Original

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

SPECIAL HEARING

December 18, 1951

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Case 330 will come before the Commission at 10 a. m., on this date at Mabry Hall, Santa Fe, New Mexico. This is concerned with Stanolind Oil and Gas Company's petition relating to the proration of natural gas in the Blanco (Mesaverde) gas pool, San Juan County, New Mexico and extension of the boundaries of the Blanco Pool.

BEFORE:

Hon. Governor Edwin L. Mechem, Chairman
Hon. Guy Shepard, Member
Hon. R. R. Spurrier, Member and Secretary

REGISTER:

R. S. Dewey
Humble Oil and Refining Company
Midland, Texas

Lewis H. Bond, Jr.
Stanolind Oil and Gas Company
Fort Worth, Texas

W. J. Nuss, Jr.
Stanolind Oil and Gas Company
Lubbock, Texas

J. K. Smith
Stanolind Oil and Gas Company
Fort Worth, Texas

O. Seth
Stanolind Oil and Gas Company
Fort Worth, Texas

Jason Kellahin
Oil Conservation Commission
Santa Fe, New Mexico

Jack M. Campbell
Campbellstein
Roswell, New Mexico

O. B. Jenkinson
Stanolind Oil Company
Tulsa, Oklahoma

P. P. Manion, Jr.
Stanolind Oil Company
Tulsa, Oklahoma

R. S. Christie
Amerada Petroleum Corporation
Tulsa, Oklahoma

Van Thompson
Southern Union Gas Company
Dallas, Texas

Quilman B. Davis
Southern Union Gas Company
Dallas, Texas

Joseph C. Gordon
Three States Natural Gas Company
Dallas, Texas

J. W. Cole, Jr.
Gulf Oil Corporation
Fort Worth, Texas

W. L. Barksdale
Dunn and Boreing
Denver, Colorado

C. C. Cragin
El Paso Natural Gas Company
El Paso, Texas

C. L. Perkins
El Paso Natural Gas Company
El Paso, Texas

Ben R. Howell
El Paso Natural Gas Company
El Paso, Texas

W. L. Taylor
El Paso Natural Gas Company
El Paso, Texas

W. T. Hollis
El Paso Natural Gas Company
El Paso, Texas

R. W. Harris
El Paso Natural Gas Company
El Paso, Texas

George D. Locke
Kingsley-Locke Oil Company

Joe V. Peacock
Phillips Petroleum Company

L. F. Foster
Phillips Petroleum Company

C. W. Binkley
Phillip Petroleum Company

Elvis A. Utz
Oil Conservation Commission
Santa Fe, New Mexico

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Fred D. Gorham, Jr.
Pubco Development Company
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Aaron L. Calvin
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J. B. Howell
Delhi Oil Company
Farmington, New Mexico

Frank C. Barnes
Independent
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Robert E. Murphy
Magnolia Petroleum Company
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James L. Pasey
Magnolia Petroleum Company
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Magnolia Petroleum Company
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E. R. Richardson
Lowry et al
Albuquerque, New Mexico

Dan W. Johnston
Albuquerque, New Mexico

T. H. McElvain
Independent
Santa Fe, New Mexico

J. R. Cob
Southern Union Gas Company
Santa Fe, New Mexico

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MR. SPURRIER: The meeting will come to order. The first and only case which we will consider today is Case No. 330. Mr. Kellahin.

(Mr. Kellahin reads the notice of publication.)

MR. SMITH: My name is J. K. Smith. I represent Stanolind Oil and Gas. I would like to enter an appearance on behalf of Mr. Oliver Seth for the Stanolind Oil and Gas Company.

As stated in the notice of hearing, the purpose of the hearing is to consider the proration of gas in the Blanco Mesaverde Pool. Also, consideration of the enlargement of the limits of the Blanco Mesaverde Pool. As stated in the notice, our purpose is to make more definite and certain the provisions of Section 11 of Order R-799 as extended by R-110 which prescribed that wells should be by proration units in the field.

This hearing is a continuation of earlier hearings held in the past. One of October 28, 1948 which resulted in Order R-799 fixing the spacing and providing other rules and Order No. R-110 as a result of a hearing on October 23, 1951 which changed certain of the completion practices in the field. Also Order No. R-89 which changed certain of the field limits. I would like to emphasize that the hearing is to be confined to the Blanco Mesaverde Pool only. We are not asking for any tightening procedure of any gas wells in the State. It is just restricted as stated already to Blanco Mesaverde Pool. I would like also to point out that the purpose of the hearing is not to restrict the production which may be based upon the market demand, but merely that

demand be spread equally throughout the entire pool. I should like to offer additional testimony in addition to that given at the earlier hearing by calling Mr. Frank Nuss as our first witness. I don't believe Mr. Nuss has testified before and it will be necessary to call upon him and have him sworn as a witness.

FRANK NUSS,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. SMITH:

Q Will you state your name, please?

A W. F. Nuss, Jr.

Q Mr. Nuss, where are you employed?

A I am employed by Stanolind Gas and Oil in Lubbock.

Q How long have you been so employed?

A I have been with Stanolind slightly over six years.

Q Will you state your educational background?

A I have a degree in chemistry and physics and considerable extra training in petroleum engineer.

Q Where did you get your degree?

A Texas Christian University.

Q What degree?

A Bachelor of Arts, Chemistry.

Q Have you worked for any company besides Stanolind Oil and Gas?

A No.

Q The work that you have done with Stanolind Oil and Gas Company, what has it been?

A My work has been primarily reservoir engineer and evaluations.

Q Just a moment.

MR. SMITH: Would the Commission accept this witness's qualifications as an expert?

MR. SPURRIER: They will.

Q Mr. Nuss, in your capacity as reservoir engineer among the capacities that you have, I will ask if you have made certain studies with respect to the Blanco Mesaverde Pool?

A Yes, we have made fairly extensive study.

Q Will you state something with respect to the producing zone of the Blanco Mesaverde Pool?

A I have considerable history here. Gas Production in the Blanco Mesaverde Pool is obtained from the blanket sandstones of the Cliffhouse and Point Lookout formations of upper cretacious age which lying at a depth of between 3800' on the top of the Cliffhouse to approximately 5500' on the base of the Point Lookout formation. The two zones are separated by the Menefee formation which averages approximately 400' in thickness and which is not considered a major source of gas in the reservoir.

The pool is located in northeastern San Juan County, New Mexico, the gas production was originally discovered by Huntington Park No. 1 through the Goede, presently the Delhi No. 1 W. M. Mansfield which was originally a dual completion in the Pictured Cliffs and Mesaverde formation located in Section 29, 30 North, Range 9 West.

This well, which was originally completed in 1927, has supplied gas to the town of Aztec since 1929 and has a total circumlative production from the Mesaverde in excess of 1,000,000 MCF.

Q What has been the field production history of this particular pool?

A I would like to offer as our first exhibit a tabulation of the production history for the pool.

(Mark Exhibit No. 1 for identification.)

A (Continuing) The data I have compiled here is taken from a report made by Brokaw, McKee and Dixon from the beginning of production in the pool through 1948. The remainder of the data is taken from New Mexico Oil and Gas Engineering Company records.

It indicates a total cumulative production as of November 1, 1951 for the Blanco Mesaverde of 8,139,779 MCF of gas. Of that figure, 5,851,281 MCF have been producing during the first ten months of 1951. These figures indicate that the production during 1951 will represent something

better than 70% of the total cumulative production from the field.

Q What are the present area limits? Do you have any exhibits that show the area limits of the field?

A I have an exhibit which will be our No. 2.

(Marked Exhibit No. 2 for identification.)

A (Continuing) This map indicates the present outlines of the pool as established by the New Mexico Oil Conservation Commission under order R-89.

Q Is that the area outlined in red?

A It is the area outlined in red.

Q Will you explain the significance of that area outlined in green?

A The area outlined in green in this center portion of the field right directly north and east of it is the area which is included in our petition for the addition to the pool.

Q In other words, the area indicated in green is additional area limits that we are now asking?

A Yes. Gas saturation is found throughout this entire area even outside the field limits, but the commercial collection of gas wells is controlled by development of sufficient porosity and permeability in the formation to permit gas production at an economical rate. As of December 12, 1951, approximately 144 wells have been

completed in the pool. On that date there were 25 drilling rigs in operation in the field. The completion of wells in the area generally involves stimulation of the formation with large amounts of nitroglycerin, and in recent months the institution of rotary drilling with gas as a circulating medium has indicated excellent possibilities in the reduction of drilling and completion costs and improvement of completion procedures. In improving our completion techniques it is accepted by the majority of operators in the field that contamination of the formation through drilling well fluids when water base mud is used results in a decreased deliverability over other methods of completion.

Q State something with respect to characteristics of the producing formations.

A Geologically, the producing sandstones in the Mesaverde formation, the Cliffhouse and Point Lookout intervals, are blanket sandstones of upper cretacious age. They are composed of Marine deposited yellow to brown and cream colored sandstone beds with some sandy shale. Exhibit 3 electrical characteristics of the Mesaverde are indicated by the electric logs of the Stanolind Elliott "A" No. 1 which is representative of the producing horizon.

