Case No.

673

Application, Transcript,
Small Exhibits, Etc.

CONTINENTAL OIL COMPANY

PROPOSED CHANGES IN GAS POOL RULES AND REGULATIONS

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations in effect in the _____ Gas Pool.

~~RULE 2. Each well drilled or recompleted within the Jalco Gas Pool shall be located on a tract consisting of not less than a quarter section of approximately 160 surface contiguous acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys.~~

RULE 2. (Previous Rule 3) Each well drilled within the _____ Gas Pool after the effective date of this order shall ~~not~~ be drilled not closer than 660 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary nor closer than 1,320 feet to a well drilling to or capable of producing from the same pool. Any well drilled to and producing from the _____ Gas Pool prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. (Previous Rule 4) The Secretary of the Commission shall have authority to grant exception to the requirments of Rule 3 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a ~~written stipulation that all operators within such radius have been properly notified.~~ a list of names and addresses of all operators within such radius together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least ~~10~~ 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. (Previous Rule 5) The provision of Statewide Rule 104 Paragraph (k), shall not apply to the _____ Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (Previous Rule 7) (a) The acreage allocated to a gas well for proration purposes shall be known as the gas

proration unit for that well. For the purpose of gas allocation in the _____ Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; provided, however, that a non-standard gas proration unit ~~other than a legal quarter section~~ may be formed after notice and hearing by the Commission, ~~except as outlined in Paragraph (b)~~ or under the provision of Paragraph (b) of this Rule. ~~Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.~~

Any non-standard gas proration unit containing less than 158 or more than 162 acres shall receive an allowable decreased or increased to that proportion of the allowable of a standard gas proration unit which the number of acres contained in said non-standard gas proration unit bears to 160. Any gas proration unit containing between 158 and 162 acres shall be considered to contain 160 acres for the purpose of computing allowables.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 7 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard unit consists of less acreage than a standard proration unit.

2. The acreage assigned to the non-standard unit lies wholly within a legal quarter section and contains a well capable of producing gas into a gas transportation facility on the date of this order.

3. The operator receives written consent in the form of waivers from all operators in the adjoining 160 acre proration units.

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (1) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (2) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were

notified of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the _____ Gas Pool and other relevant data and shall fix the allowable production of the _____ Gas Pool, and shall allocate production among the gas wells in the _____ Gas Pool upon a reasonable basis with due regard to correlative rights.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the _____ Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the _____ Gas Pool.

RULE 7. (Previous Rule 8) At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. The Commission shall consider the

"Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. (Previous Rule 9) ~~Each month, the Commission shall cause to be submitted by each gas purchaser its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration month from the _____ Gas Pool.~~ In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the _____ Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top

allowable units shall be reduced proportionately, and in the event that allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 9. (Previous Rule 10) Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration

period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 10. (Previous Rule 11) Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such over production and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. (Previous Rule 12) No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. (Previous Rule 13) Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. (Previous Rule 14) The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be ~~submitted~~ reported to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made

of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. (Previous Rule 15) ~~A gas well shall mean a well producing gas or natural gas from a common source of gas supply from a gas pool determined by the Commission.~~ A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the _____ Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the _____ Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the _____ Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 6,000, provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

(Can 6/3 (Ch. Ltr. dtd)

ACID GAS ANALYSIS OF WELLS PRESENTLY CONNECTED IN LEA COUNTY NEW MEXICO

Well Owner	Well Name	H_2S Gr./100Cf
Amerada	Andrews #1	416
Amerada	Lambert #1	394
Amerada	Phillips JR 8	407
Amerada	State #D-3	407
Amerada	State #F-1	367
Amerada	State #G-1	330
Amerada	State #O-1	388
Amerada	State #P-2	318
Amerada	State Q-3	383
Amerada	State #T-3	442
Amerada	State U-1	318
Amerada	State #V-3	384
Amerada	Weir #4	448
Atlantic Refinery	Crutchfield #1	339
Atlantic Refinery	State #H-1	217
Atlantic Refinery	State #K-2	10
Cities Service	State #F-2	308
Kelly	State #1	488
Phillips	Bern #A-1	610
Phillips	New #G-2	318
Skelly	Monstate #4	484
Skelly	Monstate #5	298
Skelly	State #B-5	10

ACID GAS ANALYSIS OF WELLS, ETC. (Cont'd)

Well Owner	Well Name	H_2S Gr./100Cf
Stanolind	Gillully	388
Texas Co.	Effie Phillips #HB1	122
Texas Co.	Phillips #10	389
Texas Co.	Roy Riddell #1	10
Texas Co.	State C-9	421
Texas Co.	State H-24	261
Warren	Evans State #3	20

BEFORE THE

Oil Conservation Commission

SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 673 (Special Hearing)
May 10, 11, 1954

TRANSCRIPT OF PROCEEDINGS

ADA DEARNLEY AND ASSOCIATES
COURT REPORTERS
ROOMS 105, 106, 107 EL CORTEZ BUILDING
TELEPHONE 7-9546
ALBUQUERQUE, NEW MEXICO

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R E G I S T E R

N.M. Oil Conservation Commission Case 673: Spec.Hearing May 10-11,1954

NAME	REPRESENTING	LOCATION
John C. Carrity	Sinclair O & G	Tulsa, Oklahoma
Ross L. Malone, Jr.	Gulf	Roswell, N.M.
Geo. Hirschfield	N.M. O& C.	Hobbs
R. L. Boss	Gulf Oil Corp.	Ft. Worth, Texas
E. E. Merkl, Jr.	Gulf Oil Corp.	Ft. Worth, Texas
G. E. Stahl	Permian Basin PL Co.	Omaha, Nebraska
G. L. Tribble	Permian Basin PL Co.	Omaha, Nebraska
R. S. Hunt	Cities Service Oil	Roswell
A. L. Holland, Jr.	Gulf Oil	Ft. Worth, Texas
C. A. Hull	Shell Oil Co.	Midland
J. L. Ross	Gulf Oil	Ft. Worth, Texas
C. M. Bumpass	Gulf Oil	Hobbs
S. J. Stanley	O.C.C.	Hobbs
W. E. Hubbard	Humble	Houston
R. M. Richardson	Humble	Midland
J. W. House	Humble	Midland
C. S. Neel, Jr.	Humble	Midland
J. Bwaid	Humble	Midland
R. S. Dewey	Humble	Midland
Clarence E. Hinkle	Humble	Roswell
J. N. Dunlavey	Skelly Oil	Hobbs
Max E. Curry	Skelly Oil	Hobbs
B. L. Anderson	Skelly Oil	Hobbs
Don Walker	Gulf Oil	Ft. Worth
R. El Batts	Gulf	Ft. Worth

REGISTER (Continued)

NAME	REPRESENTING	LOCATION
Dyer Moore	Gulf	Roswell
R. D. Grimm	Phillips Pet. Co.	Bartlesville, Okla.
D. M. Hankins	Phillips	Odessa, Texas
R. C. Sears	Warren Pete Corp.	Tulsa, Oklahoma
W. A. Blankenship, Jr.	Stanolind	Roswell, N.M.
Ben R. Howell	EPNG Co.	El Paso
J. W. Baulch, Jr.	EPNG Co.	Jal, N.M.
W. M. Flood	EPNG Co.	El Paso
R. T. Wright	EPNG Co.	Jal, N.M.
E. J. Pierce	Mid-Cont.Pete Cor.	Midland
F. Norman Woodruff	EPNG Co.	Houston
A. L. Hill	EPNG Co.	Houston
E. H. Forte	Phillips "66"	Amarillo, Texas
J. A. Veeder	Amerada	Midland, Texas
R. L. Mackley	Amerada	Monument, N.M.
W. G. Abbott	Amerada	Monument, N.M.
L. A. Hanson	O.C.C.	Artesia
L. White	Texas	Santa Fe
E. T. Cotham	The Atlantic Ref. Co.	Midland
E. R. Philipp	The Atlantic Ref. Co.	Dallas
John A. Woodward	Amerada	Tulsa
Jack H. Vickery	Atlantic	Midland
R. A. Montgomery	O.C.C.	Hobbs
A. M. WiederBehr	Southern Union Gas	Dallas
H. T. White	Phillips Pet. Ct.	Bartlesville, Okla.
W.D. Lua, Jr.	MeTex	Hobbs, N.M.

----------R e g i s t e r (Continued)----------

NAME	REPRESENTING	LOCATION
J. K. Smith	Stanolind Oil & Gas	Ft. Worth, Texas
R. G. Hiltz	Stanolind Oil & Gas	Ft. Worth, Texas
Homer Dailey	Continental Oil Co.	Ft. Worth, Texas
A. Cummings	R. Olsen Oil Co.	Jal, N.M.
Harry G. Dippel	Continental Oil Co.	Ft. Worth, Texas
V. T. Lyon	Continental Oil Co.	Ft. Worth, Texas
James W. Kellahin	Attorney	Santa Fe
Matt Gebel	Gulf Oil Corp.	Roswell
Max H. Christensen	The Texas Co.	Midland, Texas
J. E. Bagouell	T. P. Coal and Oil	Midland, Texas
John Yuronka	T. P. Coal and Oil	Hobbs, N.M.
H. F. Steen	E.P.N.G. Co.	El Paso
William Pudge	Conoco	Hobbs
Wichelmann	EPNG Co.	El Paso
R. S. Christie	Amerada	Tulsa
George W. Selinger	Skelly	Tulsa
J. D. Cooper	Skelly	Tulsa
Earl Ainsworth	Permian Basin PL	Osnoba, Nebraska
Jack M. Campbell	T P Coal andOil Co.	Roswell, N.M.
John. F. Russell	T.P. Coal & Oil Co.	Roswell, N.M.
Elvis A. Coty	N.M. OCC	Santa Fe
J. Terrell Couch	The Ohio Oil Co.	Houston, Tex
John W. Higgins	The Ohio Oil Co.	Roswell, N.M.
Don K. Spellman, Jr.	The Ohio Oil Co.	Midland, Texas
John R. Brack	The Ohio Oil Co.	Midland, Texas
Sid Noble	Samedan Oil Corp.	Tulsa, Oklahoma
J. A. Warren	Southern Calif.Pet.	Midland, Texas
A. S. Grenier	Southern Union Gas	Dallas, Texas

MR. SPURRIER: The meeting will come to order, please. There is some confusion as usual, about who shall be first on the program today. Some of you seem to feel if certain people go first it will save a lot of time. I think that there are a lot of serious people who have done a lot of serious thinking about these problems. Speaking for myself, I would like to hear as much testimony as can come before the Commission and be available. Of course, that is the problem, when we can stop putting on testimony and decide the case and still not miss some good testimony. As I remember Gulf was prepared to testify at the time that we quit at the last hearing.

Some people seem to think that the Commission staff should put on their case first. They are erroneous in their feeling that if the Commission's staff puts on a certain amount of testimony that is it. In fact, if that is what they do think, I think we will start definitely with the companies first and let the Commission put theirs on last, because we certainly want to know what you companies are thinking about these matters. Continental put on the testimony in the original cases, the original testimony and frankly, we don't know who should go on first, Mr. Malone, did you have something?

MR. MALONE: Ross Malone, if it please the Commission, Gulf felt that inasmuch as they were ready to go to bat last time they perhaps had some claim to the right to open the hearing. We recognize the position of Continental of having put on the original testimony that a more orderly basis for proceeding would be to put on their testimony. Under those circumstances Gulf is agreeable to Continental presenting its

testimony first with the provision that Gulf then would follow Continental.

