Before the

OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

TRANSCRIPT OF PROCEEDINGS

Case No. 583

October 27, 1953 - Special Hearing

ADA DEARNLEY & ASSOCIATES
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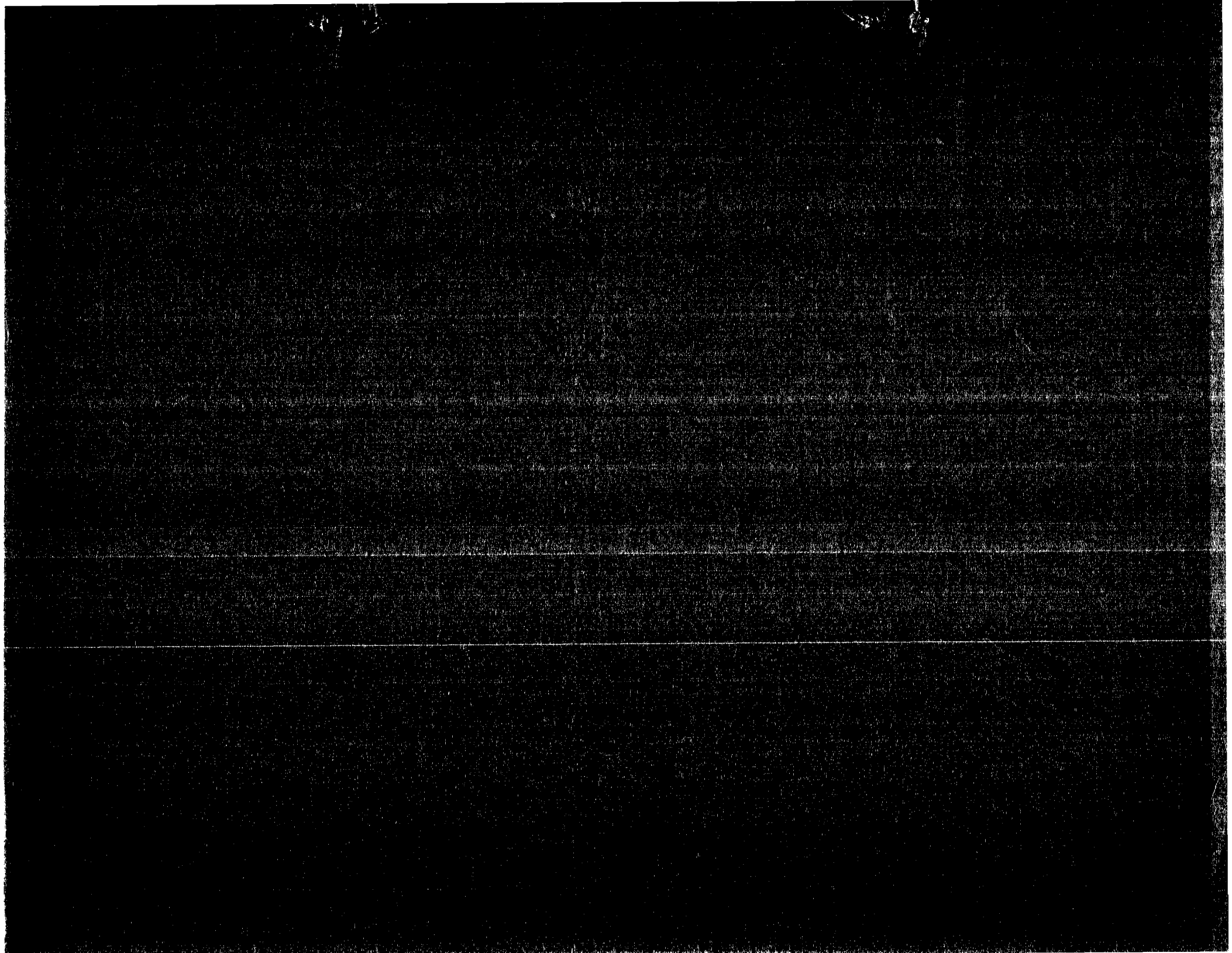
ALBUQUERQUE, NEW MEXICO



- REGISTER -

NEW MEXICO OIL CONSERVATION COMMISSION October 27, 1953

NAME	REPRESENTING	LOCATION
C. C. Wilson	Continental Oil Co.	Hobbs, New Mexico
R. T. Wright	El Paso Natural Gas	Jal, New Mexico
A. L. Hill	El Paso Natural Gas	Houston, Texas
W. G. Abbott	Amerada	Monument, New Mexico
J. W. Cole	Gulf Oil Corp.	Ft. Worth, Texas
E. H. Foster	Phillips "66"	Amarillo, Texas
H. T. White	Phillips "66"	Bartlesville, Okla.
A. R. Ballou	Sun Oil Co.	Dallas, Texas
N. P. Chestnutt	Southern Union Gas	Dallas, Texas
Quilman B. Davis	Southern Union Gas	Dallas, Texas
Joe L. Hudgins	Humble Oil & Ref. Co.	Midland, Texas
C. S. Dewey	Humble Oil & Ref. Co.	Midland, Texas
A. M. Wiederkehr	Southern Union Gas	Dallas, Texas
C. R. Bickel	Shell Oil Co.	Hobbs, New Mexico
C. A. Hill	Shell Oil Co.	Midland, Texas
Jason Kellahin	Samedan Oil Corp.	Santa Fe, New Mexico
Ed Noble	Samedan Oil Corp.	Midland, Texas
G. E. Trimble	Samedan Oil Corp.	Midland, Texas
A. A. Kemnits	Samedan Oil Corp.	Hobbs, New Mexico
Carl M. Hill	Lone Star Producing Co.	Dallas, Texas
R. L. Boss	Gulf Oil Corp.	Ft. Worth, Texas
Homer Dailey	Continental Oil Co.	Ft. Worth, Texas

G. E. Stahl	Permian Basin Pipeline Co.	Omaha, Nebraska
Clarence E. Hinkel	Humble Oil & Ref. Co.	Roswell, New Mexico
A. L. Porter	Oil Conservation Comm.	Hobbs, New Mexico
Max E. Curry	Skelly Oil Co.	Hobbs, New Mexico
James M. Murray, Jr.	Me-Tex	Hobbs, New Mexico
V. D. Leonard	Me-Tex	Hobbs, New Mexico
G. A. Plummer	Lone Star Prod. Co.	Midland, Texas
Harry E. Otell, Jr.	Lone Star Prod. Co.	Midland, Texas
J. W. Baulch	El Paso Natural Gas	Jal, New Mexico
Merle B. Rogers	El Paso Natural Gas	Jal, New Mexico
S. J. Stanley	Oil Conservation Comm.	Hobbs, New Mexico
Curtis Park	Lone Star Prod. Co.	Dallas, Texas
Geo. Hirschfeld	New Mexico Oil & Gas	Hobbs, New Mexico
V. T. Lyon	Continential Oil Co.	Ft. Worth, Texas
M. L. Melton	Anderson-Prichard	Hobbs, New Mexico
G. L. Tribble	Permian Basin Pipeline Company	Omaha, Nebraska
Rex D. Fowler	Permian Basin Pipeline Company	Omaha, Nebraska
Phil Randolph	R. Olsen Oil Co.	Oklahoma City, Okla.
Aaron Cummings	R. Olsen Oil Co.	Jal, New Mexico
Johnnie French	R. Olsen Oil Co.	Jal, New Mexico
D. Nicol, Jr.	Southern Union Gas Co.	Dallas, Texas
J. H. Vickery	Atlantic Ref. Co.	Midland, Texas
J. N. Dunlavey	Skelly Oil Co.	Hobbs, New Mexico
D. K. Spellman, Jr.	The Ohio Oil Co.	Midland, Texas

E.T. Adair	T. P. Coal & Oil Co.	Ft. Worth, Texas
Peck Hardee, Jr.	T. P. Coal & Oil Co.	Midland, Texas
R. G. Hiltz	Stanolind	Ft. Worth, Texas
F. Norman Woodruff	El Paso Natural Gas	Houston, Texas
George E. Trimble	Samedan	Midland, Texas
H. E. Massey	Cities Service Oil Co.	Ft. Worth, Texas
E. C. Arnold	Oil Conservation Comm.	Aztec, New Mexico
Jack M. Campbell		Roswell, New Mexico
Elvis A. Utz	Oil Conservation Comm.	Santa Fe, New Mexico
C. M. Bumpass	Gulf Oil Corp.	Hobbs, New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

October 27, 1953

IN THE MATTER OF:

Langmat Gas Pool, in Lea County, New Mexico, said operators and interested persons being called upon to show cause at respective special hearings beginning at 9:00 A. M., on October 27, 1953, why Order No. R-369, Langmat Gas Pool, as amended at such respective hearings, should not be effective and in full force and effective as of November 1, 1953.	)	Case No. 583

BEFORE:

R. R. Spurrier, Secretary, Oil Conservation Commission and

E. H. (Johnny) Walker, Commissioner of Public Lands

TRANSCRIPT OF PROCEEDINGS

MR. SPURRIER: Meeting will come to order, please. First case on the docket this morning is Case No. 583.

(Mr. Graham reads the notice of publication in Case No. 583.)

MR. SPURRIER: Is there anyone that cares to introduce testimony in this case?

A. L. HILL: If the Commission please.

MR. SPURRIER: Art Hill.

