

Case No.

223

Application, Transcript,
Small Exhibits, Etc.

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

PROCEEDINGS

The following matter came on for consideration before a hearing of the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice, at Santa Fe, New Mexico, May 23, 1950, at 10:00 A. M.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held May 23, 1950, beginning at 10:00 o'clock a.m. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives)

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 220

In the matter of the application of the Skelly Oil Company for an exception to Rule 104 for the formation of an unorthodox unit in Section 2, Township 23S, Range 36E, N.M.P.M., Langlie-Mattix pool, Lea County, New Mexico.

Case 221

In the matter of the application of Continental Oil Company for an order granting permission to dually complete its "M.E. Wantz No. 3-D" well, located in the NW/4 SE/4 Section 21, Township 21S, Range 37E, N.M.P.M., Lea County, New Mexico, for producing gas from the Tubb sand, and oil from the Drinkard formation.

Case 222

In the matter of the application of Barnett and Rector for an order permitting the drilling of an unorthodox location 1370 ft. from the south line and 330 ft. from the west line (SW/4 NW/4 SW/4) of Section 20, Township 17S, Range 35E, N.M.P.M., along the northern limits of the Vacuum pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on May 9, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
/t/ R. R. SPURRIER, SECRETARY

SEAL

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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STATE OF NEW MEXICO TO:

All named parties in the following
case and notice to the public:

Case 223

In the matter of application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Twp. 12S, R. 32E, N.M.P.M., Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
/t/ R. R. SPURRIER, SECRETARY

SEAL

BEFORE:

R. R. Spurrier, Commissioner
Dan McCormick, Attorney for the Commission

REGISTER:

John A. Barnett
Roswell, New Mexico
For Barnett & Rector

Paul N. Colliston
Houston, Texas
For Continental Oil Company

Homer Dailey
Midland, Texas
For Continental Oil Company

H. W. Sanders
Ft. Worth, Texas
For Continental Oil Company

M. L. Patterson
Odessa, Texas
For Phillips Petroleum Company

Frank D. Gardner
Midland, Texas
For Sinclair Oil & Gas Company

R. L. Denton
Midland, Texas
For Magnolia Petroleum Company

Warren L. Taylor
Jal, New Mexico
For El Paso Natural Gas Company

Robert D. Fitting
Midland, Texas
For Fitting, Fitting & Jones for
Cooperative Producing Association

J. O. Denton, Jr.
Levelland, Texas
For Cooperative Producing Association

Paul Hallaway
Tatum, New Mexico
For Cooperative Producing Association

J. D. Duncan
Lubbock, Texas
For Delfern Oil Company

W. E. Bondurant, Jr.
Roswell, New Mexico
For Cooperative Producing Association

Roy Yarbrough
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

Wm. E. Bates
Midland, Texas
For The Texas Company

M. T. Smith
Midland, Texas
For The Shell Oil Company

E. E. Kinney
Artesia, New Mexico
For the New Mexico Bureau of Mines

C. D. Borland
Hobbs, New Mexico
For Gulf Oil Corporation

Glenn Staley
Hobbs, New Mexico
For Lea County Operators

Frank R. Lovering
Hobbs, New Mexico
For Shell Oil Company

Betty P. Wistrand
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

Margaret Butler
Wooster, Ohio

Naomi W. Spurrier
Santa Fe, New Mexico

Beverly S. Woodworth
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

George W. Sallinger
Tulsa, Oklahoma
For Skelly Oil Company

T. F. Thompson
Tulsa, Oklahoma
For Skelly Oil Company

Ray Andrew
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

COMMISSIONER SHEPARD: The meeting will come to order. We are ready to receive nominations to set the allowable.

MR. MCCORMICK: I will call Elvis A. Utz and Ed Kinney as witnesses.

ELVIS A. UTZ, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. MCCORMICK:

Q. State your name, please.

A. Elvis A. Utz.

Q. Do you hold any position with the New Mexico Oil Conservation Commission?

A. Yes, sir, I am gas engineer for the New Mexico Oil Conservation Commission.

Q. Have you made a study of the market demand for oil in the State of New Mexico?

A. I have.

Q. Please state briefly what that study consisted of?

A. The U. S. Bureau of Mines extension pipe line runs, accrued storage, as much as could be found out, nominations of purchasers.

Q. Has the U. S. Bureau of Mines filed with the Conservation Commission an estimate of the market demand for the month of June 1950?

A. Yes, sir.

Q. What is that estimate?

A. 141,000 barrels.

Q. How does that compare with the estimate for May 1950?

A. The May estimate was 139,000 barrels, which is a $3\frac{1}{2}$ per cent increase.

Q. Have you also received nominations from purchasers?

A. Yes, sir.

Q. Will you please read the nominations which you have received?

A. Would you like for me to read amounts?

Q. Yes, sir.

A. (Read nominations.)

Q. And what is the total of the nominations?

A. It makes a total of 129,290 barrels.

Q. How does that compare with the nominations for May?

A. That is a 1543 barrel increase.

Q. On the basis of all studies you have made, do you have an opinion as to the reasonable market demand for the entire

State for June 1950?

A. Yes, sir, I do.

Q. What is that?

A. 141,000 barrels.

Q. Of that total what part could be produced by the unallocated pools of Northwestern New Mexico?

A. Approximately 1,000 barrels.

Q. That leaves 140,000 barrels for Southeastern New Mexico?

A. That is correct.

Q. In your opinion, can all of the wells of Southern New Mexico produce 140,000 barrels per day without committing waste?

A. Yes, I believe, they can.

Q. Is it necessary that the production of oil during June in the three southern counties, Eddy, Lea and Chaves, be allocated and distributed in order to prevent waste?

A. In my opinion it is in order to prevent waste.

Q. In your opinion, how should the 140,000 barrels per day for Southern New Mexico be allocated?

A. It should be allocated in accordance with present rules and regulations of the Commission.

Q. Do you have the regulations for the normal unit allowable for the month of June?

A. Yes, I do. That is 45 barrels.

Q. According to your calculations that will result in a total production for the southern counties of approximately 140,000 barrels?

A. That is right.

Q. If the Commission should adopt the normal unit allowable of 45 barrels, it would result in the total allocation of 140,000 barrels for southern New Mexico, in your opinion, would

such an allocation be fair and would protect correlative rights?

A. I believe it would.

MR. McCORMICK: Any questions by anybody.

(Witness excused.)

ED KINNEY, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. McCORMICK:

Q. Your name is Ed Kinney?

A. Yes, sir.

Q. What position do you hold?

A. Petroleum engineer for the New Mexico Bureau of Mines.

Q. Have you made a study of the market and the producing capacity of wells in the State of New Mexico?

A. Yes, sir.

Q. Do you have an opinion as to what the reasonable market demand would be for oil for the month of June?

A. 141,000 barrels.

Q. In your opinion--strike that, please. Of that total what part would be produced from the northern part of the state?

A. 1,000 barrels per day.

Q. In your opinion can the pools of Southern New Mexico produce 140,000 barrels per day without committing waste?

A. Yes, sir.

Q. What is your recommendation as to the normal unit allowable?

A. The normal unit allowable should be 45 barrels.

Q. That normal unit allowable would give 140,000 barrels per day in the southern part of the state?

A. Yes, sir.

MR. McCORMICK: Any questions? That is all.

(Witness excused.)

COMMISSIONER SPURRIER: If there are no further questions, we will proceed to Case 220.

(Mr. McCormick read the notice of publication of Case 220.)

MR. SELINGER: George W. Selinger for Skelly Oil Company. We have one witness, T. F. Thompson.

T. F. THOMPSON, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SELINGER:

Q. State your name, please.

A. T. F. Thompson.

Q. And you are associated with what company?

A. Skelly Oil Company.

Q. In what capacity?

A. Superintendent of unitization.

Q. As such are you familiar with the two leases owned by Skelly Oil Company described as the south half of the southeast quarter of Section 2, Township 23S, Range 36E?

A. I am.

Q. These two leases are what has been defined by the Oil Conservation Commission as the Langlie-Mattix oil field, is that correct?

A. I believe that is correct.

Q. In the immediate vicinity of the applicant's two leases there are quite a number of gas wells drilled?

A. Yes, sir, there are.

Q. Now, it is the applicant's intention to drill gas wells on its leases, is that correct?

A. We do.

Q. Now, the two leases are 30-acre leases running east and

west and adjoining each other, is that correct?

A. That is right.

Q. They are not located in the same governmental quarter section?

A. No, they are not.

Q. Now, Mr. Thompson, has the applicant attempted since August 1948 to form a unit which would comprise the southeast quarter of Section 2 and also a unit comprising the southwest quarter of Section 2 for the purpose of drilling gas wells?

A. We have drilled two gas wells.

Q. Now, will you relate to the Commission the circumstances in your attempts to form such a unit?

A. The lease covering the north half of the south half of said Section 2 is owned by Shell Oil Company, that is, as to the records of the Land Office. That lease is subject to a contract originally entered into between Shell and Western Gas Company which is now El Paso Natural Gas Company. Shell under their contract retained all oil rights, conveying gas rights to Western. As a result when we tried to negotiate with the record owner of the lease on the Land Office records, which was Shell Oil Company, however, when we were furnished with a copy of the contract, evidencing ownership of El Paso Natural Gas Company's gas rights, that presented a considerable problem. This unit would have to be approved by the Commissioners before it could be organized.

Q. You mean the Land Commission?

A. Yes, sir.

Q. What you are saying is that the Shell Oil Company, which owns the 160 lying north of the applicant's 160, retained or

owned the oil rights, and Western or El Paso Natural Gas Company had control of the gas rights?

A. That is correct. We submitted contracts to Shell and El Paso in an attempt to work out a unit first in the southeast quarter of Section 2 for their approval, and they decided in lieu of the complicated set of contracts such as we submitted they would prefer to convey the lease in its entirety to El Paso and have the assignment approved by the Land Office, which they did. That took considerable time. In the meantime, we were negotiating with El Paso and thought we had a contract worked out when the question arose as to where the well would be located. The lease was still subject to the contract with Shell, consequently, we preferred to drill on our acreage for the reason should it turn out to be an oil well, we would retain the oil rights. They naturally preferred to drill on their acreage for the same reason. Both of us were to bear half of the cost of the well and half of the dry hole risk.

Q. Did you not encounter difficulty in securing the proportionate part of the cost of the well because the Shell Company owned the oil rights and the El Paso Natural Gas Company owned the gas rights. You consequently didn't know which of the two parties owned one half interest in the proposed well until after its completion as to whether it was an oil or a gas well?

A. That is if we were to drill on the Shell acreage.

Q. Therefore, you were unable to work out a satisfactory deal with both Shell and El Paso because of the divergence between oil and gas well on the original unit as it would be entirely possible to get either one, and the diversity of ownership on the north 80 made it virtually impossible?

I ask you, Mr. Thompson, after negotiations whether or not the Shell Oil Company and El Paso Natural Gas Company both agreed that it would be virtually impossible to work out a proper program for drilling?

A. Our negotiations were mainly with El Paso Natural Gas Company, as I feel this is a gas unit, after the lease was conveyed to El Paso. We had no further negotiations with Shell. El Paso did attempt to persuade Shell to withdraw that particular arrangement from that contract so we could proceed. In our conversations with El Paso we came to a point where we felt we couldn't continue the negotiations on any equitable basis. They agreed that if we could form a unit of all Skelley acreage in that manner, we would both work out units and drill without an operating contract. So that Shell and El Paso as to the remaining acreage in the south half of Section 2 can a similar 160-acre unit, and they will be able to drill one well on a location on their acreage.

Q. What was another difficulty which arose on the Shell contract, whether the well would be oil or gas?

A. That is right. We didn't want to enter any contract which would bring our acreage subject to the Shell El Paso contract. We felt there were certain inequities which we didn't want to assume.

Q. You preferred to come to the Oil Conservation Commission to establish to proper classification of the well?

A. Yes, sir.

Q. These two applicant's leases are State leases, are they not?

A. Yes, sir.

Q. What are the numbers?

A. The south half of the southwest quarter is covered by State B-7776. The south half of the southeast is covered by B-1327.

Q. Now, Mr. Thompson, if the Oil Conservation Commission approves the formation of this unit as requested by the applicant, it will then be submitted to the Commissioner of Lands?

A. Yes, sir.

Q. If he approves of it, then the applicant proposes to drill a well for gas in the center of the east half of the south half of the south half of 2?

A. That is correct.

Q. Now, we have drawn a plat showing the applicant's lease outlined in red and the immediate vicinity of the applicant's Lease?

A. Yes, sir.

MR. SELINGER: I offer Application 220 Exhibit 1 in evidence.

