BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

June 4, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Case 4121

BEFORE: DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date JUNE 4, 1969 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
Wm. L. Dallarme	RW Byram & Company	Santa Fe
C.R. Kreuz	MOBIL	MIDLAND
Roger Hanks	Roger Hanks	Mid.
[illegible]	" "	Roswell
L.D. Lupio	" "	Midland
William J. LeMay	Roger Hanks	Santa Fe
Robert G. Kerby	Jeannie Lee Mitchell, Inc	Lexington
E F Patterson	Superior Oil Co	Austin, Tex
Boden Kelly	self called Mrs Kelly	S.F.
Jerry Clay	Superior Oil Co.	Midland
C.R. Appledorn	E.V. McElvaney	Roswell
Jason Kellahin	Kellahin & Fox	Santa Fe
Eugene McElvaney Jr	Self	Roswell
W.A. Gressett	NMOCC	Artesia
John H. Swendig	Amarada	Hobbs
James T. Jennings	VS Welch	Roswell
Jack L. McClellan	Jack L. McClellan	Roswell

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NAME	REPRESENTING	LOCATION
J. E. Sperling	Morton Dyer et al	Albuquerque.
L. M. Williams	Tenneco	Midland
Jerry I. Moritz	DTA Oil Prod	Midland

MR. NUTTER: The Hearing will come to order, please. Case No. 4121.

MR. HATCH: Case 4121, continued from the May 7, 1969, Examiner Hearing. Application of Roger C. Hanks for special pool rules, Lea County, New Mexico.

MR. NUTTER: Let the record show that this is a resumption of Case 4121. The Case was originally started on May 7, 1969, and recessed while additional tests were conducted in the Pool.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant and Christy, appearing on behalf of Roger C. Hanks.

I might add to the statement of the Examiner that at the Hearing on May 7th, we had the testimony of one witness, Mr. Bill LeMay, and the Protestant, Mr. McElvaney, presented Mr. Ralph Viney. It was at the close of his testimony that the Hearing was continued, and it was continued, I believe, first to the last Hearing in May, and then due to the fact that Mr. Viney was not available for that Hearing, it was continued until today.

MR. KELLAHIN: If the Examiner please, my recollection is that it was continued to June 4, and then it was proposed to have it on the last Hearing in

May because the pressure information had become available prior to that time. Not that it makes any difference, but Mr. Viney is still not available, and we do have Mr. Appeldorn here as a witness.

MR. HINKLE: We have one additional witness at the present time, and several exhibits here which I would like to have identified. I believe the original exhibits in the original Hearing we had under one cover, one Exhibit with nine parts. I can't recall whether that was Exhibit A or No. 1, or what it was.

MR. NUTTER: That is identified as Applicant's Exhibit A, Mr. Hinkle.

MR. HINKLE: We have five additional exhibits, so we will just refer to those as 1 through 5, if it is all right.

MR. NUTTER: Perhaps these should be identified as Exhibits B-1 through B-5, because the Exhibits are identified in Exhibit A as Exhibits 1 through 9. So to avoid confusion, perhaps we will mark these as B-1 through B-5.

MR. HINKLE: We would like to have Mr. Sipes sworn.

(Thereupon, Applicant's Exhibits B-1 through B-5 was marked for identification.)

L. D. SIPES,

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, residence, and profession?

A L. D. Sipes, Junior. I live in Midland, Texas, 2608 Centinnel Street. I am a registered professional engineer, a Petroleum Engineer.

Q Consulting Engineer?

A Yes, sir.

Q Have you previously testified before the New Mexico Oil Conservation Commission?

A Yes, I have.

Q Are your qualifications as a Petroleum Engineer a matter of record with the Commission?

A Yes, they are.

Q Are you familiar with the application of Roger Hanks in Case 4121?

A Yes, I am.

Q Have you made a study of the Bar U-Pennsylvanian Pool?

A Yes, sir.

Q In connection with your preparation for testimony in this Case?

A Yes, sir.

Q Are you familiar also with the Bough C production in Southeast New Mexico?

A Yes, sir.

Q And other pools where they have Bough C production?

A Yes, sir.

Q Have you prepared or has there been prepared under your direction certain exhibits for introduction in this Case?

A Yes, there have been.

Q You have heard the statement that this Case was continued for the purpose of allowing the operators to make certain tests, bottomhole pressure tests. Are you familiar with those tests that were made?

A I am.

Q Were they made under your supervision?

A They were.

Q Can you give the Commission a brief resume of the manner in which these tests were made, just exactly

what procedure was followed?

A Yes, sir. On may 14, 1969, the wells in the Bar U-Penn Field were shut-in. The Roger C. Hanks Bridwell State No. 2 Well was actually shut-in at 11 o'clock the previous day, on May 13, 1969.

The other wells, there were four in the field that were shut-in on the morning of May 14, 1969, for the purpose of conducting a bottomhole pressure survey. The purpose of the survey was to determine the static pressure in the reservoir at that time.

The shut-in times on the individual wells were as follows: for the Roger C. Hanks Bridwell State No. 1, was 6:43 A. M. on May 14th. On the Bridwell State No. 2, the shut-in time was 11 o'clock A. M. on May 13th. For the Lario State B No. 1, the shut-in time was 6:37 A. M. on the 14th. For the State B No. 2, shut-in time was 6:41 A. M. on May 14th. And for the Sinclair State No. 1 Well, shut-in time was 6:35 A. M. I was in the field at that time, and witnessed the shut-in of these wells.

Q Do you know whether or not Mr. McElvaney was given notice that these tests would be made?

A Yes, I understand that he was given the required notice.

Q Did he have a representative present at the time the tests were being made?

A He had a representative present upon the termination of the tests, but not upon the initiation of them on the 14th.

Q Go ahead.

A After shut-in the wells were prepared for bottomhole pressure testing, which required that three of the wells be pulled, the tubing to be pulled out of them. These were the Bridwell State No. 1, the State Lario -- the Lario State B No. 1, and the Lario State B No. 2. The Sinclair State No. 1 well was shut-in, but was not tested at this time. There had previously been a bottomhole pressure test taken in that well on April 17, 1969.

After these wells were pulled, there was a bottomhole bomb run into each of the four wells surveyed. These bombs had 72-hour clocks in them and the bombs were run to the bottom of the hole, or at near to the perforations and the formations as possible, safe instrument depth, and left there until the morningof the 16th, at which time we went back to the field and recovered the bombs, and completed the bottomhole pressure survey.

Q Have you made a tabulation of the results of the

survey?

A Yes, I have.

Q Refer to Exhibit No. 1, and explain this to the Commission?

A Exhibit B-1 is a list of the shut-in pressures which were measured in the field at a datum of minus 4,600 feet. These are extrapolated so they will be at the same datum. Also included here, other than the four wells which were tested during this May 14th to 16th period, is the information on the test on the Sinclair State taken in April.

MR. NUTTER: Although you didn't run a new bottomhole pressure test on this Sinclair State No. 1, you said it was shut-in, however, during the time the other wells were tested?

THE WITNESS: Yes, sir. To the best of my knowledge, both on the 14th and 16th, when I was in the field, there was no oil produced from that reservoir during the period of these tests.

MR. NUTTER: And this time you mentioned, 6:35 A. M. on the morning of the 14th, that is when the Sinclair Well was shut-in?

THE WITNESS: Yes, and it was opened after 8 o'clock on the morning of the 16th. So there was actually no production of any kind from the reservoir during the testing period.

MR. NUTTER: And you attempted to get a static pressure throughout?

THE WITNESS: That's right. As shown on this tabulation, the bottomhole pressures at the various shut-in times which are shown here varied from 1,327 in the Bridwell State No. 1 operated by Roger C. Hanks, up to a high of 1,390 PSI on the Lario State B No. 1 Well. The average of the four wells which were surveyed at this time, at the shut-in times shown, was 1,357 PSI.

Q (By Mr. Hinkle) Which is the oldest well, that is the first one drilled in point of time?

A The Lario State B No. 1.

Q That is the one that shows 1,390?

A Yes, sir.

Q Do you have any further comment with respect to Exhibit B-1?

A Yes. I might point out that two of the wells were not completely built up, and a reasonable extrapolation

of these data and an average of the built-up pressures, extrapolated built-up pressures, leads me to conclude that the static reservoir pressure in the Bar U-Penn Field on May 16, 1969, was approximately 1,390 PSI at the datum shown.

Q Now, refer to Exhibit B-2, and explain this.

A Exhibit B-2 is a graph, showing the correlation between cumulative oil production from the Bar U-Penn and the reservoir pressure at a datum of minus 4,600 feet. You will note that the initial pressure in the Lario State B No. 1 Well was 3,174 PSI. At the time that the Roger C. Hanks Bridwell State No. 1 Well was drilled, the reservoir had suffered considerable pressure depletion, the measured pressure at datum being 2,340 PSI. This was on May 31, 1967.

At the time the Roger C. Hanks Bridwell State No. 2 was completed and a pressure taken on September 1, 1967, cumulative production of 32,879 barrels, the pressure had declined to 2,208 PSI.

Then you will notice the pressure which was measured upon completion of the Hanks Sinclair State No. 1 Well, this pressure taken in April, 1969, and it was 1,469 PSI at the stated datum.

The next point on the graph is the four well average for the wells tested in May, this average being as plotted, 1,357 PSI.

It is also shown here what I conclude to be the static pressure in the reservoir at that time, reading the extrapolation of the line to be 1,390 PSI.

Q What does the extrapolation or the end of the curve indicate there, the projection of this curve?

A I have projected what I feel like is a reasonable reservoir performance which can be expected in this particular reservoir down to a pressure of 48 PSI, representing what I calculate to be the optimum abandonment conditions, or abandonment pressure under optimum operating conditions.

Q That would also be the economic limit?

A This would also be the economic limit of production in the reservoir. This shows that upon depletion, complete depletion of the reservoir to the economic limit, approximately 670,000 stock tank barrels will ultimately be recovered.

Q Refer to Exhibit B-3, and explain that to the Commission?

A Exhibit B-3 is a calculation of the theoretical

reservoir pressure at abandonment, and I point out here that the abandonment conditions which are assumed in this case are what I would consider optimal. Under a minimum oil rate at the economic limit of 23 barrels per day, and using the Hanks Bridwell State No. 2 Well as an example, the fluid viscosity is estimated at that time to be six-tenth of a centipoise, formation capacity in millidarcy feet of 425, which was taken from the slope of the buildup curve, and a wellbore pressure, again let me point out this is under optimum conditions of zero, abandonment pressure in the reservoir for 160-acre spacing calculated by the formula to be 48 PSI.

Comparing this to the efficiency of recovery for 80-acre spacing shows the reservoir pressure under the same conditions of rate to be 46 PSI, showing, I believe, the efficiency of 160-acre drainage in this reservoir.

Q Would this indicate that 160-acre spacing is about as efficient as the 80-acre spacing?

A In my opinion, yes.

Q Do you have any further comment with respect to Exhibit 3?

A No, sir.

Q Refer to Exhibit B-4, and explain this.

A Exhibit B-4 is the reservoir data which was taken from performance of the field. The cumulative production on May 16, 1969, for the five wells currently producing was 277,579 barrels. The reservoir pressure at that time was 1,390 PSI. The reservoir pressure at abandonment under optimum conditions as calculated from the previous Exhibit is shown to be 48 PSI. The recovery factor or the slope of the line extrapolated in Exhibit B-2 is 294 stock tank barrels per PSI.

The remaining reserves, therefore, on May 16, 1969, are calculated to be 392,000 stock tank barrels; or for the current wells, the average remaining reserves are 78,400 stock tank barrels.

Q In your opinion, are the factors which you used here the best indication of the reserves?

A Yes, in my opinion, they are.

Q Are there any other factors which are normally taken into consideration in compiling reservoir data of this kind?

A Yes, volumetric data are often used in calculating oil in place and reservoir performance. However, when performance data is available and is reliable, which I

feel like the information presented on Exhibit B-4 is, then I think that the performance data are much more reliable and accurate.

Q Now, refer to Exhibit B-5, and explain this.

A Exhibit B-5 is a calculation of well economics for the Bar U-Penn Field for an average well with an 87 1/2 percent working interest. In the top portion of the table, I have calculated the fieldperformance, showing the field performance having an ultimate recovery of 670,000 stock tank barrels.

Q That means initially before any wells were drilled?

A Assuming no depletion, and assuming all of the wells were drilled at the same time, from initial conditions. And under the recovery as shown in Exhibit B-2, for well spacing of 80-acres, there would be a total of ten wells drilled within the confines of the field as we know it now. The average ultimate recovery per well on 80-acres would be 67,000 barrels, for a gross revenue to the working interest of approximately $201,000. Economic life of these wells would be very short, and I estimate this to be approximately two-and-a-half years.

With operating costs of $2,060 per month, the total operating cost for the life of the well would be

$61,750, leaving a total net revenue of $139,250.

MR. NUTTER: Now, this operating cost of $2,060 per month would be for the ten wells?

THE WITNESS: This would be for one well, sir.

MR. NUTTERS: $2,000 a month to operate one well?

THE WITNESS: Yes, it is very expensive to operate in this particular location, because of the amount of problems which you have in lifting the amount of the volumes of fluid required.