Q State briefly what the characteristics are.

A On this log I have marked the top of the Cliffhouse, the top of the Menefee and Point Lookout formations, the three

zones which comprised the Mesaverde Pool, also the top of the shale at the base. The electrical characteristics are thoroughly accurate.

(Marked Exhibit No. 3 for identification.)

Q What is your testimony with respect to the porosity and permeability in the producing area?

A On the basis of the core analysis data the average porosity for the Cliffhouse 10.6%, for the Point Lookout 9.7%. The permeability for the Cliffhouse .55 millardarcies and for the Point Lookout 1.4 millardarcies. We actually have very few cores, because of loss of circulation in the producing intervals.

Q What about your water saturation?

A I am inclined to believe that the water saturation as measured by core analysis are not representative of the formation especially taken with the water base mud.

Q What are the characteristics of the well with respect to any stabilization that may be required to get an accurate test?

A Well, the wells require a long stabilization period for this reason. We believe that deliverability tests against a uniform back pressure are much more representative and will result in a better test of the producing characteristics. The thickness of the two intervals is slightly over the area, the average thickness of the Cliffhouse and Point Lookout is approximately 60' each. There is no indication that geologic

structure has any direct influence on porosity and permeability.

Q That is the producing reservoir itself?

A That is in the reservoir.

(Marked Exhibit No. 4 for identification.)

Q I hand you what has been marked for identification as Exhibit No. 4 and ask you to state what it represents.

A This is a structural map contoured on the top of the Cliffhouse section in the center portion of the field that is the area in which Stanolind's chief acreage is located. Contour interval is on 50' basis. Contours indicate the top of the Cliffhouse pay section above sea level. Examination of the potentials of the wells in the area with respect to the structural location definitely indicates the structure has little effect on the capacity of the wells to produce. The sediments in the area with respect to this structure dip gently to the northeast from the outcropping formation approximately 50 miles to the southwest of this area of the field.

Q I asked you to state generally about the permeabilities in this area there and what they indicate with respect to the outcrop.

A The low permeability in the sands and also the apparent detrimental effect of fresh water on the formation indicates that the reservoir itself is isolated

from the outcrop and our production in the field will be by volumetric expansion of the gas. Cliffhouse and Point Lookout are open to a common well bore and a number of completions in the field.

Q What type of gas do we have out there, sweet gas?

A It is a sweet gas average gravity of approximately.67. We recover small volumes of condensate in the field. The production data at this time is insufficient to indicate a uniform average for the field. Original bottom hole pressure 1364 in the formation.

Q What about the bottom hole pressures in the field, what evidence do you have with this?

A Our best prodetermination of the original 1364 pounds per square inch shut in the formation.

Q What evidence do we have about the present bottom hole pressures that may be encountered?

A I don't have any recent bottom hole pressure data.

Q Any indication of any sharp decline?

A Not on the recent completions of all wells.

Q With respect to the purchasers of gas in that area what companies are purchasing gas at the present time?

A There are two pipe line supply systems. The El Paso and Southern Union Gas Company. Their lines and the production in the Blanco Pool extend over an area some 48 miles in length and 6 to 12 miles in width, a total of 270,000

acres.

Q That is the total acreage in the Blanco Mesaverde Pool at the present time?

A That includes the additional which we -

Q (Interrupting) The general area that we would like to add on?

A Yes. The developing in the field is on 320 acre spacing and gas production at the present time is against approximately 500 pounds line pressure in the El Paso line and the main Southern Union line, and approximately 300 pounds line pressure in the Southern Union La Plata line. That is the northwest portion of the field.

Q What about the additional development that may be going on in the field at the present time?

A The additional development in the area which we have colored green up there has resulted in commercial production from the Mesaverde zone and definitely indicates the desirability of an extension of the field limits for that area. I would like to offer this Exhibit.

(Marked Exhibit No. 5 for identification.)

Q I hand you Exhibit 5 and ask you to state what it purports to reflect.

A This Exhibit lists the recent completions in the area which is colored green on our Exhibit No. 2. It lists the lease well, number, location and zone in which the wells

are completed and the potential. There are nine wells which have been completed in that area, that is as of December 12. The potentials range from approximately 3300 MCF per day to 11,000 MCF per day. Each of the wells was completed in all three zones. That is the Cliffhouse, Menefee and Point Lookout formations are all open.

Q Specifically what sections will be included in the added area?

A The specific sections, they are all in Range 8 West. In Township 29 North there are Sections 1, 2, 3, 12 and 13. In Township 30 North, Sections 1, 2, 3, 10 through 15, 22 through 27, 34, 35, 36. In Township 31 North, Sections 25 through 36. During October of this year 80 wells which were completed and producing in the field made a total of 1,466,889 MCF. That is a rate of 47,280 MCF per day or 591 per well MCF, per well per day.

Q How many wells completed in the field as of recent date?

A Latest date December 1, 144 wells completed as of that date. These 144 completions indicate that the field average potential average per well will be approximately 2,550 MCF per day.

Q How many wells were running during September, October, November continuously in that area?

A During that period approximately 25 rigs were running

average during the period they were completing 14 wells per month or approximately 168 wells per year. On the basis of the pipe line capacities which have been supplied by the purchasers we have an indication of 70,000,000 cubic feet per day for El Paso Natural Gas Company and 45,000,000 cubic feet for Southern Union Gas Company.

Q Have you worked out the average deliverability of the wells and are you able to show how the capacity is being approached?

A Considering that the average deliverability of the wells during October of this year will represent the additional wells which will be completed, the capacity of 115,000,000 cubic feet per day can be supplied by 195 producing wells. At the present time, 144 wells are completed leaving 51 wells only to be drilled before the pipe line capacity from the field will be met. At the present rate of completion of wells this will require approximately four months improvement in completion techniques which will increase the well deliverability.

Q Is there a possibility of any acceleration of that date due to improved completion techniques?

A There is a definite possibility that improvement will reduce the time required to meet the pipe line capacities.

Q That will be due to increased deliverability of the wells completed?

A That's right. Under the presently indicated productive acreage for the field approximately 846 wells will be needed for complete development. At the present rate of completion, the field will be completely developed within 4.3 years. These factors indicate that continued development of the field will result in producing capacity in excess of transmission capacity during the coming year and proration of gas will be necessary to assure rateable takes among the wells in the field.

MR. SMITH: In your opinion, you consider that in order to extend into this at this particular time, it is necessary that we attempt some sort of proration. I have no further questions of this witness.

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

MR. LOCKE: I would like to ask one question.

Q (By MR. LOCKE) In what State do they use the method of proration suggested by you?

A Sir?

Q What State uses the method of proration suggested by you?

A I am sure it is used in Texas.

Q You suggested a method of proration a moment ago in your testimony. I asked you to name a State in which that

system of proration is being enforced.

A I am sorry sir, I haven't suggested a method of proration. I believe the method that we are proposing is used in Texas.

MR. LOCKE: That is all.

MR. SPURRIER: Mr. Davis.

MR. DAVIS: I would like to ask you, Mr. Nuss, in making a statement here a minute ago about the fact that wells now in progress within four months, I believe you said, would satisfy the market requirements of the pipe line companies in the Blanco Mesaverde Pool. Do you have any information as to the market requirements of the pipe line company for the future in making that statement?

A I have only -

MR. DAVIS: (Interrupting) What do you base it on?

MR. SMITH: I don't believe he testified with respect to market demand. That is to pipe line capacity.

MR. DAVIS: That is with respect to pipe lines now implaced there.

MR. SMITH: That is right.

MR. BARNES: You spoke about the deliverability of the well. What is the deliverability based on, is that actual line input or based on initial potential?

A The deliverability which I have used in the estimates is based on the actual production on wells which were

producing during October of this year.

Q (By MR. BARNES) That is based on actual line input for the month of October?

A That is right.

Q You are projecting that same production when you say that you believe the wells will very shortly be producing more than the pipe line capacity?

A The same average deliverability in the pipe line.

Q Do you have a figure here as to what the absolute total pipe line capacity is at the present time?

A The only figure that I have is the figure which has been supplied to my company by the pipe line outlets, that is the two which I gave previously. I would like to have confirmation of those if we can get it.

Q You based your figure on a statement there and you don't actually have any accurate data to indicate what the actual pipe line capacity is at this time or what it is likely to be?

A I used the best figures which we were able to get for the capacity.

MR. SMITH: You obtained those figures from the purchasing companies direct, did you not?

A Yes, sir.

MR. SMITH: That is all.

MR. BARNES: That is all.

Q (By MR. POSTER) Mr. Nuss, you used the term deliverability, in your thinking is that synonymous with potential?

A No, sir. The deliverability which I am using in this case I am thinking of actual production into a pipe line.

Q Against some assumed pipe line pressure?