COMMISSIONER SPURRIER: It will be accepted.

MR. SELINGER: That is all of this witness. I have a short concluding statement which I would like to make.

MR. McCORMICK: Have these two State leases been validated by production?

A. Yes, sir, they are both held in force which is by production.

MR. McCORMICK: From what zone are these other wells producing gas?

A. The gas horizon is in the neighborhood of 3,000 feet, anywhere from 2980 down to 3625. The wells are recognized gas wells in this immediate area.

MR. MCCORMICK: Mr. Selinger, have you had any comment from Shell as to where they propose to drill a well on the north half of the south half?

MR. SELINGER: No, sir, my original application intimated that they would drill. I have found upon investigation that they have no idea where either Shell or El Paso will drill. We don't know who intends to drill.

MR. MCCORMICK: Mr. Lovering, could you add anything to the record on this?

MR. LOVERING: I might by way of clarifying the situation. The situation does look a little complicated. Shell did acquiesce on this deal and so conveyed the gas rights to El Paso on an old time agreement. As far as unitization of gas rights, it was entirely with El Paso, not with Shell. I don't think we have any intention of drilling an oil well there.

MR. MCCORMICK: Mr. Lovering, what is the history of the wells in that area, start with gas and later turn into oil wells?

MR. LOVERING: They are practically all gas wells. In most any, you get a little oil, but none that is commercial.

You see the complication arises by virtue of the fact that this location being right on the line between two forties.

If it produces an oil well, there would be complications, if it is a gas well, there would be no complications. However, if they got an oil well, they could produce the well as a gas well from the gas zone. As far as gas is concerned, there is no complication unless it is with El Paso, not so far as Shell is concerned. I would like to ask one question. If the request is granted, will it be necessary for Shell or El Paso to ask for another hearing for them to drill on their 160 acres.

MR. MCCORMICK: Is this north half and south half all one

basic lease, is the north half and the south half part of the State basic lease?

MR. SELINGER: The north half of the south half of 2, Mr. Thompson has that?

A. Yes, sir. That is State Lease B11167.

MR. MCCORMICK: If it is all one basic lease, I know that you would have to apply for an order from the Commission.

MR. SELINGER: That would be according to locations, if in the center of 80 or if in the center of 40.

MR. MCCORMICK: I don't think the Commission would want to commit itself on that question before it comes before it.

MR. SELINGER: I would like to state that applicant's intention to drill the proposed well in the center of 80 acres for the reason that we are attempting to secure as nearly as possible the approach to the center of 160 acres under the rules. This would be 660 feet from the south and east lines of our leases. In that event the location of the farthest west limits of the unit would be almost 7-8 of a mile, and be located 1320 feet from our east line. It cuts the west limits of the unit down 3900 feet approximately. If you will note the Texas Pacific Coal & Oil Company well to the immediate south which is located 660 feet from the north and east line of their lease. The unit that is assigned to that well comprises the northeast quarter of Section 11. The furthestmost point of the unit is approximately 3100 feet from the well to the line. And we felt by locating in the center of 80 acres, approaching quarter section with well located 660 feet out of corner. Other measurements, the closest Tidewater gas well located in the southwest of one, and T.P.C. & O.

No. 16 located in the northeast of 11 is a distance of 1732 feet from Tidewater No. 1 well in the southwest of one, and Continental Clay No. 1 in the northwest of 12 is 1898 feet. You will notice the gas wells listed on Exhibit 1 are spaced at various intervals from 660 feet to 990, and in some instances 660 and 990. The application proposes the location of 660 and 1320. I might also add there are some 20 gas wells in nine sections immediately adjoining section 2, and the nearest oil well is a mile and a half to the east, so it looks like the applicant will get a gas well and not an oil well. However, like the Commission, we can't foretell in the future until these things are presented to us.

I might further add that we dealt with the Shell prior to the time that they assigned the gas rights to El Paso, and subsequent to that we have dealt with El Paso, and regardless of whether the Shell approves or disapproves, we still don't want to come under that contract in regard to the operations and all mechanics of drilling the well. That is the reason why we desire to drill on our own acreage. That is all.

COMMISSIONER SPURRIER: Do you have any thought on why the well shouldn't be located in the center of two eighties?

MR. SELINGER: Yes, we feel that the location of our well on the south 160 in the center of this particular 80 would enable the Shell or El Paso whoever drills their well to drill and leave enough space between the two wells which would be in excess of 1320 feet.

COMMISSIONER SPURRIER: Specifically what location do you mean if Shell should drill a well?

MR. SHELLINGER: Well, by the location of our well as proposed short of a similar location on the east half of their 160,

any location in excess of 660 feet from their line would put a distance in excess of 1320 feet between the two gas wells, and we felt that was pretty good latitude to enable Shell or El Paso to put a gas well on their acreage and still be in excess of 1320 feet from our well.

COMMISSIONER SPURRIER: Mr. Thompson, do you know the size of Sinclair Clay No. 4 located in the northeast quarter of Section 3?

A. I made no study of the size of those.

MR. SELINGER: The west half of Section 35 contains 320 acres.

MR. McCORMICK: You want the size of the well?

COMMISSIONER SPURRIER: Yes, how much each will produce or has produced?

MR. SELINGER: Sinclair Clay No. 4 is a sixteen million foot gas well. Gulf Well in the northeast of 2 is a nine million foot gas well. Do you want the perforations?

COMMISSIONER SPURRIER: Do you know the initial dates on those?

MR. SELINGER: I don't know initial dates. I would say that they are comparatively new wells, within the last year.

COMMISSIONER SPURRIER: Do you think, if you would care to give an opinion on geology, Mr. Selinger, do you think that you will get a well in the west half of that lease?

MR. SELINGER: I don't know whether we would get a good well, but you will notice that there are producing wells in every direction except straight west. The Sinclair well is a producing well, and the only acreage is to the west, and no one has any information on that. We know that we are surrounded on three sides with producing gas wells. The limits to the Langlie-Mattix Field, so-called, is in an area where gas wells are located, and the limits have not been defined. There are no dry holes.

COMMISSIONER SPURRIER: Does anyone have any further comments in regard to this application?

MR. LOVERING: On behalf of Shell Oil Company, we have no objection to this application.

COMMISSIONER SPURRIER: If there are no further questions, the witness is excused and the case is closed.

(Mr. McCormick read notice of publication of Case 221.)

HOMER DAILEY, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. H. W. SANDERS:

Q. What is your name?

A. Homer Dailey.

MR. SANDERS: Before I qualify Mr. Dailey, I would like to make a short statement to tell you what we propose to do in the dual completion of this particular well. As the application has stated, we want to dually complete this well to produce gas from the Tubb sand and oil from the Drinkard pool.

This well was drilled for an oil well and completed as an oil well, and then we were offset on the north by the Trinity Drilling Company with a gas well. If will note when you offset with an oil well and get a gas well, the question naturally arose, why couldn't we dually complete this well. When Trinity drilled the second well, they did not intend to drill a gas well. They drilled to test to the Ellenburger. When they tested to the Ellenburger, they got no production and plugged back and completed the well as a gas well. Now, it is up to us to meet offset obligations. We propose to produce the gas through the annulus between the casing and tubing with proper packer and wellhead connections to prevent co-mingling.

Of course, if we are allowed to complete the well dually, we will effect a saving of approximately \$65,000.00. It would

cost \$75,000.00 to drill a gas well. It will cost about \$10,000.00 to dually complete this well.

Q. Mr. Dailey, you have never qualified before the Conservation Commission, have you?

A. No, sir.

Q. Will you state your name?

A. Homer Dailey.

Q. Where are you employed?

A. By Continental Oil Company, Midland, Texas.

Q. In what capacity?

A. Division engineer for west Texas, and the New Mexico division.

Q. Did you attend college?

A. Yes, sir, New Mexico School of Mines, graduated in 1935 as mining engineer.

Q. Have you practiced your profession since that time?

A. I have worked for Continental since February 1936 with the exception of three years spent in the Army.

Q. As mining engineer?

A. Most of the time, yes, sir.

Q. Are you acquainted with the geological formations in southern New Mexico?

A. Yes, sir, I am.

Q. Have you worked with them?

A. Yes, sir, I have supervised the completion of wells for Continental Oil Company for the last three years for sure, and several years prior to that.

Q. Now, will you give a description of the Mary E. Wantz Lease?

A. The Mary E. Wantz Lease consists of 280 acres of patented

land in Sec. 21, T-21-S, R-37-E, Lea County New Mexico. The lease has two producing wells in the Penrose-Skelly pay operated by the Trinity Drilling Company. There are also four producing wells in the Drinkard, two in the Hare Pool (McKee Sand) and two in the Brunson Pool (Ellenburger) all operated by the Continental Oil Company. Since these oil producing horizons are recognized as separate reservoirs, the remaining portion of this testimony concerns only the "Drinkard Sandy Member" and Lower Yeso. One thing I should note here on this map the only wells shown with but two exceptions are Drinkard wells. The two exceptions are the Trinity Weatherly No. 1 which is producing from the Tubb Sand, and Continental Wantz No. 2S, which is from Tubbs on drill stem test.

Q. Now, will you discuss the producing formations?

A. In Bulletin No. 29, published by the New Mexico Bureau of Mines and Mineral Resources, the author, E. Russell Lloyd, has divided the Yeso formation into four parts. These are Upper, Middle, Drinkard Sandy Member and Lower. The Drinkard Sandy Member is also commonly referred to as the "Tubb Sand." To avoid confusion "Tubb Sand" is used here.

Between the top of this sand and the base of the Drinkard pay horizon there is approximately 600 feet of formation. This can be divided as follows: 1. Tubb, 160 feet, chiefly sand and sandy dolomite. 2. 150 feet of dolomite to the top of the Drinkard. 3. 300 feet of Drinkard pay horizon, chiefly lime and dolomite. Oil and gas accumulation being mainly in the bottom 200 feet.

A number of drill stem tests on wells in the area have shown the presence of gas in the lower portion of the Tubb Sand.

A north offset to the Wantz No. 3-D was completed in this section for a potential of 6,000 MCF gas per day. While drilling a well, the Wantz No. 2-S, to the McKee Sand, one location south of the Wantz No. 3-D, the Continental Oil Company took a drill stem test of the Tubb Sand. During the test the section produced gas at the rate of 4,300 MCF per day.

The Wantz No. 3-D plus three direct and two diagonal offsets are producing oil from the lower 200 feet of the Drinkard.

Electrical logs, sample analysis and drill stem tests all indicate the 150 feet of dolomite between the base of the Tubb Sand and the top of the Drinkard to be mainly dense and barren. The Continental Oil Company's Wantz No. 1-S was cored through the Drinkard section. The core analysis of the top 30 feet showed no permeability while the next 70 feet showed only a few scattered feet with permeability.

This information all indicates that the Drinkard pay and the gas horizon in the Tubb Sand are separate reservoirs.

Q. Mr. Dailey, would you say that there is a natural, impenetrable barrier between the Tubb Sand and the Drinkard Pool?

A. That is correct.

Q. In this particular well?

A. I would say in this entire area surrounding the well.

MR. SANDERS: I would like to offer Applicant's Exhibit 1, which is a plat showing Continental Oil Company Wantz No. 3-D and Offset Wells, in evidence.

COMMISSIONER SPURRIER: It will be received.

Q. You have there a copy of Applicant's Exhibit No. 2, is that a radioactivity log of the well?

A. Yes, of both of 6,000 feet to the total depth.

Q. Would you describe it to the Commission?

A. On this portion of the radioactive survey, this includes the section under discussion here. It is on top of the Tubb Sand located at 6050 feet. The top of the Drinkard on this is located at 6345 feet. The main porosity and permeability start at 6500 feet. The section which we propose to complete in and which carries gas is located between 6120 feet and 6195 feet. That has been located by correlation from the Trinity Well in the north and Continental Oil Company Wantz No. 2-S to the south.

Q. What is the total depth?

A. The well was drilled to 6630 feet, and a 7 inch casing was set at the total depth.

Q. Will you give well and offset data?

A. The Wantz No. 3-D was completed January 7, 1948 for an initial potential of 240 barrels oil per day. This production was through casing perforations in the Drinkard pay at 6546-53, 6558-64, 6568-73 and 6580-84 feet.

On February 9, 1950, the well tested 32½ barrels oil in 4½ hours. Cumulative production as of April 1, 1950, was 32,080 barrels.