MR. NUTTER: Do these wells make high volumes of water?

THE WITNESS: Yes, they do.

MR. NUTTER: And they didn't flow from initial completion?

THE WITNESS: No, sir, they have to be pumped with hydraulic pumps. And then you have the additional problem of salt water disposal, which is costly. Development costs, including a prorated cost of salt water disposal system per well of $205,000, showing a net loss for that particular development of $65,750.

Using the same ultimate recovery on 160-acre spacing, and a maximum density of five wells, the net profit from an average well in this field should be $73,500,

as shown in the next column.

Q (By Mr. Hinkle) Is the development costs of $205,000, is that a realistic cost of the drilling and equipping of these wells, and pro-rata part of the water disposal cost?

A I believe it to be representative. I have not audited the records but these costs figures have been supplied to me, and based on my experience and the experience of other operators in the area, I feel like it is representative.

Q Now, all these figures are based upon the operator having an 87.5 working interest. Is it true that in most instances in this area that the operator has that much interest?

A It is true that in this area, I don't believe there is a single lease where the working interest is 87.5. It ranges from, I believe downward from that to 75 percent.

Q So where the operator has less than an 87.5 interest, why the net profit factor would be -- the loss would be considerably greater?

A Yes, that's right. It might be pointed out in making these calculations, I have assumed, for example,

in the defining of ultimate recovery for the field, that this was abandonment under optimum conditions, so I believe that I have taken the maximum viewpoint.

MR. NUTTER: Did you make a volumetric calculation of the total original oil in place?

THE WITNESS: No, sir, I did not in this case.

MR. NUTTER: So there is no actual comparison, then, of original oil in place with this 670,000, so we could get some sort of recovery factor that would come in here?

THE WITNESS: I think that previously Mr. LeMay has testified that he did prepare a volumetric study of the reservoir, and it is a matter of record. This would be Exhibit A-8. He calculated the original oil in place of 269 barrels per acre foot.

MR. NUTTER: We don't have a total figure for the Pool, however. But you are estimating that the Pool would contain 800 acres, is that it? You have ten 80's, or five 160's?

THE WITNESS: Approximately 800 acres, yes.

MR. NUTTER: So he has 269 barrels per acre foot, and a ten foot thickness, and you have 800 acres, so we ought to be able to arrive at the total oil in place. We

will do that later.

THE WITNESS: All right, sir.

Q (By Mr. Hinkle) Go ahead with a further explanation of Exhibit B-5.

A I have taken in the bottom portion of Exhibit B-5, the calculation of gross income for an average well with an 87 1/2 percent working interest, assuming it was drilled and completed on May 16, 1969, and that the remaining reserves at that time were 392,000 stock tank barres.

On 80-acre spacing, the average remaining reserves would be 39,200 barrels per well, for a gross revenur of approximately $117,500. Assuming an economic life of two years, and the same operating costs as explained previously, the total net revenue to this well, to the working interest of this well would be $68,000, and development costs of $205,000, the net loss on this operation would be approximately $137,000.

These figures in the next column also show that on 160-acre spacing that a well drilled at that time would be uneconomic, with a net loss of $69,000 under these conditions.

Q Now, from your study and your testimony here, have you formed an opinion as to whether one well will

effectively and efficiently drain as much as 160 acres or more?

A It is my opinion that one well will drain efficiently in this reservoir at least 160 acres.

Q Now, in view of your testimony in connection with Exhibit B-5, would you as a Consulting Engineer recommend to a client the drilling of wells on 80-acre spacing in this Pool?

A No, sir, I would not.

Q Is it your opinion that if the undrilled 80-acre spacing units are drilled, that it would cause resulting loss to all the operators in the Pool?

A Yes, sir. Drilling on 80-acre spacing at this time, I believe, would result in loss to all the operators.

Q Do you have any recommendations to make to the Commission with respect to the type of special field rules to be adopted by the Commission in this Case?

A I would recommend that 160-acre spacing on Governmental quarter sections be authorized in this field, with an 80-acre depth factor, with the provision for the operator to drill any 40-acre location within that Governmental quarter section.

Q In your opinion, would the adoption of these

rules be in the interest of conservation and the prevention of waste, and tend to protect correlative rights?

A Definitely.

Q And it would prevent the drilling of unnecessary wells?

A Yes, sir.

Q Do you have any further comments to make with respect to these exhibits?

A No, sir.

Q Are you familiar with Exhibit A, which is a composite exhibit of nine parts that was introduced originally at the Hearing on May 7th?

A I have had the opportunity to examine these exhibits, and had the opportunity to discuss them with Mr. LeMay.

Q And you had made an examination at the time you prepared your exhibits?

A That's right, yes.

MR. HINKLE: We would like to offer in evidence Exhibits B-1 through B-5.

MR. NUTTER: Applicant's EXhibits B-1 through B-5 will be admitted in evidence.

(Thereupon, Applicant's Exhibits B-1 through B-5 were admitted in evidence.)

MR. HINKLE: I believe that is all the direct examination .

MR. NUTTER: Any questions of Mr. Sipes?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Sipes, in connection with your Exhibit No. 4 on reservoir data, that is based solely on production history, as I understand it, is that correct?

A Yes, sir.

Q You don't show --

A Production and pressure.

Q Production and pressure. As a matter of fact, all your exhibits are based on production and pressure?

A Yes, that's correct.

Q And you don't take into consideration water production at all, is that correct?

A I have not shown here the total volume of water produced.

Q Do you know what the total volume of water produced is?

A No, sir.

Q Do you know what the GOR on these wells is?

A According to production data, the gas-oil ratio

is running approximately 1,000 cubic feet.

Q 1,000 to one?

A Yes, sir.

Q Has that been stable throughout the life of the Pool, or has it increased or decreased?

A To my knowledge, it remained relatively constant.

Q You feel it is a constant figure. In your opinion, what is the producing mechanism in this reservoir.

A The producing mechanism in this reservoir, I believe, is a combination perhaps of fluid expansion, and perhaps some movement of water.

Q So water could be a factor in the production from this Pool, could it not?

A It could be a factor, yes.

Q In that connection, then, would it not be more proper to project your production on the basis of cumulative fluid production versus pressure, rather than cumulative oil production alone?

A To my knowledge, the ratio of water to oil production in individual wells has not varied to such an extent that it would be necessary, I don't believe, for a reasonably accurate determination of reservoir performance, to go back and calculate total fluid production versus

pressure. I might also point out in the same vein that the water production in the individual wells will very likely stay high throughout the life of the field.

Q Have you made an examination of the water versus oil production in this Pool, Mr. Sipes?

A No, sir.

Q So you don't know whether it has increased or declined, do you, or remained the same?

A From my examination of the information on the recent production, as opposed to some of the initial tests, I had concluded that it had remained relatively the same. I mean there is not a great deal of difference.

Q But you didn't actually examine the water pressure?

A No, sir.

Q Now, you said there were five wells shut-in for the purposes of these tests. Was the McGraith and Smith well shut-in?

A The McGraith and Smith well at that time had not penetrated the formation.

Q So it did not enter into the test?

A It did not enter into the test.

Q Do you have any pressure information on that

well?

A No, sir.

Q It has had a drillstem test, has it not?

A I understood that they were to take one. I don't have the information on them.

MR. NUTTER: Give me the location of that well, Mr. Kellahin?

MR. KELLAHIN: It is two locations north of the Bridwell State -- it is a diagonal to their B No. 2 Well.

MR. NUTTER: Is this the well that was shown as a drilling well in the original Hearing, in the southwest of the southeast of Section 36?

MR. KELLAHIN: Yes, sir.

MR. NUTTER: There is a drillstem test on that well at the present time.

MR. McELVANEY: That is not the well. It is in Section 25, McGraith and Smith to the north.

MR. NUTTER: That would be two miles to the north.

MR. McELVANEY: No, sir. I am sorry, you are right, in Section 36. I'm sorry, yes, you are correct. Excuse me, you are right.

MR. KELLAHIN: That is the well you are referring to, yes.

Q (By Mr. Kellahin) But you haven't seen the result of that drillstem test?

A No, sir, I have not.

Q Did you make any effort to get it?

A No, sir, I was not aware that it had been taken until, I believe, or was planned until Monday. I didn't know the well was down until Monday.

Q In connection with your Exhibit B-1, Mr. Sipes, you said that was extrapolated to a common datum. What datum did you use?

A Minus 4,600, as shown at the top of the column on the right, sir.

Q And that is the same datum used on the other well which was not tested?

A Yes, sir, I did extrapolate that pressure to this same datum.

Q So all of them would be extrapolated at the same datum?

A Yes, sir. In previous testimony, I believe that particular pressure was reported at 1,505 PSI; but to this datum, it calculates 1,469.

MR. KELLAHIN: That is all I have. Thank you.

MR. NUTTER: Mr. Lemay, in preparing your Exhibit

A-6 for May 7th, you showed thepressures of the various wells at the time they were drill **stem** tested. Those were the actual pressures, those weren't extrapolated to any datum?

MR. LEMAY: No, they are very close to minus 4,720.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Sipes, in computing your abandonment, you took the well down to, I believe it was 23 barrels per day on Exhibit B-3?

A Yes, sir.

Q Would 23 barrels per day be sufficient to meet this monthly operating cost of $2,060?

A Yes, sir.

Q In calculating these revenues, did you take into consideration the value of the gas produced?

A Yes, sir, I did. Approximately 18 cents, 15 to 18 cents per Mcf.

Q What were you using for the volume of gas that would be produced?

A About one Mcf per barrel.

Q One Mcf per barrel throughout the life of the Pool?

A Yes, sir.

Q And the gas at 18 cents per Mcf?

A That would be 17. I believe the price of oil in the field at this time being paid is $3.26.

Q Is the gas being sold from the wells at the present time?

A Yes, sir.

MR. NUTTER: I believe that is all. Thank you. Did you have another witness?

MR. HINKLE: No, that is all.

MR. NUTTER: If there are no further questions of the witness, he may be excused. Do you have anything further?

MR. HINKLE: No.

MR. NUTTER: Mr. Kellahin, will you go and do call a witness?

MR. KELLAHIN: May I have a moment here?

(Thereupon, McElvaney's Exhibits R-1 through R-7 were marked for identification.)

CONRAD APPELDORN,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A Conrad Appeldorn.

Q In what business are you?

A Consulting Engineer.

Q Where are you located?

A In Roswell, New Mexico. My home is in Artesia.

Q Have you ever testified before the Oil Conservation Commission and made your qualifications as a Petroleum Engineer a matter of record?

A Yes, sir.

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

MR: NUTTER: Yes, they are.

MR. KELLAHIN: Do you have any questions, Mr. Hinkle?

MR. HINKLE: No.

Q Mr. Appeldorn, in connection with Case 4121 presently before the Commission, were you retained by

Mr. McElvaney to do some work on this Case?

A Yes.

Q Have you made a study of some of the reservoir data that has been made available to you?

A I have studied this data and what was presented this morning. I haven't made any deep study of it.

Q Of this particular Pool, you haven't made an extensive study, but you did make a study of the data available to you?

A Yes.

Q Referring to what has been marked as Exhibit R-1, would you identify that exhibit?

A Exhibit R-1 was prepared by Mr. Ralph Viney for this Hearing. In this Exhibit, he has listed the pressure data that was provided him by Mr. Hanks, and he has extended those data to a datum. This datum is different from the one used by Mr. Sipes. It is minus 4,794, which is the depth of the lowest well in the field. I have recalculated Mr. Sipes data, based on these gradiants, and there is a very slight difference. However, they are quite similar.

Q Would you consider the differences significant?

A No.

Q In other words, the pressure data would be in agreement substantially with that offered by Mr. Sipes?

A Yes, sir, these pressures at these two datums are substantially in agreement.

Q Referring to what has been marked as Exhibit R-2, would you identify that exhibit?

A Exhibit R-2 is again a listing of the pressures, the initial pressures that were measured in the wells as they were drilled in the Bar U Field. These again have been extended to the same datum listed in Exhibit 1. These pressures ranged from September of 1963 through May of 1969, and they are initial pressures as, I believe, shown on drill stem test.

Q Those would be recorded with the Oil Conservation Commission?

A Yes, they are.

Q Referring to Exhibit R-3 and R-4 on the same sheet, what information is shown on that?

A Exhibit No. 3 is an extension of the data that are listed in Exhibit No. 2. These have been correlated with the cumulative productions from the Field as of the date that the pressures were taken, both cumulative fluid, including oil and water, and cumulative oil. He also lists

the Delta pressure or the change in pressure from the original bottomhole pressures listed in September of 1963.

Exhibit No. 4 was to have been a compilation of buildup pressures that were to have been taken by Mr. Hanks. However, it is my understanding that the way the pressures were taken, there was no buildup and, therefore, Mr. Viney said that he combined it with this Exhibit.

Q No buildup pressures was made available to you?

A No, that's right.

Q Referring to Exhibit R-5, would you identify that Exhibit?

