is the method which you propose to use in flooding these Seven Rivers and Queen similar to or the same as that which is being used in adjacent areas?

A Yes, sir, it is. We are continuing the pattern that has been established in this area of the pool. We are also cooperating with our offset operators. Offset operators have seen beneficial response to water injection in this area and for that reason we desire to initiate it on our own lease.

Q Is there anything else you wish to mention on this

exhibit?

A No, sir.

Q Would you go, then, to Exhibit E and describe what it reflects?

A Exhibit E is a log of the proposed injection well Number 6. This is the only log that we have on the three proposed injection wells.

Q Logs are simply not available on the other two injection wells, is that correct?

A Yes, sir, that is correct.

Q Would you go now to Exhibit F and describe it, please?

A Exhibit F consists of three parts, it's a diagrammatic sketch on each individual proposed injection well; basically they're very similar. The pertinent data contained on them shows that intermediate string of casing was set, it is 8-5/8ths casing in each well, they were set to about 1300 feet with cement circulated to the surface. This is adequate to protect all fresh water sands in the area.

Then an oil string was run to about 3200 to 3250 feet and set with sufficient cement to bring it up to about twenty-two to twenty-three hundred feet. In one case we put sufficient cement in the well to bring it back up into the

intermediate string. All three wells are open hole completions in the Langlie-Mattix, Seven Rivers and Queen formation. They are completed to a T.D. of about 3550 feet. The proposed injection equipment is to be two-inch I.D. tubing, internally coated with plastic, a plastic-coated tension packer, and an annulus filled with inhibited water to prevent any corrosion between the tubing and casing.

Q Is the description you have just given applicable to each of the three wells with minor variations?

A Yes, it is.

Q Would you go, then, to Exhibit G and describe what it reflects?

A Our Exhibit G has two portions of pertinent information, the first being the injection interval, which is the Seven Rivers and Queen, in the Langlie-Mattix Pool the depth, 3277 to 3570 feet. Then we list the type of fluid to be injected, it's non-potable water obtained from the Seven Rivers formation and the Capitan Reef. The volume, 500 barrels per day per well or a total of 1500 barrels for the project area. We are obtaining this water from the Jal Water System, which is operated by Skelly. We have an executed contract with them for purchase of the water.

Q Mr. Wight, in your opinion would the granting

of this application tend to prevent the waste of secondary oil which would not otherwise be recovered?

A Yes, sir, it would.

Q In your opinion are the correlative rights of offset operators protected by the method which you propose?

A Yes. As I pointed out, we have entered into cooperative agreements to protect all the offset operators.

Q Pan American is a working interest owner in the Amerada operated unit to the south of this acreage, is it not?

A Yes, it is.

Q Were these exhibits prepared by you or under your direct supervision, referring to Exhibits D through G?

A Yes, sir, they were.

MR. MALONE: We offer Exhibits D through G.

MR. NUTTER: Pan Am's Exhibits D through G will be admitted in evidence.

(Whereupon, Exhibits D through G were offered and admitted in evidence.)

MR. MALONE: May I now ask the previous witness, Mr. Austin, if the Exhibits A through C were prepared by him or under his supervision?

MR. AUSTIN: Exhibits A and B were. Exhibit C is a letter that I did not prepare.

MR. MALONE: We offer Exhibits A through C.

MR. NUTTER: Exhibits A through C will be admitted in evidence.

(Whereupon, Exhibits A through C were offered and admitted in evidence.)

Q (By Mr. Malone) Do you have anything further to offer on this, Mr. Wight?

A No, I don't.

MR. MALONE: That completes our direct examination.

CROSS EXAMINATION

BY MR. NUTTER:

Q You didn't mention the current rate of production, I think Mr. Austin did, about four barrels of oil a day or less?

A Yes, this is correct, four barrels or less, some of them down to one barrel a day.

Q The Exhibit A shows it being a gas well. Is it a gas well or an oil well or a dual completion?

A It is a gas well but it is completed in the Langlie-Mattix Pool; a Seven Rivers-Queen producer, it did produce oil for a time before the gas-oil ratio made it a gas well.

Q You anticipate that this GOR will go down on the injection of water?

A This well, itself, is to be an injector. We feel

there is sufficient oil to where we can form an oil bank and sweep it into on the interior of our lease with this waterflood project.

Q You are taking a line of wells on the northeast flank of your unit and proposing to inject water, or move an oil bank southwest from that line of wells?

A Yes, sir, and then the remainder of the unit already has wells, or approved wells, which will move it into the wells from the other direction.

Q What has been the cumulative production from this lease, or these leases?

A Approximately 200,000 barrels.

Q Do you have an estimate on what the secondary recovery will be?

A We anticipate secondary recovery of about the same amount.

Q One to one. In each of these you have intermediate casing, Mr. Wight, set in the neighborhood of 1300 feet. Does this protect the waters that are present in the Santa Rosa formation?

A Yes, sir, it does.

Q You will equip each well with a packer and tubing and the tubing will be plastic-coated and the annulus have an

inhibited fluid?

A Yes.

Q Will the annulus be left open?

A It will probably be left open or we will close it in and put a gauge on it.

MR. NUTTER: Does anyone have anything further of Mr. Wight?

A Looking at this map, I would like to revise one thing. In adding up the cumulatives, it looks like our cumulative is on the order of 500,000, so we're looking at about a .4 to one on our secondary to primary ratio.

Q (By Mr. Nutter) You are expecting 200,000?

A 200,000 is our engineering estimate of secondary reserves. I was wrong previously on the primary, it looks like it's around 500,000. So that would give us a .4 to one anticipatedsecondary to primary ratio.

MR. NUTTER: Any other questions of Mr. Wight? He may be excused.

(Witness excused.)

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

MR. MALONE: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Cases 3782 and 3783? We will take the casesunder advisement.

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public 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.

Witness my Hand and Seal this 9th day of July, 1968.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1971.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3782-3783 heard by me on 6/5, 1968.

Examiner
New Mexico Oil Conservation Commission