MR. HILL: A. L. Hill, El Paso Natural Gas Company. We would like permission to file later on this morning a revision of

exhibit No. 2 which we filed in the case yesterday, the Jalco case, concerning the deliverability formula and testing feature. The exhibit as filed yesterday, was put together hurriedly, and was not proof read. We found minor errors which we would like to correct today, please.

MR. SPURRIER: Any objections to Mr. Hill's motion? If not, you may re-introduce the exhibit No. 2.

MR. QUILLMAN DAVIS: In Case No. 583, concerning the Langmat Pool, Southern Union Gas Company is operating in a dual capacity, that is, as a producer as well as a purchaser of natural gas at the well from various operators in the pool. Therefore, under these circumstances, we are interested in equitable recovery of reserves both as a producer and purchaser.

Now, if pro ration is deemed necessary to prevent waste and protect correlative rights in these pools, or the Langmat Pool, we believe any pro ration order adopted by the Commission should give full consideration to the equitable recovery of reserves in order to accomplish this fact. It is our opinion your allocation formula should be used, or should use both the factors of acreage and deliverability.

I might add at this point, that Southern Union operating in southeastern New Mexico is buying and producing gas for its public utility markets in the southeastern part, particularly the Carlsbad district. Therefore, any pro ration order in the Langmat Pool must be so we at all times will be able to obtain the necessary gas for the public utility market, and in support of

our idea of the formula and type of rules we propose for this pool, I would like to call Mr. Al Wiederkehr.

(Witness sworn)

AL M. WIEDERKEHR

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. DAVIS:

Q Will you please state your name?

A A. M. Wiederkehr.

Q By whom are you employed?

A Southern Union Gas Company.

Q In what capacity?

A Reservoir Engineer.

Q You have testified before this Commission before, have you not?

A I have.

MR. DAVIS: Are Mr. Wiederkehr's qualifications acceptable?

MR. SPURRIER: They are.

Q Mr. Wiederkehr, have you made a study of the Langmat Pool as well as the other pools in Lea County, in connection with proposed pro ration and allocation produceable from the pool?

A I have.

Q Has Southern Union, a taker of natural gas, particularly in the Langmat Pool, ever used a formula to provide for rateable

production from wells connected to the system?

A We have in the past, we have used a formula composed of three components, 50% acreage plus 25% potential plus 25% shut-in pressure.

Q Why was this formula selected by the company?

A We had two reasons for selecting this particular type formula in pro rating gas from wells to which we were connected. First, our contracts are so written that they say we must give consideration to acreage potential and shut-in pressure in order to provide for equitable purchasing of gas from those companies to which we are connected. Secondly, we believe that a combination of factors can be used in such a manner that they will reflect to some great extent the recoverable reserves underlying any particular unit. We do not contend that these percentages are correct, but we feel that as they have been used, they are as equitable a means of allocating production as is practicable. We have used this system for some time, and quite a number of operators to whom we are connected and whose wells have been pro rated under this particular system, are present here today, and insofar as I know, we have had no complaints from any of them by using this particular formula, although, it specifies in their contracts they have the right to ask that we do pro rate gas.

Q Mr. Wiederkehr, if pro ration is put into effect in the Langmat Pool by the Commission, what do you propose at this time as an appropriate allocation formula?

A If it is necessary to pro rate gas in this pool, I would

suggest that pro ration be put in on a basis of 50% acreage plus 50% deliverability.

Q Now, you have testified that Southern Union is currently using 50% acreage plus 25% potential plus 25% shut-in pressure. Now, you are suggesting 50% acreage plus 50% deliverability. Why do you recommend this change?

A We have been using the formula for some time.

Q The formula you are talking about--

A (Interrupting) The original formula of 50, 25 and 25, you run into two things when you do that. One is the extreme number of calculations that have to be run. It has worked pretty well with us, in the small number of wells we have, 25, I think. If you use three factors in the state-wide pro ration, or field-wide pro ration in a field of this size, you are going to enter into an undue amount of paper work. At the same time, I feel potential and shut-in pressure are both covered pretty well in using deliverability; those two factors directly affect deliverability. Prior to this time, we have had no authority to use anything outside of potential and shut-in pressure. If the state pro rates gas, we will be relieved of these particular factors and use others that give the same apparent effect, but our difference, and it will cut down on the amount of work that will be necessary in trying to pro rate gas. When you have three factors instead of two, that is one-third additional amount of work that will be necessary, amount of paper work that will be necessary to put pro ration into effect and give balancing and

working out of formulas.

Q Then what you are saying is that at the time we started using a formula for rateable withdrawals of gas connected to our system, we were doing it pursuant to contract?

A Right.

Q Now then, if we have poolwide pro ration by order of the Commission, you would go back to the deliverability and your potential and pressure?

A Right.

Q For simplicity, in any event?

A That is right, and in my opinion, these two factors make a portion of the deliverability.

Q Let me ask you, what is the relationship between deliverability and sand thickness?

A There is definitely a relationship between the deliverability capacity of a well against common pressure and sand thickness. Deliverability has another factor involved; that factor being the permeability of the zone. But, assuming permeability to be consistent, then deliverability would be in direct proportion of the net thickness of sand from which gas is being drained. Actually, deliverability does have two factors in it, but one of the main ones of these is sand thickness, so it is actually in part a correlation of sand thickness and relativity, and wells completed in the same producing horizon, and thereby having the same approximate other factors.

Q Mr. Wiederkehr, as you know, the stand-by rules adopted

by the Commission previously provide for, or indicate to us that acreage is the only factor in pro rating gas, and the pools, when and if pro ration is put into effect, for individual pools, and you have heard considerable testimony in previous cases concerning pro ration, that acreage is the proper factor. Why do you oppose the use of acreage alone as the pro ration of allocation in natural gas?

A In this particular pool, it must be realized that your pressure radient from one end of the pool to the other, since it covers a large areal extent, is quite high. Acreage alone does not take into consideration that difference in pressure, neither does acreage alone take into consideration sand thickness, both of which are necessary in calculating reserves, and the idea of pro ration is to give everybody a chance to produce his reserves. When you put it on a strictly acreage basis, you are not taking care of reserves. I want to add, that if all the other factors were consistent, your pressure was the same throughout the reservoir, and sand thickness the same throughout the reservoir, acreage with sand thickness would be a good measure of reserves under a given tract. In this particular case, these facts are not consistent, so acreage has no appreciable bearing in excess of other factors, and should not be used alone.

Q Mr. Wiederkehr, on previous hearings you have--I mean on the hearings yesterday concerning pro ration of other pools in Lea County--you have heard several statements made saying that deliverability should not be the formula, and you have heard state-

ments made to the effect that acreage alone should be the formula. Have we had any evidence in any of these cases to support the acreage alone factor?

A I have seen no evidence to show acreage alone should be used.

Q Let me ask you in connection with the size of a pro ration unit, what is your opinion for the size of a pro ration unit for the Langmat Pool?

A I think in this pool 150 acres should be the standard pro ration unit. The Commission has approved past development on that basis, the operators have developed on that basis, and that in itself seems to show it is economical to drill and produce wells on that basis, and at the same time, I think we are in agreeance that 160 acres can be drained by one well.

Q Well, in addition to operators drilling on 160 acre tracts, there have been some permitted on lesser tracts prior to the statewide spacing, is that not true?

A That has happened, although the state rule calls for 160 acres, and my opinion is these wells drilled on less, the production proper on those wells should be retarded because in 90% of the cases, I am sure, the reserves under those tracts do not come under the reserves in 160 acres.

Q Were any wells in this pool drilled prior to the 160 acre spacing?

A There were, I am sure, prior to that time.

Q You have some wells drilled for oil--

A (Interrupting) Recompleted.

Q (Continuing) --recompleted in gas zones on maybe 40 or 80 acres?

A That is correct.

Q Let me ask you this. Do you think the pool rules for the Langmat Pool should permit automatic assignment for additional pro ration units not to exceed the proposed 640 acres?

A I do not think such additional unit should be assigned automatically. I do think that where an operator can come before this Commission after due notice and hearing, and prove to the satisfaction of the Commission that the additional unit, or additional acreage they wish to add to the additional pro ration unit can be drained by this additional well, and additional acreage is productive, at such time the Commission could allow additional acreage assigned to the pro ration unit. I do not think it should be automatically, because it is conceivable, in a case like that, a well could be completed as a producer in a portion of a 640 acre tract which was productive, while a good portion of the same tract might not be productive, and I think it is the operator's duty, for the privilege of being allowed to produce, they should show that that additional acreage should be given an allowable because it is productive. If economically the well would drain 640 acres, and that 640 is productive, I see no reason why it should not be allowed to produce on that basis.

Q Mr. Wiederkehr, just assume for a moment that the Commission might decide that additional pro ration unit might be

automatically assigned to a well. Is it your understanding under the present stand-by rules that a fractional pro ration unit might be assigned to a standard pro ration unit?

A That is the way I read the present rules.

Q What is your recommendation on that in the event the Commission does permit the automatic assignment of additional pro ration units up to 640 acres to a single well?

A I think no fractional portion of a unit should be allowed to be added to a standard unit without notice and hearing. I have a reason for that. An operator with 160 acre tract given as one standard unit, might have a 120 acre tract adjoining that, and would like to add that to the 160, giving him one and three-quarters; that 120 would have no recourse. I feel that any additional acreage outside of any fractional acreage that should be allowed to be added, should come before the Commission, and at that time the man with the 40 acre tract would have a chance to state his position, and then after notice and hearing, if the Commission so desired a fraction might be added to a standard pro ration unit.