Q. Would you describe the setting of the 7-inch casing.

A. The well casing was set at the total depth and cemented from approximately 3800 feet.

Q. It was cemented from 3800 feet to the bottom?

A. To the depth, yes, sir.

Q. In this method of cementing the casing, do you have any opinion whether co-mingling outside the casing is possible?

A. I do not believe it is possible. The 40 acre unit offsetting the Wantz 3-D to the north is operated by the Trinity Drilling Company. It contains two wells, one producing oil from the Drinkard and the other gas from the Tubb Sand. The Trinity Drilling Company's M. Weatherly No. 7 was completed February 5, 1948, for an initial potential of 228 barrels oil per day. This was from the Drinkard through perforations at 6516-23, 6534-58 and 6566-84 feet. During March 1950, this well produced 1,692 barrels. The cumulative production to April 1, 1950, was 58,771 barrels. The Trinity Drilling Company's Weatherly No. 14E was completed April 27, 1949, for an initial potential of 6,000 MCF gas per day. This was from the Tubb section through perforations 6143-53 and 6158-80 feet. During March 1950, the well produced 38,612 MCF gas plus approximately 1,250 barrels distillate. Cumulative production to April 1, 1950 was 78,030 MCF gas and 2,378 barrels distillate.

The east offset to Wantz No. 3-D is the Gordon Cone, Anderson No. 1. This well was completed April 29, 1948, for an initial potential of 446 barrels oil per day from the Drinkard through perforations 6510-35, 6550-80 and 6590-28 feet. During March 1950, the well produced 2,092 barrels of oil. It had a cumulative production as of April 1, 1950, of 60,814 barrels.

The west offset is Continental Oil Company's Wantz No. 4-D. It was completed for an initial potential of 360 barrels oil per day on August 25, 1948. It was completed in the Drinkard through perforations 6570-6602 and 6630-40 feet. During March 1950, the well produced 943 barrels of oil. The cumulative production as of April 1, 1950 was 19,842 barrels.

Q. Now, I would like for you to tell how you propose to dually complete the well?

A. The proposed method of dual completion will prevent commingling of the Tubb Sand and Drinkard production inside the casing. Separation of production from the two zones will be accomplished by means of a Baker Model "D" retainer type production packer. This packer was designed for dual completion work and is capable of withstanding a differential pressure of 2,000 pounds per square inch. The packer has two sets of slips which set in the casing. After both slips have been set and the packer rubber has been expanded against the pipe, it is impossible to move the packer up or down and it can be removed only by drilling it out.

Q. Mr. Dailey, in order to expedite this, I would like to ask what the copy of Applicant's Exhibit No. 3 is?

A. This is a diagram of the packer, Baker Model D Production Packer.

Q. In your opinion will the use of the Baker Packer in the casing keep the two formations from commingling?

A. That is correct, it will.

MR. SANDERS: I offer Applicant's Exhibit No. 3 and also Applicant's Exhibit No. 2 in evidence.

COMMISSIONER SPURRIER: They will be received.

Mr. Dailey, excuse me, but can you tell what the effect will be with respect to formation pressures?

A. Not yet. The static bottom hole pressure of the Drinkard pay in the Wantz No. 3-D was 1,502 pounds in November 1949. It is estimated that the flowing bottom hole pressure is greater than 700 pounds. The Tubb Sand is expected to have a static formation pressure of 2,400 pounds per square inch.

COMMISSIONER SHEPARD: What is that based on?

A. That is based on the bottom hole pressures from the shut-in drill stem test pressure on Wantz No. 2-S which was 2,377 pounds.

Q. What has been the history of differential pressure?

A. The maximum differential pressure across the dual completion packer would occur when the Drinkard pay was producing oil and the gas horizon was shut in. Under that condition a differential of 1,700 pounds would exist. This is below that for which the packer is designed.

Q. If we are permitted to complete dually, would both horizons be produced to depletion?

A. That is correct. The Drinkard oil will be flowed through the 2½ inch tubing. When natural flow ceases, it will be possible to pump or gas lift the remaining recoverable oil. The gas horizon is expected to flow to depletion through the annulus.

Q. What is the estimated cost to drill a gas well?

A. Approximately \$75,000.00.

Q. How much will it cost to dually complete this well?

A. Approximately \$10,000.00

MR. SANDERS: That is all we have.

MR. McCORMICK: Have you any other dual completions in the Drinkard Pool?

A. Noth that I know of.

MR. McCORMICK: Does the lower Drinkard produce much gas along with oil?

A. It varies; in that particular well very little gas. The ratio is twenty and thirty thousand.

MR. McCORMICK: What is the ratio of the third well?

A. I do not have it. It is approximately 1800.

MR. McCORMICK: Among petroleum engineers are dual completion

of gas and oil formations now generally thought to be practical and effective?

A. Most everybody that I have talked to seems to feel that way.

Q. Has the method been improved recently?

A. It has definitely been improved. This particular packer has not been out very long.

MR. McCORMICK: You think that there would be no commingling from the lower Drinkard with the gas from the Tubbs?

A. That is correct.

MR. McCORMICK: Would it be possible for any of it to commingle?

A. You mean between the Tubbs and Drinkard. No, I don't see how unless the tool failed.

MR. McCORMICK: If it failed, you would know it very soon?

A. It would be possible to take periodic pressure tests and be able to determine that.

MR. McCORMICK: Do you intend to take such tests if you are granted this permit?

A. That is correct.

COMMISSIONER SPURRIER: Any further questions of this witness?

MR. LOVERING: I would like to know whether Weatherby No. 7 is an orthodox location?

A. Well, as an oil well, it would.

MR. LOVERING: As a producing gas well, I wonder whether as an unorthodox location whether they requested permission to produce the unorthodox gas well?

A. I don't--

MR. LOVERING: I think it is unorthodox in that it doesn't meet the 660 requirements?

A. It was completed in April 1949.

MR. LOVERING: I think some thought should be given to the future exploitation of the gas reservoirs in this particular area, especially inasmuch as I didn't hear any request for designation of the unit, size of the unit, what allowable they expect for gas in that location, how it would affect offset operators--one has a 40 and one has an 80-acre tract. Has there been any thought given to the formation of units for this gas reservoir?

MR. McCORMICK: That is a 40-acre unit throughout Lea County.

MR. LOVERING: That doesn't help the situation if we have double or triple production for every 40 around there. What is to prevent them if we don't devise a set unit allowable?

MR. McCORMICK: There never has been a gas pool defined in Lea County yet. That is what is causing everyone to get gray hair down there figuring out how to define one.

MR. LOVERING: You have gas field defined by the nomenclature committee in other parts of the State. I think it is time to so name them before going ahead with a program of this kind. There may be a lot of complications.

COMMISSIONER SPURRIER: 40-acre units would get a 40-acre allowable.

MR. LOVERING: I would like to know what you would base that on--40 or 120 or what?

MR. McCORMICK: Until such time as gas is prorationed, that isn't the problem, is it?

MR. LOVERING: There will be no proration of gas?

MR. McCORMICK: There isn't yet.

COMMISSIONER SPURRIER: There will be.

MR. LOVERING: Won't in future exploitation there be more

operators not included in any such unit?

COMMISSIONER SPURRIER: That is a good question.

MR. SANDERS: There is no gas proration so that isn't being considered here.

MR. MCCORMICK: Do you have a market for the gas?

A. We intend to use it for our lease operations.

MR. MCCORMICK: And pay the royalty commensurate with the field price?

A. I don't know exactly how that works where it is used on the lease operations. It is then sold to a gasoline plant.

COMMISSIONER SPURRIER: Will you speak louder, please?

A. I said it would be used to operate the lease and then sold to a gasoline plant, and of course the royalty owners will receive their royalty.

MR. MCCORMICK: Dry gas?

A. Yes, that is all sold.

Q. When you say lease operations, you mean gas lift?

A. Yes, sir.

Q. You don't mean drilling?

A. We mean for gas lift.

COMMISSIONER SPURRIER: Does anyone have any further questions. If not, the witness is excused. Proceed to the next case.

(Mr. McCormick read the notice of publication for 222.)

JOHN A. BARNETT, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. MCCORMICK:

Q. State your name, please?

A. John A. Barnett, representing Barnett & Rector, Roswell, New Mexico.

Q. Go ahead and state your case.

A. We propose to drill an unorthodox location along the northern edge of the Vacuum pool, Lea County, New Mexico. The proposed location is 1370 feet from the south line and 330 feet from the west line of Section 20, Township 17 south, Range 35 east. We have already completed our State No. 1-F well, on the same lease, at a location 330 feet from the south line and 660 feet from the west line of Section 20; initial production was 72 barrels of oil per day, swabbing and flowing. We know that a location to the north should be structurally lower, and it is believe that a regular location on the north 40 acres of our lease might prove non-commercial. The proposed location does not crowd or involve any outside operators. The entire west half of the southwest quarter of Section 20 is a part of State Lease B-2245, and the leasehold rights above 5000 feet are held by Barnett & Rector, under a farmout from the Ohio Oil Company. No objection is offered to the proposed location by The Ohio Oil Company. Barnett & Rector also hold the leasehold rights above 4800 feet on the offsetting acreage to the west; this is a part of State Lease B-1398.

From my experience in drilling about six wells in this immediate vicinity, it appears that local conditions involving two things. First, that the wells are all small and more or less marginal in nature; and second, subsurface conditions vary materially from one location to another, making it quite apparent that one well will not consistently and adequately drain 40 acres. If our proposed well were to be drilled in the center of the north 40 acres of this tract, we would probably get some sort of a small, probably non-profitable well. Inasmuch as the proposed location would be something in excess of a

a thousand and forty feet from the one well producing on the lease, I do not consider that this distance would cause drainage from one location to another or interference of production of one well by another. As a matter of fact, in drilling an orthodox location, our State No. 1-F on this lease is only 990 feet from our State No. 2-C well offsetting. In other words, in drilling this unorthodox location we would have a greater distance from any producing well than any two orthodox locations now producing.

Q. Who owns the lease immediately to the east?

A. Phillips Petroleum Company.

Q. Have they any well to the east of you?

A. No.

Q. Were they given notice by registered mail of this hearing?

A. I do not know. However, they are, of course, 990 feet from this location. In other words, the only crowding would be ours on this same lease. We are not crowding any offset operators.

Q. Do you think you should have full allowable if you get a well capable of producing that?

A. I do, because of the geological conditions of the area.

As I mentioned, it is very evident that one well does not drain 40 acres as proved on the sketch attached to the notice. The producing formation to the west of State 1-C is not present in any other of the four wells shown on the sketch, except 2-C. The drilling has been checked by steam core tests in the past two years in the immediate vicinity and leads one to believe that one well will not drain more than if as much as 20 acres in this area.

MR. MCCORMICK: In essence you are asking for two allowables from one 40-acre tract?

A. No, the two allowables for an 80-acre tract; the allowable for the northern portion.

MR. MCCORMICK: The well would be 50 feet from the boundary of the 40?

A. 50 feet, that is correct. Under the circumstances, it is quite likely that the northern 40 is non-productive. If our southern tract is not being drained unless we do drill the well, and since the proration is set up on the basis of the 40-acre unit.

COMMISSIONER SPURRIER: If you aren't permitted to drill the unorthodox location, would you drill an orthodox location on that 40?

A. I don't believe I would. The wells in this whole area have been small, marginal in nature, and I would hesitate to drill on a location which I do not believe would yield oil necessary to make it a profitable venture.

MR. MCCORMICK: Is 1-F well flowing?

A. Yes, sir.

MR. MCCORMICK: What others are flowing or pumping?

A. State 2-C has just been completed and is flowing. State 1-F was only completed a short time, and we have just managed to keep it flowing so far with additional assistance of it having to be swabbed off about 8 or 10 times. In question if it will be flowing two months from now. State 1-C is pumping. State 1-A is still flowing, but it is in such condition that it appears that it will have to be put on the pump very soon.

COMMISSIONER SPURRIER: Does anyone else have a question.

MR. LOVERING: Just one question. I would like to know how

much of that area, that 40, that the witness considers productive?

A. There is probably some oil under the entire 40, but the northern portion would, I think, be so tight that it would be very, very difficult to ever effect profitable recovery from it.

MR. LOVERING: On what basis do you assume that one well will not drain more than 20 acres?

A. As I mentioned, of course 20 acres is more or less arbitrary, by reason of the fact you have wells a quarter of a mile apart and less in this area which do not carry any oil in the same formation. From the samples we are never able to determine minimum production from tests whether it would make a barrel of oil a day.

MR. LOVERING: What I gather by inference what the applicant has here within a good lease a non-productive one, 50 feet from the unit, only 1/16 of that 40 acres is productive.

A. That may not be the case.

MR. LOVERING: There are complications which might arise if you allow crowding of a unit within 50 feet. In the Ellenburger fields you find considerable faults which might come inside 75 or 100 feet required. If you permit drilling 50 feet from the boundary of the unit to tap the reservoir trapped against that fault. The idea you get is that you are allowed to tap that reservoir and allot the 40-acre allowable knowing that 3/4 of the 40 is non-productive, tapping the reservoir and getting oil which was not in place in the lease.