A Exhibit R-5 is a log log graph upon reasonably close to linear of the cumulative oil and cumulative fluid productions, based upon the Delta pressures as shown on Exhibit No. 3. These show a projected ultimate oil based on the upper curve of 950,000 barrels, and a projected utlimate total fluid recovery of 2,100,000 barrels. Now, these fluids are from the existing wells.

Q This is a calculation based on the wells presently producing from the Pool?

A Yes, from the wells presently producing in the Field.

Q Does that include the McGraith and Smith Well?

A No, that is a new well and has not been produced.

Q It does not include it on this information. Mr. Appeldorn, you heard Mr. Sipes testimony that he had not taken into consideration cumulative water production in making his calculations of reservoir performance. Do you consider that water production is significant in this Pool?

A I think that water production in the Bough C Field is vitally significant. Very few of these fields, at least to my knowledge, the ones that I have looked at, none of these fields exhibit a through depletion drive performance, when gas-oil ratio oil production, all of the factors that are normally considered are brought into play, and this field is no exception. We have very high water production initially in each well, no matter at what time it was completed, whether it was completed in September of 1963 or May of 1969, the water production is quite high. It begins to drop with time. The gas-oil ratio history in this field does not follow at all the normal depletion drive gas-oil ratio history.

Q You heard Mr. Sipes testimony that the gas-oil ratio he understood was about one-thousand-to-one, would

you agree to that?

A Yes.

Q And I believe he also testified that he thought it was fairly stable?

A I think that history is for any Bough C Field, whether in this area or for the south is fairly common.

Q In fact, it has remained stable, is that a factor in your conclusion that it is not a solution gas drive reservoir, primarily?

A Well, in part it is depletion drive, but there also have to be other factors that are considered, namely water production, and the encroachment of water, I believe, that is an effect on it.

Q Now, would that fact make a difference in the calculation of ultimate production of oil from this reservoir?

A I think Mr. Viney's projections, taking this into account, could be accepted, because he does make a projection on the basis of total water production, total fluid production.

Q Referring to what has been marked as Exhibit R-6, would you identify that exhibit?

A Exhibit R-6 is again a production on the basis of cumulative fluids versus cumulative oil production. It

takes into account the watercut. In his projection, Mr. Viney has made two, I should say, inclinations there in the line, one assuming a continuing reduction in watercut throughout the life of the field in which he has derived a possible ultimate oil recovery of 970,000 barrels. In his projection, assuming a constant watercut from present performance, he has a projection of 1,300,000 barrels, which is twice -- I believe these values range from 50 percent to 100 percent greater than Mr. Sipes.

Q Now, referring to what has been marked as Exhibit R-7, would you identify that exhibit?

A Exhibit R-7 is a history of the oil, water and total fluid production beginning since 1966.

Q And that is your understanding of the basis of the calculation of the graphs?

A Yes. Exhibit No. 7 is the data presented graphically on No. 6 and also on No. 5.

Q Now, you have not had an opportunity to study the economics of this Pool, have you?

A We have made no economic projections. I haven't had time, myself, and my differences with Mr. Sipes in this fact are only one of degree. I believe I would point out that in my experience the wells that I have drilled

and been engaged in, our development costs have ranged from $165,000 to $180,000, instead of $205,000; and I would take the operating costs at from $750 to possibly, if he has a lot of pump trouble, as high as $900 a month, plus water disposal. I figured this watercut fairly close to Mr. Sipes figure, depending on the amount of water they dispose of. Just on a basic rule of thumb estimate, I usually accept about $1,200 to $1,500 a month, just for a quick analysis on these fields, which is somewhat less than he is carrying.

MR. HINKLE: You are talking about the operating costs?

THE WITNESS: Yes.

Q Mr. Appeldorn, you are familiar with the statute covering the creation of proration units by the State of New Mexico, are you not?

A Yes.

Q And you know that the statute requires the Commission to create a unit that can be efficiently and economically drained and developed by one well?

A Yes.

Q And in addition, the Commission is enjoined to protect the correlative rights of the operators in entering any Order?

A Yes.

Q On that basis, in your opinion, will one well efficiently and economically drain and develop 160 acres in this Pool?

A I think on the basis of the data presented here on these wells, I don't think it has been proven either that it could or could not drain 160 acres. The reason for that is that in this field -- I have some rather deductive reasoning here -- the only way that we could actually prove in this particular field or any of these Bough C Fields, 160-acre drainage is on the basis of interference tests, and these are long term and expensive. If we had taken these pressures in the Devonian or Ellenberger Fields, there wouldn't be any question. If we take these pressures in some of the sand fields in this State where we have continuity of reservoir demonstrated by cross-sections, and everything else, there wouldn't be any question in my mind that this is a full 160-acre reservoir.

In the Penn, in the Wolfcamp, in certain other reservoirs with which we are all familiar, I think there is a great deal of question whether or not these wells will actually drain 160 acres.

Q You are aware that this Pool has been produced since 1966?

A Yes.

Q On that basis, to change the spacing of the Pool at this date, will that protect the correlative rights of the offsetting operators?

A In my consideration, it would not.

Q Mr. Appeldorn, you did not prepare the Exhibits that have been presented here?

A No.

Q Have you examined them?

A I have examined them, and I agree with them.

Q You do agree with them?

A Yes.

MR. KELLAHIN: At this time, I would like to offer in evidence Exhibits R-1 through R-6, inclusive, there being no R-4, as such.

MR. NUTTER: You identified R-1 through R-7.

MR. KELLAHIN: R-1 through R-7, I'm sorry.

MR. NUTTER: They are identified as McElvaney's Exhibits R-1 through R-7, with the exception of R-4, will be admitted.

MR. HINKLE: We would like to object to these Exhibits on the ground that they have not been prepared by Mr. Appeldorn, and they have not shown why -- apparently

his testimony shows they were prepared by Ralph Viney, and no showing has been made as to why he is not here to testify.

MR. KELLAHIN: If the Examiner please, the witness has testified that he examined the data contained on these, and he does agree with it, and certainly we submit him for cross examination on the exhibits.

MR. NUTTER: Well, we will admit the exhibits, Mr. Hinkle. It will be up to the witness to defend them.

Q (By Mr. Kellahin) Mr. Appeldorn, have you any information on any drill stem tests on the McGraith and Smith Well in Section 36?

A Mr. McElvaney and his partner attempted to get this data, and they were told it was tight. They obtained it at the same time, a figure, that showed 400 feet of oil and 4,700 feet of water. This would indicate a pressure in the McGraith and Smith Well of something over 2,400 pounds.

Q Have you anything else, Mr. Appeldorn?

A No.

MR. KELLAHIN: That completes the direct examination of the witness.

MR. NUTTER: Any questions?

CROSS EXAMINATION

BY MR. HINKLE:

Q When was that information or these exhibits first presented to you for study?

A Yesterday.

Q And you have just taken these exhibits at face value?

A No, I am familiar with the area. In fact, about two months ago, we did, the man with whom I am associated and I did some work in that area, and in neighboring fields.

Q Do you know Mr. Ralph Viney?

A I have never met Mr. Viney. I have talked to him several times.

Q You don't know how he obtained the information that this shown on these exhibits?

A Not directly, no. Parts were furnished, I was told, by Mr. McElvaney, that they were furnished to him. I was told by Mr. Viney that he testified the pressure data in the field from Mr. Hanks representative. Certainly, it agrees with the data that has been shown by Mr. Sipes.

Q Have you made any other independent study of the Bar U Pool?

A Not of the Bar U Pool, no sir.

Q Have you made a study of any of the other pools in Lea County, or southeast New Mexico, producing from the Bough C formation?

A Yes, sir, I have. I have made a cursory study of the Tobac, Flying M, North Bagley, Middle Lane, Inbe, South Lane, the Vada Pool, certain Bough C horizons on the east end of the Allison.

Q Isn't it a fact that it is common knowledge that wells producing from the Bough C formation will drain wide areas?

A Weill drain wide areas? Well, you have to -- on a geological basis, you are going to have to limit that.

Q Isn't it true that a lot of the wells producing from the Bough C formation have produced considerably more oil under the 80 acre allowable than under the 160 acres?

A This is quite common with any Penn Field in southeast New Mexico. Volumetrics in the Penn zone are virtually useless. This is my own opinion.

Q Doesn't that indicate a wide drainage area?

A Not necessarily. The ordinary net oil calculation that is made on a volumetric study doesn't take into account these variations in permeability, porosity. The heterogeneous nature of the formation such as the Penn and the Wolfcamp,

to my mind, is somewhat similar to it. Personally, I think this is part of the reason from the study I have made.

Q Isn't it true in three pools so far the Commission has granted 160-acre spacing with 80-acre allowable?

A I am not against that at all.

Q You think the Commission is wrong in making findings that they did that one well would drain, efficiently drain more than 160 acres?

A I think there are other reasons than pure drainage involved. I think in many cases pure economics is involved.

Q Can you point out any characteristics of this Pool, the Bar U Pool, that are any different from the Jenkins, the Vada or Middle Allison Pool?

A No, they are quite similar.

Q I believe you testified that you were pretty well in agreement with the economic aspects as offered by Mr. Sipes?

A Except for the total volume of oil that will be produced.

Q Except for the well costs?

A Well, a slight difference in well costs.

Q And also the operating costs. Now, you said that the well costs, in your opinion, should run $165,000, $185,000?

A Yes.

Q Does that take into consideration that you have to allow for a salt water disposal system?

A Yes.

Q Have you made an independent investigation to know what the actual well costs are in this area?

A I have drilled, I have been involved in drilling quite a number, yes.

Q In this field?

A In the Bar U Field -- not in the Bar U, but in the Vada and Middle Lane, Bagley, these other areas. They are all quite similar. The drilling conditions are similar. The big costs, the water disposal will pose some problem, but in those areas where water disposal systemshave been installed on a relative basis, there is not going to be a great deal of difference in installation cost.

Q I believe you testified that the operating cost would be considerably lower than that indicated by Mr. Sipes.

A My experience has been that they are going to be

somewhat lower.

Q Do you have any actual knowledge or experience of operation in this area?

A Not in the Bar U-Penn Field, no sir.

Q So your opinion is simply based on conjecture?

A It is based on my own experience, not on conjecture. It is based on --

Q Of other areas?

A Of close neighboring areas, and closely allied production, very similar production. I mentioned that because if I did calculate theeconomics, I would use those figures. Now, I also stated I believe that I consider the differences to be reasonably slight. Now, the development cost that Mr. Sipes used versus the development cost that I would use would have no effect, essentially, on any future income, because it is a capital cost, it is the initial cost of the well. The operating costs would have more of an effect. If I use, for instance, $1,500 or $1,600 a month versus his $2,000, that would be that much more in the operator's pocket. So that would have more of an effect.

Q I believe you testified it would have been desirable to take some interference tests?

A Yes. In my opinion, it is the only way that you could prove continuity between wells in this field.

Q Now, that is even in the face of the fact that when they made this pressure survey in May, that all of the wells turned out to be approximately the same?

A Absolutely.

Q Isn't this uniformity of pressure one of the best indication you have that one well will drain a large area?

A A connection somewhere within that reservoir. Whether it is downdip, updip, in the field, you don't know. This continuity in pressure or this pressure depletion is very common in the Bough C Field, itself, quite common. Now, the fact that there is pressure communication in this area is shown by the Lario State B No. 1, I believe, which was drilled in 1963. The initial pressure that was given to me was 3,140 pounds, which shows a tremendous drop, 1,300 pound drop from what one can consider to be normal Bough C pressure. This was a new well in a new field, and yet it has experienced a tremendous pressure drop on an areal basis, simply because you have production anywhere up to, oh, I'd say five miles away in the Tobac Field, and in neighboring fields.

Q Do you agree with Mr. Sipes figures with respect to the percentage of depletion of this field at the present time?

A No, I don't believe on the basis of water production and gas-oil ratio history, that it has achieved this depletion that Mr. Sipes has given it. He shows his maximum remaining reserves of 392,000 barrels, roughly 50 percent oil depletion.

Q What do you show?

A Well, we show less than -- at the minimum figures that Mr. Viney gave here, we would show 50 percent more oil -- or 100 percent more oil, roughly one-fifth depletion, twenty percent depletion. Gas-oil ratio history on the basis of depletion drive performance, gas-oil ratios at that point that Mr. Sipes gives should be on the order of 3,000, 3,500 to one.

The gas sales from the field, and adding in the gas used for the operation, lease operation would bring the gas-oil ratio of these wells not over 1,200.

Q Would you be willing, from your study of this area, from all of the information available, would you be willing to recommend that Mr. McElvaney or any other client of yours, that they buy Mr. Hanks wells based upon

your calculation of the remaining reserves?

MR. KELLAHIN: If the Examiner please, the question calls for a conclusion that is not in issue before this Commission. The question of purchasing oil production is a matter that takes into consideration a great many factors other than remaining reserves. Now, if he is going to base it solely on the question of remaining reserves, based on his calculation, I have no objection. But he says does he recommend that he buy it, that is an entirely different question, and we object to it.

MR. NUTTER: Your question still stands, Mr. Hinkle?

MR. HINKLE: I will withdraw the question.

Q You are willing to recommend now to Mr. McElvaney that wells be drilled in this area on 80-acre spacing based upon the remaining reserves?

A I think I'd point to him the dangers involved.