I might facetiously say that Gulf inadvertently showed its own card now and we would like a new card down and we will check the Continental.

MR. SPURRIER: I think the Commission's cards are on the table, perhaps I should say, the Commission staff. El Paso Natural has asked me if they might make a short statement at the very beginning. I am presuming that they mean just what they say. It is a matter of these minimum take contracts. They feel that if they make their statement that that will tend to shorten the testimony. Mr. Howell.

MR. HOWELL: Gentlemen, a number of people have come to us and suggested that the hearing could possibly be shortened if we would make a statement with reference to the contracts. The typical contracts in the Permian area and in Lea County require the company to take certain daily minimum volumes averaged on a yearly basis, either to take or to pay for those volumes at the end of the year with the four year makeup period which, if having paid for the gas in succeeding years, we are permitted to make up out of any excess that is taken in the next four year period. The question that has seemed to bother some people would be whether or not the company would think that if it failed to nominate sufficient quantities of gas to reach its contractual minimums that the company might claim that the application of proration rules relieved it of a contractual liability.

We think the contracts generally speak for themselves and a matter of contracts is a matter between the two parties

and actually is not properly before a hearing on proration. But a good many people have suggested that possibly an explanation of the companies position would clear the air and reduce the length of the hearing.

So, I have here a letter from Mr. Paul Kyser, the president of El Paso Natural Gas Company, which is addressed to me. In order that you may be acquainted with our plans in respect to nominations for gas from Lea County for our market in compliance with proration orders, we wish to state to you that we expect to make nominations each month for gas that we will require from the so-called dry gas wells in Lea County, New Mexico, the nominations to be made for the entire area. These nominations will be made as far as possible so that the average quantity that is taken throughout the year will be at least as much as the minimum quantities that we are required to take under all of our contracts covering dry gas from Lea County, New Mexico. Under our contracts, we have the right to make up deficiencies over certain periods of time. In the event we are unable to make nominations in any year for the full minimum requirements of all of our contracts, we would expect to preserve the right to make up such deficiencies. In the event that we are unable to make up such deficiencies within the period of time covered by the contracts, we will expect to pay the producers in accordance with the terms of the contract.

It might be simply stated that the company feels that unless it nominates volumes of gas that are equal to the contractual minimums that it cannot say that it was proration rather than its own failure to nominate that prevented it from taking

contractual minimums.

MR. SPURRIER: Thank you, Mr. Howell.

MR. CAMPBELL: May I ask if that letter can be introduced in this case?

MR. HOWELL: Yes, I will be very happy to turn it over to the Commission.

MR. SPURRIER: Is there objections? Without objections it will be admitted.

MR. CAMPBELL: I would like to ask Mr. Howell just a couple of questions. First, I want to preface it by saying that my questions do not indicate at all that Texas Pacific Coal and Oil Company doubts the good faith of El Paso Natural Gas Company in connection with this matter. However, some of these contracts have 16 years to run, as you know. In order to try to set this matter, this contractual matter at rest, I would like to be enlightened a little bit on what that letter actually means. It is my understanding that the present purchase contract with Texas Pacific Coal and Oil Company and with other producers contain a provision that the purchasing company will take or pay for five hundred thousand cubic feet of gas per unit on a yearly basis with the right to make up over a four year period for gas for which they had paid but have not taken. Your letter makes reference to nominations and indicates that El Paso Natural Gas Company will try to keep its nominations above that point, or at that point and if they do not keep their nominations at that point, that they will consider that is their fault and comply with the minimum take or pay provisions of the contract.

MR. HOWELL: Preserving the make up rights, of course?

MR. CAMPBELL: Preserve the make up rights, of course, with no reference to the nominations but referring to the allowables adjusted as the Commission has been adjusting them, the actual authorized production from any of these units over the yearly period averages less than five hundred cubic feet per unit.

Do I understand it then that El Paso will waive its right to contend that since they would not have been able to take the gas they will nevertheless pay for it under the contract?

MR.HOWELL: When the company is prevented from taking gas, not by its failure to nominate sufficient quantities but by the imposition of a location under proration rules, it, of course, expects to rely upon the provisions of the contract which makes those contracts subject to legal orders of the Commission.

MR. CAMPBELL: Your statement is solely based on what you chose to nominate and not on what the Commission may set as the allowable for any particular proration unit.

MR.HOWELL: If the Commission's orders reduce our nominations to the point that we can't take the gas we nominated we expect to be relieved of the obligation or take those minimums.

MR. CAMPBELL: Or to pay for them?

MR.HOWELL: Or to pay for them.

MR. CAMPBELL: I think that answers my question. In the light of that, it will be necessary that Texas Pacific Coal and Oil Company put in some testimony with reference to minimum allowables before the hearing is over.

(OFF THE RECORD)

MR. SPURRIER: Does anyone have a motion as to who shall put on the testimony first, it makes no difference to the Commission.

MR. DIPPLE: Continental is prepared to go first. I would like to make this little statement in that connection. It has come to our attention that there has been some comment to the effect that it is somewhat isgnificant that Continental, who put on the original testimony hasn't been heard from since the storm blew up. About the only thing about that is that we felt like that maybe we were wrong, that we had discharged our responsibility to the Commission when we put this testimony in April of 1951.

It will be recalled that the reason Continental put it on was that the four member companies of the New Mexico Federal Unit joined in compiling the data and Continental, as the operator of the unit put the testimony on, but only after the data assembled by the member companies of the New Mexico Federal Unit had afforded all the operators in the area an opportunity to inform themselves as to what it was that would be offered as evidence and testimony.

I think that the record in that April, 1951 hearing will show that everybody without exception was in substantial agreement. We have tried to refrain from injecting ourselves further into this thing because we wanted to avoid controversy in the first place, and the second place maybe I have got them in the wrong order. I think in the first place we felt that the orders that the Commission adopted and the rules that were adopted by

the Commission were reasonable under the circumstances and during the short period of time that they have been in operation have shown that they are permitting the Commission and the operators to move in the right direction toward proration.

The case that we are prepared to put here now, is substantially the case we put on in 1951. We intend, we tried to design it to support the present order of the Commission. Our testimony, as I said, will be substantially that offered in 1951 with minor revisions or I should think improvements where experience has taught us that perhaps some little refinement could be made. We should like to proceed first.

MR. MALONE: May it please the Commission, Gulf would like to follow Continental's presentation.

MR. CAMPBELL: If the Commission please, do I understand that Continental intends to put on only additional testimony, the testimony and the record of the case in 1951, is all a part of this record. All of Case 582 was incorporated in this record, and in Case 582 the transcript in that other case was offered in evidence.

MR. SPURRIER: Case 245.

MR. CAMPBELL: Whatever the case was that defined the pools. It is in the record, it seems to me that since the Commission has apparently compiled a considerable amount of information based on not just one company's wells or a few companies wells, but all over the area that all of us would be in a better position to analyze the testimony and evidence of both Continental and Gulf if we knew what these things are.

The Commission is the one that is going to have to make

the decision. As far as I am concerned I would like to know what their position is and what their geologists feel about it. I don't think it precludes or excludes the Continental or Gulf or Texas Pacific or anything else of arguing with the Commission. I think it would certainly give us a better understanding of the overall picture in the area down there, if the Commission's testimony and exhibits were to be explained to us before we got off again on Case 245.

MR. DIPPLE: I do not want to get in an argument with anybody. I don't, maybe I shouldn't make this statement, but I think it is a fact, we are, in Continental, somewhat in doubt that the Commission's staff is in position to testify in support of these exhibits here as being exhibits prepared by them. As I understand it they are for the main part at least exhibits that were introduced in Case 245. There, I am wrong about that, I realize that they were not introduced. I meant to say that they were testified about but never actually introduced into the record. We have duplicates of them and intend to produce them in the record. If I remember right some of the operators made an attack on Case 245 that, among other things, pointed out perhaps that the case isn't properly supported by exhibits. We want to supply those exhibits. All we are trying to do is uphold the Commission's hands and then let the others do what they want to.

MR. YOST: You can argue, there seems to be some disagreement about who is going to start. I think the Commission should rule that somebody start and proceed with it. As far as we are concerned it is all right if Continental goes first.

MR. SPURRIER: In other words, you will yield to Continental and Gulf?

MR. YOST: We are not yielding but it will be all right.

MR. SPURRIER: I think under the circumstances Continental may proceed.

MR. DIPPLE: We will not have over two witnesses. Maybe only one. Mr. Homer Daily will be our principal witness and Mr. Daily in preparation for this thing has written out in substance what he proposes to testify to. I have three additional copies of what he wrote out. I would be glad to give one to the Commission and one to the lawyers over there, and one to the reporter with the understanding that it is not a statement that is in such form that we can introduce it into the record because at certain points Mr. Dailey will deviate from it. I thought it might be of some assistance to the Commission's staff if you had a copy of it before you.

I would like to have Mr.Homer Dailey and Mr.V. T. Lyons sworn.

(Witnesses sworn.)

MR. KELLAHIN: Will it be all right if Mr. Randolph points to the exhibits as Mr. Dailey testifys? It will save time. We will let Mr. Dailey make his statement under oath.

H O M E R D A I L E Y

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. KELLAHIN:

Q State your name, please? A Homer Dailey.

Q By whom are you employed?

A Continental Oil Company.

Q What is your position?

A Regional petroleum engineer.

Q How long have you held that position?

A I have held that position approximately two years.

Q Have you been with Continental for some period of time?

A Approximately 18 years.

Q Have you testified before this Commission as an expert before?

A Yes.

Q Have your qualifications been accepted?

A Yes.

MR. KELLAHIN: Are Mr. Dailey's qualifications acceptable to the Commission?

MR. SPURRIER: They are.

Q In connection with your work with Continental, have you had occasion to make any study of the gas pools which are involved in this hearing in the Eumont, Arrow, Langmat and Jalco?

A I have.

Q In connection with that study have you prepared or worked with other companies in the preparation of any exhibits and testimony which you can offer at this time?

A Yes, sir.

Q Would you state to the Commission the substance of your testimony at this time, Mr. Dailey?

A The majority of the exhibits were prepared in 1951 for Case 245. Exhibit 1 is a contour map on the top of the Yates in Township 19 South through Township 26 South and Ranges 35 East through 38 East, inclusive. Starting at the south along

the dividing line between Ranges 36 and 37 East, and extending in a northerly direction to Section 6, Township 22, South, Range 36 East is a long, narrow ridge. This general ridge is broken up into a number of small local highs. We believe this ridge to be the approximate eastern limit of Capitan Reef development in the area.

From south to north, the Eaves Cooper-Jal and the west half of the South Eunice Pool lie on this ridge. Oil production is found chiefly on the west flank of the ridge. Producing formations consist of the Yates and Seven Rivers in the south and Queen, and possibly upper Grayburg, in the north. Porosity and permeability in the lower Yates, Seven Rivers and Queen formations are found mainly in dolomite. The upper Yates, which is in general less productive than the others, contains chiefly gas which appears to be contained in the Sands.