A Yes, sir, I believe it has been running approximately 500 pounds in most of the field.

Q In your thinking, how do you use the term potential?

A The potentials which have been reported are supposedly open flow potential that is against atmospheric pressure.

Q Is that at the sandface or at the top of the pipe in your definition of the term?

A I believe that the reported potentials would be with atmospheric pressure at the surface.

Q At the surface. What size pipe do you have in mind there in determining those potentials?

A I haven't used potentials now in any of my calculations.

Q I understand.

A As far as I know the size of the pipe varies somewhat over the field. We are not recommending the potential.

Q What is the variation in pipe size?

A I don't have any figures on that.

Q You just know that it does vary?

A Yes.

Q Some speculation as to what the variation might be in

pipe size?

A I don't have any direct information.

Q What size pipe do you use in your well?

A I believe we are setting five and a half.

Q Do you know of any smaller size used by other companies?

A I don't have any direct knowledge of that, no, sir.

Q Do you know of a larger size used by other companies?

A I don't have any direct knowledge on either of those.

Q You don't apply the use of any friction factors in determining your wellhead potential?

A Would you state that again, please?

Q Do you use any friction factors in determining your wellhead potential?

MR. SMITH: I don't believe Mr. Nuss's testimony covered that on direct examination.

MR. FOSTER: Are you objecting to it?

MR. SMITH: No, I am not objecting. Is this direct examination here. It is not part of the cross-examination.

MR. FOSTER: That might be a matter of opinion. We are interested, of course, he testified about gas proration. We don't have any rock in the bucket at this time but I can see on a system of gas proration and what you apply here in this field, you might well apply in some other field where we are interested. I just simply want, of course, if Mr. Smith doesn't want to answer.

MR. SMITH: I have no objection to his answering the question.

Q (By MR. FOSTER) Would you answer?

A Would you state your question again?

Q Do you use any friction factors in determining the wellhead potential?

A When we are calculating open flow potential from back pressure test for our own wells we normally use the friction factor in calculating that.

Q Do you calculate it back to the sand face?

A That's right, yes, sir.

Q These open flow potentials that you are talking about are really calculated as the potential of the well at the sand face?

A Well now, I am not familiar with the way most of those were calculated. We have taken the reported potentials for most of the operators. I know how mine were calculated.

Q You haven't suggested the adoption of any proration formula for prorating gas in the field, you yourself?

A Myself, I have not.

Q Some other witness will do that, I assume?

A Yes.

MR. FOSTER: That is all.

Q (By MR. SHEPARD) Have you had any trouble in obtaining connections?

A Stanolind hasn't, no sir.

Q (By MR. KELLAHIN) In your testimony as to the producing formation, I recall that you said that the formation is a yellow or brown sand and some sandy shale.

A Yes, sir.

Q In connection with that you testified as to the porosity and permeability of that formation on the basis of core analysis?

A Yes.

Q Could you say how many of the core analysis were available to you?

A I believe there were a total of six core analysis.

Q Would you say there was any variation over the field in the porosity and permeability?

A As I recall there was not a large variation.

Q There would be some?

A There was some, certainly.

Q What effect, in your opinion, would the variation in porosity and permeability have on the correlative rights, for example the land that overlay the area of less permeability?

A I wouldn't, if you could state that a little different. I don't understand what you mean by the question.

Q The question I have in mind is this. What effect would the institution of the temporary proration system

which Stanolind has suggested have on the protection of correlative rights?

A In other words, what effect, let me see if I understand you, what effect would the use of the proration formula that we are proposing have on correlative rights.

Q Yes.

A I believe the formula we are proposing will represent a reasonable protection of the correlative rights. In other words, I feel that the variation of porosity and permeability and the formula which we are proposing are, you might say, in accordance with each other.

Q In other words, you don't think there is sufficient variation that it would have only material fact?

A I think they would about cancel each other out.

MR. FOSTER: What is the formula that you propose?

MR. SMITH: That formula will be covered by a different witness.

MR. FOSTER: Alright.

Q (By MR. DAVIS) I believe you testified that within perhaps a year and a half there would be an excess of gas in the Blanco field?

A Within, if the present drilling rate continues and assuming that the average deliverability of the wells which are producing is representative, we should have an excess capacity during the coming year.

Q Did you have any information as to proposed expansion of the pipe line companies, pipe lines up there of their additional need for gas in the Blanco area in making that determination?

A I was not able to get any of the information.

Q In other words, the idea that there would be an excess of gas in a year is purely a hypothetical case without taking into consideration the real thing as to what the needs will be for gas of the Blanco field and the proposed pipe line addition?

A The data which I have given is based on the present capacity as best I have -

Q (Interrupting) Without any expansion?

A Without any expansion if such is in the wind.

MR. DAVIS That is all.

A VOICE: Are you familiar with the testimony previously given the Federal Power Commission with reference to the need for additional pipe line in the basin?

A No, sir, I have not had a chance to read you all of that.

Q (By MR. BARNES) I would like to ask you two more questions. You used the word deliverability several times. Isn't it true that the bulk of the drilling in that area has taken place in the last year or year and a half?

A I believe that is right.

Q " Much larger proportion of the wells completed in the last six months or previous year?

A I don't have any accurate figures on that. I know that production this year is greater than it has been in the past. It is shooting up rapidly.

Q Wouldn't it be true that a lot of deliverabilities on wells that have only been on the pipe line a short time, if in fact only too short a time to know what their actual deliverability will be?

A That is possibly true. I might point out that we expect our wells to clean up an increased deliverability as they continue to produce.

Q Do you have any concrete examples of that? Any specific wells you can mention that have done that?

A I don't have any specific examples. I believe that has occurred in one of our wells at least.

Q I would like to ask you one other question. You said there had been no decline in production of recent completions. Do you have any evidence of any decline in any completions up there at all? Let's take the original Mansfield's well. Has there been any decline in the production of that well since it was -

A (Interrupting) I don't believe I made that statement to begin with. I don't have any figure on decline of any single completion.

Q I may have misunderstood. I thought you stated there had been no decline in recent completions.

A I didn't state that, no, sir.

Q Well, let it go. I think if you will go back through the testimony, you did make that statement.

MR. SMITH: You mean decline in the number of completions per month?

MR. BARNES: I said there had been no decline in production in recent completions. Just a general statement. In any of the older wells. I don't have any concerning the decline of any single completion. I will let the record stand on that.

MR. BARNES: That is all.

MR. SPURRIER: Any further questions of this witness?

By MR. WHITE:

Q Has the bottom hole pressure decreased in any of the wells?

A I don't have any recent bottom hole pressures. Most of the production has been taken from the field during this year. We have noted practically no decline in bottom hole pressures of our own completions.

Q Of the 80 wells you speak of, how many are owned or operated by Stanolind?

A I believe we had two or possibly three on production during October.

MR. SPURRIER: What sort of test was this original potential that you took on these wells?

A We took back pressure tests on our own wells, particularly on Stanolind Elliott. I am not familiar with all the procedures used by the other operators in reporting their potential tests.

MR. SHEPARD: How many different operators are there in the Blanco?

A I don't have that figure. Let me see. Some 15 I think, 15 to 20.

Q Are there anymore questions, Mr. Barnes?

MR. BARNES: I don't want to beat this to death, but I would like to ask one more question.

Q (By MR. BARNES) This is an opinion question. In your opinion, do you believe that fixed core analysis in a field 48 miles long and 20 miles wide is sufficient to evaluate the decline of the potential of the entire area? Do you think you have a sufficient spread?

A As far as I am concerned, I don't think we do. But I haven't actually used the core analysis. But a preliminary estimate of the porosity and permeability in the formation -

Q (Interrupting) You don't think that is sufficient to compile any final figure on?

A I would like to have more -

MR. WHITE: (Interrupting) You said very few were taken

and I think you later stated 8 to 10. Can you point out on the map where the 10 cores were taken?

A No, sir. I don't have those locations in mind.

Q You don't know whether they were taken in the same area or diversified through the field?

A No, I don't. I think most of them were through the center portion of the field.

MR. GORHAM: I would like to ask, relative to interlocking reservoirs in the Blanco area, when wells have been shut down to the surface with an adjacent well's produce, has there been any decrease showing any inter-locking capacity?

A So far as I know there have been no tests of that nature. It would require considerable amount of production from an offset well in a field of this size before any pressure would be noted on a shut-in well. You are going to have to produce a lot of gas from the rese voir in order to pull the pressure down any.

MR. SPURRIER: You represent Southern Union Gas Company? I wish you would give your name and who you represent.

Q You testified that during the month of October, 80 wells produced an average of 591,000 feet a day. And it was your opinion that the wells would continue to produce at that rate, is that right?

A I testified that I was assuming that those wells were

representative of the additional completions which we will be making.

Q Are you aware that during the month of October a large majority of the wells had not produced into the line long enough to have stabilized in their flow and that it takes several months for any of those wells to become stabilized into the pipe line?

A That is possible.

MR. SPURRIER: Any one else?