MR. McCORMICK: In place under another 40 of the same lease?

MR. LOVERING: Perhaps. I would like to state that Shell Oil Company has no objection to this particular location. What I was concerned about is that close crowding of the unit lines

and what affect it will have in the future as so much there is Ellenburger fields.

COMMISSIONER SPURRIER: Thank you, Frank.

A. By drilling in this location it is anticipated that we will recover oil which probably would never otherwise be recovered, and at the same time not drain any oil from offset leases or offset operators. The actual drainage, which none of us can definitely determine, will probably be from the corner portion of the north 40 and possibly the north portion of the south 40. The acreage of the north 40 will undoubtedly yield some oil from a good portion of that acreage, but it ~~would~~ be at so slow a rate and over such a long period of time ~~were~~ the well in the center of that 40, it probably wouldn't be fast enough that any of us would live long enough to recover the oil to make it feasible and economical.

COMMISSIONER SPURRIER: Does anyone have any further questions? If there is nothing further, we will recess until 1:30.

(Noon recess.)

COMMISSIONER SPURRIER: The Commission is now in session. We will proceed to Case No. 223.

(Mr. McCormick read the notice of publication of Case 223.)

MR. BONDURANT: W. E. Bondurant, Jr., Roswell, New Mexico, appearing on behalf of the applicant, Cooperative Producing Association. First there is what we lawyers like to call two typographical errors in the application. On page 1, paragraph 1, line 10, where it says "State B" it should be "G". Then in the paragraph 3 on page 2 the location of the intake well should be the NE corner of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$. The location is correct on the map. It is wrong in the application.

The applicant is the owner of some thirty-seven wells in the Caprock Field in Lea and Chaves Counties, New Mexico; in

addition to that it operates six wells owned by Phillips Petroleum Corporation and one well owned by Mid-Continent Corporation; the total operation of about 44 wells.

This particular application is in reference to that certain oil and gas lease No. B-9676 from the State of New Mexico covering all of Section 31, Twp. 12S, R. 32E, Lea County, New Mexico. These wells are producing from the Artesia Red Sand, and production has shown constant decline, which has reached serious proportions. On this one section we operate thirteen wells, and the well which is listed as State A in the application has shown a monthly decline of approximately 3.25 per cent per month, and the decline for the wells in this group shows a decline of about 4.15 per cent. Due to that it has become essential institute some type of secondary recovery program. The applicant hired the firm of Fitting, Fitting & Jones, Petroleum Engineers, from Midland to survey the field. They recommended a secondary recovery program consisting of air injection and they estimate that if the system or program proves successful, it will be possible to recover an additional 20 to 30 per cent of oil in place.

J. O. DENTON, JR., having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. BONDURANT:

Q. State your name please.

A. J. O. Denton, Jr.

Q. Where do you live, Mr. Denton?

A. Levelland, Texas.

Q. Are you connected with the applicant, Cooperative Producing Association?

A. Yes, sir, I am manager.

Q. How long have you been with that Association?

A. Since September 1945.

Q. Mr. Denton, for the benefit of the Commission, how long have you been in the oil and gas business?

A. Approximately 25 years.

Q. Now, did your company buy some producing property in the Caprock Field in Lea and Chaves Counties?

A. Yes, sir.

Q. When?

A. September 1945.

Q. How many wells do you own there, Mr. Denton?

A. We own 37 wells.

Q. Do you operate any other wells?

A. We operate six wells for Phillips Petroleum Corporation and one well for Mid-Continent in addition to what we own.

Q. Just give a rough estimate, Mr. Denton, as to what per cent in the Caprock Field, you are operating?

A. Approximately 30 per cent.

Q. Now, are you familiar with the production history from those?

A. I think I am.

Q. Will you state the bottom hole pressures?

A. In 1945 on the property that we purchased was between a thousand and eleven hundred pounds. In 1946 one well that was drilled in this field was in excess of 1200 pounds. The wells produced in 1945 that we purchased approximately 30,000 barrels of oil per month. Today they are producing the wells we own at approximately 14,000 barrels per month. The bottom hole pressure is not in excess of 300 pounds on any one well.

Q. Is that good or bad?

A. That is a bad situation.

Q. Did that situation lead you to take some curative action?

A. Yes, sir.

Q. And what have you done, Mr. Denton?

A. We employed Fitting, Fitting, & Jones, Petroleum Engineers, a consulting firm.

Q. Have they made a survey?

A. They made a survey of the field, and cataloged the information which they have obtained recently with the information obtained for the past two years and made us a recommendation.

Q. What was the nature of that recommendation.

A. The recommendation is to inject air into the well in Section 31 and intermittently slug it with water to prohibit channeling.

Q. How many wells in Section 31?

A. Thirteen.

Q. That is an oil and gas lease from the State of New Mexico?

A. Yes, sir, Lease B-9676.

MR. BONDURANT: Would the Commission like to ask Mr. Denton any questions?

MR. McCORMICK: Not at this time.

(Witness excused.)

ROBERT D. FITTING, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. BONDURANT:

Q. What is your name?

A. Robert D. Fitting.

Q. With what firm are you connected?

A. Fitting, Fitting & Jones, a consulting engineer and geologist firm.

Q. What is your education?

A. I graduated from Stanford University in 1939. I worked in Goldsmith as a petroleum engineer for a year and a half before I entered the Navy. When I came back, I have worked as a consultant since that time, since '45.

Q. Now, was your firm retained by the Cooperative Producing Association to make a survey of the Caprock Field?

A. Yes, sir, December 1947 we put in our first appraisal, report of oil, at the request of the Cooperative, what they could expect at that time. It was evident to us that something should be done as it was losing bottom hole pressure. The average volumetric analysis did not totally agree with the bottom hole pressures nor the production decline. Due to the fact that they had recently made a pipe line connection, we couldn't make any definite recommendation at that time.

Q. State in a little more detail what the reason was that you were hired to make that survey?

A. Their primary purpose was that production was falling off, and they wanted to see what they could do about it. They didn't realize that it was as serious as it ultimately indicated that it was. Subsequent to the report after the engineers had completed it, they conferred with all operators and members. We took bottom hole pressure surveys, instigated tests, took core analysis, gas analysis, water analysis and any research that we could use for secondary recovery. That engineering committee met six, I believe, six or seven times. When we were able to get field wide general pressure surveys which substantiated the ideas we had on the original decline. Bottom hole pressures were declining rapidly. Production by the first part of this year indicated definite production decline.

One completely reliable source has indicated by production decline of approximately 1/3 less than that shown by the volumetric analysis. The pressure decline in the reservoir was again 1/3 of production decline. The analogy was again apparent that something should be done before we lost all reservoir energy, before it was all depleted. The proposition was made to the engineers' committee to determine what type of reservoir energy it was. It was apparent to most of us that it was some sort of solution drive--some water production, the pressure of volume of withdrawal does not indicate a water drive reservoir. The amount of water available from wells producing water is not sufficient to use for secondary purposes. We had one on the San Andres; it again did not have enough water to be used for secondary recovery. The problem of gas injection was thoroughly looked into. We have neither sufficient quantities of gas or gas of the nature that could be put back into the formation. That left only one way which was available, and that was air.

We went to the background of air injection, how it is worked, the mechanics of it so as not to create any detrimental effect to the reservoir. We found that with the slugging of water that it was far superior to the injection of air alone. It was on the basis of that that we made the recommendations to inject air with water.

Q. Mr. Fitting, I may have missed part of your testimony, but for the sake of clarity, would you repeat the results of your survey of the decline of production?

A. Well the decline in production has been very variable in various leases that Cooperative owns in the field. Some are as high as 10 per cent per month. On a yearly basis that would be a little over 100 per cent, which is a little excessive

of the average decline of the two leases contained in this section. On the one on which we propose to make this injection, it is 3.2505, while the decline on the lease "G" is 4.15.

Q. This is in regard to the two leases on Section 31?

A. Yes, sir. The ultimate recovery shown by production of "A" lease is approximately 55,000 barrels; for the "G" lease approximately 52,000 barrels. As to the future, it is approximately 12,000 for "A" and approximately 15,000 for "G".

Under primary recovery by the pressure decline for "A" lease is approximately 5,000 barrels; "G" lease, 3,000 barrels. It is difficult to know exactly which one to believe. If the pressure goes, probably one would obtain gravity drainage. How much you would get after the pressure becomes 50 pounds, I don't believe there will be an appreciable amount over and above the calculated volumes.

Q. Did you make a survey of decline in pressures and in production?

A. Our first survey made in June '47 showed an average pressure for the then 31 wells the Cooperative owned of 613 pounds. At that time there was 319,446 barrels produced out of the subject wells, and on March 16, 1950, out of an estimated decline for sixteen wells out of the total of 37 wells that the Cooperative Producing Association owned shows an average pressure of 104, a drop of 509 pounds, with a production of 647,554 barrels, or a drop of 2,071 barrels.

Q. Now, this decline, was that a decline of reservoir energy?

A. It is a decline of reservoir energy and it is apparent that it is still going down. But it is our opinion that when that pressure decreases another 50 pounds that production is going to be at a point where it will be non-economical as

far as the amount the wells in the field are producing.

Q. Now, what is your conclusion from this survey, that if they don't do something immediately they are going to lose all available reservoir energy and are not going to be able to control it with a secondary recovery program that we propose to install?

A. Yes, sir.

Q. Would you make any recommendation as to the type of recovery program?

A. Yes, sir, when it seemed that we would have to do something, we proposed to inject a volume of air not to exceed 200,000 cubic feet per day, that is the maximum volume, at a pressure not to exceed 200 pounds, and that the maximum volume of water to be injected at intervals would not be more than 5,000 barrels. The intention is to inject at a lower pressure and at constant volumes the use of water to prevent as much bypassing as possible, and the decrease in volume is to make the operation as slow as it can be made and still be practicable.

Q. Mr. Fitting, if this program should prove successful, can you tell the Commission what the benefit, if any, would be derived from it?

A. If we are able to get 20 per cent more in the way of recovery from the 13 wells on the subject Section 31, we would probably recover an additional 390,000 barrels. If that recovery goes as high as 40 per cent, we might get up to 485,000 barrels. The amount of money that it represents is somewhere around \$73,000.00 to \$111,000.00.

MR. McCORMICK: Are these per well figures?

COMMISSIONER SPURRIER: 13 wells?

A. The per well figure, I didn't figure; 246 roughly \$800,000.00 altogether.

Q. Now, I just want it clear. I might have missed the testimony. What additional percentage average of recovery of oil and gas in place do you anticipate?

A. 20 per cent, I believe, is very reasonable. It might be higher. It is very possible that as additional energy is put on the reservoir, we might obtain as much as 50 per cent. In the volumetric analysis of oil in oil recovery the factor of 20 per cent is apparently 10 per cent higher than the normal production decline method of reserve analysis. There is a big gap in getting energy, picking up the additional 10 per cent not obtained by primary means. It might go as high as 50 per cent. Conservatively 20 per cent increase can be effected.

Q. Mr. Fitting, do you have an opinion or a conclusion as to whether your recommendation as to this secondary recovery program would promote conservation and prevent waste?

A. Definitely if it produces more oil it creates a situation in which it is not making any waste.

Q. Do you have an opinion as to whether this program is consistent with good oil field practice?

A. Yes, I think it would be.

MR. MCCORMICK: What is the difference between "A" lease and "G" lease?

MR. BONDURANT: Actually I believe there is little or no basic difference, by a sale of the property of a former owner sold part of it to other people, which was ultimately bought by Cooperative.

MR. MCCORMICK: Are there any overriding royalties on any part of this lease?

MR. BONDURANT: It is a 7.8 lease.

MR. MCCORMICK: Just you and the royalty owners concerned?

MR. BONDURANT: I believe it all the same lease, came through one assignment.

MR. MCCORMICK: I thought there was one overriding royalty owner. This Cities Service Well located on the northwest of the northwest of Section 32, what condition is it now in as to producing oil?

A. I believe that that is a fair producer--five barrels.

MR. MCCORMICK: Is it a pumper?

A. Yes, sir.

MR. MCCORMICK: The Phillips well in west of the northwest, is that one that you operate?

A. Yes, sir, 10 barrels.

MR. MCCORMICK: Is the Mid-Continent well, which is another one that you operate, about what kind it it?

A. Eight barrels.

MR. MCCORMICK: What affect, if any, would this proposed plan have on those surrounding wells, the ones I asked about as well as the Vickers Estate well to the northeast?