Q There has been some indication, I think, proposed primarily in opposition to deliverability as a formula, that the use of this factor would certainly delay putting pro ration into effect in the Langmat and other pools in Lea County. Now, is it not true that the present rules of the Commission require a four point back pressure test made annually with each gas well in the Langmat Pool?

A That is correct, Rule 401 requires back pressure tests.

Q If that is the case--

A (Interrupting) May I say that this rule exempts wells with a potential of less than 400,000 cubic feet per day. In that event, the well would have to have an original four point test to prove the test was less than 400,000.

Q In that case, if it was necessary to obtain or determine deliverability of gas wells in the Langmat Pool immediately, could not the Commission set up a procedure whereby the deliverability would be calculated from the back pressure test which we presume are on file with the Commission?

A It would be a simple matter for the Commission, or operator to take the back pressure test, supposedly on file, and calculate a deliverability test, deliverability from these particular tests. As a matter of fact, I suspect that such tests could be, deliverability calculations could be made by the operators in less than a week. If the Commission had to do it, I don't know the personnel they have, and it would take approximately forty tests could be conducted in one day, or forty calculations made in one day. I am basing that on the fact the same calculations have been made in the San Juan Basin, I have made them at that rate.

Q I don't think any of us intend for the Commission to make a deliverability test.

A I would say the operators could, I don't think any operator has enough wells that he couldn't do it in a week.

Q What is your opinion as to the continued use of the four point back pressure test in calculating the deliverability of the wells?

A I think the four point back pressure test should be discontinued if we are going to run deliverability tests, the four point test could be used and a deliverability calculated from the four point test each year, but if one good four point test is obtained, then it would not be necessary to run another four point test, and from that calculated deliverability, you might as well run the deliverability and use the in-factor from the four point test. I would suggest the deliverability test be used in lieu of the present required four point potential test.

Q Mr. Wiederkehr, you have previously testified here that in your opinion the proper formula for allocation of gas in the Langmat Pool should be 50% acreage plus 50% deliverability. We, of course, know what the acreage factor is. What do you propose as a proper procedure in determining the deliverability in lieu of the four point back pressure test for future use?

A I have not written up a set of tests of deliverability. The State of New Mexico has on file a testing procedure used in the San Juan Basin, and that procedure, with slight modifications, could be used. There are several factors necessary in obtaining a good deliverability test. One of those factors being stabilized rate of flow; such rate being high enough to allow, or to keep the well bore clean. That rate, we do not know, but in most instances we have found that using from 75 to 85% of the shut-in

pressure as the delivery pressure is feasible, and I would suggest that any such deliverability test be run at a deliverability delivery pressure of from 75 or 85% of the shut-in pressure. In this manner, when you go to apply your in-factor, using say 80% as your deliverability pressure, your in-factor will, an error in that in-factor will make little difference in the result of your deliverability test, even though your in-factor might be off considerably at that particular range or variation. And deliverability pressure and actual testing pressure have little effect on the result run in your deliverability test at a pressure of 75 or 80%. Calculate that back to the deliverability, a pressure of 80% of the well's shut-in pressure.

Q Mr. Wiederkehr, have you had an opportunity to examine the method of calculating deliverability and associated testing procedure submitted, I believe, as exhibit No. 2 of El Paso in Case No. 582?

A Yes, I have.

Q In the Jalco Pool?

A I have examined that.

Q The exhibit, as submitted, Mr. Wiederkeher, do you concur in all of the facts and information they have set forth in that exhibit?

A No, I cannot agree with that as it was set out yesterday. There were several errors which I believe will be corrected as Mr. Howell asked this morning, but as it was submitted yesterday,

there were some errors I would not agree with, some methods I would not approve. I do not think they are practical.

MR. DAVIS: If the Commission please, we would like to reserve further comment on the exhibit until the revised form is submitted to the Commission. We feel it will be all right, but would like to have an opportunity to discuss that point.

MR. SPURRIER: Very well.

Q Mr. Wiederkehr, I hand you a paper here marked as Southern Union's exhibit No. 1. Would you please tell the Commission what the heading of that is?

A Special Pool Rules, it wasn't written for any particular pool, and is labeled "Special Pool Rules for blank Gas Pool."

Q Have you studied and reviewed the proposed special rules?

A I have.

Q What was the reason or basis for preparing or submitting to the Commission a set of proposed special rules for pro ration of gas in the Langmat Pool?

A In the rules, as they are now written--

Q (Interrupting) You are talking about the stand-by rules?

A Yes. (Continuing) --as now written, there are provisions in those rules which are not actually applicable to gas pro ration. These special pool rules are designated to apply to

one given pool. All pertinent information is included in this one set of rules, and at any time, it is desirable to check on the necessary methods of allocating gas, the various factors concerned, you go back to one set of rules, and all the information is in that one set.

Q In other words, what you are representing to the Commission is that it adopt, particularly as to the Langmat Pool, the special rules here that will be all inclusive, that the operators and pipe line companies operating in that pool will only have one order to refer to to determine the spacing and procedure of drilling wells, as well as the matter of allocation?

A That is correct.

Q Now, tell me, these stand-by rules, of course, were adopted by the Commission in Case No. 521, Order No. 356, I believe, is that correct?

A I believe that is right.

Q How do these special rules we are proposing vary from these general or stand-by rules adopted by the Commission in Case 521?

A Well, as I previously stated, we are eliminating the provision of the stand-by rules which does not apply, we are incorporating--we are not incorporating by reference any statewide rules that are actually written out, we are making modifications which we believe are necessary for the pro ration of gas.

Q The reason--excuse me a minute, let me clear that up--

the reason for that is as the pipe line company, we are going to be responsible to make pro ration work to some extent along with the help of the Commission?

A That is right.

Q And therefore, the changes we are proposing in connection with our operation, as a pipe line company, and so far as you know, would not affect the operators or the producers in the area?

A No, I don't think they would, not primarily.

Q Let me ask you this. In connection with these special rules, of course, you have stated that we have recited in the special rules the spacing of wells hereafter drilled?

A Yes.

Q Which was taken from the state-wide rules?

A State-wide rules.

Q Now, what other changes have we made in the stand-by rules, generally, I don't mean in detail?

A We have changed the provision for supplemental nominations. Under the present proposed rules, the stand-by rules, the nominee is compelled to make supplemental nominations monthly. We feel that that is not necessary, that it should be left to the discretion of the operator to nominate additional gas if he desires, and he feels the nomination made at the beginning of the pro ration period, he is going to make those by the month, those particular nominations are in line, we don't feel it should be necessary for him to come back and make a supplemental nomi-

nation. Then--

Q (Interrupting) Excuse me, Mr. Wiederkehr, That, of course, follows what we consider the mandate of the statute that allocation of gas generally in New Mexico will be on a six months pro ration period?

A Right.

Q Now, we are, of course, not objecting to the adjustment and assigning of allowables on a monthly basis in order that the Commission, the operators and pipe line companies will at all times know where they stand in the matter of over and under production, is that right?

A Yes, through a balancing. An actual balancing should be done once a month. The state-wide rule, the law says that we should have pro ration on a six months basis. We believe the monthly balance is necessary in order that all people keep up and see where they stand. It so happens I have worked on pro ration in times where more than one month was allowed to go by without balancing. You can get out of line in a hurry. We agree with that, we do not think it is necessary to re-submit nominations.

Q In other words, you are satisfied with the nominations that you submitted by month at the beginning of the pro ration period, why submit additional paper to the Commission?

A That is correct.

Q When you said you thought wells ought to be balanced on a monthly basis, you are simply saying that allocation be

made on the record of the status of that well, but still have a six months balancing period?

A Six months balancing period. At the end of each month they can see whether they are over produced or under produced.

Q In other words, you have information or knowledge to the effect whether you are under produced or over produced?

A For that particular month.

Q But you are not recommending the well be shut in or--

A (Interrupting) We still have six months to do that.

Q What other changes or additions have we made in the special rules?

A We have changed the well's allowable, of course, in line with our thinking, the allowable should be based on 50%, allocated on the ratio of acreage and 50% allocated on the ratio of deliverability. So, our rule 4, which is well allowable, has been changed in lieu of using 160% acreage, we have used our allocation formula. Then we have one other thing--

Q (Interrupting) You said, "Our allocation formula," you mean--

A (Interrupting) The allocation formula we are proposing. Then, we have one other thing that I have mentioned previously, we made no provision for adding more than one, or having more than one standard pro ration unit, since, as I stated, we feel that any additional acreage should be added by notice and hearing before the Commission. We left that provision out, as the rule stands. They say the standard pro ration unit of 160 acres, and

that shall be all, and that is the unit for allocation period. At any time that more acreage should be added, that should be done by special order.

Q You refer to, as the rule stands, you mean, as to the proposed special rule?

A Correct.

Q Now, in that connection, of course, we did not recite in the rules the proposition you testified to a moment ago, we would have no objection to the assignment of these additional pro ration units after notice and hearing before the Commission and such evidence as might be necessary to satisfy the Commission for the assignment of additional pro ration unit? You would have no objection, of course, for that type of provision being put in the rules, and should not be put in if the Commission decides that is advisable, to permit the assignment of additional units after hearing? Don't you think that should be put in the rules if it is the desire of the Commission?

A That has to be left to the discretion of the Commission. If they feel a special order should be given before they include additional acreage to add it to the standard pro ration unit, that should be specified in the general rules. We did not know what the feeling of the Commission was, so we left it out and assumed the Commission will write in their opinion.