MR. LOCKE: Do you know how many wells are actually producing into the line in October?

A From the figures which I obtained from the New Mexico Oil and Gas Engineering Committee, there were 80.

Q How many of those did Southern Union have?

A I don't know.

Q How many were producing into the El Paso pipe line?

A I don't have that location.

Q Do you know the location of the wells producing into the lines?

A I don't have it with me. It is reported to New Mexico Engineering Committee. That is where I got the information.

MR. WHITE: When was the first well drilled in this field?

A I believe the first well was completed in 1927 or 1928. That was the well which is now the Delhi No. 1,

~~with a~~ Mansfield.

Q Can you give us the number of wells that were drilled, say, within the first ten years, and how many in the last few years, say, within the last year?

A I don't have that information with me, sir. Most of the wells I believe have been drilled since the first of 1948.

Q You say most of the wells. How many would you say?

A I think there was one well producing until 1948.

Q Then ~~in~~ approximately 79 of the wells have been drilled since 1948?

A That is right.

MR. SMITH: Do you know how long the 25 rigs have been running out there?

A The only figures I checked in that respect were for the last three or four months of this year.

MR. UTZ: Mr. Nuss, getting back to your back pressure tests. How many wells did you back pressure test, can you give me that figure?

A I don't have it with me. I know that we have taken back pressure tests on two of the wells.

Q Were they four point tests?

A Yes, sir, four point tests.

Q You are able to get a reasonable four point test on them?

A I wasn't entirely satisfied with it, no, sir. They take a long time to stabilize.

MR. SPURRIER: Any one else?

MR. SHEPARD: This first well that was drilled, has there been any recent test on it?

A If there has been it hasn't been in a form where I could find it.

MR. SPURRIER: Mr. Barnes, will give you just one more chance if you want it.

MR. BARNES: I don't want another chance, I wasn't going to ask a question merely as a matter of record. I checked the State Oil Commission records on the basis of the actual records turned into them, I found at the end of October, 92 wells were on the line in the Blanco field of which 48 were Southern Union, and 44 were El Paso. I just want to enter that in opposition to a previous figure.

MR. SPURRIER: Thank you. Any one else? The witness is excused.

(Witness excused.)

LEWIS BOND,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. SMITH:

MR. SMITH: I believe he has testified before and you have accepted his qualifications.

MR. SPURRIER: That is right.

Q (By MR. SMITH) State your name.

A Lewis Bond.

Q By whom are you employed?

A Stanolind Oil and Gas Company.

Q Mr. Bond, how many purchasers of gas are there in the Blanco Mesaverde Pool?

A Two. The Southern Union and El Paso Companies.

Q Do you have any exhibits that show the ultimate market for gas purchased by the two companies?

A Yes, I do.

(Marked Exhibit No. 7 for identification.)

Q Will you please state what those markets are?

A This map shows major gas pipe lines in the United States. It is of interest in this regard to Blanco area since it shows the market served by the Southern Union and El Paso lines. The Southern line serves towns in New Mexico such as Santa Fe, Albuquerque, Los Alamos, and Durango in Colorado. The El Paso line serves markets chiefly in Arizona and connect with the Pacific Gas and Electric Company line which I believe ultimately transports that gas to San Francisco.

Q Do you have an exhibit showing the location of the gathering lines of El Paso and Southern Union in the Blanco Mesaverde Pool?

A Yes, sir.

(Marked Exhibit No. 8 for identification.)

Q I note that you have different colored lines in there. Will you please explain which colors are which companies lines?

A First I would like to state that the orange border indicates the present boundaries of the Blanco Mesaverde Pool. The lines colored in red indicate pipe lines operated by El Paso Natural Gas Company. The lines indicated in green are operated by Southern Union Gas Company. This area is the Fulcher-Kutz Pool which produces across from the Pictured Cliffs and is not involved in this hearing. I would like to state that the information which I have on the Southern Union line, I believe is current as of last March 1961, and the El Paso lines as of October. So I feel sure that there are numerous other lines which have been completed since these transitions were prepared. The dotted lines on this map indicate proposed lines, many of which I am sure are in place at the present time. I would like to point out further that the old La Plata area is served by the Southern Union Company. The Largo area to the south served by the El Paso Company. And in the central portion of the pool which is the area where the Blanco Pool was first discovered is served by both lines. I have colored in that area served by both lines, acreage which is connected to each line. The blue color represents acreage connected to

El Paso lines and the yellow to the Southern Union lines. I would like to explain that this legend which indicates that yellow is dedicated to Southern and blue acreage dedicated to El Paso's line is not intended to imply that is the only acreage so dedicated. I have merely colored it in, the central portion, to illustrate a point. My point is this. You will note from the colored blocks that acreage served by the El Paso line is in more or less of a checkerboard pattern with acreage served by Southern Union. In other words, there are offsetting tracts served by both lines in that area. I feel sure that that condition exists in other parts of the field and will exist in a considerably larger portion. Since the acreage served by the two lines is in close conjunction, it appears to me that unless the withdrawals from both lines are approximately the same percentage as deliverability of the wells that they are connected to, that some inequities will result to the royalty owners and lease owners of the acreage involved.

Q We have proposed certain rules with respect to that feature. Would you like to explain the proposed rules that we have?

A Yes.

Q That we have suggested to the Commission.

A Yes, sir. I have several copies of these and perhaps the Commission would like to look them over at the same time.

I would like to state before reviewing the rules themselves that we have discussed the rules with other operators in the Pool and have included suggestions made by various operators. The proportion of the rules commenced with Paragraph A. I will begin discussing the rules. On the first page, we have merely prepared a proposed form of order for the convenience of the Commission in considering this matter. I would like to point out two corrections which may be made on some of the copies which have been circulated, and not on others. Where reference is made to Order 799, the reference should be to Order No. R-110, which is the most recent order promulgating rule for the Blanco Mesaverde Pool. Going to Paragraph A, on Page 2, where the actual mechanics of prorating gas are outlined, that paragraph provides that the production from wells in the Blanco Mesaverde is to be determined by nominations which are submitted by the purchasers of gas in the pool, on yearly basis. It also provides that the Commission may consider previous over and under productions in arriving at the actual allowable from the nominations submitted. That provision is to enable the Commission to add previous over production to the nominations or subtract previous under production in order that the purchasers may produce the amount of gas which they require and still make up previous over or

under production.

This paragraph also provides that the purchasers may submit amended nominations at such time as it becomes obvious that their nominations have not adequately reflected their market for gas. In Paragraph B there is a provision for allocating the allowable established by the Commission for the first year, or rather I should say from the effective date of this order to January 1953, on the basis of the open flow potential tests which have been taken on the wells.

In Paragraph C, it is provided that after January 1, 1953 gas in the pool shall be allocated on the basis of acreage times deliverability. In other words, each well will get a share of the total pools allowable which is in proportion to the product of the acreage assigned that well and the deliverability of that well to the summation of the product of these factors as to all the wells in the pool. It has an additional paragraph, or rather an additional feature which provides that low capacity wells which are recognized by the operator as not being able to produce their assign allowable may be assigned a lesser allowable at that operators request. It also provides that the Commission may set a minimum allowable which may be produced by any well whose allowable is calculated by the formula that we have outlined, is considered to be

unreasonably low. We haven't made any suggestion as to that minimum figure since we believe that actual schedules probably should be computed before enough information will be available to recognize what a fair figure should be.

Paragraph D defined deliverability as indicated capacity of the wells to produce against a stipulated pressure as determined by tests to be approved by the Commission. It is our thought that before January 1, 1953, at which time the deliverability feature of the rules would become effective, if the rules were approved, that tests can be taken and studies can be given to the actual manner of conducting deliverability tests. We thought that perhaps if sufficient data was available at the present time to actually outline a deliverability test which would be satisfactory at this time.

Paragraph E provides for the taking of deliverability tests on all wells during the period to be set by the Commission and during the same period each year thereafter.

Paragraph F provides for a balancing date for the purpose of computing and of balancing over and under production. It also establishes balancing periods of twelve months duration. The periods are to begin at 7 o'clock a. m., January 1 of each year and end as of the same time each following year.

Paragraph G provides that wells in the Blanco Pool

may be produced in excess of their assigned allowable provided that any well which is over produced as of a balancing day in which it was over produced on the previous balancing date, must be shut in until the over production is made up.

Paragraph H provides for the carrying forward of the under production from one balancing period to the next. It also has a provision that cumulatively under produced on two successive balancing periods, shall have the under production for the second previous balancing period cancelled. Another provision on Paragraph H is that wells which are cumulatively under produced on two successive balancing dates due to lack of ability to produce will not have an allowable assigned greater than their average production during the preceding balancing period.

Paragraph I provides for the issuance of a proration schedule by the Commission by January 20th of each year showing the allowable assigned each well for the year, and during subsequent years the schedule would also show the over production charged against each well or the under production which is credited to that well for allowable purposes.