Approximately six miles to the east, and roughly paralelling the ridge previously described, there is a second general high running through Townships 23, 24, 25, and 26, South. On the west flank of this high, and extending into the trough area between the reef high in Townships 24 and 25, South, lies the Langlie Mattix oil pool. After crossing the ridge going eastward, the dolomites of the Seven Rivers formation lose their porosity and permeability rapidly. The lithology of the formation likewise changes and numerous sand lenses are found. Oil production in the Langlie Mattix is found in the sands of the Queen and lower Seven Rivers formation. The Yates and upper Seven Rivers contain chiefly gas. In a few places, notably the Falby Yates oil pool as presently designated, oil is found in

the middle Yates.

In Townships 21 and 22 South, Range 37 East, there is a broad general high on which lies the Penrose-Skelly Pool. Production in the Penrose-Skelly Pool is chiefly from Queen sands in the south and sandy dolomites of the Grayburg formation in the north. To the west of this, and connected to it by a saddle, is the Arrowhead Pool. This pool produces oil from the Grayburg formation. Gas has been found in some of the wells in the Yates, Seven Rivers and Queen formations.

In Township 21 South, Range 36 East may be seen the southern end of the Eunice Monument high. It extends into the eastern half of Township 20 South, Range 36 East and the western half of Township 20 South, Range 37 East, and the southeastern portion of Township 19 South, Range 36 East, and southwestern portion of Township 19 South, Range 37 East. Oil production in the southern portion occurs chiefly in the Grayburg formation with a few wells along the south and west flanks producing from the Queen and Seven Rivers formations. In the high portions of the Monument end of the field, oil production is found in the San Andres with the remainder producing from the Grayburg. In the higher wells the Grayburg contains gas which is gas cap gas. The Queens contains gas over most of the structure. The Yates and Seven Rivers are gas productive in the southwestern portion of Township 21 South, Range 36 East, and in the higher parts of the Monument Pool.

Exhibit Number 2 is a map of Townships 19 through 26 South and Ranges 35 through 38 East. This is a key map for most of the cross sections to be introduced. The East-west

sections are labeled with the Township through which they pass. The map is also colored similar to the Exhibit which we introduced in Case 245, showing our recommended gas pool areas. Exhibit Nos. 3 through 12 are east-west cross sections through each Township from 19 Sout h through 25 South.

Exhibit No. 3 is an east-west cross section through Township 19 South. Exhibit No. 4 is an east-west section through Township 20 South. Exhibit No. 5 is an east-west section through Township 21 South. The top of only the Yates and Queen are shown. The Queen in this area is approximately 250 feet thick. Using this interval, it can be seen that the oil wells, with three exceptions at the west end of the Township 21 South section, are producing from below the top of the Grayburg.

Exhibit No. 6 is an east-west section across the north end of Township 22 South. This section has sample logs and electrical and radioactivity surveys on a few of the wells. The top of the Yates and the top of the Queen are shown. Using a thickness of 250 feet for the Queen, it indicates Grayburg oil production in the Penrose-Skelly pool at the east end and in the Arrowhead Pool in the central portion. To the west is the South Eunice Pool producing chiefly from the Queen with the extreme west wells producing from the Seven Rivers. That is oil.

Exhibit No. 7 is an east-west cross section through the northern portion of Township 23 South and southern Portion of Township 22 South. Exhibit No. 7 shows Queen oil production from the southernmost end of the Penrose-Skelly Pool on the east, gas from the Yates-Seven Rivers formations in the center, and oil from the Seven Rivers, plus gas in the Yates, on the

extreme west.

Exhibit No. 8 is a portion of the west end of Exhibit No. 7 with radioactivity logs of the six westernmost wells. It shows the change in the section in going across the reef ridge. The increase in sand in the Seven Rivers between Meyer B-33 No. 1 and No. 2 can be seen as can the difference through the Yates in the three west wells from the three east wells. The lack of permeability in Meyer B-33 No. 2 through the Seven Rivers as compared with Meyer B-33 No. 1 as evidenced by drill stem tests can also be seen. Meyer B-33 No. 1 tested 2,480,000 cubic feet per day on drill stem test in Seven Rivers while the No. 2 tested dry. The Meyer B-33 No. 2 was finally completed as a Yates oil well after shooting the formation with 195 quarts of Nitro.

Exhibit No. 9 is an east-west cross section through Township 23 South. On the eastern portion of Exhibit 9 are shown Langlie Mattix Pool oil wells producing from the Queen and lower Seven Rivers. Farther west are gas wells producing from the Yates and Seven Rivers. On the west is shown a well, now plugged and abandoned, which produced oil from the Seven Rivers.

Exhibit No. 10 is a section with radioactivity logs of five of the wells on Exhibit No. 9. The sixth well on the west end is not on Exhibit 9. The exhibit again shows the sandy character of the Seven Rivers to the east of the reef high.

Exhibit No. 11 is an east-west cross section through Township 24 South. On the east it shows Langlie-Mattix oil wells producing from the Queen and the lower Seven Rivers. The highest well on the east side, the Gulf Bertha Knight No. 1 is a Queen gas well. The Continental Jack A-21 No. 1 is now re-

completed as a Yates gas well. There are two gas wells shown close to the center of the section. The Western Gas Company Harrison No. 2 originally completed as a Seven Rivers gas well, and the Continental Jack B-30 No. 1 completed in the Yates and upper Seven Rivers. The section crosses the Falby-Yates pool. These wells produce oil from the Yates. Drill stem tests on the Amerada Falby No. 2 indicates dry gas in the lower Yates or upper Seven Rivers with oil in the middle and upper Yates.

The extreme west portion of the section shows Cooper-Jal oil wells producing mainly from the Seven Rivers. The data on these is original completion data. Many of the wells in this vicinity have been recompleted or plugged. Between the Cooper-Jal oil wells and the Falby Yates Pool is shown a gas well producing from the Yates and Seven Rivers.

Q Would you come over and point out to the Commission the wells to which you are referring in your testimony. I think it would be helpful.

A The first specific well I referred to was the Gulf-Bertha Knight No. 1 which was completed as a gas well in the Queen. With this line being the top of the Queen. The second well was the Continental Jack A-21 No. 1, originally completed as an oil well in the Lower Seven River and the Queen and since recompleted as a gas well in the Yates formation.

The next well referred to specifically was the western gas company Harrison No. 2 completed in the Seven Rivers as a gas well. This section shows the various drill stem tests taken on the well, nine of these listed fairly accurately shows where the gas is coming from in that well.

The next well is the Continental Jack B-30 No. 1, pipe set just above the top of the Yates and completed in an open hole through the Yates and into the Seven Rivers. The next well specifically referred to is the Amerada Falby No. 2 in which we have a record of three drill stem tests. The first of which flowed oil, the second one of which had gas in 20 minutes but no measurement was taken and the bottom one of which flowed at the rate of 360 MCF gas per day with no oil.

The Cooper-Jal oil wells lie in these last four. With the gas well referred to at the end of the testimony on this section being this well here, the Hamilton No. 1.

Exhibit No. 12 is the east-west cross section through Township 25 South. On the west it shows first a Yates oil well which has now been plugged and abandoned. Next a Yates-Seven Rivers well which has been plugged and abandoned. A well which was originally completed as a Seven Rivers oil producer but after several recompletions is now producing gas from the upper Yates. I might add it is a rather small producer. The next is Seven Rivers oil well. The next is a Yates gas well. The next is a well originally completed as a Yates gas well which now produces some oil. Next the Leonard and Leonard Justice No. 1-A, a Yates gas well. Leonard and Leonard Justice which is likewise a gas well, next there are four Yates oil wells, a Yates gas well, three Queens oil wells, a Queen gas well and a deep dry hole which is merely in there for proration purposes.

Exhibit No. 13 is a north-south cross section starting in the south end of the Eunice Pool, right through here would be the Eunice Pool, continuing and running through the South

Eunice, Cooper-Jal and Eaves Pools. Oil production at the north end in the Eunice Pool is from the Grayburg with a few of the Eunice Pool wells producing from the Queen. The Queen then goes below the water table between the Eunice and South Eunice pools. The section then shows South Eunice Pools producing oil from the Queen with a Queen again going below the water table immediately south of the Continental State E-17 No. 6. Production further south consists of oil and gas from the Yates and Seven Rivers formations. That is from here to the end, we do not have any wells producing from what we can correlate as the Queen.

Exhibit No. 14 is a north-south cross section up the reef ridge and follows the same general trend as Exhibit No. 13. The two exhibits show essentially the same information; however, exhibit No. 14 has radioactivity or electrical logs of the wells which make it possible to study the trend in greater detail. The southernmost log is of a well in the Henricks Pool, Winkler County, Texas. Continental Ida Hendricks No. 1. The change in the stratigraphy between the South Eunice and Eunice Pools can be seen by comparing the logs of Continental Lockhart B-31 No. 4 and State E-17 No. 5 with the wells to the north. To the south the stratigraphy of the Yates and Seven Rivers formations, that is from the Continental Lockhart B-31 No. 4 all the way down the section, remains the same the entire length of the section.

Q Are these cross sections shown on your base map up here by number with reference to these Exhibits?

A This one is not.

Q Would you have Mr. Randolph point out where this cross

section is?

MR. RANDOLPH: It starts up here and goes off the map down here.

A Referring again to Exhibits 8 and 10, this long strip of continuity as shown in Exhibit No. 14 should be compared with the discontinuity of the east-west sections. The Seven Rivers and Yates zones can be traced approximately 50 miles north and south, but in one or two locations to the east the lithology of the formations has changed.

Exhibit No's. 15, 16 and 17 are a three piece north-south cross section from the north end of the Monument Pool to the south end of the Rhodes Pool. The section is approximately mid-way between the eastern and western limits of the shallow oil production. I believe that is 15, the north end of the section. 16 is the middle portion, through Townships 21, 2 and 3 South. I believe that is all there is on that.

Exhibit No. 17 is that portion which runs through Townships 24, 25 and 26 South.

Exhibit No's 18, 19, and 20 are a three piece north-south cross section from the north end of Monument Pool south to the Leonard Pool. This section runs to the east of the one shown on Exhibits 15, 16, 17.

Exhibit 18 is that portion of it in Townships 19 and 20 South. Exhibit 19 is that portion of the section through Townships 21, 22, and 23 South. Exhibit 20 is that portion of the section which runs through Townships 24, 25, and into the portion of 26 South.

The San Andres formation is oil productive in the area

under consideration in this case only in the center portion of the Monument Pool. In a few of the highest wells, the upper portion of the San Andres is above the gas-oil contact. The Grayburg formation produces oil in the Eunice Pool and around the edges of the Monument Pool. In the higher portions of the Monument Pool, the entire Grayburg formation is above the gas-oil contact and is gas productive. The upper portions of it contain gas through most of the Monument Pool. The Grayburg is also oil productive in the Skaggs and Arrowhead and North portion of the Penrose-Skelly Pool.

The Queen formation contains chiefly gas under the Eunice Monument structure except as previously mentioned along the south and west edges of the Eunice Pool. The north end of the south Eunice Pool also produces some oil and some gas in the Queen formation. The southern portion of the Penrose-Skelly and the Langlie-Mattix Pools produce oil from the Queen. Also, there are some wells in the Langlie-Mattix area which have only gas in the Queen formation. These wells are chiefly structural wells.