Q What are the dangers involved?

A He is drilling relatively close to an offsetting well. He is attempting to protect his correlative rights. He may or he may not find a depleted reservoir. On the basis of the information that we have, there is simply no way really that we can tell.

Q So there is a calculated risk involved?

A There is a calculated risk involved.

Q Andif he should take that risk and his recovery should be considerably lower than your estimate, it would cause a loss, would it not?

A I think on the basis of these recoveries, I feel that he could have a break-even on that basis.

Q Whether he broke even or had a loss would not only cause a loss to him, but the other operators in the field?

A I don't think it would necessarily cause a loss to the other operators, no. Mr. Hanks one well might be affected.

Q Well, it affects the total recovery from the field?

A You are speaking of the location that Mr. McElvaney has staked?

Q Yes.

A I might point out that if this feeling was really strong among all operators, that that McGraith and Smith Well would not have been drilled.

Q Now, aren't there other ways that he can protect his correlative rights that you referred to, that is by

joining or pooling his interest in theevent of 160-acre spacing with other acreage?

A Absolutely. If this field was in the initial stage of development,that is exactly what I would recommend. However, he is coming in two years after development. Now, the 160-acre spacing normally, the procedure is to approach the Commission when the first well is drilled, and in that respect the Commission has been very good on it. And then your field developmentcan extend very orderly, and with complete protection of correlative rights, of reservoir conditions, you can take everything into account. In this case, I honestly -- this hasn't been done. There are other factors here that have to be considered.

Q Do you know whether or not Mr. Ralph Viney was present in the field when these tests were made?

A I don't believe he was.

Q Do you know how he obtained the information from which these plats are based?

A I understand that his representative was present in the field, his and Mr. McElvaney's representative, and they were shown the charts in the field.

Q Who was that representative?

A I don't --

MR. KELLAHIN: It is on this letter.

A I was told that they were shown the charts in the field.

MR. KELLAHIN: It was supplied to Mr. Legender who was representing Mr. Viney.

Q (By Mr. Hinkle) In your experience as a Consulting Petroleum Engineer, have you ever used a plat or graph like that that Mr. Viney has prepared as Exhibit No. 5?

A The Delta pressure plot, I made that a few times. I don't use that too commonly. You are working with pressures, and really, whether you use the Delta pressure or the absolute pressures, I don't believe there would be too much change.

Q You said you had drafted on a few occasions similar exhibits to this, is that right?

A Yes.

Q Does this kind of a graph have any validity, in your opinion, in this Case?

A The Delta pressure plot, yes, I believe so. It can be used. The most important one is this No. 6, which relates it to watercut.

Q Is that particularly true in view of the plot

of the pressures against cumulative production?

A I beg your pardon?

Q Is this true in view of the plot of pressure versus cumulative production?

MR. KELLAHIN: Is what true?

MR. HINKLE: Well, I believe that is all.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Appeldorn, on this Exhibit No. R-5, Mr. Viney has plotted the Delta pressure versus cumulative production. Now, I presume that this first point right here that we had at approximately 270,000 barrels, that would be the pressures as of the recent survey, wouldn't it?

A No, the pressure as of the recent survey is the 1,500 pound pressure drop, in May of 1969, the Lario State B-1, 1,454 pounds.

Q I am on Exhibit R-5.

A Yes. Well, the data on Exhibit R-5 is taken from the data on Exhibit No. 3.

Q Is this on one well? Is this change in pressure on one well?

A Yes. Well, he used the pressure in the Lario. All of the pressures are quite close. For a cumulative plot,

he had to use one well's pressures since inception.

Q So he took this first Delta P in May of 1967, and he had 533 pounds pressure drop?

A Yes.

Q So that would be his first point over here on the left on pressure drop versus cumulative oil?

A Yes, May, 1967.

Q At that time, the well had produced 27,000 barrels of oil?

A Yes. And 156,000 barrels cumulative fluid.

Q What did he take his pressure drop to, what is the total Delta P there? It is somewhat less than the original pressure calculated at 2,967?

A At which pressure drop was that?

Q He goes up to a maximum Delta P, the point where he drops his Lario down to 950,000 barrels. What was his --

A He used 200 pounds as abandonment pressure.

Q He had an average pressure of 2,967, so he had a maximum Delta P, then, of 2,767?

A Yes.

Q If you put it on Delta P versus total fluid produced, which would be oil and water, and also gas --

A He did not consider gas.

Q Gas is not included in that?

A That's right.

Q And then you have an estimated ultimate recovery of 2,100,000 barrels?

A Yes.

Q But this is all taken from the original bottomhole pressure on the Lario B State No. 1 of 1967?

A Yes.

Q Now, the original pressure as reported at the May 7th Hearing for that Lario State B No. 1 is some 3,150 pounds, I believe, as depicted on Exhibit 6 in brochure No. A?

A That was taken at completion in the drill stem test.

Q Is this 2,967, that pressure converted to the datum of 2,794?

A Yes, that is converted, extrapolated to that datum.

Q Now, I would like for you to go through again very briefly thetwo extrapolated dashed lines on Exhibit R-6.

A His first extrapolation of the long dashes, he assumed a watercut remaining constant as indicated by the slope of the line immediately preceding the extension.

Q In other words, that is the extrapolation of the existing line?

A Yes. Now, the data from the field indicated declining watercuts. When you examined this data, it indicates -- and also the history in the Bough C Field indicates that throughout the life you will get a decline in watercut.

Q I suppose you are referring to Exhibit R-7, then?

A Yes.

Q Particularly the last three months -- or the first three months of 1967, where your watercut has decreased?

A Yes, 1969.

Q 1969?

A So he extended the short dashes, based on a supposed decline in watercut. And this figure comes up pretty close to --

Q What decline was he using there, do you know?

A I don't know, no sir.

MR. NUTTER: I believe that is all. Do you have any further questions of your witness, Mr. Kellahin?

MR. KELLAHIN: That is all I have.

MR. HINKLE: No more questions.

MR. NUTTER: If there are no further questions of Mr. Appeldorn, he may be excused.

Did you want to recall your witness, Mr. Hinkle?

MR. HINKLE: I would like to put Mr. Sipes back on for one or two questions.

L. D. SIPES,

recalled as a witness by the Applicant, having been previously duly sworn, was examined and testified as follows?

DIRECT EXAMINATION

BY MR. HINKLE:

Q Mr. Sipes, you have heard the testimony of Mr. Appeldorn, have you not?

A Yes, sir.

Q Did you hear his testimony with regard to Exhibit No. 5?

A Yes, sir.

Q Refer to his Exhibit No. R-5, and explain to the Commission why, in your opinion, this particular exhibit has no validity in this Case?

A I would like to, if I may, explain that if a plot on a log log paper, as this Exhibit R-5 is, if it is valid, you should be able to smooth out a lot of data. This is what

it is used for. It also should very closely approximate a straight line on coordinate paper. And I would like to compare that exhibit which is shown there with my Exhibit 2, which also shows a straight line, but there is a considerable difference in the amount of resolution of the final answer which is possible with Exhibit 2, as opposed to a log log plot which is used in Exhibit R-5.

Q Is this type of exhibit, R-5, frequently used in a Case of this kind?

A No, sir, not to my knowledge. I have never used this type of plot.

Q Have you known other engineers, petroleum engineers, to use this type of exhibit?

A No, sir, I don't believe so, not as a regular tool in reservoir analysis.

Q Do you have any further comments with respect to Exhibit R-5?

A No, sir.

MR. HINKLE: That is all we have.

MR. NUTTER: Are there any questions of Mr. Sipes? You may be excused.

Does anyone have any further testimony to offer in this Case?

MR. KELLAHIN: No.

MR. NUTTER: Do you have a statement, Mr. Kellahin?

MR. KELLAHIN: Yes, I do. I don't intend to belabor the testimony which has been offered in this Case. I think the Examiner has been exposed to both sides of this question thoroughly, and understands what the difference is in the testimony. I would point out that as Mr. Appeldorn testified, that the ideal situation is in a pool of this nature, in order to protect correlative rights, you apply for your 160-acre spacing early in the life of the field.

While this is repetitious over what I said at the last Hearing, I want to again point out that the Roger C. Hanks Bridwell State No. 1 was completed on May 26, 1967, and his No. 2 was completed in November of 1967, and in the month of November the Case was set for 160-acre spacing. We have quite a different situation today in connection with the protection of correlative rights. Mr. Hanks has in this particular area, the north half of the northwest quarter of the Section and the south half of the northeast quarter of the Section. At one time he had a farm-out on the remaining north half of the Section, but today Mr. McElvaney has the south half of the northwest and the north half of the northeast. If he is going to be given

any opportunity to produce his fair share of the oil and gas underlying his tract, as is required by the statutes of the State of New Mexico, we submit the only way he can do it is on the basis of 80-acre spacing permitting him to go in and drill.

He has filed a Notice of Intention to drill, which has been approved by the Commission. He is taking no action, of course, pending the outcome of this Case. But as of today, if this is approved, the Applicant doesn't have 160 acres to dedicate to the well in the form of a standard proration unit, and we submit that in order to protect the correlative rights of Mr. McElvaney, the Commission should deny the application. In addition, we feel the testimony that has been offered on behalf of Mr. McElvaney clearly shows that if one well will drain 160 acres, that conclusion is a dubious one at this time, and without pressure interference tests, you cannot be certain that the well will drain 160 acres.

We also have shown, we feel, that it is economical to drill and develop this Pool on 80 acres and that is a factor that must be considered by the Commission in arriving at a spacing Order.

MR. NUTTER: Mr. Hinkle:

MR. HINKLE: In my opinion, the Commission has the right at the present time to have a Hearing to determine what the spacing of the field will be. This has been done many times in the past history of the Commission. It doesn't make any difference what the state of development of the Pool might be. The Commission is required on a Hearing to determine whether or not one well will effectively and efficiently drain 160 acres. And if it is economically feasible to develop it on the spacing which existed at that time, they can determine that wider spacing should prevail.

In order to prevent economic loss in this particular Case, as has already been stated, we had the preliminary Hearing, and the Examiner requested at that Hearing that a survey be made to determine the pressure data, which was done at a great deal of cost to the operators in the field, and it turned out that the pressures are somewhat the same uniformly. I think the experience of the Commission has been, and the testimony here is to the effect that in the case of this kind where you have drop in pressures and they all reach about the same level, that it is pretty conclusive evidence that one well will effectively and efficiently drain 160 acres. Even the testimony offered on behalf of Mr. McElvaney shows that

the drilling of a well at this time on 80 acres would be a very risky venture. I think this is a good opportunity for the Commission to enter an Order for 160-acre spacing to prevent further economic loss, because it is very evident from the experience that Mr. Hanks has had in this case, that if this field is developed on 80-acre, it will cause a big loss to him, as well as other operators.

As far as the protection of the correlative rights are concerned, the owners of the other 80-acres which were not drilled, and on account of which Mr. McElvaney has obtained a farm-out, had a right to do in and drill wells at the beginning and protect their interests, and they elected not to do this. That is no fault but their own. At this time, Mr. Hanks has offered to voluntarily communitize with the other 80 acres, and if they do not voluntarily come in, we can ask the Commission to force pool. So I think the correlative rights have been adequately protected, and will be protected by entering an Order for 160-acre spacing.

MR. NUTTER: Thank you both. If there is nothing further in Case 4121, we will take the Case under advisement, and call a fifteen minute recess.

MR. HINKLE: If the Examiner please, if any

correspondence subsequent to the last Hearing is going to be considered by the Commission in this Case, we would also like to submit a copy of a letter dated May 12th, signed by Roger C. Hanks, which we are informed was directed to other operators in the area, a soliciting letter. I think this should be considered in connection with the consideration of any letter that have been received.

MR. NUTTER: We will make that notation in the record of the nature of these telegrams. We have one from Midwest supporting Roger C. Hanks. We have one from Union of California supporting the application of Roger C. Hanks. We have a letter from Pan American here which supports Roger C. Hanks.

MR. KELLAHIN: I would like to point out also that none of those are operators in the Bar U Field.

MR. NUTTER: And we also have the letter from Roger C. Hanks, dated May 12th.

We will take the Case under advisement.

I N D E X

STATE OF NEW MEXICO)
) SS.
COUNTY OF BERNALILLO)

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

Samuel B. Mortelette

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4121, heard by me on 6-4, 1959.

, Examiner
New Mexico Oil Conservation Commission

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

May 21, 1969

EXAMINER HEARING

IN THE MATTER OF:

(Continued from the May 7, 1969 Examiner Hearing) Application of Roger C. Hanks for special pool rules, Lea County, New Mexico.

Case 4121

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 4121.

MR. HATCH: Continued from the May 7, 1969 Examiner Hearing application of Roger C. Hanks for special pool rules, Lea County, New Mexico.

I would like to recommend this case be moved to June 4.

MR. UTZ: Without objection, Case 4121 will be continued to June 4,

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4021, heard by me on 5-21, 1969.

Examiner
New Mexico Oil Conservation Commission

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

May 7, 1969

IN THE MATTER OF:

Application of Roger C. Hanks for special pool rules, Lea County, New Mexico.