Paragraph J merely provides for suitable reports to be submitted to the Commission to carry out its duties in respect to this suggested order.

Q Mr. Bond, in your opinion, as an engineer, from the standpoint of protection against withdrawals from one tract to another, in view of this situation as exemplified by Stanolind's Exhibit 8, do you consider the rules to afford the best possible protection against such inequitable withdrawals?

A I believe the rules as designed will protect equities, protect operators against inequitable withdrawals, I should say.

Q Do you have any information on the respective market demand of this company's purchasing in the Blanco Mesaverde Pool?

A No, sir, I have not.

MR. SMITH: I have no further questions.

MR. SPURRIER: Does anyone else have a question?

MR. LOCKE: Do you have any communitization between any of the areas set out in the two different colors?

A I have no interference test or direct knowledge such as would be acquired.

MR. LOCKE: Do you have any interference tests?

A I think that fact that the Commission has recognized that area as one pool and has found that 320 acres units are a desirable development pattern would indicate that there will be communitization between wells located on those tracts.

Q (By MR. LOCKE) But the Commission has not so found that there is communication has it?

A Not directly. I believe their establishment of proration units would carry that imprint.

Q But all you have is conjecture but there might be at some future date communitization?

A Yes, I can't definitely state there is at this time. In my opinion there certainly will be.

Q You say certain operators suggested these rules. Name the operators who participated in these suggestions.

A Delhi Oil Corporation, Southern Union, El Paso, Stanolind, and I believe have all made certain suggestions to the rules.

Q None of the interested operators participated then?

A I don't know what your definition is.

Q I mean a smaller company, not one of the major.

A If the companies I named are major, no, sir, they did not.

MR. DAVIS: Just in answering Mr. Locke's question, I didn't understand you, I don't understand. Do you mean that Southern Union has recommended -

A (Interrupting) No, sir, I don't mean to say that the companies I named are advocating the rules that I have presented. I do mean that they have suggested if rules are issued, certain desirable features to be included.

Q (By MR. DAVIS) Has Southern Union ever suggested or recommended that proration rules be pool-wide?

A No, sir, not to my knowledge.

Q Your proration order is predicated upon prevention of waste and production of correlative rights, is it not?

A Yes, sir.

Q You are familiar with the definition in the Oil Conservation Act of what constitutes waste?

A More or less, yes.

Q Do you know of any present waste in the Blanco La Plata Mesaverde Pool at the present time?

A No, sir, I don't know of any waste.

Q In other words, is it true that the proposed proration order is something for future, might be five years it might be two years and then again it might never happen?

A I can't agree with that statement entirely, Mr. Davis. You mentioned that our order was predicated on waste and protection of correlative rights.

Q And, or?

A And, or. Our rules as proposed, actually would tend to protect correlative rights at the present time.

Q Do you have any evidence that correlative rights are not being protected?

A In answer to that, I will just say this. At the present time, if a well is shut-in for any reason such as mechanical

difficulties or perhaps a well is frozen up during cold weather, which I understand is not unusual in that area, under the present conditions that would result in a loss of production to the operator of that well. If our rules were in effect, that well would accumulate under production which could be produced at a later time and the operator and royalty owner holding interest under that tract would be protected. Correlative rights, I think, will be protected even more in the future since I believe that the supply of gas in this area is going to exceed the capacity of the lines. And at such time, I think there will definitely be a need for an equitable method of allocating the gas to the various wells in the pool.

Q You referred to in the future. That would mean, that is rather indefinite as to what the future would hold.

A Well, based as Mr. Nuss testified, based on the present capacities, it appears that that situation will be reached during the next year.

Q But Mr. Nuss didn't have full and complete information as to pipe line additions and, or the quantities of gas expected to be withdrawn from that area during the next few years.

A No, sir, he did not.

Q Let me ask you one other question. You say here that protection of correlative rights and protection is not

contemplated by the statutes. That proration will be put into effect when there is an actual waste or correlative rights -

A (Interrupting) I think that is a legal question.

MR. SMITH: I think he is asking him a legal question. I don't think the witness is qualified to answer it.

MR. SPURRIER: You present that as an objection?

MR. SMITH: I think it is an objection and it is argumentative and it is within the sphere of the witness.

MR. SPURRIER: Objection sustained.

MR. THOMPSON: Now asking, Van Thompson, Southern Union.

Q (By MR. THOMPSON) Mr. Nuss testified that based on the core analysis, the average permeability was varied between .55 and 1.4, which is considerably, very very low for permeability. I would like to ask you in your opinion, do you think one well with a permeability like that will drain more than 320 acres?

A My opinion is that it will, yes.

Q In what length of time do you think it will take to do it?

A I couldn't make an offhand estimate.

Q (By MR. DAVIS) Do you know of any wells there that have not been connected when requested to do so?

A No, sir, I don't.

MR. SPURRIER: Anyone else have a question?

MR. BARNES: I would like to bring out a point.

Q (By MR. BARNES) Do you know at the present time of any single well in northwestern New Mexico, any single well standing by, unable to connect to a line because there is an over production of gas and over abundance of gas in the area and they can't put it on the line?

A No, I don't have any knowledge of any well like that.

Q I would like to point out, you have made the statement here and you also have it in your proposed order, that each operator shall have a right over like periods to make up any deficiency in his rateable share. Under H, it states here, any well which is under produced has, of a balancing date, may carry forward such under production as allowable credit to be produced during the next balancing period. I would like to point out that the production of the wells up there at the present time are based on two factors. One is the reservoir condition under the individual wells which of course, is an index of its permeability and porosity and the ability of the well to drain a particular area effectively. The second factor is the ability of that particular well to button the pipe line pressures and there are a great many wells up there in their deliverability which can't deliver more than about two to three hundred thousand cubic feet of gas, and some

wells will deliver three or four million. Those are just general figures, anyone can check and find them pretty nearly correct. I don't believe wells shut in over a period of time and not allowed to make the gas over a period, could make the gas up.

MR. SMITH: Is this a question or are you offering testimony? If it is, I would like -

Q Do you believe under that situation that the wells could ever make up that gas?

A Some wells, Mr. Barnes, due to their limited capacity obviously would never be able to make up under production which was due to allowable assigned in excess of their capacity. Other wells which might have mechanical troubles, failed to produce for other reasons, could make up such under production. Perhaps a well could be worked over in some fashion and its producing ability increased in that case it could make up previous under production.

MR. SPURRIER: Any further questions?

MR. WHITE: Do you know how many wells have been brought in within the last year?

A No, sir, I think Mr. Nuss had some figures on that but I don't recall exactly what they were.

MR. SPURRIER: Do you want Mr. Nuss to answer the question?

MR. SMITH: No, he testified that there were 79 brought

in since 1948 as I recall.

MR. SMITH: We will get the figures for you.

MR. SMITH: My recollection was that he testified there was something like 144 wells completed out there.

MR. SPURRIER: In the interest of time and for the record, does anyone know how many wells have been completed in the past year? I presume you mean the first months of 1951.

MR. SMITH: I don't believe we have any data on the annual, what wells were completed during this current year. We only have information on the total number of completions out in the field.

MR. SPURRIER: Does anyone have any further questions?

MR. FOSTER: May I ask one more question?

MR. SPURRIER: Judge Foster.

Q (By MR. FOSTER) Perhaps I am way behind on this thing. There has been some other hearings had and I don't know what the record reflects. But apparently, Mr. Bond, you now have in mind some means of implementing the general rules you have set out here, or you have already placed those means of implementation in the record. Such as, how are you going to determine the back pressure and slope off your curb and so forth.

A Judge Foster, as I mentioned, perhaps I didn't discuss it fully a while ago. We haven't recommended a back pressure

for a deliverability test. It is our thought that an actual deliverability test against a line pressure to be determined would be the most accurate method of comparing the producing capacity of the well. In an actual deliverability test like that, of course, there will be no line or slope or any computation to it. It will be an actual test. The reason that we did not recommend the mechanics of taking the test at this time was that we wanted to have time to make more tests in the field and give that more study before recommending tests to the Commission.

Q Well now, you have in mind some back pressure on which your deliverability is to be determined?

A Well, offhand it was our thought that a back pressure in the neighborhood of the actual working pressures of the lines would be most desirable.

Q Do you have in mind a constant or variable back pressure?

A Constant for a certain length of time at least. It might be necessary in the future years as the producing ability of the wells decreases to establish another back pressure that the wells do produce against.

Q Do you mean that you have in mind 500 pounds for one pipe line and 300 pounds for another?

A No, sir, I didn't mean that.

Q At this time do you have any evidence that the deliverability or whatever you have in mind on that, is proportional to the gas reserve per acreage?

A I think that our formula which is acreage times deliverability has a correlation with reservation, yes, sir.

Q Of course, that assumes a lot of other facts does it not?

A Yes, that is right.

Q Those facts that you are assuming in making that answer are those matters of records in hearings that have been had heretofore?