The Seven Rivers along the reef ridge produces chiefly oil from the west flank with gas in the higher wells. At the extreme north end the Seven Rivers dolomites contain almost all gas. To the east of the ridge in the lower wells, the bottom portion of the Seven Rivers contains some oil, while the rest of the formation contains gas. Gas is also found in the Seven Rivers in the south and west portions of Township 21 South, Range 36 East. The sands in the Seven Rivers back of the reef area appear to be lenses with the longest dimensions north and

south. Most of the sands pinch out as the top of the back reef high is approached. The Seven Rivers also produces gas in the central portion of the Monument Pool.

The Yates formation produces oil in some of the lower wells west of the reef ridge. In the higher wells along the reef ridge, it contains gas. Back of the reef, with the exception of several small lows, it contains gas. Production in the Eunice Monument Fields from the Yates appears to be limited to the same general area as that which produces from the Seven Rivers. In general, along the reef ridge, the lower Yates is more prolific than the upper Yates.

Studies and work in southeastern Lea County by Continental Oil Company indicate the pay horizons to be either lensed or zoned in most of the producing formations. By this it is meant that the producing formations consist of a series of permeable layers separated by impermeable layers within the formation. These layers in practically all cases follow the structure. Initially, the water-oil contact in all formations varied from approximately -275 feet subsea at the south end to approximately -325 feet at the north end. Likewise, the gas-oil contact in all formations was approximately 100 feet above the water-oil contact. Apparently, over geologic times fluids have reached a state of equilibrium throughout the shallow formations with the exception of the oil accumulations in low spots in the Yates. During the producing life of the fields, however, these various zones have performed as separate reservoirs.

MR. SPURRIER: We will take a recess.

(RECESS)

MR. KELLAHIN: Mr. Dailey.

A Initially, bottom hole pressure of the Eunice Pool is believed to have been approximately 1,450 pounds per square inch. The average bottomhole pressure of 55 Grayburg oil wells taken in August of 1953, was 541 pounds per square inch. These were a total of 47 gas wells in the Eunice part of the Eumont gas field carried on the February, 1954 proration schedule. Shut in pressures taken in October, 1953 were obtained on 27 of these wells. The average shut in pressure was 1,029 pounds per square inch or a difference of 488 pounds per square inch above that of the average pressures for the oil wells in the Eunice Pool. Sulfur content on nine Continental gas wells completed in the Yates, Seven Rivers or Queen in the area covered by the Eunice Oil Pool show an average sulfur content of 69 grains per 100 cubic feet.

Sulfur content of seven oil wells producing from the Grayburg in the Eunice Pool, that is gas casinghead gas from the seven oil wells, show an average content of 753 grains per one hundred cubic feet. These two facts prove the separation between the Grayburg oil and the Yates, Seven Rivers-Queen gas formations in this area.

In the Langlie Mattix Pool, the Continental Oil Company Jack A-21 No. 1 had a shut in bottomhole pressure in the Queen formation of 210 pounds per square inch in 1943. It has since been recompleted as a dry gas well in the Yates and upper Seven Rivers. The latest pressure, taken during 1953 was 903 pounds per square inch.

Similarly, in 1943, the Continental Jack A-29 No. 3 had

a bottom hole pressure in the Queen and lower Seven Rivers of 340 pounds per square inch. It has since been recompleted as a gas well with a shut in pressure during the latter part of 1953 of 851 pounds per square inch. Shut in gas well pressures most of which were taken in October, 1953, are shown on Exhibit 21.

Q Mr. Dailey, do the figures show the shut in pressures on these wells?

A That is correct, and also shows some sulfur content where available. It is difficult on the print to tell the difference between the sulfur contents and the--the upper figures is the shut in pressure and the lower figure is the sulfur content where available. We don't have the sulfur content on all the wells.

Q By upper and lower figures you are referring to the two figures that appear by the well location?

A That is correct. This map was prepared, the base map was prepared by someone else and the abbreviation of letters alongside of this purports to show the producing horizon. That producing horizon may not agree with what we believe, but is merely taken from what was reported to be the producing horizon.

Exhibit 22 is a section drawn through Continental's State J-2 lease in Section 2, Township 22 South, Range 36 East. On it are shown tracings of the radioactivity surveys run in conjunction with workovers on six of the twelve wells on the lease. These wells are all producing from the Grayburg formation. The remedial work was done on these wells to shut off water production. In every case, after the workover, the water

production was eliminated or substantially reduced.

We have picked two of the wells for examples to show what the others also similarly show. The State J-2 No. 11 was producing 22 barrels of oil, in 254 barrels of water a day from open hole, with 5½" pipe set at approximately 3, 710 at a total depth of 3,852. A packer was set at 3,838 and the interval below the packer was acidized with 1,000 gallons. Following the workover, the well produced from below the packer 122 barrels oil, 8 barrels water per day, flowing through an 11/64" choke. In other words, in that case the water was above the oil.

Well No. 7, prior to the workover, tested 22 barrels oil, 356 barrels water, in 24 hours from open hole, with 5½" casing set at approximately 3,720 and the total depth at 3,781. The well was deepened to 3,825 and a liner cemented on bottom. The liner was perforated from 3,808 to 3,812 and 3,819 to 3,822 and the well acidized with 500 gallons. It was recompleted for an initial potential of 211 barrels of oil, no water, in 24 hours, flowing through 20/64" choke. Similar experiences were had with the other wells shown on that section.

This evidence, to our minds, shows that the various permeable zones within the Grayburg formation in that area performed during the course of production like separate reservoirs. It definitely shows that there must be some impermeable barriers within the Grayburg formation in the Arrowhead Pool.

Exhibit 23 is a log of the Continental Ida Hendricks No. 1 in the Hendricks Pool of Winkler County, Texas. The Hendricks Pool is a southern extension of the reef ridge on which lie the Eaves, Cooper-Jal, South Eunice Pools. The well was originally

completed in 1928 at a total depth of 2,880 for an initial potential of 240 barrels of oil per day from open hole between 8¼" casing at 2,316 and a total depth of 2,880. In August, 1930, the well tested 30 barrels of oil, 1,500 barrels water, per day. During the month it was deepened to 2,973 and 7" casing set at 2,870. After the work, the well tested 300 barrels oil, no water, per day.

Exhibit 24 is a log comparison of six wells in Sections 29, and 32, Township 22 South, Range 36 East and Section 5, Township 23 South, Range 36 East. These wells indicate reversals of the normal sequence of fluids to be expected in reservoirs. In the Continental Meyer A-29 No. 4 the well was completed through perforations 3636-3648 for initial potential of 314 barrels of oil, 35 barrels of water, per day. These perforations are immediately below an interval in which a drill stem test recovered 720 feet sulfur water and 120 feet of mud.

The Continental State A-32 No. 3 was perforated from 3,526 to 3,540, and after being acidized, tested 6,510,000 cubic feet of gas per day. A retainer was set at 3,510 and the well then perforated from 3,470 to 3,490. After being acidized, it was completed for an initial potential of 322 barrels of oil per day with a gas-oil ratio of 598.

The data on these six wells, plus the Continental Hendricks, indicates that there must be impermeable barriers within the Yates and Seven Rivers formations. I believe that the formations, Yates, Seven Rivers, Queen, Grayburg and San Andres, were separate reservoirs in their initial conditions, although they were probably one accumulation.

At the April, 1951 hearing of the New Mexico Oil Conservation Commission, Continental Oil Company presented testimony and a recommendation for delineation of four shallow gas pools in southeastern Lea County, New Mexico.

Q Are you referring to Case 245?

A That is correct. Prior to presenting the testimony, engineers for Continental, and for three orther companies in partnership with Continental in certain acreage in the area, made a study of the area which continued over a period of six or eight months. A number of cross sections were made which have been presented in evidence at the present hearing; also, a structure map of the area which was presented as Exhibit I in April of 1951, and again at this hearing, and a map showing shut in pressures and sulfur contents as obtained from the El Paso Natural Gas Company similar to Exhibit 21 in this case were studied.

In studying these various items, it appeared that in crossing the reef ridge there was a major change in stratigraphy in the Seven Rivers formation and that in the Yates formation the individual sand lenses did not appear to be continuous. There was, also, at that time a differential pressure of approximately 200 pounds between wells in what is now designated as the Langmat Pool and in wells now designated as the Jalco Pool. There was, in general a difference in sulfur content the wells in Langmat running less than one grain per 100 cubic feet while those in Jalco ran up to 300. The change in pressure, sulfur contents and stratigraphy appeared to follow rather closely the low spot immediately behind the reef ridge and the boundary line

between the Jalco and Langmat Pools was placed on the combination of structure sulfur content and gas well pressures.

The boundary between the Jalco and Eumont Pools, as originally recommended by Continental was placed approximately at the boundary line between the Eunice and South Eunice Oil Pools. The area where it was drawn was comparatively undeveloped for gas at that time. There appeared to be also a division in Queen formation in the area. A similar situation existed between the Eumont and Langmat Pools. Included in the Arrow Pool was an area of which little was known so far as gas possibilities was concerned.

In re-studying the area, it was decided that certain requirements were an absolute necessity: (1) that there should not be major pressure differentials between any of the formation included within any one pool. (2) since the basic proration unit is a governmental quarter section, the boundaries should follow quarter section lines.

At the time of the original study, it was believed necessary and it is still believed necessary, to segregate the Queen and lower Seven Rivers from the Yates and upper Seven Rivers in the vicinity of the Langlie Mattix Oil Pool because of the pressure differential previously testified to.

Designating the Langmat Gas Pool as the Yates and all but the lower 100 feet of the Seven Rivers and the Langlie Mattix Oil Pool as the lower 100 feet of the Seven Rivers and all of the Queen, maintains the necessary segregation between the high pressure gas and the low pressure oil zones. The result is an oil pool with comparatively few gas wells and a gas

pool with a comparatively small oil productive area. From an administrative standpoint, it is believed that it would be easier to set up field rules for these two pools than for one big oil and gas pool.

It was believed the gas in the area designated as Jalco is primarily gas cap gas. There are numerous wells producing oil from the Yates, Seven Rivers and Queen formations. At least a portion of these formations has a water drive along the west flank and it is believed the water is coming from the west. A proration system in the pool should not allow gas wells to void more space than oil wells.

The designation as originally made is believed to have recognized the problems peculiar to each area and allows the pecularities to be recognized in establishing field rules. This should help to prevent waste and permit equitable withdrawals.

Q The Exhibits you have used in connection with your testimony, were they prepared under your direction and supervision?

A That is correct.

Q Did you work on them with anyone else?

A Yes.

Q Who was that?

A Mr. Forbis, who testified in Case 245.

Q Is Mr. Forbis available to testify in this present case?

A No, he is not.

Q For what reason?

A He is deceased.

MR. KELLAHIN: Continental offers in evidence, its Exhibits Nos. 1 through 24, inclusive.

MR. SPURRIER: Is there objection? Without objections

they will be admitted.

Q Mr. Dailey, in connection with your study in previous cases and in this present case, have you arrived at any conclusions and recommendations that you can offer to the Commission at this time?

A Yes, our original recommendation is outlined on our Exhibit 2 in which you would have a Eunice Monument Oil Pool--

Q (Interrupting) Do you mind stepping up there and pointing that out as you go along? I believe it would be easier.