Q In other words, you had the opinion that instead of putting them both in and deleting one, you left them both out?

A Yes.

Q You referred to Rule 4 of the proposed special rule, well allowable. Did we attempt to put in the method, or procedure to determine deliverability?

A No, we did not write a method for determining deliverability. I previously stated the state has such a deliverability method in their files, and this is quite a long detailed discussion, that it could be easily converted to be applicable to this particular area. It was used in the San Juan Basin with relative success, and I believe that with minor changes, can be converted to be used in our four corner area now under discussion, or this particular pool, the Langmat Pool.

Q Mr. Wiederkehr, are there any other changes that we have made in reproducing the pertinent provisions of the stand-by rules and special rules that you would like to call to the Commission's attention?

A I don't recall off-hand any other than those I have mentioned.

Q All right. Do you have any other statements or suggestions to make to the Commission concerning the proposed pro ration of natural gas in the Langmat Pool?

A Nothing, outside of what I have already testified, and to the effect pro ration should be based on an equitable means of allowing gas to be produced from individual tracts, and proportions of that amount of gas which is under that particular tract.

MR. DAVIS: No other questions.

MR. SPURRIER: Any questions of the witness?

MR. HINKLE: Clarence Hinkle, representing Humble Oil and Refining Company, Continental Oil Company.

CROSS EXAMINATION

By MR. HINKLE:

Q I believe that you testified, Mr. Wiederkehr, that you were here and heard the testimony introduced by the El Paso in the Jalco case?

A I did.

Q I am a little confused as to the difference between your formula which you propose and that of the El Paso. Are they the same, substantially?

A As far as I know, they are the same.

Q And require the same test to be made and all?

A I am proposing the possibility of not immediately running a deliverability test, but to calculate a deliverability test to be used, in order to make it possible to put pro ration into effect immediately, or approximately immediately. Outside of that, the general method of allocation is the same.

Q How would you calculate that deliverability?

A Calculate it from the four point back pressure test.

Q How often are those made?

A Supposedly, annually.

Q Were those tests witnessed by members of the Commission?

A I do not know.

MR. SPURRIER: Does anybody--

MR. MACEI: (Interrupting) They are not.

Q You propose to use those tests which were not witnessed by a member of the Commission, as a factor?

A They could have been witnessed by offset operators. I propose to use them, yes.

REDIRECT EXAMINATION

By MR. DAVIS:

Q Mr. Wiederkehr, in your proposal to use the four point back pressure test, you did not suggest that is a continuing method of determining deliverability. In other words, it would be all right with you to immediately proceed with the deliverability testing proposed?

A I am suggesting that it is possible to use the present potential test to calculate a deliverability, simply in order that pro ration may go into effect more rapidly. If it is the desire of the operator, it would, of course, be better to have a deliverability test run, and that information used; but from the testimony I have heard, I believe that some of the operators are of the opinion a deliverability test would delay pro ration. This would not, to any extent. That was my only reason for suggesting a deliverability be calculated from a four point back pressure test.

MR. SPURRIER: Mr. Kellahin.

MR. KELLAHIN: Jason Kellahin, representing Samedan Oil Corporation.

CROSS EXAMINATION

By MR. KELLAHIN:

Q Mr. Wiederkehr, in your testimony, you testified that permeability being the same, there would be a direct relation between deliverability and sand thickness?

A I think that is right.

Q Assuming the permeability is not the same, and the other factors are equal, then in that event deliverability would not reflect reserves?

A It would be a measure.

Q Wouldn't the deliverability of high permeability be much higher than potential?

A It would.

Q You are familiar with the formation on the Langmat Pool?

A I am not a geologist.

Q You know the difference between permeability and deliverability--

A (Interrupting) I know nothing about the permeability, I know the deliverability of the wells.

Q You don't--

A (Interrupting) I have never seen the permeability on any formation in the pool.

Q You know there is a wide variation in the permeability about the pool?

A As I stated previously, I know nothing about it.

Q Can deliverability be changed by work-overs, by

in the San Juan Basin, and I assume will be transferred to this area.

Q How many engineers do you think it would take on the staff of the Commission to witness such a deliverability test?

A Well, I just don't know, probably quite a number if the Commission were going to witness all the tests. I have found the Commission does not normally witness all of the tests, but check the calculations when they come back to the office of the Commission. If the Commission is to witness each individual test, I would say they would have to enlarge their force considerably.

REDIRECT EXAMINATION

By MR. DAVIS:

Q It wouldn't be necessary for the Commission to have a staff to witness every test if they had the proper procedure, they could simply perform spot tests and get a pretty good idea of the operation Mr. Kellahin is referring to?

A Not only that, but a good deal of the information used in the deliverability test will be on record, and the chart could be used in calculating the volume, so any boilerhousing could be caught.

Q Let me ask you this. There seems to be a bit of confusion about our proposal, or recommendation, or suggestion, that the four point back pressure test be used. We simply propose that as in opposing any theory that deliverability would delay pro ration, is that right?

A Right.

Q We are not proposing the Commission put pro ration into effect immediately, or any date. In the event it is adopted by the Commission, your theory of using this back pressure test, it certainly wouldn't delay any action, it would be an additional calculation over and above the acreage factor. Subsequently, after that calculation, you would have annual deliverability tests as you testified--

A (Interrupting) Right.

Q (Continuing) --in the manner you propose?

A Yes.

MR. DAVIS: That is all.

MR. SPURRIER: Any other questions?

CROSS EXAMINATION

By MR. FOSTER:

Q Mr. Wiederkehr, I am concerned a little bit about the six months pro ration period that you have discussed. You set out in your proposed rules there that the pro ration period should be six months. I assume you do, I don't know what is in the rules?

A Pro ration period of six months.

Q Now, how do you propose to allocate gas to an individual well? Just give it a six months allowable?

A It can be done either way. I would suggest it be done monthly.

Q How do you do it in your rules?

MR. DAVIS: If you don't mind, I think I can answer your question. We did not change the stand-by rules in any manner, except to provide that if we desired, we could submit supplemental nominations. As the rules are written, the Commission shall cause to be submitted supplemental nominations every month. We are suggesting that if you file this so-called preliminary nomination at the beginning of the pro ration period and go along month by month, there is no necessity for filing supplemental nominations. We have not changed the procedure adopted in the stand-by rules, to make your allocation and let the Commission grant the allowable on a monthly basis. We are not objecting to that, we are simply saying there is no necessity for filing supplemental nominations if your original nomination is in line, which is on a month by month basis.

Q I understand that. You don't want to produce these wells on a monthly basis?

A Right.

Q Now, the total field market demand for the pool will be allocated on a six months basis, is that right?

A The allowable at the end of the six months will be added up to give you that allowable. I don't believe it is the intent of anyone present to have the allowable given on a six months basis. The stand-by rules, which you had a big part in writing, did not mention that, and we have not changed that particular item at all.

Q I don't know where I am now.

A Are you familiar with the rules you wrote, the stand-by rules? All right then, the only change we have made is in the supplemental nomination and allocation, the only change we have made.

Q I understand that the Commission must, as I understand it, fix the market demand for the pool on a six months basis.

A All right.

Q Now, how do your proposed rules propose to allocate each one of these wells in the field on that six months market demand?

A The six months market demand will be submitted by months, by each operator, everybody making a nomination.

Q Now, you don't do that?

A We are going to make nominations--

Q (Interrupting) Each month?

A (Continuing) Each month.

Q Won't you be required to tell this Commission each month how much gas you want to produce out of the well?

A Not at the beginning. It says prior, 30 days prior to the beginning of each 30-day period the Commission shall cause to be submitted by each gas purchaser its nomination of the amount of gas which each, in good faith, actually desires to purchase and/or use within the ensuing proration period by months.

Q Now, is that your rule or the one that the advisory committee wrote?

A As we said before, it is identical as far as we know with the advisory committees. We made no change in that.

Q The only change you are proposing be made is that a producer should not be required to submit supplemental nominations?

A Unless he feels they are necessary. If I nominate two hundred million feet for the month of January, and I want to use it in January, why come back to the Commission again and say I want my two hundred million feet of gas. If I want to change it--

Q (Interrupting) I understand. If you nominate, say, two hundred thousand for January, but that will be more by way of allocation of the six months field market demand rather than a nomination for that month, won't it, under the rules the advisory committee recommended to contemplate just that?

A I don't know what the rules contemplated. We read the rules to say we will submit as a purchaser the amount of gas we intend to purchase within the ensuing proration period, which is six months, we will submit that by months, which means to me that we will figure out how much gas we are going to need each individual month, and that is what we will send in. And, if that does not change, then why use the supplemental nomination.

Q Now, supplemental nominations is not related to any particular well. That is the point I am getting to.

A These are not either.

Q Well, I understood the way you were talking about it though, your supplemental nominations would be related in respect to any particular well.

A No, supplemental nominations have nothing to do with individual wells.

Q It would apply--

A (Interrupting) To the total.

Q If I submit a supplemental nomination, it would be with respect to the total field market demand you want?

A Correct.

Q So, you would either then increase the market demand for the field--

A (Interrupting) Right.

Q (Continuing) - - if you submit supplemental nominations.

A Right.

Q That is an application to over produce, isn't it?

A No. Why do you have supplemental nominations in the beginning, because we do not know.

Q You were doing it to see what you were doing each month, over producing or under producing?