Case 4121

BEFORE: DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

MR. HATCH: Case 4121, application of Roger C. Hanks for special pool rules, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, & Christy, on behalf of the applicant. We have one set of exhibits. It is under one cover. I would like to have it marked Exhibit A, and the rest of them referred to in consecutive numbers under this cover, 1 through 9.

(Whereupon, Applicant's Exhibit A was marked for identification.)

WILLIAM J. LEMAY

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q Will you state your name, please, and your profession?

A William J. LeMay, Consultant Geologist, Santa Fe, New Mexico.

Q Have you been employed by Roger Hanks to make a study of the area that is involved in this case?

A Yes, I have.

Q Have you previously testified before the OIl

Conservation Commission?

A Yes, I have.

Q And your qualifications as a Petroleum Engineer are a matter of record?

A Yes, as a Petroleum Geologist.

Q Are you familiar with the application of Roger Hanks in this case?

A Yes, I am.

Q What is Mr. Hanks seeking to accomplish in this application?

A Mr. Hanks is seeking to accomplish 160 acre spacing in the Bar U field, the Bough C producing zone in the Bar field in Lea County, New Mexico, with a proportionate depth factor or allowable factor based on 80 acre spacing with well locations to be located 150 feet from the center of the quarter quarter section.

Q Have you made a study of all of the wells in this area?

A Yes, I have.

Q And all thepressure data that is available?

A Yes.

Q Have you prepared certain exhibits for introducation

in this case?

A Yes, I have, Exhibit A, 1 thru 9.

Q Refer to Exhibit A-1, and explain what this is and what it shows?

A Exhibit A-1 is an orientation map of the Bar U field in Lea County, New Mexico. To date, all the producing wells are located in Section 1, Township 9 South, Range 32 East. And the recent well, the Hanks No. 1 Sinclair State in Section 12 of 9-32, which has not been potentialed yet, but which will make an oil well. All the wells are circled on Exhibit No. 1.

I might mention at this time that the Roger C. Hanks No. 1 Lowe State in Section 2, was originally portentialed for 40 barrels of oil per day, but no production has ever come out of that well, and it is a dryhole. There is currently a location in the north half of the northeast quarter of Section 1, and to date that is the only off pattern well for 60 acre spacing, with the exception of Lario No. 2 State B, which exceeds the 150 foot tolerance, but which would have 160 acres allocated to it without affecting the drainage. There is another well drilling in Section 36, but that could be an off pattern well.

MR. NUTTER: Is that one in Section 36 shown?

THE WITNESS: It should be. It is on the Great Western drilling tract, that little circle there. It would be a 660-1980. The Xerox copy does not show the lease ownership very clearly. The initial discovery well, being the Lario Oil and Gas No. 1 State B is an old well work over of GMK No. 1 Lowe State, a dryhole in 1963.

Q Are all these wells producing from the Bar U-Pennsylvanian pool?

A From the Bough C formation, yes.

Q Does this Exhibit I also shows the ownership of the acreage in the area?

A Yes.

Q Can you point what Roger Hanks owns?

A Mr. Hanks has a farm-out on the Bridwell tracts, and has acreage ownership in Section 11, and a farm-out from Sinclair. The only two operators to date in the field are Hanks and Lario.

Q Mr. Hanks has the leases on all of Section 1?

A I am not that familiar with his agreement. It is a farm-out agreement with Bridwell, whereby he does having the working interest in the two wells there.

Q Is that all you have with respect to Exhibit 1?

A Yes.

Q Refer to Exhibit II, and explain what this is and what it shows?

A Exhibit II is a copy of the recent Hanks No. 1 Sinclair State, the most recent well in the pool, and it has not been potentialed yet. The Bough C top is shown. It is a compensated borehole sonic log with gamma ray. It shows the Bough C pay section of 11 feet, which is just slightly above the field average of 10 feet of net pay. It has good porosity, good permeability, and surprising low pressure.

Q I believe you said this well has not yet been potentialed.

A No, it has not.

Q Please refer to Exhibit III, and explain this to the Commission?

A Exhibit III is a structure map of the Bar U-Tobacks-South Flying M area. It is contoured on the top of the Bough C formation, an interval of 50 feet. It shows that basically that this Bough C accumulations in all three fields are stratagraphic accumulations, and they are controlled by porosity and permeability. As indicated,

the well there in Section 12 is a tight well. The drillstem tested mud, and the log showed this porosity.

The well is Section 2 is an oddball well. It had 6 to 7 feet of porosity shown on the log, with a little higher than anticipated bottom hole pressure. It must not be connected to the field, because the well has never made any oil.

Q Now, refer to Exhibit IV.

A Exhibit IV is a summary of the chronology and spacing of the Commission's order for the Bough C field. It was introduced mainly to help prove the evolution of Bough C thinking over the whole trend from the Texas Line on through the western extension of the trend. Exhibit IV ties in with Exhibit V. They were considered as separate fields at one time, many fields were, and during the '60's these fields have coalesced into one, or two, or three large producing trends, and they are still developing to cover a much wider area than originally anticipated. Almost all fields are stratagraphic in the Bough C, and as withdrawals are made from the Bough C reservoir, the pressure data has declined quite rapidly.

With this thinking, the Commission has granted

since 1967, 160 acre spacing for Bough C fields, with the exception of the South Flying M field, which has some peculiarities in the initial well spacing. I might just mention that the South Flying M field, they were 3 wells crowded around a common corner of the section. It would be very difficult to allocate 160 acre spacing, considering the development that took place. But the other fields, Middle Allison, which is a temporary order, as the Commission does grant temporary spacing for a year; the Vada and Jenkins fields are permanent orders, having the same rules applying that we are requesting.

Q Please refer to Exhibit V, and explain that Exhibit?

A Exhibit V is a map with the plastic overlay, showing the fields as they existed on July 15, 1967. This covers the entire northshell of the Tatum basin in southeast New Mexico, and all Bough C production as of that date, July 15, 1967, is colored blue. The overlay is the production as it exist at May 1, 1969, two and half years, almost three years -- or two years later.

Q What does this show?

A It shows the fact that, for example being the

Vada, Lane, Middle Lane, Inbe, Inbe East, Siminola fields, as separately classified, are really one large producing trend. And in this particular case, the spacing on the pools is broken down, again chronologically, whereby the earlier developed production in the south end, meaning what is now the Inbe field, is on 80's; but the other half of the trend going northeast, the Vada area, which stretches over a long developed area, is on 160, as is the Middle Allison field, which is still extending, and probably going to connect with South Prairie and possibly Allison.

Q Does this indicate they might be connected, some of these areas?

A Yes, I think it indicates the remarkable similarity and the interconnection of all the Bough C fields on a regional basis.

MR. NUTTER: Where is the Middle Allison?

THE WITNESS: The Middle Allison incorporates that area called West Allison. It is south of South Prairie. It is not listed, it is named on the Exhibit, because it is on the overlay. There was no Middle Allison field as of the earlier date. I might suggest that the same thing is

possibly true over here on the west end, which will be brought out by the pressure data.

MR. NUTTER: Now, that Middle Allison is the area that is -- I believe that straddles the township line there just south of the old West Allison pool?

THE WITNESS: Yes.

MR. NUTTER: And that is on 160 acre spacing?

THE WITNESS: Correct.

Q Do you have any other comments with respect to Exhibit V?

A No.

Q Refer to Exhibit VI, and explain that to the Commission?

A Exhibit VI analyzes pressure data in the Bar U field. It is a plot of the bottomhole pressure versus time. As you will note, the initial discovery well being the Lario No. 1 State B, a reentry encountered bottomhole pressure in excess of 3,000 pounds, the exact pressure being 3,146 pounds. It was completed in 1963, and there were no other wells drilled in the Bar U field until 1967, when Mr. Hanks drilled his Bridwell State No. 1, and they encountered an initial bottomhole pressure of under 2,400 pounds, 2,388, to be exact on the Bar U, the first well that Mr. Hanks drilled, the Bridwell State No. 1.

Two other wells drilled during 1967, the Hanks Bridwell State No. 2, and the Lowe State No. 1, -which is the oddball well I mentioned, which really isn't an oil well, it is a dryhole, has not produced any oil. It is the lavender colored dot on the Exhibit.

The last well drilled being in 1969, is the Hanks No. 1 Sinclair State, which had a bomb pressure of 1,505 pounds. The other test data is drillstem tested pressures. The tremendous pressure drop in this field since the initial discovery well is evidenced by the Exhibit.

Q Now, refer to Exhibit VII and explain that.

A Exhibit VII is part of the cumulative oil production versus bottomhole pressure in the Bar U field. It shows that there has not been much oil taken out of this field for the present pressure drop. Combined with Exhibit VI, it gives you a pretty good picture of the area, being the fact that between the period of 1963 and 1967, there was only 3,000 barrels of oil, approximately, taken out of the field, and yet there was almost an 1,800 pound pressure drop. Since that time, it forms a pretty good straight line for projection of cumulative oil production, at an abandoned bottomhole pressure of 500 pounds.

Q What do Exhibits 6 and 7 tend to show?

A For one thing, it shows good communication in each reservoir. As you withdraw not only from the Bar U field, but I feel from the Tobac field which lies just north of the Bar U, the withdrawal from the Tobac field has affected the bottomhole pressure in this Bar U field. The Tobac wells were completed in 1964, with a few wells in 1965, and the bottomhole pressure ranged from 2,850 pounds to 3,050 pounds, within that range. If those pressures were plotted on the pressure versus time or pressure versus cumulated production, they would fall within the range of this pressure decline on both graphs. Of course, your scale will have to be different on the production versus pressure, because you would have to account for the withdrawals of the Tobac oil production. But there has to be something to account for this initial pressure drop of 800 pounds, with only 20,000 barrels being taken out of that reservoir.

Q Does this tend to show that there is drainage over a wide area?

A Yes, it does. Not only my testimony, but subsequent testimony, especially of the Vada pool, where wells

have been reentered and encountered significantly lower bottomhole pressures without any withdrawal of fluid at all, tend to support the contention that communication is transmitted over miles and not feet.

Q In your opinion, then, would one well effectively and efficiently drain 160 acres?

A At least 160 acres.

Q Is that all you have with respect to Exhibit VII?

A Yes.

Q Refer to Exhibit VIII, and explain what this is and what it shows?

A Exhibit VIII is a tabulation of reservoir qualities in the Bar U fields from which volumetric calculations were derived. Porosity ranges from five to ten percent, with an average of eight percent.

Water saturation, as indicated by the logs, is thirty five percent.

Formation volume factor, 1.5.

Recovery factor of 40 percent.

The net pay range is from six to twelve feet, with an average net pay of ten feet.

The bubble point, which is above the initial

bottomhole pressure, is calculated to be 3,200 pounds.

Reservoir pressure abandonment, 500 pounds.

Oil gravity, the API gravity, there is a mistake in that, if you will correct Exhibit VIII to 46 degrees. 46 degrees API at 60 degrees.

The solution GOR is 1,000 cubic feet per barrel, and this is an average of production.

The oil in place calculation, utilizing these figures, indicate 269 barrels per acre foot. When you multiply this out, it gives you a utilized recovery factor of 40 per cent, and a net pay of 10 percent. It indicates 85,600 barrels of recoverable oil under 80 acres, and 171,200 barrels under 160 acre spacing, without considering depletion. Utilizing depletion from the volumetric calculations, indicates the reservoir of 62 percent depleted. The amount of depletion from a projection of Exhibits VII and VI indicate a 50 percent depletion. In other words, approximately 250,000 barrels of oil have been taken out of this reservoir. Projecting the pressure to abandonment at 500 pounds would indicate a 500,000 barrels of oil, total recovery from the reservoir.

Q Now, refer to Exhibit IX, and explain this to

the Commission?

A Exhibit IX is a summary of the economics of development in the Bar U field, indicating the gross income from oil and gas, being one barrel of oil plus a cubic foot of gas is $3.43 a barrel. These were calculated with working interest income of 87.5 per cent and also with 75 percent working interest, which is the range of operators working interest in the area. Operating costs of 71 cents a barrel includes taxes, 21 cents, and water disposal, and general operating cost of 50 cents per barrel. The net working interest income at 87.5 percent is $2.29 a barrel. At 75 percent, it is $1.86 a barrel.

Assuming no depletion of reserves and 87.5 percent working interest, the recovery is 85,600 barrels under 80 acres, 171,200 barrels under 160 acres. It shows the net income to be $196,024 under 80, and $392,048 under 160. The development costs per well in the area is $175,000 as completed with bottomhole pumping equipment. The net profit per well would be $21,024 under 80, and $217,048 under 160. This would yield a return investment of 1.20 under 80, and 2.24 under 160. This is with an 87.5 percent working interest lease, and no consideration given to

discounting the dollar or the risk involved in developing the field.

As you can see, on a 75 percent working interest, these figures drop considerably. Net income would be $159,216 under 80 acres, and $318,432 under 160 acres, indicating a loss of $15,784 under 80 acre spacing, and a $143,432 profit under 160 acre spacing. Again, these figures are indicating no depletion of reserves.