A Well, I would say this, Judge Foster, I can't think of any pool offhand that in my mind deliverability, I am speaking of gas pools deliverability and acreage, wouldn't have some relation to the reserve.

Q Well proportionately only with respect to the manner in which it might determine deliverability?

A I would say, I would state further that I believe the testimony which Mr. Huss has put in includes some of the factors that would have to be considered. I believe it is part of the record, yes.

Q What flow period do you have in mind in determining the deliverability of the wells?

A I haven't any flow period in mind at the present time.

Q Well that is necessary isn't it?

A Yes, but as I explained, it is my thought that will be considered by the Commission at a later date.

Q Don't you have in mind something that you might suggest to the Commission?

A No, sir, I do not.

Q You do not.

MR. SMITH: Mr. Bond, it will not be a factor until after 1953, isn't that correct?

A That is correct.

Q (By MR. FOSTER) What you are saying is that depending upon what the reservoir condition may be beginning in 1953 might determine what you suggest as a flow period?

A That might have something to do with it, yes.

Q Up until 1953, your proposition is just prorated on a straight potential basis?

A Yes, sir.

Q That is not a matter of sound engineering, but just one of expediency, isn't it?

A I didn't understand the question.

Q You are suggesting for prorating up until January 1, 1953, on the basis of just potential, isn't any sound engineering question, it is just a matter of expediency?

A Well, I don't think that it is unsound engineering, Judge Foster. If we had deliverability tests on all the

wells at this time it would be my recommendation that we institute our acreage times deliverability formula at the beginning of these rules.

Q I am talking about your suggestion just to prorate on a potential period for a period of one year.

A Yes.

Q I am saying that suggestion rests more on a matter of expediency than it does on sound engineering principles.

MR. SMITH: I am inclined to think that the question is argumentative, or have him amplify what he means by expediency.

Q All I am saying is, and he told me that it was his desire to prorate gas somewhat on the basis of reservation in place. If you will pardon me for doing a little Dr. Jekyll and Mr. Hyde, turning from lawyer and engineer, I know you can't do that on a basis of straight potential. That is all I am getting at. It is a matter of expediency for the first year that you suggest that you prorate it on a basis of straight potential rather than on the basis of any sound engineering principles.

MR. SMITH: I see your point.

A If you understand the question, I don't think that prorating on the basis of potential tests is unsound, especially for the period of time required to obtain better tests. I don't think that any drastic, let me put

it this way, I don't think inequities will occur as a result of that, Judge Foster.

Q You mean over a years period, period of one year?

A Over a years period at least.

Q Over a longer period, you think it would?

A I would prefer acreage times deliverability.

Q Because that is better than straight potential?

A Yes, sir.

Q That is what I am saying. So really the basis of your suggestion is simply one of expediency rather than sound engineering principles?

A I can't go along with you entirely on the statement, no, sir.

MR. SMITH: Based on present information from the field out there, is it not - wouldn't it not be considered sound engineering to use a potential test until such information or data is available upon which your deliverability times acreage can be determined?

A I believe it is as sound a method as is available to us.

Q (By MR. FOSTER) You mean working with what you got, that is the best you can do?

A Yes.

Q That is a matter of expediency.

MR. FOSTER: That is all. One other question with the

acreage unit you have in mind, some maximum acreage unit to be used in the field, don't you?

A Yes, sir, we didn't put any figures in I think that would be at the discretion of the Commission. I don't believe they would allow acreage greatly in excess of the 320 acre drilling units to be applied for allowable credit.

Q (By MR. FOSTER) When it comes around your time to suggest, you mean you are going to suggest 320 acres as a maximum unit?

A No, sir, I didn't say that.

Q Well, do you say that?

A No, I say that would be a matter for the Commission.

Q For the Commission to make up its mind, based on the testimony, what would be your suggestion?

A The Commission has allowed permits to drill in the Blanco Pool. I am sure on tracts that are not 320 acres. I haven't submitted any testimony to them to assist them in that matter. I think they could reach a decision.

Q What do you have in mind suggesting to them as a maximum?

A I don't know whether I will make any such suggestions at all.

MR. SMITH: I started to suggest that, Judge Foster is asking the witness to give what he may testify to in the future. I consider the question improper and object

to it.

MR. FOSTER: I assumed that he comes in and suggests a formula. I am sure he must have had some acreage factor in while otherwise he is running loose. I am trying to find out what the acreage factor the witness has in mind is.

MR. SMITH: The present field route provides for 320 acre units.

A Yes, they do.

MR. SMITH: It is based on the 320 acres?

A Yes, that is correct.

MR. FOSTER: Does that mean that he now has in mind the 320 acres?

MR. SMITH: I don't know what he has in mind.

MR. FOSTER: You didn't answer the question for me. You didn't give me any information.

MR. SPURRIER: Gentlemen, at the risk of cutting someone off here let's recess until 1:30.

(Recess)

MR. SPURRIER: The meeting will come to order and we will proceed with Mr. Bond on the stand, please.

MR. SMITH: May it please the Commission, before I forget it, I don't believe I have introduced in the evidence all the exhibits we have. I would like to do that at this time.

MR. SPURRIER: They will be accepted. Dan Johnston, do you have a question?

MR. JOHNSTON: No questions, thank you, Mr. Spurrier.

MR. SPURRIER: Anyone else? If not the witness may be excused.

(Witness excused.)

MR. SMITH: That concludes the testimony which we have to offer, may it please the Commission.

MR. SPURRIER: Does anyone else have any testimony to offer?

MR. DAVIS: Yes, sir, we have.

VAN THOMPSON,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. DAVIS:

MR. DAVIS: I believe he has previously testified before the Commission.

MR. SPURRIER: That is correct.

MR. DAVIS: Are you satisfied with his qualifications as an expert?

MR. SPURRIER: Yes.

Q Will you please state your name?

A Van Thompson.

Q With whom are you employed?

A Southern Union Gas.

Q How long have you been employed with the Southern Union Gas Company?

A Since 1930.

Q Are you familiar with the production and operations of the gas wells in the Blanco Mesaverde Pool?

A Yes, sir.

Q Both from historical standpoint and present production also?

A Yes, sir.

Q First, Mr. Thompson, I would like to get the record clear as to our positions on proration of the Blanco Pool as a field-wide proration order. What is our position in that matter?

A We are opposed to it.

Q Going back a little bit on historical information from that area, I would like to ask you, do you know of any pool or area where there has been a pipe line constructed prior to the drilling of a well?

A No, sir.

Q Or obtaining production from a well?

A First you have got to have the gas wells before you can build a pipe line.

Q Does it not follow that once you get production, pipe lines are constructed and as an additional production is obtained additional pipe lines are constructed to take care

of the ability of the wells to produce?

A That is correct. As more wells are developed the pipe line system is expanded to take care of the additional gas capacity.

Q Mr. Thompson, there has been certain information in testimony here this morning to the effect that the present wells and those supposed to be drilled in the area will be either equal to or in excess of the pipe line capacity. Would you elaborate on that a little bit?

A First, the pipe line capacity in the area is far in excess of the capacity of the wells. As more wells are drilled, it will increase the capacity of our pipe line. At the present time there is a shortage of gas in the area to supply our markets and El Paso's also.

Q I believe it has already been testified to that our markets are primarily Santa Fe, Albuquerque and surrounding towns, including Los Alamos.

A That is right. It is within the State, except a small amount that goes up to Durango.

Q In your opinion, do you think that the present drilling program will be sufficient to take care of our needs to the pipe line connections that will get on a prorated basis?

A No, sir.

Q In other words, you think that we can use minimal wells than we have now connected to our pipe lines?

A That is right, our load is going at a rate of peak load of about twenty million feet per year and our old wells are declining at the rate of ten million feet per year. So that at our present requirements or about thirty million feet per day per year, increase.

Q Mr. Thompson, in connection with the proration, I would like to ask you if Southern Union participated to an extent in discussion of the proposed proration of gas up in this area prior to the filing of the applicants applications here?

A The first we heard of this proration order was after it had been filed.

Q In other words -

A (Interrupting) Later on we had, I think, we met with them one time and discussed it.

Q When did you have some information that it was a possibility, but we had no definite information of the present proposed order until after the application had been filed?

A That is right.

Q Did we make any suggestions at this conference or recommendations as to, if proration was needed what it should be?

A We recommended that if they had to have proration that it be put on a pipe line basis.

Q Isn't it true then, in effect, Southern Union presently is prorating its wells on a pipe line by pipe line basis, on the basis of deliverability?

A That is right.

Q Do you have any other suggestions or recommendations on this proration order?

A No, I don't believe so.

MR. DAVIS: I believe that is all we have.

MR. SPURRIER: That is all of the direct examination. Does anyone have a question of the witness?

MR. SMITH: As I understand it, your company has no objections to proration at this time?

A We object to proration on a pool-wide basis and we don't think that proration of any kind is necessary for several years to come. We think in effect that we are prorating already on a pipe line basis.

Q (By MR. SMITH) You stated that you consider the drilling program out there insufficient to supply your demands under proration. Do you have any statistics or figures on that to back up the statement?