A The idea of supplemental nominations is to give the purchaser a chance to submit at a later date the volume of gas that he anticipates he will need. It is entirely feasible we could make a new connection, which would raise our amount of gas we would need in the month of "X". If we sent in six months in January, maybe in April we would tie in another customer of major importance, then we are going, if we figured our nominations without that customer, when we tie him on we are going to have additional gas, and need supplemental nominations.

Q I don't want to labor the point with you, but apparantly your concept of what supplemental nomination is, isn't the same

as the one I have, and that may be where the difficulty is.

A That might be.

Q But what I am saying to you is, under the rules that were proposed by the committee, you may over produce your wells. Now, you don't need any supplemental nominations to over produce your wells to meet any increased market demand, that is true, isn't it?

A That is right, for six months.

Q Yes. And so the supplemental nominations would not be used for the purpose of giving you additional gas and additional market demand.

A That is the way I read the supplemental nomination.

Q That ain't the idea I had about it when we wrote the rules

MR. SPURRIER: Let's take a short recess.

(Recess)

MR. SPURRIER: Meeting will come to order, please.

MR. DAVIS: Mr. Commissioner, in the confusion awhile ago, I failed to offer Southern Union's Exhibit Number 1, which, with the Commission's permission, we would like to submit that as evidence in this record.

MR. SPURRIER: Is there objection? If not, it will be admitted. Mr. Stahl.

MR. STAHL: Stahl of Permian Basin Pipeline Company. Just a few questions, Mr. Wiederkehr.

By MR. STAHL:

Q As I understand your testimony, it applies only to the Langmat pool, is that correct?

A At the present time.

Q At the present time?

A Yes.

Q It doesn't apply to all of the eight or nine--

A (Interrupting) It does not.

Q Mr. Wiederkehr, as I understood your testimony, you said the gas purchase contracts you presently have in effect in Lea County, give the producer the right to request an internal proration formula be adoped by Southern Union.

A I say they specify we shall take gas rateably from them considering these factors.

Q Didn't you say something about the producer having the right in the contract too?

A I would say, since the contracts are so written, they would have the right to see they were so fulfilled. That was my intent.

Q And that contractual provision says you are supposed to give affect to acreage, potential and shut-in pressure of each well?

A That is correct.

Q And in so saying that, you set up what might be called an internal proration, a company proration formula?

A We did.

Q On the basis of 50 percent acreage, 25 percent potential and 25 percent shut-in pressure.

A That is right.

Q You deviated from the straight 100 percent acreage, or straight acreage formula.

A We did.

Q Do you happen to know who those gas purchase contracts are with?

A Not all of them, I know some of them.

Q I wonder if you would give that information for the record.

A Continental, Texas Pacific, we had one with Gulf, I think it has been cancelled; we have one with Great Western Drilling Company; with Nolan and Lane; and others.

MR. DAVIS: Excuse me. You are dealing with the Langmat pool.

A Excuse me. Langmat pool?

Q Would you like to strike that and go over again on that list?

A Yes.

Q May we do that, please.

A I will have to start over. I was thinking of our operations as a whole. In the Langmat area we have the Texas Pacific Coal and Oil Company, and Albert Gavel.

Q To your knowledge, Mr. Wiederkehr, have either of those producers ever objected to your utilization of your formula?

A As far as I know, no, and may I state further I don't know whether they knew what formula we were using.

Q They did negotiate the contracts with your company?

A They did.

Q That contract says you will give effect to something other than acreage to potential and shut-in pressure.

A They do.

Q They never complained about your utilization of a formula?

A No.

Q They did have that right, under the contract?

A I would say that is an assumption I am making since it is part of the contract, we do prorate it that way. I would say, I am not a lawyer, that they probably had that right to complain if they didn't approve of it.

Q That is your understanding of the contract?

A That is right.

Q I believe in answer to a question directed to you by Mr. Kellahin, that you said that, assuming all other factors are equal, with the exclusion of permeability being the only variant, deliverability is not a true measure of reserves.

A I said all other factors being equal, that if the permeability is not equal, no, I don't think deliverability would be an exact factor of reserves.

Q Let me propose this hypothetical question to you. Assuming that permeability is constant, or is equal, and for example, the only variant is sand thickness, is then deliverability a true measure of reserves underlying the acreage?

A Per acre, yes, I believe so.

Q And to your personal knowledge, and you are not a geologis you have been unable to introduce any evidence with respect to

whether sand thickness is the same or permeability is the same, or any other factors entering into a reserve measure is the same.

A I didn't say that I know of the pressures, I know they are varied and I know the sand thicknesses do vary, I know nothing about permeability, I know nothing about porosity, those factors I am not familiar with. The only two I know about are the sand thickness, which I can look at the log and read, and the pressure which is reported.

Q Then, to the best of your knowledge, permeability could be constant?

A It could be.

Q In your judgment, Mr. Wiederkehr, the surface acreage, does that bear any relationship at all in any fashion to recoverable reserves underneath that acreage?

A Without another factor, no.

Q I believe you testified, also, with respect to the deliver ability formula that any stabilized rate of flow between 75 and 85 percent would be satisfactory to you as an engineer.

A I think that would be satisfactory, yes.

Q Do you have any objection to the utilization of an 80 percent factor as advocated by Mr. Woodruff and Mr. Fowler?

A I do not.

Q I believe you testified also that it was your thought that there should not be automatic inclusion of extra units to give a greater allowable. By that, I mean with the 160 acres as a standard unit, and a person drills on 320 acres should not auto-

matically be entitled to a double allowable. I did not quite understand why. Would you mind illustrating for me?

A The stand-by rule as written provides for an additional amount of acreage up to and including 40 acres. My opinion, before such additional acres be used in allocation, is that facts be given, information presented to the Commission so that they can be reasonably sure that particular acreage was productive, and that particular acreage would be drained by the well in question.

Q Now, leaving for the moment, leaving edge acreage out--by edge acreage I mean acreage along the outside limits of the productive limits--and taking only for the minute acreage inside the confines of the pool where there is production surrounding that, don't you feel that in that case it could very well be an automatic inclusion?

A I think if you make one, you are going to run into two in that case, yes.

Q On the edge you feel that the operator should come in and prove to the satisfaction of the Commission that the acreage on the edge is productive, or would be productive if drilled?

A Would be productive and could be drained.

Q As to the acreage in the middle of the pool surrounded by production, you feel proof is necessary there?

A I think it is already proved.

Q Automatic inclusion would be satisfactory there?

A It would.

Q Mr. Wiederkehr, as I understand your testimony, you said

that the best way to establish proration would be on the basis of the amount of reserves underlying the acreage, is that correct?

A That is correct.

Q Didn't you also say it would be either impossible or highly impractical to determine what those reserves are?

A In this area, yes.

Q And in your judgment, deliverability is probably the best index of what those reserves might be that could be utilized in a formula, is that right?

A Yes.

MR. STAHL: That is all the questions I have.

MR. SPURRIER: Anyone else?

MR. ADAIR: E. T. Adair, representing Texas Pacific Coal and Oil Company.

By MR. ADAIR:

Q In your opinion, is there any need at this time, for gas proration in the Langmat pool?

A From the information I have, I do not believe proration is necessary at this time in that particular pool.

MR. ADAIR: Thank you.

MR. SPURRIER: Anyone else?

By MR. MACEY:

Q What do you base that on?

A On the production history during the year 1952 on wells completed and the amounts of gas that were produced from the individual wells, I think that if the records were checked that the

production was pretty well in balance.

Q You mean to tell me in every instance in the Langmat pool every pool produced approximately the same amount of gas during 1952?

A I don't say every well in the same amount, I say in general the productions are approximately equal, not totally, no.

MR. STAHL: I would like to object to Mr. Adair's question and Mr. Macey's on the ground it is outside the scope of the hearing. If I read the order right, this is a hearing on why proration should not be put in effect. I move it be stricken.

MR. ADAIR: I think I can answer that. If this is a show cause hearing to show why proration should not be put in effect, the answer is it is not needed.

MR. STAHL: Same objection.

MR. KELLAHIN: If the Commission please, Jason Kellahin, Samedan Oil Corporation. We join in the objection to the question and the answer, and we will state at this time in the event the Commission overrules the objection we are prepared to show the need for proration in the Langmat pool which we had not planned to put on. If the Commission so desires, we will put it on.

MR. FOSTER: He said they already found the proration is necessary, the second finding.

MR. SPURRIER: Objection sustained.

MR. ADAIR: If the Commission please, the question and answer are already in the record. The objection comes too late. If the Commission wants to strike the answer and the question, I

would like for it to made a part of the record in the nature of a Bill of Exceptions, the question and the answer.

MR. SPURRIER: Mr. Foster, what was it you said?

MR. FOSTER: Well, here is the order, the second finding in this order says that the Commission finds the prevention of waste and protection of correlative rights is proper under the special rules and regulations relating to the proration of gas well gas produced in the wells of Lea and Eddy County, New Mexico, should be promulgated. You already found the necessity for proration. The order says right on the face you considered that. You made up your mind about that.

MR. SPURRIER: Just for clarification of the record, this is my own idea, and as some of these expert witnesses say, I am not a lawyer, but what does the statute say about gas proration?

MR. FOSTER: It says when the Commission finds it necessary to prevent waste and protect correlative rights you ought to prorate gas.

MR. SPURRIER: What else does it say?

MR. FOSTER: I don't know, it says a lot of other things. Do you have any particular point in mind?