A (Continuing)--which is colored in blue which would be producing oil from the Grayburg-San Andres formations and a gas pool which would include Yates, Seven Rivers and Queen. The green area would include a gas pool producing from the Yates and upper Seven Rivers formations. The orange area would be an oil and gas pool producing from the Yates, and the entire Seven Rivers formations. The pink area would be an oil pool for the Grayburg and a gas pool for the Yates, Seven Rivers and Queen. Wait a moment, yes. In addition in the vicinity of the Langmat, Langlie-Mattix Oil Pool in Townships, primarily Township 24 South, Range 36 East, there would be a Queen, lower Seven Rivers oil pool.

In the vicinity of the present South Eunice Pool, there would be a Queen oil pool. That would be my recommendation. That is substantially the same as the pools are now designated.

Q The recommendation that you just made, does it conform to present pool delineation?

A Not one hundred per cent.

Q Under the present Commission's orders?

A Not one hundred per cent but fairly close to it.

Q Would you have any objection to the present pool delineation as defined by the Commission?

A It would be necessary to remove the oil horizons or to remove the gas horizons from the Langlie-Mattix Oil Pool as presently defined. I believe the similiar situation may exist in the Eunice Monument Area as regards to the Queen.

Q Would you have any objection to the changes, I mean to leaving the areal delineation the same to take care of leases which may be bisected by the lines that you proposed?

A What are you getting at? Do you mean to move it to take care of the leases?

Q Yes.

A I would see no objections.

MR. KELLAHIN: I believe that is all.

MR. SPURRIER: Does anyone have a question of Mr.Dailey?

MR. CAMPBELL: If the Commission please, I wonder if we could defer the cross examination of this witness until the other two matters with reference to pool delineations are put before the Commission? It is my understanding that some of these Exhibits are on the same cross sections with different interpretations. I would like to request that if possible, Mr. Dailey, I am sure will be here if we could examine him after the rest of the geologists testify?

MR.KELLAHIN: We have no objections.

MR. SPURRIER: Does anyone have a question of Mr.Dailey?

MR. STANLEY: May I ask several questions?

CROSS EXAMINATION

By: MR. STANLEY:

Q I just want some information. When you talk about the reef front here in the vicinity of your Continental Jack A-29 No. 3, isn't it a true characteristic of the reservoir here that you have an active water drive?

A That is correct. We have some recent pressures on those wells which indicate a pressure of between 1,000 and 1,100 pounds which is considerably higher, I believe, than any of the other wells shown on that section.

Q I just wanted that for my own information when I testify. How would you dispose of the Queen gas wells, would you prorate them as gas wells or prorate them as oil wells?

A Mr. Lyons and I think several of the other people around here have some proposed rules. I believe that by putting in a limiting ratio factor and perhaps a definition of a gas well that those wells can be handled without any trouble.

Q In other words, they would be prorated as oil wells primarily, if you apply the gas-oil ratio?

A I don't think it would make any difference which way they were applied.

MR. STANLEY: Okay, thank you.

MR. SPURRIER: Anyone else?

By: MR. MALONE:

Q You testified, I believe, that the Grayburg contains gas which is gas cap gas in the Monument area?

A That is correct.

Q If the lower vertical limit were used in delineating a gas pool in that area which included that gas cap gas, what

would be the result insofar as dissipating the reservoir energy is concerned?

A It would result in waste in that Grayburg oil along the edges of the sides, the sides and edges of the structure would have a tendency to move into the gas cap area and saturate that with oil which would never be recovered.

Q The ultimate recovery of oil would therefore be reduced to that extent? A That is right.

MR. MALONE: That is all.

MR. SPURRIER: Anyone else? Mr. Foster.

By: MR. FOSTER:

Q I believe under the way you have delineated the area, is it true that you will find some oil wells in what you have delineated as gas pools producing oil and some gas wells in what you have delineated as oil pools producing gas, is that true?

A If I have got your question straight, that would be true.

Q In those areas where you find an oil well in what you delineated as a gas pool, do you consider the production of the oil from the oil well to the gas pool and the gas from the gas well to be coming from a common source of supply?

A Are you referring, for instance, to the Falby-Yates Pool which would be located--

Q (Interrupting) I am not referring to any one particularly, just wherever you find that situation?

A There would be places where that would be true.

Q And then on what basis would you classify one of them an oil pool and another one a gas pool when they are both com-

mon sources of supply?

A In the case of what I have recommended as, well, what would now be the Langmat oil pool which would also include the Falby, or the Langmat gas pool which would also include the Falby-Yates oil pool, the area relative, the relative area of the gas production is comparatively minor as compared to the area of oil production. I would say that the gas is the primary product.

Q Well, that might be true but what I am trying to find out is, if you have production of oil and gas from a common source of supply, both oil and gas from the same reservoir, on what basis could you classify the oil production as being from an oil reservoir and the gas production from a gas reservoir

A I am not doing that. I am calling it all one reservoir.

Q Then, you would call it all one reservoir?

A That is right.

Q Then--

A (Interrupting) And I have not made any recommendations on rules.

Q I am going to ask you for that in a minute.

A I don't have any.

MR. KELLAHIN: Just what pool are you talking about, Judge? Are you asking a hypothetical question without reference to any of the testimony or are you referring to something in this area, if so, I believe Mr. Dailey could answer, if you pin it down.

MR. FOSTER: Mr. Dailey testified that in some of the areas that he would suggest that you designate as a gas pool

that you find you would have production from oil wells and vice versa and that in some of the areas that you designate as oil reservoirs you would have wells that produced only gas. That is what I am asking you about. Whether in those instances where you have both the oil production and the gas production from the same common source of supply, whether he would designate that as a common reservoir as I understand he says he would, but he doesn't have any suggestion on how it ought to be done.

MR. SPURRIER: Anyone else have a question of Mr. Dailey?

MR. WOODWARD: Mr. Woodward for Amerada.

MR. SPURRIER: Mr. Woodward.

By: MR. WOODWARD:

Q I believe you testified, Mr. Dailey, that in the area between the Eunice and South Eunice fields you had two wells where the Queen went below the water table, is that correct?

A That is correct.

Q If that condition extends east-west across the areas that you have shaded on your Exhibit 2, I believe, in your opinion, would you expect any communication of oil or gas laterally through the Queen as it passes below the water table?

A I would not.

Q There would be no lateral communication then from Eunice to South Eunice or South Eunice to Eunice?

A If it is below the water table there should not be.

MR. WOODWARD: That is all.

MR. SPURRIER: Anyone else? Mr. Macey.

MR. MACEY: I would like to find out if we can cross examine or if it is deferred or what we are supposed to be doing?

MR. SPURRIER: You may do so, Mr. Campbell wants permission to call him back, which he may do.

MR. MACEY: I would like to ask some clarifying questions on the pool definitions.

By: MR. MACEY:

Q Mr. Dailey, referring to the blue area on your Exhibit 2, am I right in assuming that the Eunice Monument Oil Pool as presently defined would be re-defined as being productive from the Grayburg and San Andres? A That is correct.

Q The Eumont gas pool would be the Yates, Seven Rivers and Queen? A That is correct.

Q The boundary, of course, would be the base of the Queen?

A That is correct.

Q Now, in the Langmat pool or the Langlie-Mattix Pool area, the Langmat Gas Pool would be the Yates and the upper Seven Rivers and by upper Seven Rivers I mean all but the lower 100 feet of the Seven Rivers?

A Yes, I did not specify that 100 feet exactly. I understand there is some objection to that exact terminology. I believe that could be varied somewhat to make it more readily applied than the exact term presently used.

Q Your Langlie-Mattix Oil Pool would include the Queen and the lower Seven Rivers so to speak?

A And it would include, of course, what is presently defined as the Langlie-Mattix Oil Pool.

Q Now, would you do away with the Falby-Yates Pool?

A I would include it in the Langmat Gas Pool.

Q And prorate it as an oil bearing zone in that gas pool?

A That is right.

Q The area that you have designated in orange, you may have to correct me on this, you want to call it one oil and gas pool to include all of the Yates and all of the Seven Rivers and prorate it as an oil and gas pool? A That is correct.

Q What about where that so-called oil and gas pool conflicts with the Eaves and Rhodes area as presently defined? What are you going to do with them?

A I believe that you find that the Eaves is included in that.

Q Not all of it? A I thought it was.

Q What about the portion, referring to this Exhibit, you don't have to refer to it, but this is the boundary of the Eaves Pool?

A The person would in that case extend that as far on the west side to include your productive limits.

Q In other words, the orange zone would include all of the presently defined Eaves Oil Pool? A That is right.

Q What about the Rhodes?

A The Rhodes, the El Paso can testify to that better than I am qualified to. The Rhodes, this portion of the Rhodes has pretty well been determined by the El Paso before they started their injection program, that it was separated from the Eaves Pool in here and also that there is some sort of a barrier to the north here. Such an area as that would be a separate pool designation.

Q Then, if--

A (Interrupting) It would be up to them. They are the

ones that would be most directly affected by it.

Q Let me ask you one other point. You mentioned the Queen production in 22, 26? A That is correct.

Q That is presently more or less in the general area of the South Eunice Oil Pool? A That is right.

Q Would you define the South Eunice Oil Pool as being productive from entirely the Queen zone? A That is right.

Q You redefine it? A That is right.

Q Since you have--

A (Interrupting) Whatever you call this big long one.

Q Yes, whatever you want to call it?

A That is right.

Q Is there any possibility of any Queen production under the orange acreage?

A With the possible exception of right in the vicinity of, well, it would be the north portion, the very extreme north portion of it, I would say not. That would be in the vicinity of say, Section 5, 6, 7, 17, and 18 of 22, 36 and the southeastern portion of the 31-21-36. There would be a possibility in there, I believe. There is a little disagreement as to how that Queen, exactly where the Queen point is in that area. The way we have interpreted by some of those wells would be producing from the Queen.

Q One more point, on your Arrow and Arrowhead area, the Arrow pool would include the Yates, Seven Rivers and Queen as presently defined, that is the horizontal limits and the Arrowhead Oil Pool would be the Grayburg, am I correct?

A As presently developed.

Q As far as your gas wells which are presently within the boundaries of your oil area here, is it your contention that the Commission should not allow a greater withdrawal of gas on a volumetric basis than the oil wells producing in that area?

A Of course, for waste purposes that would be correct. Or rather for purposes of preventing waste, let me put it that way.

Q You mean that in order to prevent waste, the Commission should not allow a greater withdrawal of gas from gas wells in that pool than from oil wells on a volumetric basis?

A That is right.

Q If that wasn't done, it might mean waste?

A That is correct.

MR. MACEY: That is all.

MR. SPURRIER: Anyone else? Mr. Howell.

MR. HOWELL: We would like to reserve the right to ask him some questions after we hear the proposed rules for certain pools. We might just be spinning our wheels to question the witness at this time until we hear their proposal.

MR. SPURRIER: Would you be available for cross examination at a later time, that is later today or tomorrow?

A That is later today or tomorrow, yes.

MR. SPURRIER: The witness maybe excused.

(Witness excused.)

MR. DIPPLE: If the Commission please, we wondered whether it would be appropriate to go forward with the presentation of our proposed rules at this time. We feel that whatever other testimony might come in with respect to pool delineations might possibly have some bearing on our conclusions as to

what the rules ought to be. We are not going to try to be obstinate about it. If the Commission wants us to go ahead and present our rules, we will do it. We prefer not to at this particular point.