A. You will notice on the contour map you have in your hand, that is a pressure map, that the pressure of well No. 7 is higher than the pressure of well No. 8 and 2. The effect of gravity drainage is toward the center. Cooperative Producing Association's A-2 as to the gravity drainage would be greater than the drainage from over to Cities Service. The injection of No. 2 well should improve the Cities Service well.

MR. MCCORMICK: Could it harm that well?

A. It might be possible, however, we have closer wells than the Cities Service well. The effect of the injection would be felt by wells No. 8 or 7 before, and if it did seem to affect

it in a way that we didn't want to happen, we could stop the injection, which we propose to try. Whether or not it is going to work, we would like to try it.

COMMISSIONER SPURRIER: What does Cities Service think about it?

A. As far as I know they have no objection.

COMMISSIONER SPURRIER: Do you know, Mr. Denton?

MR. DENTON: No, I don't think they do. As far as the representative that comes to the field every week, they have no objection.

MR. McCORMICK: This probably isn't important--why is the compressor station located as far from the well as it is?

A. It is put in that location because if this air injection is successful, we would like to try it on other wells.

MR. McCORMICK: You have perhaps other injection wells on the same lease?

A. Yes, sir.

MR. McCORMICK: Has air injection been tried in west Texas or New Mexico?

A. Not so far as I know. I have looked up all references to it and have been unable to find any where in west Texas or New Mexico where it has been used.

MR. McCORMICK: Where has it been used?

A. In Pennsylvania and in Kansas. In the old Pittsburgh fields producing mainly from sand. This type has been tried and has been successful in most places. The addition of water is something that hasn't been tried too much. The evidence shows that it has been successful where it has been used. It is a superior method of injection over the control of the direction of where the air goes, and bypassing doesn't occur as rapidly.

MR. McCORMICK: What is the difference in principle between air and gas?

A. Air tends to corrode a little bit more. It sometimes creates an explosive mixture with gases. In this instance there doesn't seem to be that possibility. In the Caprock Field the gas is mainly nitrogen. It is well suited to injection of air--nitrogen, helium, not much methane. When methane is there, it is fairly rich.

MR. McCORMICK: It is calculated to obtain the same results as gas injection, along the same line?

A. Yes, sir, it is a little bit more difficult to inject. It does cost more money to inject air than it does to inject gas.

MR. McCORMICK: Now, do you know of any way that it would harm adjacent wells?

A. Yes, one way it could.

MR. McCORMICK: How?

A. That is the creation of gums within the reservoir. However, we sent to two different laboratories tests to see if the formation of gums would be a serious condition, and they say not especially with the addition of water.

MR. McCORMICK: Is there any other way that it could harm any adjacent well?

A. Not that I know of.

COMMISSIONER SPURRIER: Will this cause channeling. I realize with low pressures it will certainly control channeling.

A. It could very easily channel. We hope to control that by reducing pressures to prevent bypassing that would make channeling on Cooperative's leases. If it occurs seriously, we will stop the injection.

COMMISSIONER SPURRIER: It is not likely that with 200 pounds of pressure there would be much channeling when the original

reservoir pressure was eleven or twelve hundred, is that what you feel?

A. Yes, we do have a permeable member within the pay zone. In equipping the injection well we hope to pass the pay zone. We may find that air will go in the more permeable zone, and we might have to slug more water than anticipated at the present time. We don't know what we will run into, but from the practical standpoint, it looks like it is the only solution.

MR. McCORMICK: How thick is the pay horizon?

A. Gross about 25 feet. Net pay is 8 to 10 feet. Permeability varies from high to low. As an average it is about 231 millidarcys, average high permeability. Low is zero in shale which has a connate water percentage of about 2 per cent to as high as 31 per cent.

MR. McCORMICK: Are you satisfied that all of Caprock Pool is a common reservoir?

A. Yes, sir, it is considered a common reservoir. There are some streaks which are not present in all wells.

MR. McCORMICK: Some not connected with others over the unit?

A. You might have three separate sand lenses. All wells do not produce out of all three of them.

MR. McCORMICK: On Section 31 do all of these wells produce out of a connected horizon?

A. Apparently, there seems to be two sand lenses in A and G leases.

MR. McCORMICK: And is common throughout the section?

A. It is a little hard to gain definite information as to the thickness of some of those pay horizons as these wells were purchased and the records kept were not too good.

MR. McCORMICK: Who owned them?

A. George B. Livermore.

COMMISSIONER SPURRIER: How far would you be to a source of gas?

A. I don't know.

MR. DENTON: The only gas would be over in the Amerada Field.

COMMISSIONER SPURRIER: Does anyone have any further questions of this witness?

MR. LOVERING: In indicating that 30 per cent increase in recovery of oil and gas, does that 30 per cent apply to gas?

A. The gas our recent survey shows that it is insufficient to measure out of the tubing of these wells.

MR. LOVERING: I can see 30 per cent in oil, but I can't see it in gas?

A. I am sorry if I said gas. There is not enough gas in there to worry about.

MR. LOVERING: O.K. You indicated that time was very important, and that loss of time might cause you to lose control of secondary recovery, what do you mean, cause you to lose?

A. We still have a small amount of solution. It would be easier to move this oil with a little gas in it than to move dead oil without the solution gas.

CHAIRMAN SPURRIER: Any one else have a question?

MR. McCORMICK: What is the production of this proposed injection well?

A. Two barrels a day.

MR. McCORMICK: How long will it take to get it into operation?

A. Well, 60 days if we are lucky to 90 days. We have several things to do. We have to clean it to the total depth, reshoot it again, to fix up some tubing. We have the compressor station to set. We do have the compressor and sufficient water.

MR. MCCORMICK: Where would you get the water?

A. We drilled two wells to get it.

MR. LOVERING: Does it have any iron in it?

A. It is surface water.

MR. LOVERING: Surface water is more subject to bacteria activity which has a tendency to plug up the well.

A. We intend to treat it. We are not sure we will have to.

MR. MCCORMICK: How long will it take after the injection for the pressure to start going up?

A. It will take six months before we begin to feel the effects of this if it does what we want it to. This is a slow proposition.

COMMISSIONER SPURRIER: Anyone any further questions? Is your case complete? If there are no further questions, the witness is excused, and the case is closed.

I might say something that I didn't say in the beginning of this hearing today. I have sat here in the capacity of examiner. All cases must be brought to the attention of the Commission before any orders can be issued. I might say also that I see no reason why I shouldn't recommend the granting of each case as it was presented.

The meeting is adjourned.

- - - - -

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I HEREBY CERTIFY THAT the foregoing transcript is a true and correct record of the proceedings had at the time and place first above written to the best of my knowledge, skill, and ability.

1950
DATED this 13th day of June at Albuquerque, New Mexico.

Margaret Paul
REPORTER

May 12, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lea County Operators Committee
Dresser Eye
Hobbs, New Mexico

Dear Mr. Staley:

We enclose herewith, application in connection with Case 223, to be
heard in Santa Fe, New Mexico, on May 23, 1950.

Very truly yours,

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held May 23, 1950, beginning at 10:00 o'clock a.m. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

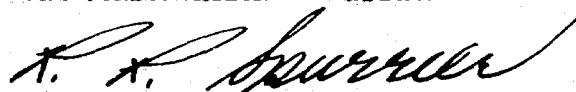
All named parties in the following
case: and notice to the public;

Case 223

In the matter of application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Twp. 12S, R. 32E., N.M.P.M., Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


R. R. SPURRIER, SECRETARY

Cooperative Producing Association

Levelland, Texas

January 29, 1951

CASE

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier, Director

Gentlemen:

Pursuant to the starting up of our secondary recovery program in the north part of Caprock Field, Lea County, New Mexico, we now find it would be helpful to observe the condition of producing wells adjoining Section 31, Township 32E, Range 12S.

Today we have therefore addressed letters to Phillips Petroleum Company, Mid-Continent Petroleum Corporation, Great Western Producers, Incorporated, Gulf Oil Corporation, Manry and Company, Delfern Oil Corporation and H. T. Page, requesting permission to make sonolog or fluid level tests monthly on their producing wells adjoining Section 31.

We are advising you of this action in order that you may be up to date in the matter. This is caused by the fact that we are advised that one offset well was producing approximately three barrels per day and in the last monthly production has increased to ten barrels per day. It is our estimate at this time we are increasing the reservoir pressure on an equitable basis in Section 31 and possibly it is affecting or will affect very quickly offset production.

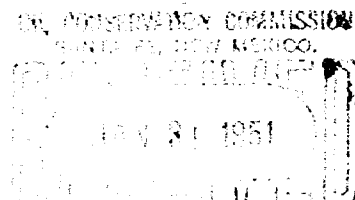
It is our immediate thought now that if this is proven within the next sixty days that we will bring our information to Santa Fe and informally talk the matter over with you. It is the writer's opinion at this time that sufficient communication in the reservoir is evident and this program should be successful.

Yours very truly,

COOPERATIVE PRODUCING ASSOCIATION

J. O. Denton, Jr.
J. O. Denton, Jr.

JCD/dp



Case
223

May 26, 1950

Mr. Joe Denton
Cooperative Producing Association
P. O. Box 978
Llcvcland, Texas

Dear Mr. Denton:

In view of the fact that Mr. C. P. Dimit of Phillips Petroleum Company has voiced an objection as an offset operator, it will be necessary for you to make suitable arrangements with Phillips before your application can be acted upon by the Commission.

If you wish, the case may be re-heard or the Commission should be furnished with a stipulation from Phillips.

Very truly yours,
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:hw
cc: Mr. Bonduant
cc: Mr. Dimit

TELEGRAMS
SAVE MONEY
BY NOT
WASTING WORDS

**WESTERN
UNION**

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS

DL = Day Letter

NL = Night Letter

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

Letters in STANDARD TIME at point of origin. Time of receipt in STANDARD TIME at point of destination

LA82 KA326

K-BRA265 NL PD-BARTLESVILLE OKLA 23

NEW MEXICO OIL CONSERVATION COMM

SANTA FE NMEX

1950 MAY 23 PM 5 10

RE CASE NUMBER 223 PHILLIPS PETROLEUM COMPANY ON OFFSET
OPERATOR OPPOSES COOPERATIVE PRODUCING ASSOCIATIONS
APPLICATION TO INJECT AIR DUE TO RESULT ON AND CORROSION OF
EQUIPMENT AND LOWERING OIL VISCOSITY THROUGH OXIDATION
SINCE NOTICE RECEIVED HERE ONLY THIS MORNING IT WAS
IMPOSSIBLE TO BE REPRESENTED AT HEARING TODAY

C P DIMIT

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Copy to Joe
Hinton

13-ay
978

5-25-50
Cleveland, Tex

case
223

NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

APPLICATION FOR APPROVAL OF SECONDARY RECOVERY PROGRAM

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Comes now Cooperative Producing Association, a New Mexico corporation, and hereby makes application for approval of a Secondary Recovery Program and in support thereof states:

1. That the Applicant is the owner of that certain Oil and Gas Lease from the State of New Mexico bearing No. B-9676, embracing all of Section 31, Twp. 12 S., Rge. 32 E., together with thirteen oil wells thereon, and said section is situated in the Caprock Field. Applicant is the owner of eight oil and gas wells known as its State "A", four of which wells are situated in the SW $\frac{1}{4}$ of said Section 31, and four of which wells are situated in NE $\frac{1}{4}$ of said Section 31; and that the Applicant is the owner of five wells known as its State "B", one of which is situated in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of said Section 31, and the other four wells being situated in the SE $\frac{1}{4}$ of said Section 31. That said oil wells produce from the Artesia Red Sand at a depth of 3,000 to 3,200 feet.

2. That there has been a constant decline in production from said wells, and that Applicant has had competent petroleum engineers make a survey of said field. That the present indicated decline for the five wells described above in State "A" is 3.25 per cent per month and that said decline is 4.15 per cent for the wells described above in State "B". That by reason of said decline in production, some Secondary Recovery Program is absolutely essential for the future life of said field, and that said operations must be commenced at the earliest possible date before all reservoir energy is depleted. That said engineers estimate that a Secondary Recovery Program could result in the recovery of an additional 20 to 30 percent of the oil in place.