The next tabulation shows the economics with allowances with depletion, both allowances for the 62 percent depletion as indicated by the volumetric calculations, and the 50 percent depletion as indicated by the projection of Exhibits VI and VII. Running through these figures briefly. total recoverable reserves, and this is as of April of this year, are 32,528 barrels under 80 acres; 65,056 barrels under 160 acres. The total net income with 38 percent depletion -- it is actually 62 percent depletion and 38 percent remaining reserves -- $74,489 under 80 acre spacing, and $148,978 under 160 acre spacing. The same well cost of $175,000 indicated both a loss for 80 and a loss for 160; a loss of $100,511 under 80 acres, and $26,022 under 160 acres. If you assume the 50 percent depletion, the 80 acres

would lose $76,988, the 160 acre spacing would yield a profit of $21,024.

Q In view of these figures, would you recommend to Mr. Hanks that he develop this area on 80 acres?

A No, sir.

Q There would be a loss in connection with the well?

A Yes.

Q Do you have any recommendations to make to the Commission with respect to the special rules to be adopted?

A I would recommend rules similar to those adopted in the Middle Allision, Vada, and Jenkins pool, whereby the spacing would be 160 acres, the allowable would be an 80 acre factor, and the tolerance would be 150 feet from the center of the quarter quarter section.

Q This would permit the latitude of the operator to drill on any 40 acre component of the 160 acres?

A Yes, it would, not crowding the boundary as close as an 80 acre spacing would. But I think there would have to be an exception granted to the present well, and probably an exception granted to the McElvaney location.

Q In your opinion, would the adoption of special field rules along the lines you indicated be in the interest

of conservation and the prevention of waste?

A Yes, sir.

Q Would it tend to protect correlative rights?

A Yes.

Q Do you whether Mr. Hanks has contacted the other owners in the area with respect to their attitude?

A I understand he has.

Q Is it your understanding that someof them have sent telegrams or letters to the Commission?

A It is my understanding that theyhave.

Q Supporting the application?

A Yes. Mr. Hanks gave me these this morning. I haven't had a chance to go over them. I guess you would call them waivers for operators in the general area.

MR. HINKLE: This may be a duplication to those which the Commission already received. We would like to file them with the Commission, for what they may be worth.

MR. NUTTER: All right.

MR. HINKLE; We would like to offer into evidence Exhibit A.

MR. NUTTER: Applicant's Exhibit A will be admitted.

(Whereupon, Applicant's Exhibit A was admitted into evidence.)

CROSS-EXAMINATION

BY MR. NUTTER:

Q Mr. LeMay, referring to Exhibit 3 there in Exhibit A -- I guess we better go to Exhibit 1, that does show ownership. Now, Mr. Hanks has recently completed or is in the process of completing the well in the northwest quarter of Section 12?

A That's correct.

Q And that can have 160 acres dedicated to it?

A Yes.

Q And then there is a well in the southeast section of 1, and it can be 160 acres, as can the well in the southwest of Section 1?

A That's correct.

Q And the northwest of Section 1, Mr. Hanks Bridwell No. 2 would have 160 acres?

A Correct.

Q Now, he has his Bridwell State No. 1 in the southwest of the northeast of Section 1 there, is that right?

A Correct.

Q And the location drilling in the north half belongs to Lario?

A No, that is a Bridwell lease ownership. I believe it is a farm out from Bridwell to McElvaney.

Q What does Mr. Hanks have there on the north half?

A I am not familiar with his agreement.

MR. HINKLE: I believe that he has the north half of the northwest, and the south half of the northeast.

THE WITNESS: He's probably been assigned 80 acres too on the farm out agreement.

MR. HINKLE: Perhaps we can identify this as Exhibit B.

(Marked for identification Applicant's Exhibit B.)

MR. HINKLE: Applicant's Exhibit B is offered to show the acreage owned by Mr. Hanks in the area.

MR. NUTTER: Exhibit B will be admitted in evidence

(Whereupon, Applicant's Exhibit B was admitted in evidence.)

Q (By Mr. Nutter) So from Exhibit B, it appears that Mr. Hanks owns the north half of the northwest quarter of Section 1, and the south half of the northeast quarter of Section 1. Now, Mr. LeMay, do you if Mr. Hanks intends to communitize the northwest quarter of Section 1, and form a

160 acre standard unit, in the event the Commission would approve 160 acre spacing for this pool?

A Yes, it is my understanding that he would try to do that.

Q But McElvaney is drilling a well in the north half of the northeast quarter?

A I think this is the location. I don't know if the rig is on location yet. I don't know what could be done with that. It is the only off pattern location to date. I assume that whatever the Commission does concerning this type of thing would be done, whether you would grant an exception to the well or whether an agreement could be made whereby the well was not drilled, and Mr. Hanks could agree with Mr. McElvaney somehow not to drill it. I really don't know. It is the only location that presents a problem for the 160 acre pattern that exists.

Q Mr. Hanks, do you know the status of the well in the northeast quarter there?

MR. HANKS: No, I don't. It is not drilling as of now, not to my knowledge.

MR. KELLAHIN: If the Examiner please, I didn't enter an appearance earlier. I am Jason Kellahin, Kellahin

& Fox, appearing for Mr. Eugene McElvaney, Jr., who is here, and we will offer testimony in this case.

Q Mr. LeMay, what is your 62 percent depletion actually based on here?

A It is a calculation of the original bottomhole pressure in the field, 3,200 pounds. It is a ratio, actually.

Q It is a ratio of the virgin pressure to the later known pressure, which was that 1,505?

A Correct.

Q And 1,505 was a drillstem --

A No, that was a bomb pressure.

Q And so, then, referring to Exhibit IX where you say 38 percent depletion, you really mean 62 percent depletion and 38 percent remaining reserves?

A Yes. In fact, that Exhibit could be corrected.

MR. NUTTER: Any further questions of Mr. LeMay?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. LeMay, on your recoverable reserves, did I understand you to say there were 85,600 barrels under 80 acres, or was that total reserve calculation?

A That was total with virgin pressure. That is

based on oil in place calculation.

Q Could you say how many recoverable barrels there are under 80 acres?

A With the present pressure at 50 percent depletion, there would be $98,000 worth of recoverable reserves, utilizing 50 percent. Utilizing the 62 percent, there would be 32,000 barrels remaining under 80 acres.

Q 32,000 remaining?

A Correct, recoverable oil.

Q But would that be recoverable reserves?

A Yes.

Q Is it your testimony then that one well on 80 acres will recover a 85,600 barrels?

A Not at the present time, because as we have a bottomhole pressure of 1,500 pounds in the field, so the present wells will not recover that, no.

Q Now, at the time Mr. Hanks drilled his wells in 1967, under those pressure conditions, would one well recover 85,600 barrels of oil from an 80 acre tract?

A Assuming an 87.5 percent working interest lease, they would. Assuming a 75 percent working interest lease --

Q Mr. LeMay, what does the working interest have to do with the barrels?

A It has to do with the amount of barrels recoverable to the working interest, and, therefore, the income, and it effects the economics of development.

Q The figure you are using is not recoverable barrels, it is recoverable barrels to the working interest?

A That's correct.

Q Then 85,600 barrels is based on 87.5 percent interest?

A That's correct.

Q But you will recover something over that?

A Yes. The figure was reduced at the top of Exhibit IX to take care of the royalty of 12 1/2 percent, and the operating cost, and the taxes. That is net figure.

Q What would the ultimate recovery be from 80 acres under the conditions that Mr. Hanks encountered?

A A 100 percent of oil?

Q Yes.

A I don't have the calculations worked out. It would be something in excess of 85,600 barrels.

Q He has already produced from one of his wells

over 81,000 barrels through February? Would you agree to that?

A Yes.

Q And his No. 2 well has produced over 71,000 barrels through February?

A Correct.

Q Or a total of 152,827 barrels from 160 acres?

A That's correct. These wells are effectively on 160 acres spacing at the present time.

Q Now, according to your testimony, the wells are actually draining 160 acres?

A That's correct, probably in excess of it.

Q And it is your testimony that Mr. Hanks would propose to communitize each of the quarter section to provide 160 acres?

A That is my guess.

Q Mr. LeMay, when were those two wells drilled, do you know?

A The two Hanks, 1967.

Q One in March and on in September?

A Correct.

Q And they have been producing on the basis of 80 acre

spacing and allowable since that date?

A I don't think there has ever been an allowable hearing for the field. The farm out agreement indicates 80 acres on the well. The spacing has never been established, I don't believe.

Q Do you know what the allowable has been based on?

A Probably 40 acres. I could not find a hearing on it, and I used the Byrom report from Austin for field rules for the Bar U field. Occasionally, they are in error, but in my check, I couldn't find any 80 acre for the Bar U field.

Q Mr. Hanks did apply for 160 acre spacing in November of 1967?

A I think he did.

Q Did you have any contact with that case?

A I have nothing to do with that case.

Q It was your testimony that the assignment of 160 acre allowables to these wells would protect correlative rights?

A I think an 80 acre allowable is what we requested.

Q 160 acre proration unit, pardon me, would protect

correlative rights?

A Correct.

Q Would Mr. Hanks be willing to assign back to Mr. Bridwell his share of the profits from the 160 acre tract since the inception of production?

A I can't speak for Mr. Hanks.

Q Do you know whether he contacted Mr. Bridwell or not?

A He indicated to me he did contact Mr. Bridwell, and tried to make an arrangement. My understanding is that they couldn't get together at that time.

MR. NUTTER: Let's take a 15 minutes recess at this time.

(Whereupon a recess was taken.)

MR. NUTTER: The hearing will come to order, please. Mr. Kellahin, do you have a question of the witness?

Q (By Mr. Kellahin) Mr. LeMay, in your direct testimony, you testified as to pressures in the well in Section 12 to show there had been communication, do you not?

A Yes.

Q Was that the intent of your testimony?

A Yes.

Q What was -- was that an initial pressure that you gave?

A That is a bomb test made after the well -- after pipe was run and we had a fluid level. The well was not on production.

Q It is not?

A It is not yet.

Q What date was that test run?

A That is April 15th or -- I have a copy of the test here. The 17th.

Q Of this year?

A April, this year.

Q 1969?

A Correct.

Q Have you run any interference test in this pool to determine communication?

A There has been none run.

Q So the only thing you have are the pressures on all of the wells, upon the basis of which you reached your conclusion of drainage.

A Correct.

MR. KELLAHIN: That is all.

REDIRECT EXAMINATION

BY MR. HINKLE:

Q Does the differential in pressure here indicate drainage over a wide area?

A Yes.

Q And it is about the best evidence of drainage that you could obtain, is it not?

A Yes, an interference test, I think, would be better, but no one in the Bough C field, the operators do not want to shut down their wells to take a test because they lose production, and, to my knowledge, there have not been interference tests made in the field.

MR. NUTTER: And there haven't been any subsequent pressure test run on any of these wells after the initial bottomhole pressure test?

THE WITNESS: No.

MR. HINKLE: That is all we have of this witness.

MR. NUTTER: Any other questions of the witness? You may be excused.

MR. HINKLE: That is all of our direct testimony. We may want to put Mr. Hanks on in rebuttal after Mr. Kellahin finishes.

MR. KELLAHIN: I have four witnesses, but I think I will probably only use two of them, but we might as well swear all four of them.

(Thereupon, Opponent's Exhibits 1, 2 and 3 were marked for identification.)

EUGENE McELVANEY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A Eugene McElvaney, Jr.

Q Where do you live?

A I live at 3103 Encanto Drive, Roswell.

Q What business are you engaged in?

A I am in the oil and gas exploration business.

Q Mr. McElvaney, you have entered an appearance in opposition to the application of Mr. Hanks in Case 4121, now before the Commission. Do you have an interest in this area?

A Yes, sir.

Q What is that interest?

A I have a farm out contract from Bridwell Oil Company dated April 19, 1969.

Q Now, subsequent to obtaining that farm out agreement, did you file a notice of intention to drill with the Oil Conservation Commission, or prior thereto?

A I filed it prior thereto, on the basis while awaiting preparation for the farm out agreement, I filed it on April 16, and it was approved in Hobbs on April 17th.

Q I hand you what has been marked as Opponent's Exhibit No. I. Is that the Notice of Intention to drill which you filed, a copy of it?

A It is.

Q I hand you what has been marked as Opponent's Exhibit No. II. Would you identify that Exhibit?

A This is the C-102, Well location and acreage dedication plot for this particular well site.

Q I hand you what has been marked as Opponent's Exhibit III. Would you identify that exhibit, please?

A This is the farm out agreement from the Bridwell OIl Company, addressed to me.

Q Is that the agreement under which you propose to operate in this pool?

A Yes, it is.

Q Under the terms of that agreement, are you required to drill in order to earn any acreage?

A Yes, I am.

Q What acreage would you earn in the event you do drill?

A I am required to commence my initial test well on or before the 1st day of June, 1969, at a location actually of my choice on one of two 80 acre tracts, one being the south half of the northeast quarter and the other being the -- I have them backwards, the north half of the northwest quarter, or the south half of the northwest quarter of Section 1, 9 south, 32 east.

Q You were present during the hearing and heard the testimony of Mr. LeMay, is that right?

A Yes, sir.

Q Is this the same acreage that Mr. LeMay said Mr. Hanks was proposing to communitize with his wells?