MR. SPURRIER: The Commission feels that it is proper to put these rules in evidence all at the same time after we have taken the rest of the evidence.

MR. DIPPLE: We think so, too.

MR. SPURRIER: Do you have another witness?

MR. KELLAHIN: No, that completes our presentation at this time with the ruling of the Commission in regard to the rules.

MR. SPURRIER: We will recess until one o'clock.

(RECESS)

AFTERNOON SESSION
May 10, 1954 1:00 P.M.

MR. SPURRIER: The meeting will come to order, please. Mr. Malone.

MR. SELINGER: Mr. Selinger before Mr. Malone gets to his feet. I would like to have leave of the Commission for permission to cross examine Mr. Dailey at the time that he is returned for cross examination.

MR. SPURRIER: I guess we didn't make it clear. Mr. Dailey will be available for cross examination later by anyone.

MR. SELINGER: Thank you.

MR. SPURRIER: Mr. Malone.

MR. MALONE: May it please the Commission in response to the invitation which the Commission tacitly extended when they opened these rules for reconsideration, Gulf undertook

several studies in an effort to arrive at a solution for the problem of gas prorationing in the area under consideration which might help to eliminate some of the rather vexing problems which the Commission had met and the operators had met in attempting to put in an effective system of gas prorationing in areas where the development is as historically complete as in this area.

That study among other things included a study of the possibility of treating the entire area above the base of the Queen formation which is now included in the Eumont, Arrow, Langmat, Jalco Gas Pools as a single reservoir. At the time of the hearing last month, Gulf was prepared to present to the Commission the result of its studies to that date in connection with the possibility of so treating the area.

When the matter did not come on for hearing, the proposed plan which Gulf had under consideration at that time, was further analyzed and was applied to various portions of the field and various operators in the field in an effort to further arrive at some conclusion as to how many problems might be created by such a change. As a result of that subsequent testing of the proposal, Gulf has reached the conclusion that the problems which it would raise exceed those which it would solve, and that in general the program which will be presented today is the best solution which is available under the circumstances.

That program, I might say, primarily consists of a recognition of the existing areal and vertical limits of the gas pools in this area, with the exception of the boundary between the Jalco and Langmat Pools. I would like to also say

that Gulf heartily supports the Commission in its efforts to put into effect an allocation of gas production in this area and wishes to assist in any way that it can.

The evidence which Gulf will present today will, as I say, support the existing vertical and areal limits of the present pools with the exception of the boundary between Jalco and Langmat and some minor exceptions as far as the analysis is concerned. It will support the existing limits, lower vertical limit insofar as the basis of the Queen is concerned, and will prove we feel conclusively that the Grayburg and San Andres constitute a separate reservoir which must be treated and prorated as such, that no portion of those formations should be included in the orders which may be issued or the pools which may be recognized above the base of the Queen.

We also have prepared some pressure studies and some geological studies which will be presented in that connection. We have to suggest some minor changes in the rules as they now exist which we hope might eliminate some of the difficulties that the Commission is now encountering. I ask Mr. Boss and Mr. Ro[illegible] and Mr. Walker be sworn.

(Witnesses sworn.)

R. L. BOSS

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. MALONE:

Q Will you state your name to the Commission?

A R. L. Boss.

Q Where do you live, Mr. Boss?

A Fort Worth, Texas.

Q By whom are you employed?

A Gulf Oil Corporation.

Q In what capacity?

A As assistant division geological supervisor.

Q How long have you been employed by Gulf, Mr. Boss?

A Between 25 and 26 years.

Q Were you located in Lea County for a substantial period of time?

A Yes, sir, I was transferred to the Hobbs office in January of 1936.

Q How long did you continue to be in charge of that office?

A Until my transfer to the Fort Worth office in the early part of 1952. I was in charge of the geological office in New Mexico, except for the first two years between '36 and '38.

Q Could you estimate, Mr. Boss, the number of wells that were drilled by Gulf in this general Lea County area under your supervision while you were in Hobbs?

A It would approach somewhere between four hundred and five hundred wells, I believe.

Q You are familiar with the development of the area and the geological information disclosed by that development?

A Yes, sir.

Q Have you, in connection with a study of the reconsideration of the rules in these four pools made a study of the geology as it would relate primarily to the designation of gas pools?

A I have.

Q Have you made that in preparation for testimony at this

hearing? A That is correct.

Q As a basis for that testimony, will you briefly summarize your conception of the general geology of this area referring to Gulf's Exhibit 1, which is on the wall over here to the right of the stage?

A The stratigraphy of this particular area under consideration is relatively complex, particularly the late Permian. There has been some reference to the problems that develop as a result of the complexities by some of the earlier testimony. However, I think, possibly an enlargment might be in order.

The Permian reefs that grew around the margin of the Delaware basin during the time in which the sediments were deposited during the Tansil, Yates, Seven Rivers, Grayburg and San Andres time materially effected the type of deposits that occurrred throughout this area. The great Capitan Reef, particularly, had a very dominant influence. Different types of sediments were being deposited at the same time in closely associated areas so that in attempting to establish correlations from one to the other, we go through a rapid gradation which makes correlation very difficult. While we recognize a number of the formations in certain areas, there are others that the characteristic lithology has been entirely changed through this gradation.

Southwest of Carlsbad, in the Guadelupe Mountains where the reef comes to the surface and is exposed through the steeply disected canyons that traverse it, we have an example found few other places in the world to study reef development and here the complexity of these gradations can be observed. Although a

great deal of work has been done on the surface area there is still a great many controversies rage as to the correlations to be established in these beds that were apparently being deposited at the same time. We do recognize however that these gradations do occur and in carrying beds from the back reef into the reef, they can be traced and disappear entirely into the massive reef complex.

We have this same problem in southeastern New Mexico here in the area with which we are concerned. Although the Yates can be recognized, the Yates and Seven Rivers over much of this area, apparently we are a little, just a little back reef here so that the Yates has not disappeared entirely into the reef complex. However, the older formations, the Queen, Grayburg, in the area we are concerned with appear to show the effect of this gradation and cannot be definitely identified through a great portion of the immediately back reef province, particularly through the Jalco, what is not the Jalco area.

Unfortunately, most of the wells don't go deep enough to augment this study but the few that have penetrated the upper Permian sequence indicate or suggest that these complexities do exist. Although we do recognize the Yates and Seven Rivers through this area, or they can be identified, we do recognize these poor gradations and they effect the reservoir characteristics of these formations very much. The grade from the reef area through the Yates sands, particularly, grade eastward they shale out, the dolomites in the Yates grade eastward, I am speaking in the southeastern part of the county or in the direction at right angles to the reef, let me put it this way, so that the

maxium gradation occurs at right angles to the reef and this gradation occurrs very rapidly. The gradation through the Yates and Seven Rivers accounts for the pinch out of the porosity in those members and accounts for the eastern limits of the gas pools that are set up.

Q Would you now take the pointer and go up and explain to the Commission the information which is shown on Gulf's Exhibit 2?

A To continue with some of the structural features of this area, there are two dominant structural north, south trends that were pointed out earlier. One along the western margin here and one through Range 37 East, approximately toward the eastern part in the south and greatly diverging toward the north. These two trends culminate or coalesce and culminate at Monument in the formation of the Monument structure. At that point or that area we have the highest structural elevations of any place in the entire area. Although there are local highs along these trends, the general picture is one from Monument southward, a general southerly gradient. Oil and gas accumulated in the porous members of the formations, the shallow Permian formations, up to the Yates and, pecularlarly enough to this area, the gas-oil contact occurred at a relatively uniform point with reference to sea level. Throughout most of the area this average datum is approximately minus 200 feet. Similarly, there is a fairly uniform oil water contact which can be identified over much of this area and that is in the magnitude of 350, 375 feet below sea level.

This is not a hard and fast rule, of course. In the

first place porous beds had to occur at that depth before oil would occur in them. Also there are notable variations of oil occurring above that depth. The most pronounced or local areas which are enclosed lows comparable to the Falby-Yates, the Leonard Lane Hart area just east of Jal and some local areas along in what is now the Cooper-Jal field.

Also on the extreme western limits of the producing areas there are similiar regular datums that do not conform to this general average that is so common throughout most of the area. This uniformity would argue that over past periods of geologic time there must have been some communication between the formations. However, for the present or at least the life of these fields, we think there is ample evidence to indicate that no longer does communication exist and we intend to introduce evidence to support that contention.

This Exhibit No. 1 merely shows the presently defined limits of the gas pools in southeastern Lea County. In addition are shown the general area of the oil pools which are found in this same area. The key to the cross sections which will be introduced later are also shown on this Exhibit.

Q Will you identify in the area shown on the Exhibit the formations which are producing gas and oil in the area at the present time?

A In the Eumont gas area, the presently defined gas limits are the Yates, Seven Rivers and Queen formations. The Eunice and Monument oil fields are producing primarily from the Grayburg and San Andres formations. As pointed out by previous testimony there are, along the margin, some wells producing oil

from shallower horizons. However, in general the major producing formations are those as stated.

Similarly in the Arrowhead areathe Arrowhead Pool produces oil from the Grayburg formation except on the extreme western margin where some of the basil Queen beds are in the oil column. However, by far the greater portion of the field is Grayburg. The gas produced in the Arrow field which occupies essentially the same position is generally from the Yates, Seven Rivers and the regulations specify the top 200 feet, I believe, of the Queen. There is the difference between Arrow and Eumont in the lower portion of the Queen not being present or constituting the gas pay of the Arrow field.

In the Hardy area the production there, the oil production is primarily from beds of Queen Age. There may be some Grayburg on the margins but that is another local low area in which the Queen is productive. The Penrose-Skelly is producing oil from the Grayburg in the northern portion and the Queen in the southern portion. The Langlie-Mattix Oil Field is primarily a Queen sand production although on the extreme western margins there is some lower Seven Rivers sand production.

Leonard and South Leonard are Queen, the Falby-Yates is a local low or the Yates is productive of oil. South Eunice oil field is primarily Seven Rivers production. There maybe some Queen in the northern end but there again it is a matter of correlation or interpretation as to what portion of the section is productive. Cooper-Jal again is Seven Rivers with some eratic up Seven Rivers or Yates locally. The Eaves the same way. Throughout the Jalco gas pool, the presently defined limits are

the Yates and the Seven Rivers excepting the lower 100 feet. Similarly the Langmat is the Yates and upper 200 feet of the Seven Rivers.

Q Directing your attention now, Mr. Boss, to the boundary which delineates the Langmat, the common boundary between the Langmat and Jalco gas pools, have you made a study to determine whether or not you can support, from a geological point of view, the existence of that boundary as between these pools?

A During the initial stages of the development of delineations for these pools that was one of the major points of controversy among a number of the operators. Actually, based on geologic facts, it is very difficult to have any sound basis for that line. It is Gulf's original statement that they felt that that line could not be substantiated by geologic evidence although they would have no objections if it was generally felt that it should be placed there.

Q Has your opinion as to the lack of geologic evidence changed in the meantime?

A No, sir.

Q You were the chairman of the Geologic Committee which made recommendation with reference to the proposed rules?

A Yes, sir.

Q Can you state the basis on which that line was recommended by that Committee?