3. That said petroleum engineers state that water or gas injection in said field is not feasible since the same are not available in sufficient quantities and said engineers have recommended an air injection program as the most feasible secondary recovery method, and the Applicant desires to undertake the same and states that the material facts and details of said program are as follows:

a. That the intake well shall be Applicant's No. 2, State "A" situated in the NE corner of the NE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of said Section 31, and that there is attached hereto and marked Exhibit "A", a plat of said Section 31 reflecting the location of said intake well and the proposed compressor station together with a showing as to the names of all offset operators within one-half mile of said intake well.

b. That wells from said Section 31 in said Caprock Field are producing from the Artesia Red Sand. That the name, description and depth of the formations to be affected by said injection are as follows: The Artesia Red Sand is approximately 3,000 feet to 3,050 feet in depth in the Caprock Field. The thickness averages 25 feet consistently over the field. The top 12 feet is a loose, poorly cemented sand. The next 6 feet is hard, highly cemented and has a low permeability. This portion contains very little saturation of oil and gas. The next 6 feet to 7 feet or the bottom section has some cementation, some porosity and saturation. The permeability is high enough to obtain some production of oil and gas from this

section. The air will be injected into the total 25 feet of this sand body or the Artesia Red Sand.

c. That there is attached hereto and marked Exhibit, "B" a log of such information as is available on the proposed intake well, and that said proposed intake well is cased with 236 feet of 8-5/8" casing as surface pipe and with 2,986 feet of 5-1/2", 15 pound seamless casing as the production string. This casing will be tested to 500 pounds prior to the air injection.

d. That air is to be the material used for injection and the estimated daily rate is a maximum of 200,000 cubic feet with a maximum of 5,000 barrels of water being slugged intermediately from two weeks after thirty days.

e. That the name and address of the Applicant and proposed operator of said Secondary Recovery Program is Cooperative Producing Association, Attention J. O. Denton, Jr., P. O. Box 978, Levelland, Texas. That the personnel in charge of plant operations in the field is Mr. Paul Holloway, Superintendent, P. O. Box 86, Tatum, New Mexico.

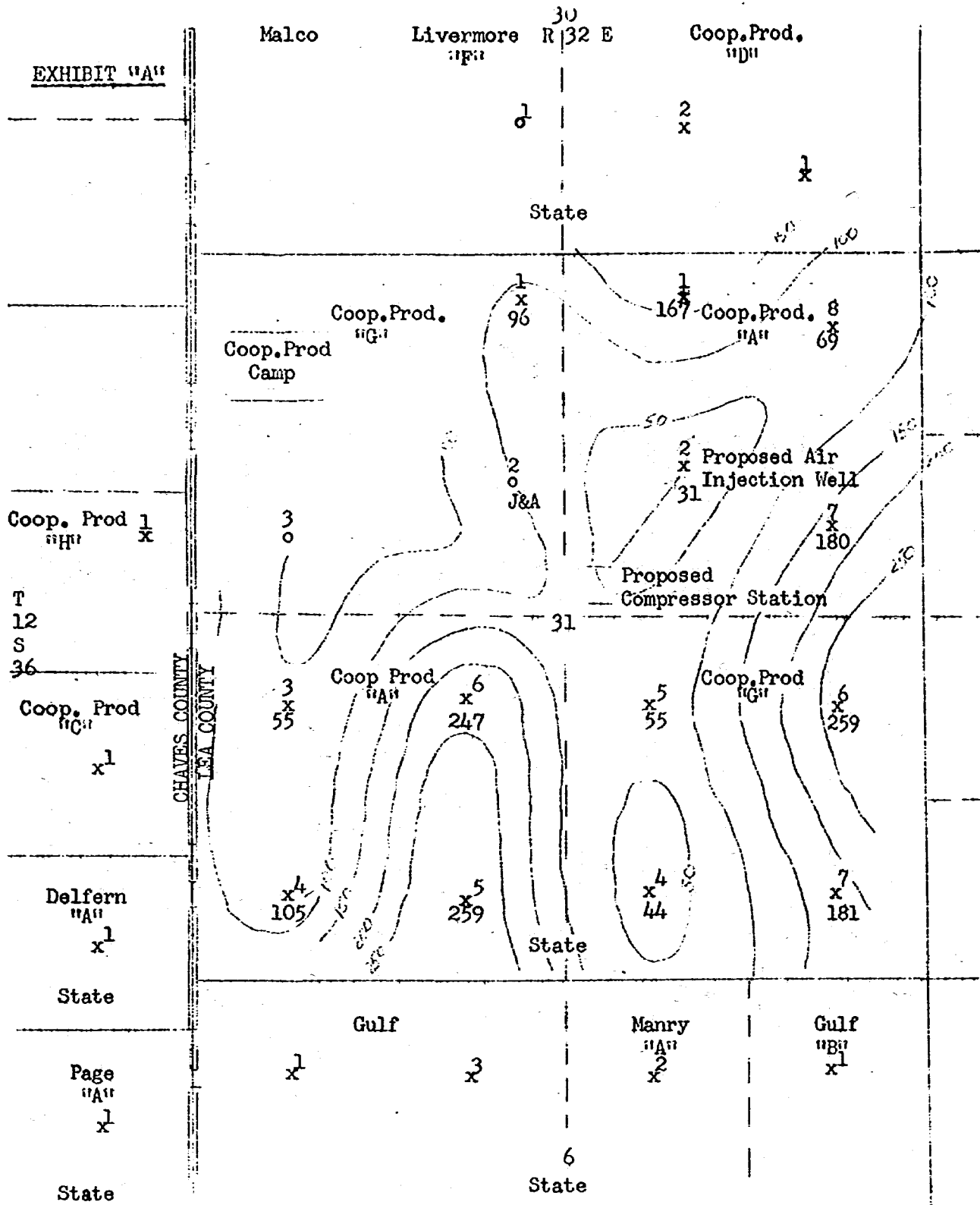
4. That said Secondary Recovery Program will promote conservation and will prevent waste and is consistent with good oil field practice.

WHEREFORE, Applicant requests that it be granted permission to conduct the above program.

Respectfully submitted,

By: W. E. Bondurant, Jr.,
A member of Hervey, Dow & Hinkle,
Attorneys for Applicant
Roswell, New Mexico

LEA COUNTY OPERATORS COMMITTEE
HOBBS, NEW MEXICO
May 18, 1950



March 16, 1950

BOTTOM HOLE PRESSURE MAP

Special Survey

Contour Interval 50psig

1400 foot Datum

COOP. PROD. ASSOC.

EXPERIMENTAL

AIR INJECTION AREA

CAPROCK FIELD

LEA COUNTY, NEW MEXICO

Scale: 1" = 1000'

Prepared By: Fitting, Fitting and Jones

EXHIBIT B

(The log of the proposed in-put well, being State "A"-2 in Section 31, Twp. 12 S., Rge. 32 E., N. M. P. M.)

<u>From</u>	<u>To</u>	<u>Thickness In Feet</u>	<u>Formation</u>
Ground Elevation 4387			
0	164	164	Caliche, Shale
164	253	89	Sand, Shale
253	1395	1142	Red Bed & Shells, Top Anhydrite-1390'
1395	1418	23	Anhydrite & Shale
1418	1520	102	Anhydrite - Top of Salt 1520'
1520	2030	510	Anhydrite & Salt
2030	2205	175	Anhydrite & Red Rock - Base of Salt 2140'
2205	2850	645	Anhydrite Salt & Shale - Yates 2250'
2850	2970	120	Anhydrite
2970	3000	30	Anhydrite & Shale
Cable Tool Elevation 4390'			
2993	2997	4	Anhydrite
2997	3024	27	Anhydrite & Red Bed
3024	3026	2	Sand-Show of oil-Top of Red Sand 3024 (Corrects to 3031' Rotary)
3026	3028	2	Sand-Free Oil
3028	3030	2	Sand & Shale
3030	3034	4	Sand
3034			Total Depth -(Corrects to 3041 Rotary) Tested for 8 Hrs. Making 6 Gallons per Hr. Shot with 30 Qts. 3023-3034 May 31. Tested 10 Barrels Per Hr. on Swab Test.

LEA COUNTY OPERATORS COMMITTEE
HOBBS, NEW MEXICO
MAY 18, 1950

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY
THE OIL CONSERVATION COMMISSION OF THE
STATE OF NEW MEXICO FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 223
ORDER NO. R-22

IN THE MATTER OF APPLICATION OF COOPERATIVE
PRODUCING ASSOCIATION FOR THE ESTABLISHMENT
OF A SECONDARY RECOVERY PROGRAM ON ALL OF
SECTION 31, TOWNSHIP 12S, RANGE 32E, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

This matter came on for hearing at 10:00 o'clock a.m., on May 23, 1950, pursuant to legal notice, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

The Commission having heard the evidence and being fully advised in the premises,

FINDS:

1. That due public notice having been given as required by law, the Commission has jurisdiction of the subject matter and of the interested parties.

2. That Cooperative Producing Association is the owner of the entire 7/8 working interest under a State of New Mexico Oil and Gas Lease covering all of Section 31, Twp. 12S, R. 32E, Lea County, New Mexico and has 13 producing wells thereon. Said lease is located in the Caprock pool.

3. The production from the wells on said lease has declined to such an extent that a secondary recovery program is necessary to attain the maximum recovery of oil from the producing formation.

4. An air injection program whereby the well located in the SW/4 NE/4 of said section 31 is used as an injection well is apparently a feasible and sound method of secondary recovery. Such a program of air injection will likely result in a greater ultimate recovery of oil and will do no damage to the producing horizon under section 31 or under adjoining leases.

5. The secondary recovery program proposed by applicant will result in the prevention of waste and the conservation of oil and gas.

IT IS THEREFORE ORDERED:

1. The secondary recovery program proposed by applicant is hereby approved as outlined in said application, and applicant is granted permission to go forward with the same using the well located in the SW/4 NE/4 section 31, T. 12S, R. 32E, as an air injection well.

2. Rules 702, 703 and 704 of this Commission shall be faithfully observed by the applicant in connection with said program.

DONE at Santa Fe, New Mexico, this 14th day of June 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


THOMAS J. MABRY, CHAIRMAN

GUY SHEPARD, MEMBER


R. R. SPURRIER, SECRETARY

June 28, 1950

Oil Conservation Commission
P. O. Box 1545
Hobbs, New Mexico

Gentlemen:

We enclose herewith, signed copy of Order No. R-22, issued by the
Commission in connection with the hearing held on May 23, 1950.

Very truly yours,

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

June 28, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lea County Operators Committee
Dresser Eye
Hobbs, New Mexico

Dear Mr. Staley:

We enclose herewith, signed copy of Case No. 223, Order No. R-22,
in connection with the hearing held in Santa Fe, on May 23, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

June 28, 1950

REGISTERED MAIL

Mr. W. E. Bondurant, Jr.
Harvey, Dew & Hinkle
Roswell, New Mexico

Dear Mr. Bondurant:

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Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

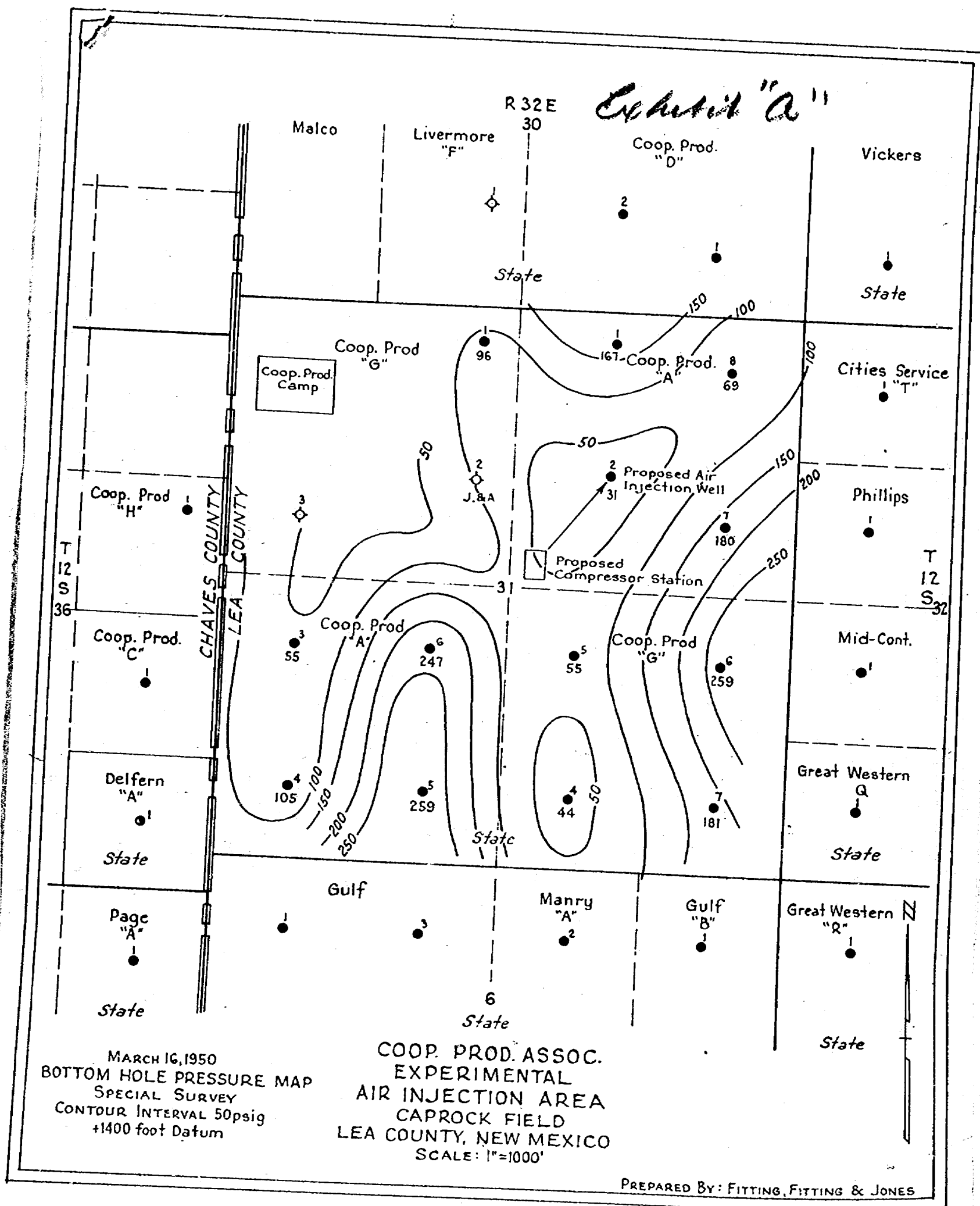
R. R. Spurrier
Secretary-Director

RRS:bw
encl.