A Yes, sir.

Q Have you made a study on your own behalf of the economics of drilling in this area?

A Yes, sir.

Q On the basis of the information available to you, are you willing to drill on 80 acre spacing?

A Very much so, yes.

Q Are you prepared to go ahead with the well for which you filed your Notice of Intention to drill?

A I am.

MR. KELLAHIN: If the Examiner please, we have only one single copy of the Exhibit which I would like to offer in evidence. We would like to offer in evidence Exhibits 1 through 3.

MR. NUTTER: Opponent's Exhibits 1 through 3 will be admitted into evidence.

(Whereupon Opponent's Exhibits 1 through 3 were admitted into evidence.)

MR. KELLAHIN: That is all I have under direct examination of this witness.

MR. NUTTER: Any question of the witness?

MR. HINKLE: No questions.

MR. NUTTER: The witness may be excused.

MR. KELLAHIN: I would like to call as my second witness Mr. Viney.

RALPH VINEY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A My name is Ralph Viney.

Q Are you the same Mr. Viney who testified in a previous case this morning, and made your qualifications a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: They are.

Q Mr. Viney, you are a Consulting Petroleum Engineer, are you not?

A Yes.

Q In connection with your work as a consultant, have you been employed by Mr. McElvaney in connection with the case now before the Commission?

A Yes, sir.

Q Have you made a study of this area involved in

this application?

A Yes, we have.

Q Have you made a study of the economics of the drilling on various size tracts in this area?

A Economics, yes sir. On 80 acres, let me qualify that.

Q You were present and heard the testimony of Mr. LeMay a few minutes ago in this case, did you not?

A Yes, sir.

Q In connection with his testimony, do you have any observations on the conclusion reached by Mr. LeMay?

A Yes, I do.

(Whereupon, Opponent's Exhibit 4 was marked for identification.)

Q Would you give those to the Commission, please?

A First of all, I would like to compliment Mr. LeMay on his presentation. In our study of this same area, and recognizing the advantage of possible additional pressures that Mr. LeMay had that we weren't afforded, the pressures, themselves, as we looked at them from the drillstem test pressures through 1963, through the drilling of Mr. Hanks wells, Bridwell State No. 1 and No. 2, and the well in Section 2, the Lowe State well, it would be difficult without

the advantage of subsequent pressures to state affirmatively that drainage occurred. Pressure drainage possibly has occurred, but what oil drainage has been affected, this is a matter of question. Energy has been dissipated. Now, the next question is whether the pressures as observed in the wells as reported are actually pressures taken from the same producing horizon. This could only be answered by subsequent testing to determine whether these actually do exist, or interference between wells does exist.

Mr. LeMay in his presentation, I think, supported to a large extent the theory that there has been pressure communication in reference to the pressure drop over a period of time. In making our study, we recognize this possibility, but also in studying the whole complex of Bough C wells or fields, I would agree with Mr. LeMay that possibly the Vada-South Lane is a separate system from the South Prairie-Tobac and this Bar U Field. Our studies indicate that they are not connected to the same -- or the possible same water aquifer. The chemical analysis from the water produced from the two areas is different. In looking at the pressure effect, we did not find the volume of pressures that Mr. Lemay referred to in the Tobac field. We did find the rapid drop

in production, but there is a distinct difference between the production of the Tobac wells and the production of the Bar U wells. The Tobac field has never -- to date, the Tobac wells have recovered 218,000 barrels per well. These wells are relatively free from water production, and the field production throughout its history, the water production has been low. The production of the Bar U field has not -- the wells in the Bar U have not shown low water rates.

Now, if we will take the same structural point, and using the structure map that Mr. LeMay presented in his exhibit, and follow this around to the Tobac field, you will notice a very close similarity, but I cannot indicate or prove positive connection of the zones between the two fields. This would involve detailed pressures, and a lot of it is speculation at that point. However, by taking the structural point, we have found that wells that are on the same structural point as Mr. Hanks Bridwell No. 2, and relating that same structural effect over the Tobac, the watercut as reported by Mr. Hanks and the watercuts now observed in the wells in the Tobac are nearly identical, percentagewise, of production.

The other situation is that we do not definitely feel that production from this area, the Bar U and possibly the Toback field, is solution gas type drive energy. There is probably some water expansion. The water expansion in the Toback areas and in the Bar U, we'll not know how it will go in the Bar U at this point. We do have evidence in the Toback that the expansion apparently has about reached its limit, production is falling. The gas-oil ratios in the wells, however, are not increasing. This oil in the Toback appears to have been under saturated oil, and it looks like much of the production has been due entirely to the expansion of fluids in the reservoir. We feel that the production in the Bar U field is being much greater supported by the fluid expansion from the downdip area, and that, therefore, the recoveries as shown on 80 acres or as shown on 160 acres by volumetric techniques are a matter of what parameters you use for water saturation.

I would suspect, looking at the exhibit that is used in your presentation, that the porosity analysis of your wells in Section 12 is probably not going to run ten to twelve percent. We obtained porosity analysis in small wells in Section 30, which is the nearest good

producing well to the Bar U field. This small well in Section 30 of the Toback field has recovered approximately 240,000 barrels. The average porosity is in the neighborhood of 10 percent. The pay thickness is almost identical. You could lay the logs down in the enitre area. There is no difference in the pay thickness.

We also have found by looking at the situation in the Toback field that these wells in some cases have been drilled on denser than 80 acre locations, and the average recovery per well will be in excess 250 barrels. These 250 barrels is a projection of performance, and is subject to correction with additional production.

The other situation we have seen is in the Bough C field, and this has respect to pressures. Mr. LeMay made a statement that in the Vada field you could drill offsetting the well, a good well, and have very low pressures. Likewise, you have been able to drill in the Vada field a well that had two feet of pay, virtually no bottomhole pressure, and pick up at some location away 20 to 22 feet of pay in virgin pressures. We do not know the depositional characteristics in the Bough C formation. It appears there may be much mudding, some lensing, depositional effect, and,

therefore, I cannot conclusively agree with Mr. LeMay's presentation that the pressures alone afford communication or indicate continuation of the reservoir from the wells as shown.

Our economics indicate that a well drilled on 80 acre location would cost approximately $175,000.

Q In that connection, Mr. Viney, would you refer to what has been marked as our Exhibit No. IV, and discuss the information shown on this exhibit?

A This exhibit is a detailed breakdown for accounting purposes, which is normally used in the business, indicating item description of costs for drilling, broken down both for intangible cost and for tangible cost. We indicate that the intangible or drilling cost would approximate $81,000; that the tangibles and hardware equipment to complete the well would range about $94,000; and a total cost for the well of $174,000, $175,000.

Q You are in agrement, then, with Mr. LeMay's figures on drilling cost?

A Yes. I think that basically prudent operators are going to have about the same expenditures in the same areas.

Q On the second page of the Exhibit, will you discuss that information?

A The second page of the exhibit we have listed the production by wells, by months, for Mr. Hanks wells, and for the Lario wells. Mr. Hanks well in the south half of the northeast quarter of Section 1, has to date produced, and to date being March 1, 81,000 barrels of oil, 200,000 some barrels of water, 200 flat, and reported gas of 67,000 Mcf. I assume, by looking at the records, that gas connection was not obtained probably for Mr. Hanks well before September of 1968. The No. 2 well, which is off structure and located in the north half of the northwest quarter, has produced 71,000 barrels, 19,000 barrels of water, and 20,000 reported Mcf of gas.

Here again, the water production figures show that possible recovery is directly proportional to the amount of fluid produced from these wells. We do not have the March figures. The oil production from these wells was reported to be 11,500 barrels. I cannot tell youwhat the individual breakdown of the water was, but there is a definite relationship with structure to the recovery per well.

There has been no indicated increase in the gas oil ratios, suggesting a drop in reservoir pressures as you would expect, or without having a good combined sample of the fluid, this may be, as we stated earlier, an under saturated crude. Therefore, in view of this, we feel that recovery is a function of fluid entry into the reservoir, and it cannot be stated that volumetric estimates will be confined to 80 acres or to 160 acres, and we cannot, in our own mind, say that a well drilled on 160 acres would recover as much as two wells drilled on the same 160. We feel that your recovery efficiency of one well on 160 acres in this type of field would not be as great as recovery of two wells draining on the same acreage.

The production history on the Lario State well, which is located in the southeast corner of Section 1, this well has to date produced 68,000 barrels of oil, 38,000 barrels of water, and reported production of gas 53,000 Mcf.

The B lease, B-2 well, which was recently completed and which offsets Mr. McElvaney's tract in the south half of the northeast quarter, was completed in October, and has to date recovered 18,000 barrels of oil, 72,000 barrels of water, and 24,000 Mcf of gas. Characteristically, the wells low on structure, the Lario

B-2, GMK, and Mr. Hanks No. 1 Bridwell State, make the larger volume of water. We do not have the benefit of the tests on Mr. Hanks Sinclair well in Section 12.

It would probably be my opinion -- it would be my opinion that this well probably would not have as much water as his B-2 well. Consequently, on the basis of empirical data developed from the performance of wells in the Toback field, performance used in the Vada field, performance to date on the Bar U field, we project that Mr. Hanks well, being not unsimilar to wells in the Toback field and to density of less than 80 acres, and having approximately the same pay characteristics, thickness, could recover -- the down dip well could recover a maximum of 200,000,000 to 230,000,000 barrels. The Lario well could have a maximum recovery of 160,000 to 170,000 barrels. The Lario B-2 well would be in the range somewhere between 170,000 to 200,000 barrels. Using these economics, we can project a profit of drilling the location that Mr. McElvaney has of approximately $170,000 after recovering all costs, and assuming a recovery of 200,000 barrels to this well. Mr. McElvaney's net revenue interest in this well will be 75 percent interest.

Q On that basis, Mr. Viney, would you recommend to Mr. McElvaney that he drill in this pool on the basis of 80 acre drilling, and proration unit?

A On the basis of our study of various Vada wells, I would.

Q Just for the record, would you go through your Exhibit No. IV? You have discussed pages 1 and 2. The third page, would you just identify those, please?

A The Third Page, we had a graphical presentation of the performance of Mr. Hanks well to date, and our projected performance of these wells. We had a production summary of the Lario wells in the Bar U field, the fourth page. The fifth page is a graphical presentation of the production to date, and our projected performance. The sixth page is a presentation of the cumulative production in the Tobac field by wells.

Q Did you run an average on those?

A Yes, the production to date has been 218,000 barrels per well. Now, that includes good, bad, and indifferent, plugged, everything, taking the number of wells that had been completed in the Toback area.

The seventh page is a copy of Signal Oil and Gas

Company's production on their wells in Section 30, in the Township north of the Bar U field. And the next page is a copy of the performance of their well in Section 29, their State No. 29, their No. 1 well.

It should be pointed out, just look at this, for example, on the small wells in Section 29, the characteristics of the Bough C change sofast and in such a short distance, that you cannot guarantee that a well 50 feet or 100 feet would penetrate the reef position and, therefore, I cannot say that the formation exists under McElvaney's location, anymore than I could say it may or may not exist to the north in the section under the well being drilled by McGrath and Smith.

Our last presentation in this exhibit was a copy of Signal's electric log on the State 30 well, the purpose being to show the similarity between the section, the Bough C section in this well, and the similarity of Sections of the logs in the Bar U field.

Q Mr. Viney, if we assume that the laws of the State of New Mexico provide that this Commission may create a proration unit consisting of such area that one well will efficiently and economically drain and develop, on that basis

can you say as an engineer that, in your opinion, one well will efficiently and economically drain and develop 160 acres in this pool?

A I cannot say that because I don't think we have enough proof to date to say that one well could recover as much oil from 160 acre as two wells could. The economics may be different from the standpoint of the operator, but I think basically through the chronological presentation of proration spacing as presented by Mr. LeMay, much of the spacing has been asked due to lesser valued properties, and possibly the increased cost of operations in drilling.

Q Now, on the basis of the statutory requirement, will one well, in your opinion, efficiently and economically drain and develop 80 acres?

A Falling back again and resting upon the investigation of the Vada pools, yes sir. As far as we know, one well will develop and recover efficiently from 80 acres.

Q And it would be economical?

A Yes, sir.

Q Now, Mr. Viney, bearing in mind that Mr. Hanks, the applicant in this case, has wells located on the north half of the northwest quarter, and the south half of the northeast quarter of the section, and the testimony of his witness was that he would communitize, proposed to communitize

the entire northwest quarter and the entire northeast quarter into a drilling and proration unit, in the event the Commission approves his application, would the ownership under the remaining portion of the quarters, that is the south half of the northwest and the north half of the northeast, would that ownership be fully protected in view of the history of production that has already occurred in this pool?

A No, sir, I don't believe so. Here again, we are looking at a different type mechanism than just a solution type drive mechanism. Therefore, what fluid entries we are going to have pushed on to this lease by encroaching or expanded water, I cannot say. But a solution drive approach would not recover or take into consideration any oil brought in by the movement of oil into the reservoir.

Q In your opinion, would the correlative rights of the Bridwells, assuming they retain that interest, and it was not earned by Mr. McElvaney, would their correlative rights be protected by 160 acre spacing?