A Well, the committee merely took a previous recommendation that had been made by members of the various operators and since they were generally acceptable they were recommended with slight modifications. There was considerable discussion about

the validity of that line but at the time the original recommendations of Continental and the other members of the Federal Unit were recognized and no particular objection was raised.

Q Did the existence or non-existence of sulfur and gas in the area have anything to do with that original delineation?

A That was primarily the basis for which the separation was made since there was very little geologic evidence to substantiate it. In view of that there was some evidence to support the line initially. However, it certainly would be difficult to prove on a sound geologic basis that the line should be there.

Q In the light of that testimony what would be your recommendation to the Commission insofar as the continuation of that boundary is concerned?

A Our opinion in that matter has remained essentially the same except before where we said we would go either way in this instance, we are recommending that that line be removed.

Q Turning now to Gulf's Exhibit 2, will you designate Gulf's Exhibit 2, with your pointer up there, please?

A This is Exhibit 2, which is a stratrigraphic cross section extending from the central portion of Township 35, 37 East in the Langmat field extending northward up through the Langlie-Mattix, Penrose-Skelly and across into the Eunice and the northern boundary of the Monument Field.

Q Indicate the wells shown on Exhibit 2 on Exhibit 1 as they come down through those fields.

A This line of red dots are the wells in the section and are connected by this black line and represent this series of

wells in Exhibit No. 2.

This Exhibit was constructed from sample logs, representative sample lots throughout this area. I might point out that the southern half or approximately the southern half are cable tool logs. The northern section which is primarily up through the Eunice Monument field have few cable tool logs available, so these are rotary samples.

This cross section shows in general this relationship extending from the crest of the Monument structure southward, the major structural elevation here in Monument and the southern gradient, the oil and gas referred to this red line, the oil and gas contact, this average oil and gas contact as indicated here at a depth of 200 feet below sea level. In the Eunice and Monument fields that was found a very practical point to set pipe without having excessive rations. By the same token the lower limit of 300 or so feet was set up just arbitrarily. You would figure your total depth of your well to that point and the wells were drilled to that area regardless of what formation they might have bottomed up in. The cross section attempts to portray the intersection of various formations with this gas-oil contact, such that you could have depended on the structural position of the well, find oil in various formations.

It is particularly important to note that at no point south of the Eunice area, we modify that, except for one local point south of the Eunice area in the northern part of Hardy, the Grayburg is not productive of oil. It occurs at too low, generally too low below the oil-water contact or where it might occur in a proper position such as here which is in

Gulf's A Munion area in the Teague field here in 23, 37 or at this Buffington well which is here in 25, 37. There the Grayburg did not have sufficient porosity developed to afford a reservoir, as a consequence it carried no fluids.

Q Based entirely, Mr. Boss, on your geology of the area and without reference to Gulf's Exhibit 2, at the moment, what was your opinion as to whether or not the Grayburg and San Andres were part of a common reservoir with the Queens formations above it?

A In attempting to make correlations this section was extended along the eastern limits here where this gradational phenomena does not interfere with the recognition of the various formational units. They can be correlated satisfactorily. Here, you are going in a direction parallel to the general reef trend and rather uniform conditions existed there and you can correlate with some degree of purity to the various formations.

As a consequence we have no trouble in recognizing the top of the Yates across here. Also, in that major sandy sequence which most of us in the early days and, I think, at present recognize as the top of the Queen. This upper sand was designated by various companies by their own particular terminology. The Amerada called that sand, I believe, the Steward Sand because of the oil production down in the Langlie-Mattix on the Steward well.

The Gulf called it the Knight Sand because of the production on the Knight lease, but in general it is a re-

cognized unit and is recognized by most observers now, on the top of the Queen. There are two major sand members in the Queen, the upper one and the lower one which has been rather uniformly referred to as the Penrose Sand Member. Now, unfortunately the entire Queen formation has not been described adequately in the literature or anywhere else, so that just what constitutes the entire Queen sequence is still somewhat controversial.

However, many of the early workers were generally agreed that the base of this sandy sequence was about the top of the Grayburg. It was easily recognizable in many places and because of the distinct change in lithology. In one of the most sidespread and diagnostic things lithologic onite that occurred here was a series of bentonitic shales that occur. They can be traced over a great scope of country at this approximate position. There are other bentonities in the section. There is one zone here at the top of the Queen that is fairly persistent, but this one particularly here seems such a persistent thing and occurs at the same approximate stratrigraphic position that it was used by us in helping identify the top of the Grayburg.

Q Will you describe that shale to which you have referred. What is the general nature of the formation?

A Well, it is generally a waxy green shale. It is readily identified from any type of samples. In the cable tool wells here it shows up very nicely. It is this elitrope color bed or beds indicated on the secion, possibly it came

to agree and that is why it is represented so well in the cable tool wells.

In the rotary wells, it is usually represented by possibly only five to ten percent of the sample. It is pretty persistent and we feel that is is generally in place at that point in the section. The only cores we have through that contract are here at this Buffington well which was drilled back in the early part of 1937, I believe or the late part of 1936 and that section was cored, drilled with cable tools down to some point within the Queen here and then, because of mechanical difficulties, we had to move in a rotary and the remainder was drilled with rotary tools.

But this portion of it was cored and although we had very poor recoveries with those conventional cores, we did recover enough here to indicate that those shales were present. In fact, in this one well, we have one zone up to four inches in thickness of these bentonitic shales. We have illustrated this zone since we think it is a persistent zone and an impervious zone from its very lithologic character by this cross hatched section.

We don't mean to infer there is a zone some 60 feet in thickness uniformly across the whole area that separates the two but within that interval you usually find these bentonites and for that reason we think it represents an impermeable barriers because of its lithologic character and its continuity Since that occurs at the top of the Grayburg and throughout the Monument, Eunice Monument area, the Grayburg is a major oil producer, the Grayburg in the underlying San Andres. We feel

then that affords a definite separation between the Grayburg and the overlying sequence. As pointed out by earlier testimony of Continental at the crest of the Monument structure much or most of the Grayburg which would be right here is in gas cap. That is nicely illustrated by this section where even the upper part of the San Andres might be in the gas cap at this particular well.

Q May I inquire right there, Mr. Boss, if a lower vertical limit for a gas pool included that gas cap portion of the Grayburg, what would result so far as the energy for producing oil is concerned?

A Of course, the oil in the Grayburg reservoir would not be fully recovered by the loss of the energy which would be dissipated by the production of that gas.

Q Is it your opinion then that the impervious zone to which you have testified constitutes a division and a barrier between the Queen formation and the Grayburg formation and could serve as a lower vertical limit for a gas pool in the Queen?

A That is true. We have additional evidence to be introduced by our following witness to substantiate that through reservoir performance. So, that we then strongly recommend that the Grayburg and San Andres in what is now defined as the Eunice Monument oil field be designated as an oil reservoir.

Q What is your opinion as to practicability of the use of a datum in that Eunice Monument area as a delineation or vertical limit of the pool?

A Well, in view of the steepness of the structure and

also the somewhat irregular shape of the Monument structure, there is two sort of loands. If you would recall from one of these earlier structure maps it makes it a very difficult matter to set up any datum or series of datums that would satisfy this condition of eliminating the Grayburg. In other words, it might have to be done on a quarter section basis or some such plan as that which would make it very tedious and very complicated.

Q It is then, as I understand your recommendation, that the lower vertical limit of the gas pool should be at the base of the Queen?

A That is correct.

Q Will you refer to Gulf's Exhibit 3 and state its relation to Exhibit 2?

A Exhibit 3 is merely another cross section across the Monument to illustrate the same point that was brought out here. It was merely drawn to indicate that you could make the same correlations and put the same markers across and you have the identical relationships here that you have in this section here.

Q Did you find the bentonitic shale to be present in those samples in substantially the same amount?

A Yes, sir, we did.

Q Referring back now to Gulf's Exhibit 1 for a moment. I failed to ask you with reference to the vertical limits of the existing gas pools. You have recommended that the common boundary between Jalco and Langmat be eliminated. What, if any recommendations, do you have with reference to the vertical limits of the existing pool?

A I think that the present vertical limits of the Eumont field should be retained. They appear practical and they have been followed by the operators in completing wells in that pool to date and represent the most feasible solution to retain those in their present status.

In the Arrow gas field since essentially the same conditions exist, it would be my recommendation to extend the lower limits also to include the entire Queen formation. You have the identical conditions in Arrow that you have in Eumont with respect to Grayburg being the major oil producer and along the fringe you might have a little basic production.

As to the other gas pools, it is my recommendation that they remain essentially as stated in the present regulations with the possible exception of the upper most limits. The present limits in all of them start with the Yates formation.

Now, in the, particularly the Jalco, what is now the Jalco area, the Tansil formation or the Brown lime as it is frequently called, is gas bearing. During the early days of the drilling of the Cooper and Jal fields wells blew out when they encountered that Brown lime. Due to the gradational phenomena that dolomite in the Tansil isn't present in Eumont or much of some of the other fields, but through Jalco and Langmat it is present and could be a source of gas and since there appears to be no reason to separate it from the underlying Yates, I think that it would be my recommendation to include the Tansil as part of the gas pay. That, also has a

practical application in a number of instances. The Commission has gotten after a number of us operators for exceeding the vertical, the lower limits of some of these gas pools. We have had to plug back wells even though we thought they weren't producing any gas from the lower limits.

By the same token a number of wells have casing set up in the Tansil. It would certainly be waste to cause them to run a liner or packer or something to case off that portion of the Tansil which is thereby exposed. So, it would be our recommendation to include the Tansil in all the presently defined gas fields.

Q With reference to the area which is now included in the Jalco Gas Pool, do I understand it to be your recommendation that the present vertical limits of the Jalco Gas Pool be retained and that the separate oil pool as now classified be likewise retained?

A That is correct. The Jalco Gas Pool, by the elimination of this line, we would have then one separate pool combining both Jalco and Langmat.

Q It is your recommendation that the present delineation of oil pools in the area be retained as at present?

A That is correct.

MR. MALONE: That is all.

MR. MALONE: We offer in evidence Gulf's Exhibits 1, 2, & 3.

MR. SPURRIER: Without objections they will be admitted.

MR. MALONE; We ask the Commission indulgence for not asking whether the Commission felt that Mr. Boss's qualifica-

tions were acceptable to the Commission.

MR. SPURRIER: Does anyone have a question of Mr. Boss?

MR. FOSTER: I have a few questions.

MR. SPURRIER: Judge Foster.

CROSS EXAMINATION

By: MR. FOSTER:

Q Mr. Boss, you testified about the sample logs that you examined there in connection with your Exhibits 2 and 3, I believe?

A Yes, sir.

Q How did you classify those logs, as interpretive or percentage logs?

A Those are percentage logs.

Q Percentage logs?

A Yes, sir.

Q Just one other question. If I understood Mr. Malone correctly at the last hearing, Gulf at that time was prepared to present testimony to the effect that the productive area in these gas pools and their underlying oil pools comprising the Yates, Seven Rivers and the Queens was all one common reservoir, did I understand that?

A I don't believe that was introduced as evidence.

Q I don't think it was either, but he made a statement to that effect. That is what I am asking you about.

A I beg your pardon.

Q I believe Mr. Malone made a statement at the beginning of Gulf's case here that since last month, the last hearing, that they had decided not to recommend that the Jalco, Eumont,

Arrow and Langmat be considered as all one reservoir.