MR. WHITE: As far as the objections are concerned, I think the question was outside the scope of the hearing, the answer was made before the objection was raised, Mr. Adair technically is right, the objection is out of order because the answer was already made. Had you moved to have the answer stricken and been sustained, then you would be out too.

MR. FOSTER: I don't think it makes any difference whether it is in or not.

MR. SPURRIER: Let's go on.

MR. DAVIS: Mr. Commissioner, I would like to ask Mr. Widerkehr a couple of questions.

By MR. DAVIS:

Q In clarifying the questions asked you by Mr. Stahl, Mr. Wiederkehr, as to this automatic assignment of additional proration units, you stated, I believe, you had no objection if it was within the center of the pool, but for the sake of uniformity, it is still your opinion that this procedure we have proposed by hearing the assigned is proper.

A I think that is correct. The man would have no trouble proving his acreage is productive, and I think the Commission would allow it without trouble if it were within the productive limits of the pool.

Q As to the question concerning the use of deliverability as a factor, I believe you stated that it was probably the best method to arrive at the reserves.

A I did.

Q At the same time it is still your recommendation that acreage, 50 percent acreage be given along with the 50 percent deliverability to get a full and equitable recovery.

A That is correct.

Q You did not intend to say at this time that simply the deliverability alone would be a proper amount?

A I did not. It was, his question was the factor which I think was most important. I think that deliverability is probably the most important of the two factors, I think both factors are necessary.

MR. DAVIS: That is all.

CROSS EXAMINATION

By MR. STAHL:

Q Just one question. Mr. Wiederkehr, if the straight acreage formula is used, are you familiar with what I mean by straight acreage formula, so I don't have to re-define it?

A Yes, I am.

Q Is there a possibility if a straight acreage formula is used in a hypothetical gas pool similar to the ones in Lea County, that drainage could exist, in your opinion as an expert witness?

A Yes.

MR. STAHL: That is all.

MR. SPURRIER: Anyone else?

By MR. MACEY:

Q Mr. Wiederkehr, as I understand it, you propose to use the results of the four point back pressure test which has been submitted to the Commission for the year 1953 to more or less kick off proration under a deliverability formula in the Langmat pool, is that correct?

A That is correct, to expedite it.

Q Have you examined the four point back pressure tests which have been submitted to the Commission during the last year?

A No, I have not.

Q Are you aware of the fact in some cases they aren't worth the paper they are written on?

A I am aware of that.

Q Now, in connection with your proposed revision of the supplemental nomination, what would it involve as far as Southern Union Gas Company is concerned, to submit a supplemental nomination each month?

A It might involve a trip out here for some of our personnel, it is not a matter of what it would involve, it is a matter we don't think it is necessary and should be left out. We can see no reason for it.

Q Let me ask you a question now. How many wells are you connected to in the Langmat pool?

A Four.

Q How many wells are there in the Langmat pool?

A I don't know, quite a number.

Q Could you guess?

A One hundred fifty.

MR. SPURRIER: Can anyone answer that, for the record?

MR. WOODRUFF: As of July, 1953, there were one hundred ninety one wells.

Q Wouldn't your nominations consist of simply sticking a nomination sheet in the mail and mailing it out here?

A If I may say so, I am not arguing that point, I am stating I don't think it is necessary for us, or anyone else to make

supplemental nominations unless there is going to be a change. If a change is necessary, certainly we need supplemental nominations, if there is no change necessary, if we are satisfied with what has been submitted, I am not looking at it strictly for Southern Union, or anybody else.

Q Don't you think in view of the fact there will probably be a number of takers of gas in the Langmat pool, somebody might be inclined to get a little lazy as far as nominations are concerned, and the adjustment of actual allowables would be greater as a result of it with a higher amount of nominations?

A That is possible, yes.

Q And that would require a greater adjustment over a longer period of time, would it not?

A That is right.

MR. MACEY: That is all I have.

MR. SPURRIER: Anyone else? There being no further questions, the witness may be excused. Mr. Hill.

MR. HILL: A. L. Hill. If the Commission please, A. L. Hill, El Paso Natural. I would like, at this time, to file the revised sheets number three through six of El Paso's Exhibit No. 2 in the Jalco case, replacing pages three through six as submitted yesterday, and making one correction on page one of the Exhibit as given yesterday.

Under Section A, paragraph two, the second sentence should read "report of such tests shall be made to the Commission upon a modified official form, C-122-A, marked "original" within the

monts next after such tests are completed."

And if those who obtained copies of this yesterday would see Mr. Woodruff later, he can supply them with the revised pages three through six.

Also, on page one in the last paragraph, the third line from the bottom of the page, we would insert, "a modified" between the words "on form" making that line read, "Commission on a modified form C-122-A, marked "annual", within the months next after completion of such tests."

Further, Mr. Commissioner, on behalf of El Paso Natural, I would like to say that we concur with the Southern Union's recommendation as to the proposed formula incorporating 50 percent acreage and 50 percent deliverability in the Langmat pool. On the question of supplemental nominations, we feel as Southern Union does, that we shouldn't be required to file supplemental nominations, but that if our takes and our forseeable future demand within the six months period differ substantially from what we estimated them to be when we filed for the six month period, we would and feel that we should file a supplemental nomination and thereby keeping our allowables for the six months period more in mind with what the takes will be, and as a consequence coming out with less underage and overage that would have to be balanced off within the next period.

MR. SPURRIER: Who would determine if the change was substantial?

MR. HILL: In our case, we would determine it ourselves

so far as our take and allowable were concerned, we carry a running status of our takes as against allowables, and if at the end of a month we found our take for the next month was going to be out of line to any extent with the previously filed nominations, we would file the supplemental nominations.

MR. SPURRIER: Anyone else?

MR. KELLAHIN: Jason Kellahin, Samedan Oil Corporation. I am a little bit confused as to the Commission's ruling as to the record on the question and answers--

MR. WHITE: (Interrupting) The question itself was outside the scope of the hearing.

MR. KELLAHIN: In that event, we will not further incumber the record by putting on any testimony. I have a statement we would like to read into the record at this time, the statement of the position of Samedan Oil Corporation. We came to this hearing prepared to put on testimony and evidence showing the necessity of proration in the Langmat pool. In view of the fact the hearing was called for the express purpose of discussing the rules and the order previously entered by the Commission, had made a determination proration was necessary, we at this time prefer not to put on any testimony. If the Commission desires to hear it, as to the position taken by El Paso Natural Gas Company, the Permian Basin Pipeline Company and Southern Union Gas Company, we are opposed to any attempt to give consideration to deliverability of gas as a factor in making production allocations at this time. In other words, the Commission based the allocation

formula on a straight acreage basis, in order R-536.

In support of this position, we would like to point out the need for proration is urgent, particularly in the Langmat pool. The acreage formula is simple to apply, it can be instituted at once, it will not require a large technical staff in the employ of the Commission to check on applications and operations, and is the fairest and most equitable way in applying proration in Southeastern New Mexico.

In regard to the provisions of Rule 8 as it now appears in Order R-356, we urge the Commission modify this rule to provide for the inclusion of acreage in excess of 160 acres only after notice and hearing. As the rule stands now, it only results in inequities. The rule as it now stands would permit the production of one basic allowable from a well located on 160 acres while the well immediately offsetting it could have as many as four without any showing that the acreage dedicated to the well was actually productive of gas. The rule merely assumes such acreage is productive. It is obvious such a situation could result in drainage of gas from the well producing at the lower rate. For this reason, we urge that Rule 8 be modified to allow a proration unit of 160 acres with a right to dedicate additional acres up to 640 only after notice and hearing.

We want to reiterate our position in support of the acreage formula in making allocations for the production of gas. The same system has been used for many years in the production of oil in New Mexico, with satisfactory results, and this system was

applied to the oil production only after the Commission had attempted unsuccesfully over a period of years to apply a potential type of formula to oil production.

MR. STAHL: If I might, I would like to ask Mr. Kellahin a question. The statement you have just read, is that a statement of the company's position?

MR. KELLAHIN: That is a statement of the company's position.

MR. STAHL: The opinion of the company?

MR. KELLAHIN: Yes, sir, the opinion of the company.

MR. STAHL: In other words, it is not evidence?

MR. KELLAHIN: No, it is not evidence, no, sir.

MR. STAHL: Then I will have to request the Commission disregard the comments of Mr. Kellahin which are in the nature of testimony.

MR. WHITE: Our rules provide anyone can make any statement they want without being sworn as a witness. It depends on what weight the Commission wants to give the statement, in view of the fact they are not under oath as a witness.

MR. KELLAHIN: I would like to ask Mr. Stahl a question. Are you directing your question both to me and the witness as a pipeline company, or as a producer, Mr. Stahl?

MR. STAHL: By George, we don't have one well in production out there, so it is just the pipeline company.

MR. KELLAHIN: You have no concern with the production formula?

MR. STAHL: We have no concern with the formula? Of course we do, it affects our entire operation.

MR. KELLAHIN: It makes it easier for you to operate, the formula you propose makes it easier for you, it has nothing to do with reserves, there is no question of that.

MR. STAHL: No, sir, that is not true at all. The easiest thing for a pipeline company is no formula at all, obviously, so when we do propose a formula it is not only for our benefit, we feel it is for the benefit of the Commission and the producer.

MR. HINKLE: Clarence Hinkle, Humble Oil and Refining Company. The evidence in this case shows the proposed formula of the Southern Union is substantially the same as that proposed by the El Paso in the Jalco case. I would, therefore, like the record to show in this case that the same statement I made on behalf of the Humble and the Jalco case in oposition to any formula other than a straight acreage basis be incorporated in the record in this case; and, also, that the special rule which the Humble proposed in the Jalco case be shown by the record to be proposed in this case, that is the rule limiting the production of the associated gas.