EXHIBIT B

(The log of the proposed in-out well, being
State "A"-2 in Section 31, Twp. 12 S., Rge.
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d. That air is to be the material used for injection and the estimated daily rate is a maximum of 200,000 cubic feet with a maximum of 5,000 barrels of water being slugged intermediately from two weeks after thirty days.

e. That the name and address of the Applicant and proposed operator of said Secondary Recovery Program is Cooperative Producing Association, Attention J. O. Denton, Jr., P. O. Box 978, Levelland, Texas. That the personnel in charge of plant operations in the field is Mr. Paul Holloway, Superintendent, P. O. Box 86, Tatum, New Mexico.

4. That said Secondary Recovery Program will promote conservation and will prevent waste and is consistent with good oil field practice.

WHEREFORE, Applicant requests that it be granted permission to conduct the above program.

Respectfully submitted,

By W. E. Bondurant, Jr.
W. E. Bondurant, Jr.,
A member of Hervey, Dow & Hinkle,
Attorneys for Applicant,
Roswell, New Mexico

some Secondary Recovery Program is absolutely essential for the future life of said field, and that said operations must be commenced at the earliest possible date before all reservoir energy is depleted. That said engineers estimate that a Secondary Recovery Program could result in the recovery of an additional 20 to 30 per cent of the oil in place.

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a. That the intake well shall be Applicant's No. 2, State "A" situated in the NE corner of the ^{SW}NE^{NE} $\frac{1}{4}$ of the $\frac{1}{4}$ of said Section 31, and that there is attached hereto and marked Exhibit "A", a plat of said Section 31 reflecting the location of said intake well and the proposed compressor station together with a showing as to the names of all offset operators within one-half mile of said intake well.

b. That wells from said Section 31 in said Caprock Field are producing from the Artesia Red Sand. That the name, description and depth of the formations to be affected by said injection are as follows: The Artesia Red Sand is approximately 3,000 feet to 3,050 feet in depth in the Caprock Field. The thickness averages 25 feet consistently over the field. The top 12 feet is a loose, poorly cemented sand. The next 6 feet is hard, highly cemented and has a low permeability. This portion contains very little saturation of oil and gas. The

NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

APPLICATION FOR APPROVAL OF SECONDARY RECOVERY PROGRAM

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Comes now Cooperative Producing Association, a New Mexico corporation, and hereby makes application for approval of a Secondary Recovery Program and in support thereof states:

1. That the Applicant is the owner of that certain Oil and Gas Lease from the State of New Mexico bearing No. B-9676, embracing all of Section 31, Twp. 12 S., Rge. 32 E., together with thirteen oil wells thereon, and said section is situated in the Caprock Field. Applicant is the owner of eight oil and gas wells known as its State "A", four of which wells are situated in the SW $\frac{1}{4}$ of said Section 31, and four of which wells are situated in NE $\frac{1}{4}$ of said Section 31; and that the Applicant is the owner of five wells known as its State "B", one of which is situated in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of said Section 31, and the other four wells being situated in the SE $\frac{1}{4}$ of said Section 31. That said oil wells produce from the Artesia Red Sand at a depth of 3,000 to 3,200 feet.

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NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law, of the following public hearing to be held May 23, 1950, beginning at 10:00 o'clock A.M., on that day in the City of Santa Fe, New Mexico, at

STATE OF NEW MEXICO TO:

All named parties in the following cases, and notice to the public;

Case ✓ 213

In the matter of application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Twp. 12 S., Rge. 32 E., N.M.P.M., Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

*Received
5/11/50*

May 11, 1950

Mr. W. E. Bondurant
Hervey, Dow & Hinkle
Roswell, New Mexico

Dear Mr. Bondurant:

Please find enclosed, copy of Notice of Publication for Case 223, which will be heard in Santa Fe, New Mexico, on May 23, 1950.

Legal notices for this case will be published in Hobbs and in Santa Fe on Friday, May 12.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrer
Secretary-Director

RRS:bw
encl.

May 11, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lea County Operators Committee
Drawer I
Hobbs, New Mexico

Dear Mr. Staley:

Enclosed please find Notice of Publication for Case 223, which will
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Very truly yours,

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

May 11, 1950

SANTA FE NEW MEXICAN
Santa Fe, New Mexico

Re: Case 223
Notice of Publication

Gentlemen

Please publish the enclosed notice once, immediately. Please proofread the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

PLEASE PUBLISH ON FRIDAY, MAY 12, 1950.

J. M. HERVEY
HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.

LAW OFFICES
HERVEY, DOW & HINKLE
ROSWELL, NEW MEXICO

May 9, 1950

WILLIAM C. SCHAUER

Mr. R. R. Spurrier
Secretary
Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mrs. Woodworth

Re: Application for Approval of Secondary
Recovery Program

Dear Sir:

Enclosed herewith please find above application, in triplicate, and we are attempting to have the matter set for the hearing on May 23, 1950. I have today discussed the matter with Mr. Spurrier in Artesia, and he has requested that this letter be written to the attention of his secretary, Mrs. Woodworth.

The primary problem involved is that the Notice of Hearing must be published in a Lea County newspaper not later than Friday, May 12th. I have checked the matter and the Hobbs News Sun is published in the afternoon of that day, but there is no paper published in Lea County on Saturday. Consequently, Mr. Spurrier has requested that in order to expedite the matter that I draft the enclosed Notice for Publication, but Mr. George Graham is to approve the same, and I drew it in order to save Mr. Graham the trouble. It will be noted that you must insert the place of hearing, the date, and the manner of signing the Notice. Mr. Spurrier advised that if two members of the Commission were not handy to sign it, then it would be satisfactory for Mrs. Woodworth to sign Mr. Spurrier's name to the Notice.

As you know, the Notice must be published once in Santa Fe and once in Lea County, and the Santa Fe publication should not cause any trouble since there is plenty of time. The Lea County publication is a rather difficult matter, and it will probably have to be in the hands of the Hobbs paper by noon, May 12th. Consequently, if it could be sent AIR MAIL --SPECIAL DELIVERY from Santa Fe by Thursday, May 11th, I believe that this would be satisfactory, but if there is any question and in any event probably the best solution would be for Mrs. Woodworth to call us as soon as the original Notice is completed and sign it, and we could then conform

Mr. R. R. Spurrier

-2-

May 9, 1950

our office copy to the signed original, and our office copy could be mailed from Roswell to Hobbs, or we could have someone drive over to Hobbs with it. The foregoing is an emergency matter and our client is most anxious to have the matter heard on May 23rd, which will necessitate the above outlined rush on advertising.

If you have any questions, please call us collect, and Mr. Spurrier said that if there were any questions needing his assistance that he would be in Hobbs tomorrow, Wednesday, and back in Artesia Thursday for the balance of the week. We will sincerely appreciate your cooperation in the matter.

Very truly yours,

HERVEY, DOW & HINKLE

By W. C. Smidman

WEB:iw

Case
223

NEW MEXICO OIL CONSERVATION COMMISSION
JUN 7 - 1950

PHILLIPS PETROLEUM COMPANY

BARTLESVILLE, OKLAHOMA

PRODUCTION DEPARTMENT

C. P. DIMIT
VICE PRESIDENT
H. H. KAVELER
ASS'T. TO VICE PRESIDENT

June 5, 1950

L. E. FITZJARRALO
GENERAL SUPERINTENDENT
J. M. HOUGHIN
ASS'T. GEN'L SUPT.
H. S. KELLY
CHIEF ENGINEER

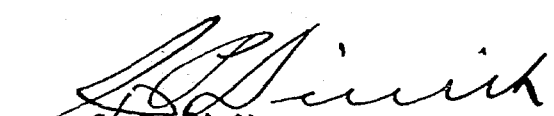
In re: Cooperative Producing Association; Application and
Hearing for approval of Secondary Recovery Program
Caprock Field, Chaves and Lea Counties, New Mexico,
Case No. 223

Mr. R. R. Spurrier,
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Spurrier:

With reference to the subject 'Application and
Hearing,' Phillips Petroleum Co. hereby withdraws the ob-
jection which was made by telegram on May 23, 1950, and gives
approval to the program of Secondary Recovery proposed by the
applicant.

Very truly yours,


C. P. Dimit

CPD

cc: Mr. J. O. Denton, Jr.

Cooperative Producing Association
Levelland, Texas

May 11, 1950

AIRMAIL - SPECIAL DELIVERY

HOEBS NEWS SUN

Hebbs, New Mexico

Re: Case 223
Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proofread the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

CONFIRMING TELEPHONE CONVERSATION OF MAY 10TH. PLEASE
PUBLISH ON FRIDAY, MAY 12, 1950.

J. M. HERVEY
HIRAM H. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNTER, JR.

WILLIAM C. SCHAUER

LAW OFFICES
HERVEY, DOW & HINKLE
ROSWELL, NEW MEXICO

File

June 16, 1950

Mr. R. R. Spurrier
New Mexico Oil Conservation
Commission
Santa Fe, New Mexico

Re: Case No. 223
Cooperative Producing Ass'n.
Application for Secondary Re-
covery Program

Dear Mr. Spurrier:

In connection with the above Application, my client, the applicant, advises me that on June 5th Phillips Petroleum Company withdrew their objection to the application, and mailed the same direction to your office.

I believe that the above is all that is necessary in the matter, but if anything additional is requested, please advise me immediately. I would sincerely appreciate it if the order could be issued at your very earliest convenience, since my client is very desirous of proceeding with their program.

Very truly yours,

HERVEY, DOW & HINKLE

WEB:iw

cc: Cooperative Producing Association
Levelland, Texas
Attn: J.O. Denton, Jr.

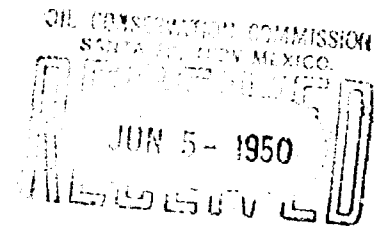
By *W.E. Bondurant, Jr.*

Cooperative Producing Association

Levelland, Texas

May 31, 1950

Case 223



New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier

Gentlemen:

Enclosed is a copy of our letter addressed to Mr. C. P. Dimit, Vice President of Phillips Petroleum Company, who on May 29, 1950, advised us by telephone that they would approve our program for secondary recovery in the Caprock Field of Chaves and Lea Counties, New Mexico. The protest was filed as a matter of form without Mr. Dimit's knowledge.

We are directing a copy of the letter to him to you in order that you will be advised that the matter will be cleared up shortly and our application approved.

Mr. Bondurant also is receiving a copy of this letter in order that he can be advised of our procedure.

If you do not receive advice from Mr. Dimit pursuant to our letter to him within the near future, we would appreciate the information in order that we can bring it to his attention again.