A I didn't necessarily mean on proration, I meant on any kind of basis.

Q In other words, your present market demand is sufficient to take care of additional wells that are drilled out there even at the rate of 14 additional

wells per month?

A I think so, yes.

Q What is the capacity of your pipe line?

A The present capacity of the pipe line is on the order of 120 million feet per day.

Q There has been some testimony to the effect that it was forty five million. Did you or anyone in your company that you know of supply the figures to us at our request?

A No, sir. I will correct that a little bit. Lewis Bond ask me about ten o'clock if that one particular line had about that capacity and I said I think so.

Q Which line?

A The one line running into the Blanco, and I wasn't considering the other two lines coming in another place.

Q The one in the upper northwest corner?

A No, sir. I was talking about this particular line here in addition to that, we have this line here and we also have a line which you don't have on there, which runs up through here (indicating).

Q You have three lines altogether?

A That is right.

Q That capacity varies according to the pressure it receives?

A It varies according to the pressure, yes, sir, and

size of the pipe.

Q Size of the pipe. What is the pressure and size of the pipe reflected by the three different connections in there?

A These two upper ones vary between 300 and 500 pounds, depending on the season the line over there on the Blanco area varies from 500 to as much as 650.

Q They all feed into a common line down here?

A No, that isn't quite right. This particular line feeds through a compress or station and then goes into the main line. This line feeds directly into the main line.

Q What is the pressure of this line here?

A At the present time, 650.

Q You state that the capacity is 120 million, that is based on what pressure figures?

A That is the capacity of this particular line here, which has all these feeder lines coming into it. At the present time we are increasing this line and putting in 15 miles of 20 inch right in here, and next year we have substantial additional improvements planned.

Q When will that completion program be finished?

A I don't think it will ever be finished.

Q You contemplate continuing to this, the size of this line, so that you can take the gas up there, the gas that

is available?

A That is right.

Q Wouldn't that be controlled by the market demand?

A That is right.

Q What markets do you have?

A Just the local Albuquerque, Santa Fe, Los Alamos, this particular area.

Q Do you have any economic figures on what the saturation point may be in those areas?

A No, sir.

Q You don't know whether it would require as much as 120 million?

A Yes, we know it will require more than that this very year. This year we have had already, we have had to interrupt all of our industrial costumers, the power plants and railroad shops, because we didn't have enough gas to supply.

Q How much are you supplying now?

A Today we are running between 80 and 100 million a day.

Q Are you familiar with the pipe line capacity of El Paso?

A No, sir.

Q What other gas field are you producing from besides Blanco?

A We are producing from Kutz Canyon field and also Barker Dome.

Q Your figures on market demandtake that production into consideration?

A Yes.

Q 80 to 100 million would include production from those fields?

A Yes.

Q What do you estimate your production that you are not taking from the Blanco field to be?

A We are taking it on the order of 20 million feet per day.

Q That is all the connected wells that you have?

A All the connected wells that we have tied to the pipe line, that is all they will produce into our pipe line.

MR. DAVIS: Mr. Chairman, one more question I failed to bring out but I do want the record to be straight on this. Has Southern Union ever refused a connection with either of the areas we have talked about in addition to the Blanco field? Are we always in the market for gas?

A Yes, sir.

MR. DAVIS: That is all.

MR. SPURRIER: Mr. Thompson, do you know what your average daily take would be for this year?

A No, I can tell you on an annual basis. It will be about 18 million feet for the year 1951.

MR. SPURRIER: 18 million.

A 18 million feet, yes, sir.

MR. SPURRIER: Any other questions?

Q (By MR. SPURRIER) Mr. Thompson, do you know what the deliverability of the combined wells in the Blanco Pool might be at this time?

A No. I don't have any exact figures as to the number of wells we have connected, but I believe it is on the order of 50 and from that 50 we are getting about 20 million feet per day.

Q From 48, I think the figure is 48, from 48 wells how much gas?

A 20 million feet per day.

Q We are speaking of Blanco now as a pool.

A That is right.

MR. SPURRIER: Anyone else? Mr. Smith?

MR. SMITH: I am just a little confused as to respective capacity of the feeder lines. What is the capacity of this line?

MR. SPURRIER: That is the La Plata end of the Blanco Pool.

MR. SMITH: In the northwest corner of the Blanco Pool.

A That is dependent on quite a few things, Mr. Smith. One of them is this, one particular line comes all the way down from the storage project here. The storage project is feeding and this line is feeding and this line is feeding.

all feeding into one common line. That particular line has a total capacity of about 30 million feet per day. At the present time we are running anywhere from 7 to as much as 10 million feet a day out of this area. We have just completed this line and we are, it varies 4 or 5 million feet a day. That isn't the capacity of the line. It happens to be there is a bottleneck in the system right here which we had planned to fix with 12 inch pipe down to the compressor station. We haven't got the pipe yet and it won't be done until later in the winter.

Q What is the capacity of the line northwest of Blanco down to the main line that you say comes from the storage project?

A You mean from up here?

Q That is right.

A I would say that particular line has a potential capacity of 40 or 50 million feet a day.

Q What is the size of the line?

A 10 inch.

Q Pressure?

A Varies between 300 and 500.

Q How much do you bring out of your storage project?

A We bring a peak out of there about 12 million feet.

Q Is that altogether during the winter months?

A We only used that storage project on peak days, cases

of emergency.

Q Let's pass to the new line that you have drawn on here in black pencil with which lies midway between the middle Blanco area and northwest Blanco area. What is the capacity of that line?

A The potential capacity of that line would be roughly 30 or 40 million feet per day. The reason we can't take it out is because we don't have the wells connected to it to do it. It was built much larger than the present wells anticipated we would get more.

Q With reference to the middle Blanco, what is the capacity of that line?

A That line is 12 inch, and it has a potential capacity without any additional compressor, or without any compressor, 40 or 45 million a day.

Q That is just to serve the middle Blanco area?

A That is right.

Q Do you have any construction plans to increase the size of that?

A Not at the present time because we are only getting 10 million feet a day out of it.

MR. SMITH: That is all.

By MR. UTZ:

Q You spoke of a location to pipe line or proration pipe line, proration on the basis of deliverability. Would you

clarify what you mean by deliverability?

A What I mean by that was that all the wells in a particular area feed into the pipe line wide open at the well and the only limit to the capacity of the well is the amount they will put into the pipe line.

Q Wide open?

A That is right.

Q Under what kind of back pressure?

A As I explained before, it varies from 500, five places, up to 650 pounds, different parts of the field.

MR. UTZ: That is all I have.

MR. SPURRIER: Anyone else? You may be excused, Mr. Thompson.

(Witness excused.)

MR. SPURRIER: Anyone else have any testimony to present in this case? If not we have some letter to read into the record. We will ask your indulgence since we would like them to appear in the record.

MR. WHITE: Here is a letter from Thomas J. Quigley, Beverly Hills, California dated December 15, 1951. Gentlemen: The writer was one of the earliest operators in the area above described and is still the owner of royalties and leases and operating interests in several thousand acres in the area.

Long before Mr. Florance drilled the first well which

really opened up that Blanco Mesaverde area, the writer endeavored to interest Stanolind as well as many other companies in prospecting the Blanco Largo Canyon area and turned over some of his land to Mr. Florance in an effort to get the area drilled. So my associates and I are thoroughly familiar with the area, having practically pioneered it.

We have given the matter considerable study and are convinced that proration at this time is ridiculous and would discourage considerable drilling.

I am just in receipt of a letter from one of the largest companies in the United States which is now actively operating in the San Juan basin. I brought them in, personally, after considerable effort and they are now developing some of my lands. They have already drilled a couple of wells on my land and I wrote them ten days ago, asking them about their development plans for 1952 and I quote from a letter received from them just yesterday:

"We understand that plans are afoot for proration and one of the companies interested in that area has applied for proration of production.

Our future development will depend somewhat on developments as to market and price and the results of efforts to prorate production."

Here is concrete evidence that even the thought of

proration has immediately slowed up development. There is no question about its harmful effect upon the Basin at this time.

We sincerely trust you will reject Stanolind's application. Signed T. J. Quigley".

Here is a telegram received from Lawrence C. Kelly, Los Angeles, California, dated December 17, 1951:

"Stanolind petition for gas proration is so meager and lacking in working details that no consideration should be given it Stop I am holder of several federal leases in Blanco area and am interested in two Point Lookout gas wells I respectfully suggest much detail study and many formulae be worked out before considering any method of proration Stop As a member of Conservation Committee of California Oil Producers for more than fifteen years until 1948 I saw great number of formulae which appeared fair in principal worked out before using bring out fantastic results with many gross inequities Stop Many factors must be given weight namely pressures of different formations, economics cost of wells, gas gathering line pressures, government limitations of royalties and many others Stop Proration of gas production does not appear warranted for many years but if added to present high gas line pressures the incentive to drill gas wells is gone Stop Would be great set back to San Juan Basin I am unalterably opposed

to Stanolind petition. Signed Lawrence C. Kelly."