MR. SPURRIER: Is there any objection to Counsel's motion?

MR. STAHL: Mr. Commissioner, may I direct a question to the Commission? When these statements are put in, and I am sorry to display this ignorance, since they are statements, there is no witness, is it possible for somebody working for a poor old pipeline company, like myself, to ask a question of the person putting

in the statements?

MR. WHITE: They have always done so in the past.

MR. STAHL: I was requesting it, just trying to get it straight in my own mind.

MR. CAMPBELL: Jack M. Campbell, Roswell. Mr. Commissioner, I hasten to say that the statement I am going to incorporate by reference has nothing to do with the formula. I would like to request, however, that the statement of Gulf Oil Corporation in the Jalco case, 382--

MR. SPURRIER: (Interrupting) Mr. Campbell, may I interupt you a moment?

MR. CAMPBELL: Yes.

MR. SPURRIER: Could we save time now, we have started with Mr. Hinkle, and Mr. Campbell and Mr. Stahl, I see is next, Mr. Bickel, Mr. Hiltz, Mr. Adair, and Mr. Vickery and Mr. Howell. Now, I am only trying to save time. If you all wish those statements which you made for the Jalco case to be included in this Langmat case, 583, can we save time or shall we get up one by one?

MR. CAMPBELL: I am prepared to do that. I understood it was the ruling of the Commission it would be better in each case to offer by reference these statements. There are some cases in which some people have an interest and some in which they do not. So far as I am concerned, that is perfectly agreeable if the Commission wishes to do it in that manner, as long as the record does contain the statement and particularly in regard to the Texas Pacific Coal and Oil Company in the Jalco, Langmat and Arrow

fields, that the proposal with reference to the reclassification of oil wells in the gas wells by definition, that that proposed provision be definitely a part of the record in each of those three cases.

MR. SPURRIER: Now, is there objection among the others of you whose names I read off for corrections to your statements that you submitted for Case 582 yesterday?

MR. GIRAND: I would like for our statement to go to all the hearings too.

MR. SPURRIER: I am sorry, Mr. Girand, your name heads the list, and I missed it.

MR. FOSTER: Mr. Commissioner, I would like to have a statement I made on behalf of Phillips Petroleum Company incorporated in all these hearings, if it isn't applicable, it doesn't do any harm anyway.

MR. SPURRIER: Without objection, we will, understand without objection, these statements will be included in this case, as they were included in Case 582, also including Mr.Foster's.

MR. BALLOU: Mr. Commissioner, my name is Ballou, representing Sun Oil Company. We feel that the stand-by rules would be the most practical and equitable to adopt for proration of gas at this time. We have some property in the Langmat field.

MR. CURRY: Mr. Commissioner, Max Curry of Skelly Oil Company. I would like to inject Skelly Oil Company's position on this pool, and have it apply to all the pools involved in these hearings for these three days, in which Skelly Oil Company is

involved.

I would like to state our position on the allocation formulas, and our position is such that we concur with Mr. Kellahin's statement, and we do not think that any formula based on deliverability without a minimum and maximum take is an equitable method of producing reserves in these fields. Our position was based on the fact that deliverability of two wells with similar acreage, sand thickness and other physical characteristics, other than permeability, is directly proportionable to the permeability producing strata, and has no direct relationship to the area, drainage area on the two wells. An allocation formula based on deliverability would give the well a greater permeability and greater allowable, though the two wells have the same reserves with the less permeability at the same rate as that with the greater permeability.Under these circumstances, it is obvious that drainage will occur violating correlative rights of the operator. For these reasons Skelly Oil Company favors immediate allocation in natural gas on a 100 percent acreage basis.

MR. SPURRIER: Anyone else?

MR. STAHL: May I ask Mr. Curry a question?

MR. SPURRIER: Certainly.

MR. STAHL: Mr. Curry, I believe you just said that the deliverability formula would not properly reflect the underground reserves. Is that substantially what you said?

MR. CURRY: That is correct.

MR. STAHL: Do you feel a straight acreage basis does

reflect those underground reserves?

MR. CURRY: Mr. Stahl, I believe the straight acreage basis is the best method because it is the largest single factor in calculating reserves. Your sand thickness is generally much thinner in comparison with the areal extent of your drainage area.

MR. STAHL: I don't think you answered my question. Do you think acreage is in any way reflective of underground reserves?

MR. SPURRIER: Will you gentlemen come up here please where we can hear you?

MR. STAHL: I just want to know if you felt that on an acre by acre, or per acre basis, whether the surface acreage is in any way indicative of the reserves underlying that acreage?

MR. CURRY: Yes, I do, for this reason. I believe that the areal extent of your producing strata is much greater than any other single factor involved in calculating your reserves.

MR. STAHL: Were you here when Mr. Fowler testified yesterday?

MR. CURRY: Yes, I was.

MR. STAHL: He proposed a times formula.

MR. CURRY: Yes, he did.

MR. STAHL: You are familiar with what the times formula is?

MR. CURRY: Yes.

MR. STAHL: Doesn't that also take into effect acreage?

MR. CURRY: The formula as proposed by Mr. Fowler on the times basis involved deliverability, did it not?

MR. STAHL: Plus acreage, or times acreage.

MR. CURRY: That is right. All right, the acreage is well taken care of, but in the times factor, although you may have two wells--I am referring back to a question I asked Mr. Fowler in his testimony--you have two wells producing from the same acreage basis, the same unit with the same porosity, the same sand thickness, and all other characteristics other than permeability being equal. Under those circumstances, the wells would have the same reserves, would they not?

MR. STAHL: Yes.

MR. CURRY: Providing your pressure was the same.

MR. STAHL: That is correct, as I understand it, I don't pretend to be a reserve engineer.

MR. CURRY: Those are the basic factors involving the reserves. All those things being equal, if your deliverability could be cut in half because of variation in permeability, then on this times factor where you are multiplying your acreage times your deliverability, it would be entirely possible for one well with the same reserves as another, to have twice the allowable as the other well. Under those circumstances, I believe that correlative rights would be impaired due to drainage.

MR. STAHL: I think under the hypothectical situation you assumed, you are probably correct. You think that situation does in fact exist over all or any of these reservoirs?

MR. CURRY: I think that they are extremely probably, and they are entirely possible, and I believe they should have a

bearing, they should be considered.

MR. STAHL: From your personal knowledge, though, you can't say whether that does exist or does not exist?

MR. CURRY: Well, the only thing I can say about the permeability of your wells, the variation in them, is the fact that some of your wells have variation on drawdown pressure; that is indicative of permeability. Although there are other factors that could also cause the same thing.

MR. STAHL: Well, Mr. Curry, how does a straight acreage formula correct that?

MR. CURRY: The straight acreage formula does not correct it, although, in my opinion, it is the most equitable manner in which it is the less variable, shall we say, and the most easily measured.

MR. STAHL: Is it not true a straight acreage formula would protect correlative rights if the reserves were equal under every acre in the reservoir?

MR. CURRY: Will you state that question again?

MR. STAHL: If the reserves are equal underneath every acre in the reservoir, would not a straight acreage formula in that case do equity and protect correlative rights?

MR. CURRY: I believe, in my opinion, it would have a very great tendency to do so.

MR. STAHL: Within your personal knowledge, are the reserves underlying every acre identical?

MR. CURRY: They are not. However, if I may elaborate on

that question--

MR. STAHL: Sure.

MR. CURRY: When you consider the drainage area of the wells generally, it will be very close to the offsetting well.

MR. STAHL: Won't you then have, on a straight acreage formula, won't you have drainage, won't the wells with the small reserves be draining away the wells with the large reserves when the allowables are equal, because of an acreage formula?

MR. CURRY: It is possible it will have some effect, I don't believe it is possible to have the great effect as a well offsetting it having a double allowable which is possible under the other formula.

MR. STAHL: There is a possibility of some drainage.

MR. CURRY: There is some possibility.

MR. GEORGE TRIMBLE: George Trimble, with Samedan. May I ask Mr. Stahl a question?

MR. SPURRIER: Will Mr. Stahl yield?

MR. STAHL: Sure, I don't know what a poor lawyer can answer.

MR. TRIMBLE: You are talking about permeability now, what permeability are you talking about, are you talking about, supposing, for example in this Langmat pool that we cored a whole section and we have the cores analyzed and they come back with certain permeability, and so many millidarcies, is that the permeability you are talking about?

MR. STAHL: In all fairness--

MR. TRIMBLE: (Interrupting) That is the permeability. In other words, you core that well, you go ahead and get an accurate--that is the permeability of the well, say from the pay section, you get it back from a laboratory, they give you the permeability, is that what you are talking about?

MR. STAHL: To the best of my knowledge, yes.

MR. TRIMBLE: There is one factor I want to bring out. We have today a logging method whereby we may predict the thickness of the section fairly accurately, we also have certain types of logging methods whereby we can pretty well estimate the porosity. However, we have another factor, and that is the permeability, the permeability of a producing well after completion is not necessarily that permeability that you had when you cored the well. It is subject to acidizing, shooting, and one of the main reasons I have against the deliverability formula is that by that change in permeability--let's assume we do use the deliverability in the Langmat pool. We have completed wells in there, the company is operating in there, have completed their wells, and such completion methods that the production from those wells will fairly well recover the reserves. In putting in a deliverability formula in-

to affect, it is going to cause us to go back in there before we can put that formula into affect, why we have to ask for 25,000 gallons of acid, 150,000 pounds of sand, 1,000 quarts of glycerine, before you put a deliverability formula in down there. It looks to me like a period of time, like six months, should be set aside where we can go back there and raise the permeability, if for no

other reason than to be able to produce along with an offset operator.