Yours very truly,

COOPERATIVE PRODUCING ASSOCIATION

J. O. Denton, Jr.
J. O. Denton, Jr.

JOD:mkw

COOPERATIVE PRODUCING ASSOCIATION
LEVELLAND, TEXAS

May 31, 1950

Phillips Petroleum Company
Bartlesville, Oklahoma

Attention: Mr. C. P. Dimit
Vice President

Gentlemen:

Pursuant to our application and the scheduled hearing before the New Mexico Oil Conservation Commission, Case No. 223, for a secondary recovery program in the Caprock Field, Cheaves and Lea Counties, New Mexico, quickly we will endeavor to give you our thinking in the matter.

Our total production for thirty-eight wells in the latter part of 1947 was approximately 30,000 barrels per month. In April, 1950, we produced slightly less than 14,000 barrels. This drop in production was foreseen by us and we endeavored to collect all possible data on the producing reservoir. We found that we would produce on a primary basis 18 to 20%; that it was possible to produce an additional 20 to 25% by repressuring the reservoir with air and an additional 25% with water flooding. We did not consider repressuring with gas because there was no supply available, and in that there is no water supply available other than well water, wells are approximately 200' in depth and limited in production, we can not consider water at this date.

An analysis of the gas produced from the Artesia Red Sand reservoir in that field reflects that there is considerable nitrogen present, from 27 to 64%, the higher percentage being in the North end of the field, or in Section 31, Township 12S, Range 32E, where we proposed to start the repressuring program.

In analyzing cores, we do not find any oxidation of oil as a result of air injection. If this secondary program is not put into effect immediately, it is our conclusion the field will be abandoned shortly.

Pursuant to our telephone conversation with you, we would appreciate it if you would please address a letter to the New Mexico Oil Conservation Commission, attention Mr. R. R. Spurrier, Secretary, advising him as follows:

Reference Cooperative Producing Association Application and Hearing for Approval of Secondary Recovery Program, Caprock Field, Chaves and Lea Counties, New Mexico, Case No. 223, we hereby withdraw our objection which was made by telegram on May 23, 1950, and approve their program in order that your Commission may approve their application and the program started.

Mr. Spurrier has advised us that the above letter is necessary prior to issuing us a permit or approving our application.

When this program becomes effective, we will be very glad to give you any information you might desire as we intend to keep a detailed record of the operation.

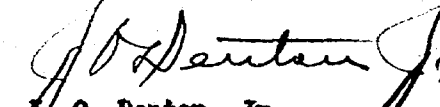
Mr. Paul Halloway, who worked at the Stead Plant for you at Dewey Oklahoma, is the Superintendent in charge of that work. Mr. Halloway lives in the field at Cooperative Producing Association Camp in Section 31.

Should you desire any additional information from the writer, please advise me at your earliest convenience.

I appreciate very much your cooperation in this matter and would appreciate it if you would forward me a copy of your letter to the New Mexico Oil Conservation Commission.

Yours very truly,

COOPERATIVE PRODUCING ASSOCIATION


J. O. Denton, Jr.

JOD:mkw

BCC: Hervey, Dow & Hinkle
Attention: Mr. W. E. Bonduarnt
Roswell, New Mexico

New Mexico Oil Conservation Commission
Attention: Mr. R. R. Spurrier
Santa Fe, New Mexico ✓

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea

Robert L. Summers
Publisher

Of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period

three
beginning with the issue dated *May 12*, 19*50*

and ending with the issue dated *May 14*, 19*50*
Publisher.

Robert L. Summers
Sworn and subscribed to before

me this *15* day of *May*, 19*50*
Notary Public.

Stacy B. Lane
My commission expires *January 25*, 19*53*
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

**NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION**

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held May 23, 1950, beginning at 10:00 o'clock a.m. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).
STATE OF NEW MEXICO TO:
All named parties in the following cases and notice to the public:

Case 223
In the matter of application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Township 12, South, Range 32 East, N.M.P.M., Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
R. R. SPURRIER, Secretary.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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STATE OF NEW MEXICO TO:

All named parties in the following
cases and notice to the public:

Case 220

In the matter of the application of the Skelly Oil Company for an exception to Rule 104 for the formation of an unorthodox unit in Section 2, Township 23S, Range 36E, N.M.P.M., Langlie-Mattix pool, Lea County, New Mexico.

Case 221

In the matter of the application of Continental Oil Company for an order granting permission to dually complete its "H.E. Wantz No. 3-D" well, located in the NW/4 SE/4 Section 21, Township 21S, Range 37E, N.M.P.M., Lea County, New Mexico, for producing gas from the Tubb sand, and oil from the Drinkard formation.

Case 222

In the matter of the application of Barnett and Rector for an order permitting the drilling of an unorthodox location 1370 ft. from the south line and 330 ft. from the west line (SW/4 NW/4 SW/4) of Section 20, Township 17S, Range 35E, N.M.P.M., along the northern limits of the Vacuum pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on May 9, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


R. R. SPURRIER, SECRETARY

SEAL

NOTICE FOR PUBLICATION
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OIL CONSERVATION COMMISSION

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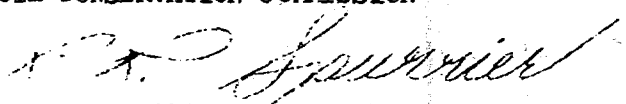
All named parties in the following
case and notice to the public:

Case 223

In the matter of application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Twp. 12S, R. 32E, N.M.P.M., Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


R. R. SPURRIER, SECRETARY

SEAL

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a full rate telegram	
FULL RATE TELEGRAM	SERIAL
DAY LETTER	NIGHT LETTER

WESTERN UNION

1208

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise this message will be sent at the full rate	
FULL RATE	DEFERRED
CODE	NIGHT LETTER

W. P. MARSHALL, PRESIDENT

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

file

case 223

NL PD BARTLESVILLE OKLA 23
NEW MEXICO OIL CONSERVATION COM.
SANTA FE N MEX

1950 MAY 23 PM 5 10

RE CASE NUMBER 223 PHILLIPS PETROLEUM COMPANY ON OFFSET OPERATOR OPPOSES
COOPERATIVE PRODUCING ASSOCIATIONS APPLICATION TO INJECT AIR DUE TO RESULT
ON AND CORROSION OF EQUIPMENT AND LOWERING OIL VISCOSITY THROUGH OXIDATION
SINCE NOTICE RECEIVED HERE ONLY THIS MORNING IT WAS IMPOSSIBLE TO BE
REPRESENTED AT HEARING TODAY.

G. P. DIMIT

COPY

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a full rate telegram	
FULL RATE TELEGRAM	SERIAL
DAY LETTER	NIGHT LETTER

WESTERN UNION

1206

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise this message will be sent at the full rate	
FULL RATE	DEFERRED
CODE	NIGHT LETTER

W. P. MARSHALL, PRESIDENT

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

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file

NL PD BARTLESVILLE OKLA 23
NEW MEXICO OIL CONSERVATION COM.
SANTA FE N MEX

case 223

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C. P. DIMIT

COPY

file

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a full rate telegram	
FULL RATE TELEGRAM	SERIAL
DAY LETTER	NIGHT LETTER

WESTERN UNION

1206

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise this message will be sent at the full rate	
FULL RATE	DEFERRED
CODE	NIGHT LETTER

W. P. MARSHALL, PRESIDENT

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			OIL CONSERVATION COMMISSION	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

message phoned in 3:45 P.M.

case 223

SANTA FE, NEW MEXICO
MAY 24, 1950

JEFF A. ROBERTSON
CHAIRMAN, CORPORATION COMMISSION
TOPEKA, KANSAS

UNDERSTAND YOU HAVE AN AIR INJECTION SECONDARY RECOVERY
PROJECT IN KANSAS. WOULD APPRECIATE RECEIVING ANY PRODUCTION HISTORY
ESPECIALLY PERTAINING TO UNDESIRABLE EFFECTS.

OIL CONSERVATION COMMISSION/E.A. UTZ, GAS ENGINEER

~~DAY LETTER~~

straight wire

Case
223

PHILLIPS PETROLEUM COMPANY

PRODUCTION DEPARTMENT
C. P. DIMIT
VICE PRESIDENT
H. H. KAVELER
ASS'T. TO VICE PRESIDENT

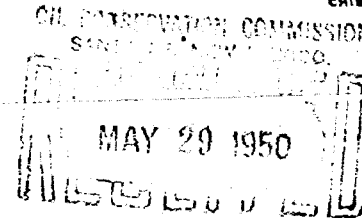
BARTLESVILLE, OKLAHOMA

May 26, 1950

L. E. FITZJARRALD
GENERAL SUPERINTENDENT
J. M. HOUGHIN
ASS'T. GEN'L SUPT.
H. S. KELLY
CHIEF ENGINEER

In re: Notice of Hearings

Mr. R. R. Spurrier
New Mexico Oil Conservation Commission
Santa Fe, New Mexico



Dear Mr. Spurrier:

On May 22 we received notification, by Lea County Operators' Committee circular letter dated May 15, 1950, of hearing on Case 223 scheduled for May 23, at 10:00 o'clock A. M. The hearing was on application of Cooperative Producing Association for the establishment of a secondary recovery program on all of Section 31, Township 12 South, Range 32 East, N. M. P. M., Lea County.

Phillips Petroleum Company operates two leases covering a total of 240 acres in Section 32-12S-32E, which adjoins applicant's lease on the east. Phillips is therefore vitally interested in this matter.

On May 23, by Lea County Operators' Committee circular letter dated May 18, 1950, we received notification of Cooperative's detailed application.

We do not favor the injection of air into an oil reservoir, as this applicant proposes, and believe, considering the effect of increased oil viscosity in the reservoir and corrosion of casing and equipment and consequent premature abandonment of wells with air injection, that more ultimate recovery of oil will be obtained by the present primary recovery method. Therefore, we telegraphed you on May 23 to this effect, in the hope that the application might be denied, or at least that this hearing be continued to a later date when we could present our views. You will observe, from the above recital that we did not receive notice as to the detailed subject matter of Cooperative's application until the actual date of the hearing, making it impossible for us to make our appearance.

As Mr. Nicola mentioned to you when you were in Bartlesville on May 18, we do not receive notices of pending hearings, at our Bartlesville, Oklahoma, office where these matters are handled, in sufficient time for proper consideration or action.

Notice of Hearings
Mr. R. R. Spurrier
May 26, 1950
Page No. 2

We have no wish to delay the proceedings before the Commission. If your rules could be amended to provide, as in Oklahoma, that copies of each application shall be mailed, by the applicant, to each offset operator or to each operator in a pool where the reservoir is to be affected, prior to filing his application, and such notice be substantiated by affidavit filed with the Commission, we believe that all operators would be given sufficient and timely notice of hearings in which they are interested.

Anything you may be able to do to help us obtain earlier notice of hearings will certainly be appreciated.

Yours very truly,


G. P. Dimit

CPD

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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STATE OF NEW MEXICO TO:

All named parties in the following
case and notice to the public;

Case 223

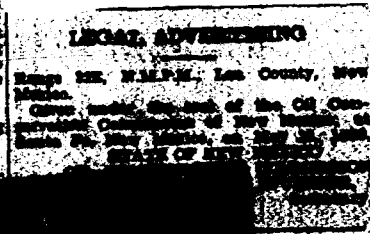
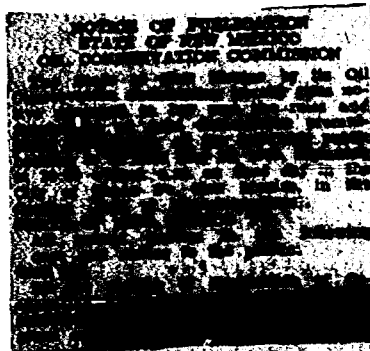
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Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, on May 10, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



R. R. SPURRIER, SECRETARY



Case
223

Affidavit of Publication

ss.

Will Harrison, being first duly sworn,

do hereby declare and say that I am the (~~Business Manager~~) (Editor) of the Santa Fe

New Mexican, a daily newspaper, published in the English Language, and having a general circulation in the City and County of Santa Fe, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937; that the publication, a copy which is hereto attached, was published in said paper ~~for one time~~

for one time ~~in the regular issue of the paper during the time of publication, and that the notice was published in the newspaper proper, and not in any supplement~~

one time ~~publication being on the~~

12th day of May, 1950, ~~and that the said publication~~

~~was made~~ day of _____, 19____; that payment for said advertisement has been (duly made), or (assessed as court costs); that the undersigned has personal knowledge of the matters and things set forth in this affidavit.

PUBLISHER'S BILL

30 lines, one time at \$ 3.00

 lines, times, \$

Tax \$

Total \$ 3.00

Received payment,

By _____

Will Harrison

Editor-Manager

Subscribed and sworn to before me this 12th

day of May, A.D., 1950

Anna R. Ormsbee

Notary Public

My Commission expires

June 14, 1953