Here is a telegram from Sunray Oil Corporation, Tulsa, Oklahoma, dated December 17, 1951:

"RE: Case Number 350, December 18, 1951 Stanolind application to make more definite and certain rules applicable to Blanco-Mesaverde gas field, San Juan County

This company normally favors adoption of rules providing for equitable gas allocation where sufficient production and reservoir information is available. We have two wells on approximately 6700 acres in Blanco field and therefore in absence of such information have no recommendations to make at this time. Sunray Oil Corporation - William L. Horner, Chief Engineer."

Here is a letter from William Mansfield, Farmington, New Mexico, dated December 15, 1951, regarding proration of natural gas.

"To Whom it May Concern: The proration should cover all gas wells regardless of the formation the wells are producing from or from any formation that is not producing from at any time, that become productive at any time hereafter.

All gas wells regardless of size should be given an equal basis, (not an equal percentage basis), and this proviso should continue permanently until the smaller wells are producing their capacity, through the same size tubing

used in all wells, and at this time if the market demand is greater than the smaller wells can produce, the larger wells should be allowed to produce the over amount of the market demand.

In regards to differential governing gas wells that deliver gas into different main liner gas pipe lines, there should not be any difference of proration, unless it is necessary to reduce overhead operation, and in this event the average per well per year, should be adjusted during not over one year.

The State of New Mexico, and the Department of the Interior of the United States or its field agents, should employ experienced gas engineers on a permanent basis, to check all wells, and equipment used in the measurement and deliverability of gas produced, and delivered into all pipe lines regardless of ownership of the wells. The engineers employed for this work shall make daily reports on a monthly basis, to their respective superiors and their respective superiors shall adjust any discrepancies found, within a period of 30 days after such faults are found.

If there is not a sufficient income being paid to the state and government agencies who have the jurisdiction over the departments regularly assigned to administer these problems, then the amount of tax being paid to these

agencies should be increased a sufficient amount to properly take care of the work of the engineers and necessary assistants. Signed William Mansfield."

MR. SPURRIER: Does anyone have any further comment?

MR. DAVIS: I would like to make a statement. Southern Union believes that the Oil Conservation Act contemplates proration only in the event of present waste or a destruction of correlative rights. We do not believe that Stanolind has shown that any of that exists in the Blanco Pool and practically all of their testimony has been what might happen in the future. In view of those circumstances, we recommend that the application for proration of the Blanco Pool at this time be denied.

MR. SMITH: Well naturally, we want to support our application. I think our exhibits that we have introduced as well as the testimony amply support the application for proration at this time. The time to keep your horse from being stolen is before it is stolen. If we believe before the inequities do develop and try to rush into a manner of proration which may afford recompense it is impossible to make adjustments that would protect the people. We are suggesting a system of proration which I think has been misunderstood,

particularly in view of some of the letters read into the record. We are not attempting to think of it. We would result in limiting the market demand or amount of gas taken from the field. We are merely suggesting that consideration be given by the Commission to putting out such rules as will afford an equitable tactically in the area colored on Exhibit 8 as in yellow and blue, it is obvious in there that if one of the purchasing companies should take an excessive amount of gas to supply their particular market demand for a period of two or three years or even longer, that an imbalance will occur. It is self evident because you have offsetting leases dedicated to different purchasing companies. Now, if we wait until that time does come about, we have damage which cannot be measured because it is difficult to ascertain precisely how much damage may have occurred. So that we are suggesting at the time to put proration in before the damage occurs and we think that at the present, damage to correlative rights has been demonstrated through the fact that a number of wells may be shut in and frozen in and not given an opportunity to deliver their proportionate part of the gas to satisfy the appropriate market demand. You will note in our suggested rule that we have, go on a bottom hole pressure, or rather a potential test basis which is in affect

deliverability, because the company out there will take from these wells what they can during the first year. I think this first year, during that period of time, the Commission will have a chance to see how proration works out there and can definitely formulate a fair policy for all the people concerned, both purchasers and producers at the time and before there will be a possibility of waste or damage to the respective producing leases.

It is difficult of course, to express exactly what this damage may be, and it is very essential by its very difficulty we think that the time to institute rules which you know will set up a fair and equitable formula is, instead of leaving it to chance, to determine whether a rule should go into effect. In other words, what I am saying is that if it gets to a point where the imbalance does exist well then we will be confronted with the actual situation, with no past proration experience, no opportunity to determine how the wells will produce, whether it should be on a deliverability basis or test basis, we may have to spend months or years to determine what the productive capacity of the wells would be. And by that time, of course, the damage will be more or less aggravated. We think that protection of the royalty owners and the small operators in that field as to major companies demands that the proration rules be instituted now.

MR. SPURRIER: Did you, during your presentation of testimony, advocate proration by pipe line or on a pool-wide basis?

MR. SMITH: We feel that on a pool-wide basis is the equitable way to do it.

MR. LOCKE: I would like to make a statement, Mr. Spurrier. I want to say amen to every thing said by Southern Union as to conjecture quality of proof by Stanolind referring to the item of damage. I want to point out a real damage that will occur if proration is placed in the Basin in this year. Our companies commenced operation on August 1, 1951, on January 1, we will have three Pictured Cliffs and two Mesaverde tied into the pipe line. Our program is twenty wells in Largo Canyon. If this goes in, our capital, being risk capital, will not be available for the drilling of the wells. There is a real damage to the State of New Mexico in development of gas for markets in the San Juan Basin. It seems to me as a lawyer, that if I came in with a case so conjectural as has been presented here today that I would feel embarrassed to get up and contend that I should be given relief.

MR. SPURRIER: Anyone else? Mr. Stone.

MR. STONE: I represent Ralph A. Johnston. We have three wells, Mesaverde wells, in that red outline, and on

some 4000 acres. As an independent operator, we have not been consulted at any time, at least I have no reference of it in connection with proration. I think properly handled, and at the opportune time it is a wonderful thing. At this time it is neither practical or feasible. Also, on the basis of the testimony shown, I can find no inequities, no over production in gas and as far as the seller or producer of gas to contemplate what the purchaser would do toward taking it. I think it is far fetched. We are definitely opposed to it.

MR. SPURRIER: Anyone else? Mr. Morrell.

MR. MORRELL: No statement, thank you.

MR. GORDON: With the Three States Natural Gas Company, we have five wells now completed and some of them would be in the immediate area affected. We contemplate drilling between seventy five and eighty wells. That is based, that program is based, on our confidence that the pipe line outlet to this field will be sufficient to take the production developed in the area. At this time we feel that proration as suggested is not required, but should any inequities develop, we will be glad to go into any proration that is proposed for the field in the future.

MR. SPURRIER: Thank you. Anyone else? Mr. Bolack.

MR. BOLACK: Mr. Chairman, I have interest in a number of gas wells in the Blanco field. Some of them are over-

rides. Some are half interest workings. I feel that proration at this time would definitely curtail considerable activity in that area. I won't say that the suggestion is wrong. I feel it is just a little bit ahead of schedule. I feel that their testimony stating that powerful line pressures are maintained in that area, I believe that wells producing against comparable line pressure will automatically prorate themselves as accurately as can be done mechanically. I would concur in practically all the statements of Southern Union. I oppose it.

MR. SPURRIER: Anyone else? Mr. Barnes.

MR. BARNES: Mr. Spurrier, I am representing Frank Barnes, an independent geologist, Mr. John Price, an associate of Aztec, and Mr. William Mansfield, of Farmington, and Kingsley-Looke Oil Company. I would like to state for the record that I am not personally opposed to proration as such or in principle, but that myself and my associates are opposed to proration at this particular time because we feel that it would damage development in the San Juan Basin and would result in the drilling of considerably numerous, numbers of gas reduced, numbers of gas wells over the next few years. I would like to make a suggestion to the Commission that this petition be denied and that in the present time the Commission appoint a Board to study this situation impartially and make a recommendation to the

Commission within the next six months on the feasibility of proration at that time.

MR. SPURRIER: Anyone else?

MR. RICHARDSON: I represent Lowry and Associates, and all I would like to say is to emphasize what Mr. Locke has said that I represent some independents, and we are not operating on the same scale as the Blanco is, although we have twelve rigs running. They have twenty five up there. We have got sixteen wells in the process of being drilled and hope to complete those in the next couple of months. The time just doesn't seem right to me to come in here with a proration order and result in quite a lot of development coming to a halt up there.

MR. SPURRIER: Anyone else? If not, if there is no further testimony, the case is concluded and will be taken under advisement.

(Whereupon the hearing was adjourned.)

STATE OF NEW MEXICO)
:
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached transcript of proceedings before the Oil Conservation Commission, State of New Mexico, at Santa Fe, in Case No. 330, is a true and correct record of the same to the best of my knowledge, skill and ability.

Dated at Albuquerque, New Mexico, this 19th day of January, 1952.