MR. STAHL: You say you would have to do that?

MR. TRIMBLE: Certainly. I mean, when you get right down to it, it is a dollar for dollar basis; it is dollars in the bank that count. If we feel we can go in there and put 150,000 pounds of sand in that well and get 50 times the production than we can get--

MR. STAHL: (Interrupting) You just do it to recover more dollars.

MR. TRIMBLE: That is correct. We are not going to have more reserves and get three times the deliverability, it is just competition.

MR. STAHL: In other words, you would produce your well three times as fast--

MR. TRIMBLE: (Interrupting) No, get three times the deliverability.

MR. STAHL: Wouldn't it be exhausted, say three times as fast?

MR. TRIMBLE: Not necessarily, no, not under the proration formula.

MR. STAHL: Well, I am of course not in a position to argue with you.

MR. TRIMBLE: I am merely stating that this permeability, what I--the point I was bringing out, I didn't know whether you were talking about constant permeability that you find in a reser-

voir when you are coring, or the permeability that you have after you acidize, shoot, or fracture.

MR. STAHL: All I know is that it is that little factor that you put in the formula.

MR. TRIMBLE: Second, on the one Mr. Kellahin brought out--

MR. STAHL: (Interrupting) Before you do that, I wasn't ready to leave this point. I want to make this observation. From what you said, I would say you were resisting good completion methods, or what might be under economic conditions. That is a decision for the operator, not for the pipeline company.

MR. TRIMBLE: That is right.

MR. STAHL: Aren't you, in fact, denying you should use some of those completion methods? Aren't you then penalizing the operator who used good completion methods in helping the ones who used poor completion methods?

MR. TRIMBLE: Our production is divided into two groups, we have the individual operators, and you have your major companies, who have research laboratories and published data available to read, and in both, assume that they have the Alderman completion method. Take a man who came up the hard way, no education, on a shoestring, he doesn't have an engineering force. You still have to consider everybody.

MR. STAHL: But those methods are available to him if he wants to use them. It is his personal decision, the same as it is the personal decision of the major companies. Do you feel the

person who doesn't use this completion method should be benefited or--

MR. TRIMBLE: (Interrupting) Who can say it is better acidized with 10,000 gallons or 20,000 gallons?

MR. STAHL: Do you think you can predict exact amounts of acid and give you the maximum and minimum efficiency so far as completion is concerned?

MR. TRIMBLE: They tell me that is why some companies hire these experts.

MR. STAHL: Was that all the questions you had?

MR. TRIMBLE: Not yet. Now, Mr. Kellahin asked you a question that I would like to have clarified. Now you say you are speaking only as a purchaser, gas-pipeline company, is that correct

MR. STAHL: That is right.

MR. TRIMBLE: As long as you get your gas for your market, why are you concerned with proration if you are tied one-hundred percent into a pool, why are you concerned as long as you get your gas for your market, what concern do you have with proration in the pool?

MR. STAHL: If I am tied one-hundred percent in the pool, or my company is tied one-hundred percent in the pool, it is connected to every single well in the pool, it makes no difference, obviously, that is not the case out there. We are in with Southern Union and El Paso, we want the gas under contract to us by virtue of our gas purchase contracts to come to us. If a proration formula permits drainage, in other words, doesn't

protect correlative rights, we may lose some of that gas to the El Paso market or Southern Union. If our takes are bigger than theirs, we will be taking their gas. We don't want--

MR. TRIMBLE: (Interrupting) Is that directly your concern or the producer's concern as to whether, if you are tied onto one of our wells, is that primarily your concern or our concern?

MR. STAHL: I think it is the concern of both of us, obviously, the concern of the producer.

MR. TRIMBLE: I mean primarily.

MR. STAHL: It all depends on which way you look at it. If we don't have that gas those people in Minneapolis get awfully darn cold.

MR. TRIMBLE: Do you make reserve estimates on every lease that you are tied on, a detailed reserve estimate?

MR. STAHL: We have.

MR. TRIMBLE: Do you, on every lease you are tied to?

MR. STAHL: For which company do you mean?

MR. TRIMBLE: Any company, any time you make a connection, you make a detailed reserve estimate using the logs and all available data.

MR. STAHL: With respect to Southeast Lea County, the contracts we have under contract as of May 1 of this year, we have done that.

MR. TRIMBLE: You have done that?

MR. STAHL: Yes, sir, by leases and by contracts. I

didn't do it.

MR. TRIMBLE: You do it in every connection you make.

MR. STAHL: Sooner or later, maybe not at that time that we make the connection, but when we go before the Federal Power Commission, it is generally required.

MR. TRIMBLE: Would you mind telling me how you make the report, what factors are taken into consideration?

MR. STAHL: Well, dry gas reservoir, as I understand it, what our people have done, they have just used the volumetric method and pressure decline method, have used both of them, examined the logs, cores and all the information available.

MR. TRIMBLE: That is all.

MR. DAILEY: Homer Dailey, Continental Oil Company. This formula as proposed for the Langmat pool seems to be the same as that proposed for the Jalco pool by the El Paso Natural Gas Company. At that time, or in that hearing, it was rather evident that the formula favored the Denser drilling in that a man drilling on 40 acres would recover approximately twice the gas than a man on a 150 acres. We are opposed to the formula in this pool, the same as we were in the Jalco pool.

MR. SPURRIER: Anyone else?

MR. CLAYTON ORN: Mr. Chairman, my name is Clayton Orn, Ohio Oil Company. I wasn't here yesterday on the Jalco pool, but I would like to state our position.

First, with reference to oil wells that are in gas pools, we think that the oil wells in a gas pool carried on a proration

schedule should continue to be prorated as oil wells. That the gas production should be limited by the gas-oil ratio. We don't think that the rule as applied in many states and many areas where you have a combination of an oil pool and a gas pool should be applied here. We think it will bring about waste, where you have a combination oil pool and gas pool. It is usually the amount of volumetric withdrawals from the oil well that determines the amount of gas that is going to be produced, and the reason of that is because the limitation on the amount of gas produced tends to prevent waste and increase the recovery of oil. Where you have got a field here where the amount of oil produced is going to be dependant upon the amount of gas produced from the gas wells, it may have a tendency to bring about waste and reduce the ultimate recovery of oil from the wells. Our feeling on all these fields, where you have oil wells in a reservoir, that is a gas reservoir, those oil wells should be continued to be prorated as oil wells until you have special hearings and the oil wells that become gas wells, the gas-oil ratio rule ought to apply to it.

With reference to the point of deliverability, we feel that a deliverability factor in a proration formula is proper. We think that it has some measure in preventing waste and we would not oppose the use of a deliverability factor in the allocation of oil.

MR. SPURRIER: Anyone else?

I have a telegram to read into the record which I will read into the record, from John M. Kelly, addressed to the New

Mexico Oil Conservation Commission, "unable to attend gas proration hearing on Langmat gas field. Respectfully request case be held open for five days in order that I or any other interested operator may file a statement for Commission's consideration."

Does anyone have anything further in this case, Case 583?

(Off the record)

MR. SPURRIER: If there is nothing further, we will recess until 1:15, at which time we will start out with Case 589.

(Recess)

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C E R T I F I C A T E

I, MARIANNA MEIER, Court Reporter do hereby certify that the foregoing and attached transcript of proceedings was taken by me on October 27, 1953, that the same is a true and correct record to the best of my knowledge, skill and ability.

Marianna Meier

REPORTER

CASE 583

STATEMENT OF SHELL OIL COMPANY
IN REGARD TO PROPOSED GAS RULES
FOR LANGMAT FIELD
SEPTEMBER 17, 1953

Shell Oil Company is in general accord with the gas rules as proposed, except for one feature thereof.

We wish to direct attention to Rule 5, Proration Units, in connection with Rule 8 under Gas Allocation.

Rule 5 establishes a standard gas proration unit of 158 to 162 contiguous surface acres.

Rule 8 provides, however, that more than one standard proration unit may be assigned to a gas well provided not more than 640 acres are so assigned, and provided the other requirements of the Section are met.

As written, the rule would apparently leave to the discretion of the operator whether such additional acreage should be assigned to a well. Also, as written, there is no requirement that the well to which additional acreage is assigned should be shown to be capable of draining such additional acreage.

We feel that this rule could result in grave inequities. An operator with a single 160-acre tract could be offset or surrounded by one or more single ownership units of 640 acres. Such operator would have a single unit allowable. The offset operators, on the other hand, could each assign four standard units to their wells, and could each obtain a proportionably increased allowable, and could do this even without a showing that their wells would drain the acreage assigned to such wells.

It is our thought that it would be better to stay with a standard size unit for allowable purposes, unless, after a hearing, the Commission permits the assigning of additional acreage and allowable because of the circumstances existing in the particular case. We realize that there may be conditions under which additional acreage should be assigned to a well or wells, but feel that it should be permitted only after hearing, and not solely at the discretion of an operator. As to the size of the standard unit in this field, in view of the fact that the field has been developed to date on 160 spacing, we feel that 160 acres should constitute the standard unit therein.