A It would be questionable, unless they shared from production from inception. No sir, I don't think they would.

Q Was your Exhibit IV, a multipage exhibit, prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time, I would like to offer into evidence Exhibit IV.

MR. NUTTER: Opponent's Exhibit IV will be admitted in evidence.

(Whereupon, Opponent's Exhibit IV was admitted into evidence)

Q Do you have anything else?

A No, sir, I do not.

MR. KELLAHIN: That completes our direct examination of the witness.

MR. NUTTER: Does anyone have a question of this witness?

CROSS EXAMINATION

BY MR. HINKLE:

Q Mr. Viney, I believe your testimony shows that you did not have pressure data at the time of your investigation of this, in the Roger C. Hanks Sinclair State No. 1?

A That's correct.

Q Do you know what that is through the testimony

that has given by Mr. LeMay?

A Yes, sir.

Q If you had it at the time of your investigation, would it have made a difference in your conclusions?

A No, sir, it would not for this reason, we have, as pointed out in my testimony, we have measured pressures on wells adjoining each other, and have found a wide disparity from one location to another.

Q You have indicated there that the drop in pressure does not necessarily mean communication, is that right?

A I said the drop in pressure may not necessarily mean drainage of oil. There could be pressure drainage, yes.

Q What would cause drop in pressure?

A This would be a pressure depletion, allowing any movement of gas or fluids toward the low pressure area.

Q You don't think there is any significance, then, through the pressure drop from the time of the drilling of first well until the time of the drilling of the last well in the Bar U field?

A I say pressures are significant if they are supported, and under the basis that you can then follow up to confirm that these are pressures of connecting reservoirs.

Q Isn't it a fact that this form of testimony has been used time and time again before this Commission to show communication in areas of this kind and drainage?

A If the pressures are conducted on similar wells at the same time, then, yes, I would say you could indicate interference and drainage.

Q And then you do not attach any significance to the drop in pressure from the time of the drilling of the initial test well to the drop in pressure at the time of drilling the last test well?

A If I may, there is also significance to pressures. Now, I cannot determine, when you say the initial test well, if you are referring to the initial test well in Lario's, then, that pressure was measured by drillstem test pressure. This pressure, as I recall reviewing those records, showed that that test was conducted sometime in 1963. The next period of the history on this well was in 1966, when they placed it back in production. They did not have a pressure in 1966. Therefore, we don't know whether the pressure as measured in the Lario well was dissipated through faulty cement, dissipated through drainage of communication, or anything else, so that actually the pressure that Mr. LeMay used, and which you referred to as being original pressure, may or not may not be original pressure for the initial

production of this field.

Q You heard Mr. LeMay's testimony in connection with Exhibit 8. He showed by his figures that this area had been 62 percent depleted. Do you agree with that?

A No, sir. Let me answer your question in two ways, if I may. Do I agree with the figures that he presented, or do I agree with the mechanics he used in presenting them?

Q Do you feel that the field has been partially depleted?

A I will say that this field could be partially pressure depleted.

Q Just pressure depleted. Not as far as recovery of oil is concerned?

A Here again, when you have pressure depletion, you may also have loss of recovery efficiency of your reservoir oil.

Q Haven't you got the loss of the actual oil that's been produced?

A Not yet. We do not know definitely how the encroaching water is going to move into this reservoir.

Q You are making a lot of assumptions there, are you not, how wide and big the field is?

A Not any more than the pressure presented represents a solution or depletion type reservoir, no sir.

Q If Mr. LeMay's figures are right with respect to the percentages of depletion here, how would that relate to your figures, as far as payout of these wells are concerned?

A If we assumed that his conditions were right, and the depletion figures presented are correct, that could mean that Mr. McElvaney may not be able to get more than a break-even proposition on the development.

Q And it could cause a loss?

A It could. We do not know this, however.

Q If it caused a loss to Mr. McElvaney, would it not also cause a loss to Mr. Hanks in the wells he has drilled?

A Here again, I believe, sir, we are looking at the approach of depletion through solution drive. If we take a case not relating to this, for example, we do not know or cannot prevent capture, or loss of capture. If this same well is tied to Mr. Hanks wells, and the water does not move into the reservoir, as it may, there is this possible loss of productive ability.

Q You can cause an economic loss by drilling too many wells, can you not, as in this case?

A Yes. And you will also cause an economic loss by not drilling the wells to effectively recover production from this area.

Q Hasn't that been the actual experience in some of these Bough C fields, where they drilled too many wells, but the wells never paid off?

A Sir, I can't answer that in the affirmative. This may be a situation in some wells, but I can't say that as a general statement, no sir.

Q You made a study, I assume, of the different Bough C Pools in this area?

A Yes, I have.

Q Isn't it a fact that in all of these cases that have been before the Oil Conservation Commission, that the testimony has been rather uniform, that there is a wide drainage in the Bough C formation.

A Mr. Hinkle, if I may, here again I think it gets back to the changing attitudes of economics. And whether there has been true honesty within the presentation from the standpoint of engineering, or whether it is a desire to gain economic benefits by drilling on wider spacing, I can't answer that, no sir.

Q The Commission has found in many of these cases that one well will effectively and efficiently and economically drain wide areas, has it not?

A This I can't answer, whether they have found, or whether they have indicated that they will or have approved wide spacing. Mr. Hinkle, the only way I can say whether it will effectively drain 160 acres is when the wells are abandoned.

Q If Mr. Hanks was willing to take new pressure gauges on all the wells in this area at the present time, would you consider reviewing your testimony in the light of that?

A I could review my testimony, but basically --

Q And your conclusions?

A My conclusions may be changed, but there again this information, I think, as Mr. Hanks pointed out to you, would have to be a pressure test of all wells. This creates some problem for him, as his wells are on pump. Fluid levels or sonic levels don't necessarily reflect a true pressure condition in the well. I would say this, that with this information, it would always be available to review, and I mean any testimony is subject to revision.

MR. HINKLE: That is all we have.

MR. KELLAHIN: That is all I have.

MR. NUTTER: Any further questions of Mr. Viney? You may be excused.

Mr. Hinkle, I think you brought a point up there that is very vital to this case. Obviously, there is some opposition to the proposal of the Applicant here, and it was running through my own mind at the time Mr. LeMay was presenting his pressure information that these pressures are incomplete. We have one pressure at one time only on each of the various wells, and the fact that the recent well has a pressure of 1,505 doesn't necessarily indicate effective drainage unless there has been similar decline since the original pressures in some of these other wells.

For this reason, I think it is prudent at this time to continue this case and to request pressures to be taken on these various wells. Is Lario a partner of -- are they with you on this application?

MR. HANKS: Oh, yes.

MR. KELLAHIN: If the Examiner, please, looking at the farmout agreement, Mr. McElvaney, in order to earn his rights, must commence his wells by June 1. Under those circumstances, unless he can get an extension of time,

he would be out of the picture and have no further interest, because he can only earn his interest by drilling. He has filed his Notice of Intention to drill, and is ready to drill.

MR. HINKLE: Mr. Examiner, we would like to have the case continued for thirty days.

MR. NUTTER: That would be beyond the time limit that Mr. McElvaney's farm out covers. We have a hearing set for May 21. We would be happy to continue this case to May 21, and I assure you we can have an order on it before the first of June.

MR. VINEY: If they desire my services, I will be unavailable for that week. Could we move that forward to the Friday or the Thursday?

MR. KELLAHIN: If the Examiner please, I think this thing is wholly unreasonable. If we review the history of this case, it is not the first time this thing has been before the Commission. If it were, there would be some basis for saying they should have some time to get some additional material. But the Commission's records will show that this same identical application was filed by Mr. Hanks in November of 1967, and it was continued several times, and then dismissed. Now, for them to come back at this point

and say, "we need more time to get more information to comply with your request," seems to me beyond all reasons.

We certainly object to it. We submit this is wholly unreasonable to ask for a continuance.

MR. HINKLE: I am not familiar with the previous application, and I would like Mr. Hanks to make a statement with respect to that.

MR. HANKS: I think that the sequence of events is important here, in that certainly I have no objections on my wells, and I will have to get approval from Lario on theirs, shutting those wells in and taking a 72 hour bottomhole pressure test.

When I drilled the Bridwell State No. 1 in, I believe February or March of 1967, this well was drilled, and we had a drillstem test, which theinformation is on their test, and recovered about a third of oil and two-thirds water. And with some question, we set pipe and perforated the well, and it made all water and a little gas. And everybody agreed that we had a channel job, so they squeezed it. Lario was operating the No. 1 at that time. They re-perforated, re-acidized,with the same result, and Lario got out, and I took over and I produced the well, I believe

16,000 barrels in 1967. I had a farm-out agreement at which I had to commence another well by July, and I asked them to extend that six months to see if I could test this well, to see if I could get anymore oil production out of it, and they gave me until the first of September -- instead of July, to November. So I drilled the Bridwell No. 2.

In this interim time, I had a lease expiring on the west, which was a Lowe State and I had applied for 160 acre spacing, and I drilled the Lowe State 1, and we took a core, which it is in evidence, had six feet of porosity, and $385,000 later, I abandoned the lease, and I was totally disenchanted with Bar U and anybody aroundit, and dropped the whole deal. To me, the wells wouldn't drain 10 acres. And then the production started to increase, the water and the oil had began to look better, and I had to ask Bridwell for the additional 80 acres, 160 attributed to each well. They came back and said they would give me those two 80's for a 5/32 override. I was offering a 75 percent lease. We never got together. When this application was filed with the Commission, I wrote Bridwell a letter and told him that if the Commission gave 160 acre approval, that the first of the month following the approval of the Commission,

their override would increase to 1/8 of 8/8 -- at the present time it is 3/32 -- or they can communitize the two 80's, and they can go with me or they can buy me out with what I have in it, which to date the offset wells, and I don't want to discredit my fine witness or the others, but there is a matter of salt water disposal that they left out of this thing, and I get a totally different figure of $20,000 more to get rid of this water. I have had a private system in there, and I told Mr. McElvaney when he told me about this deal, that if they drilled those wells, that these wells would not be allowed to go on my system. The access to my lease roads would be $9,800. I have increased that to $10,600.

To continue with the sequence of events, I drilled the Lowe 1 and lost it in November of 1968. This past year I put in a $205,000 disposal system, of which there are 17 miles of four inch, and an eleven thousand foot Devonian well called the no pit well in the Devonian to take care of the water. On or about December 11 of this year, Joe Hood, who is an heir of the Bridwell family, was offered these two 80-acre tracts for a sixteenth override, and he called me about this, and I discouraged it because of the

testimony that Mr. LeMay just gave.

On or about April 10 of this year, Charles B. Read informed me that Bridwell Oil Company had made a farm out on a property to McElvaney, and McElvaney had submitted the deal to Charles B. Read, and they turned it down because they didn't believe in drilling these wells on 160 acre spacing.

On April 29, Sam Boren's representative, checking the deal, called me and checked the same sequence of events. On May 5, of 1969, Solar Oil Company came by my office with the same two 80 acre tracts, and wanted to know why I wouldn't drill them. I showed them Mr. LeMay's testimony. I had fourteen approvals from major oil companies in and adjacent to this property, and they concurred that our idea on these wells effectively draining 160 acres is for all practical purposes valid, and I don't believe that these major companies are going to pass out their approvals if they are not 100 percent in concurrence.

That is all I have to say, and I would be willing to shut my wells in and take a bottomhole pressure.

MR. KELLAHIN: I have one question I would like to ask, although that is unsworn testimony before the

hearing.

Mr. Hanks, Mr. Read is associated with you in this pool, is he not?

MR. HANKS: Mr. Read owns a one half interest in the Sinclair State, that's right, and he would not drill those two locations up there.

MR. KELLAHIN: That's all.

M R. NUTTER: I think we will continue this case to the hearing on May 21st at the same place, at 9 o'clock A.M. We expect to have bottomhole pressures on the wells that have been producing. I think that the pressure that we have on the Sinclair State is a recent enough pressure, and it wouldn't do any good to have a pressure on that. Mr. Kellahin, we will have an order out before June 1.

MR. KELLAHIN; Mr. Nutter, the witness here, Mr. Viney, will be in New York on May 21st.

MR. NUTTER: Well, you can get someone else to analyze the bottomhole pressure test.

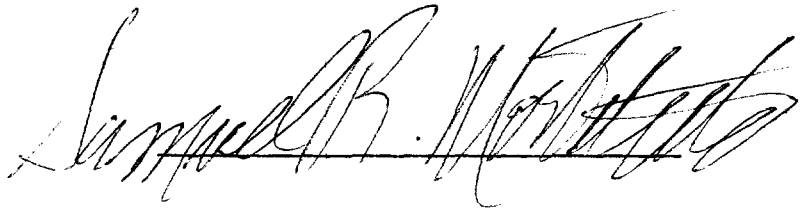
We do have numerous telegrams. Most of them are in support with the possible exception of one telegram that was in disagreement with the application, and it happens

to be from Bridwell Oil Company. We will continue this case and recess the hearing until 1:15 o'clock this afternoon.

I N D E X

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

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



I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4121, heard by me on 4/2, 1969.

Examiner
New Mexico Oil Conservation Commission