MR. MALONE: If it please the Commission, I believe my statement was that we were making a study as to the feasibility of treating it as one, and we concluded that the problems exceeded the solution.

MR. FOSTER: I understand that. That carries with it the implication, of course, that could be more advantageous as far as the problems are concerned to treat it as separate pools rather than to treat it as one.

MR. MALONE: That is our recommendation.

MR. FOSTER: That carries with it the implication to me that it is in fact all one pool, otherwise there would be necessity for treating the matter on the necessity end of it rather than the actual fact, actual situation. That is what I was inquiring about and from this witness.

Q (By Mr. Foster) I understand at the previous hearing that Gulf would have testified they would have recommended that the gas pools that we are talking about, the four gas pools be treated as one pool and regulated as such, is that correct?

A We had investigated the possibility and while we recognized that there were undoubtedly barriers between various formations, we didn't feel that we could introduce adequate testimony to indicate that they might be separated.

Q You had prepared a suggested set of rules embodying that, had you not?

A I believe that is correct, however none of this was introduced as testimony. I fail to see--

Q (Interrupting) It is getting in there now. You had

prepared a set of rules to submit to the Commission based upon the fact and the statement that Jalco, Eumont, Arrow and Langmat were all one pool above the Grayburg San Andres?

MR.MALONE: I have no objections to Mr. Boss's answering any questions that he can answer along the line that Judge Foster is asking, but I merely want to suggest that we have later witnesses who have personal knowledge of the matters to which he is inquiring that can testify to those facts. I believe Mr. Boss had nothing to do with the rule.

MR. FOSTER: If he don't know, he can testify to that, if that be the situation.

Q You had prepared those rules, that is Gulf had?

A Gulf had prepared a set of rules.

Q That contained the setup that I have suggested here and recognized that the four gas pools I am talking about were all one common source of supply?

A I believe that is essentially true.

Q Now, then, you say your further study of the matter has convinced you that you would run into more problems by treating it as one common source of supply than you would by treating each one of these pools as a separate source of supply, is that correct?

A I am not qualified to answer that question.

MR. FOSTER: Okay, that is all I have.

MR. SPURRIER: Anyone else? Mr. Selinger.

By: MR. SELINGER:

Q As I understand your testimony, as a geologist, you are recommending from a geological point of view that the pre-

sent vertical and horizontal limits as now classified by the Commission be retained except in three instances. One, that in the Arrow gas pool that the lower limits of the classified gas vertical limits be lowered to include the lower portion of the Queen. Second,that in the Eumont Gas Pool that the Tansil be included as part of the gas pay and Third, that the present vertical limits of the Jalco be followed in the combined Jalco and Langmat gas pool. Is that correct?

A That is correct, yes.

MR.SELINGER: Thank you.

A There is a slight variation there, George. I think my statement was that the Tansil should be included in all the gas pools.

Q (By Mr. Selinger) Whether it is in Eumont or otherwise?

A That is right.

Q But substantially then your testimony, from your investigation at this time as a geologist, is that the present limits except for these three or four demarcations be continued by the Commission?

A That is correct.

MR. SELINGER: Thank you.

MR. SPURRIER: Anyone else have a question of this witness, Mr. Stahl.

By: MR. STAHL:

Q Mr. Boss, in your examination of the Jalco pool, also the Langmat Pool, did you have opportunity to examine the effective communication that might exist in the Jalco Pool as between the northern portion of it and the southern portion of it?

A Do you mean the effective vertical communication that might--

Q (Interrupting) No horizontal communication in the reservoir?

A In the northern part of what is now identified as the Jalco field, the present separation was based on attempting to separate the area where the Yates, Seven Rivers and Queen would be productive of gas as opposed to this area where just the Yates, and Seven Rivers would be productive of gas. It was felt that that constituted a sufficient or valid enough separation since possibly the increased reservoir by the addition of the Queen should separate it from an area where just the Yates, and Seven Rivers was productive.

Q I don't think we are together, Mr. Boss. Taking what is now the Jalco reservoir or the Jalco Gas Pool by itself, in your opinion, is there effective communication between the northern portion of it and the southern portion of it?

A That would be difficult to say over an area that extensive. I think you have over that scope of country, you have enough gradation in your lithologies there that it would be difficult to establish if there was a communication entirely through that in the same zones.

Q Since it is a rather unusually shaped pool in that it is rather narrow and quite long, is it possible that there might be some permeability barriers existing in it, even though they may be rather localized?

A Oh, I think definitely there are.

MR. STAHL: Thank you.

MR. SPURRIER: We will take a short recess.

(RECESS)

MR. SPURRIER: Are there any other questions of Mr. Boss, Mr. Macey.

By: MR. MACEY:

Q In the Arrowhead, Arrow area, your recommendation was to change the present vertical limits of the Arrow gas pool to include the entire Queen section. Are there any oil wells producing from that lower Queen section within the present defined limits of the Arrow gas pool?

A The wells on the extreme western limit possibly have the basal portions of the Queen exposed. However, it is my opinion that where they are exposed, where that portion of the Queen is exposed that the gas is coming from the interbedded porous dolomites rather than from the sands and that the sands are the gas bearing formations in the Arrow field. In their explotation undoubtedly the sand portion would be that part of the formation that would be exposed.

MR. SPURRIER: Anyone else have a question of Mr. Boss? If not the witness may be excused.

(Witness excused.)

J O H N L. R O S S

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. MALONE:

Q Will you state your name, please?

A John L. Ross.

Q Where do you live, Mr. Ross?

A Fort Worth, Texas.

Q By whom are you employed?

A Gulf Oil Corporation, Fort Worth Production Division.

Q What capacity?

A Special Petroleum Engineer in charge of the Reservoir Engineering Activity.

Q How long have you been so engaged?

A I have been employed by Gulf, approximately, 6 years.

Q You have testified previously before the Commission?

A I have.

MR. MALONE: Are the witness'es qualifications acceptable to the Commission?

MR. SPURRIER: They are.

Q In preparation for this hearing, Mr. Ross, have you made any study to determine the engineering validity or the validity from an engineering standpoint of the present common boundary between the Jalco and the Langmat Gas Pools?

A I have.

Q Will you state the nature of the study and conclusions which you have reached?

A We made an investigation to try to determine if the line separating the Jalco and the Langmat gas Pools could be substantiated from a reservoir engineering standpoint. We found from an investigation of pressures that line as it is so placed could not be substantiated. We recognize the fact that the Jalco Pool in general, is lower pressure than the Langmat Gas Pool. However, we believe that is due to withdrawals, relative withdrawals from the two areas. If you examine pressures

directly across the line now separating the two pools you find very little pressure differential directly across the line. The pressure change is a gradational effect occurring west to east.

Therefore from a reservoir engineering standpoint, we can not substantiate the line between the two pools and recommend that it be eliminated.

Q Have you, in that connection, considered the possibility that varying sulfur content of gas might be the basis for such a delineation?

A We also investigated that phase of it and by that investigation we were not able to substantiate the line as it is currently drawn between the two pools.

Q Is that also a very gradual gradation?

A It appears to be a gradual gradation. It is very hard to determine the cause of the varying H-2 content within both areas.

Q From an engineering standpoint, what is your recommendation to the Commission insofar as that boundary is concerned?

A That the boundary between Jalco and Langmat Gas Pools be eliminated and the two pools be combined as one.

Q Have you, Mr. Ross, in preparation for this hearing made any study with reference to the lower vertical reservoir now included in the Eumont, Arrow, Langmat and Jalco Gas Pools?

A I have.

Q Will you state the nature of the investigation which you have made?

A Reservoir engineer has three tools that he can use to determine whether reservoirs are in communication. One of the

tools we have mentioned briefly is a fluid content or fluid characteristic, another of the tools would be core analysis and another tool would be pressure performance.

The Gulf Oil Corporation has cored several wells in this particular area that we are discussing. As Mr. Boss has pointed out we have cored contacts between formations. It is not our policy in the engineering laboratory to analyze the contacts if from a visual inspection, they are apparently barren of any oil or gas production. In our laboratory we will analyze that portion of the pay that from a visual inspection appears to be pay, for that reason we do not have any actual permeability measurements of the contacts between these various formations but we are fairly well assured that, particularly between the Queen and the Grayburg, that bentonitic shale is impermeable from visual inspection of cores.

Q Were the studies which you made designed to either support or refute the existence of the barrier to which Mr. Boss has testified?

A Mr. Boss has testified that there is a barrier existing between the Queen and the Grayburg formations. Now, if that is true from a reservoir engineering standpoint, we should be able to substantiate that barrier and we have been able to do so, and subsequent testimony I think will prove the fact.

Q Will you now, go up to the platform and refer to Gulf's Exhibit No. 4. State what that Exhibit is and in what connection it was prepared?

A Gulf's Exhibit No. 4, is a map outlining the Eunice Monument Oil Field in blue and the Arrowhead Oil Field in green.

Posted on this map in brown are oil well pressures from a 1953 bottom oil pressure survey. In addition in particular areas are posted bottomhole pressure measurements of gas wells producing from the Eumont gas field.

The purpose of this and the following Exhibits is to prove that a pressure differential exists between the Yates, Seven Rivers and Queen, and the Grayburg-San Andres formations. These Exhibits are designed to show that that pressure differential is such that communication vertically between these two reservoirs is not possible during the producing life of these fields. If you just take a general look at the pressure performance you might not establish that fact.

In the Monument Field, for example, we have relatively high bottom hole pressures even today. Pressures range as high as 1200 pounds in the Monument Pool. The reason being a very effective water drive in certain areas. Now, if you were to examine an oil well pressure of 1200 pounds and by the same token know there was an offsetting gas well there of the Queen that had a shut in rock pressure of 1200 pounds, you might assume that there was no segregation between the Queen and the Grayburg.

In order to fully analyze the problem, it is necessary to break the entire area down and investigate particular areas and these yellow blocks designate particular areas that we have investigated and have drawn pressure performance curves for. We have Exhibits 5 through 11, pressure performance curves for each of the areas designated in yellow on Exhibit No. 4.

Q Will you continue then with your presentation of the pressure differentials which were disclosed by your study?

A The average arithmetic bottom hole pressure of the well designated on this map in brown in the Eunice Monument Oil Field is 854 pounds. The average arithmetic shut in surface pressures of gas wells located in the Eumont gas field during 1953 was approximately 854 pounds. I am sorry was, approximately 1,009 pounds, therefore there is a pressure differential using those arithmetic averages of 155 pounds per square inch between the Grayburg Oil Reservoir and the upper overlying gas reservoir. That doesn't appear to be much of a pressure differential. But now when we examine these particular areas we find that we described it this water drive, high pressure area in the middle of the Monument Pool and when we do that we find that a considerable pressure differential does exist between the Grayburg Oil Reservoir and the Queen and overlying gas reservoirs. The first area, I would like to call your attention to, is the Gulf, the Shipp No. 1, located in Section 21, 19 South, Range 37 East. On this pressure performance curve which is a plot of reservoir pressure in pounds per square inch, all bottom hole pressure measurements versus time, the bottom hole pressure of the gas well which is completed in the Yates, Seven Rivers and Queen is designated by the red on this performance curve.

The arithmetic average bottom hole pressure of the Monument Oil Pool is denoted on this Exhibit in brown. The pressure performance of Shell State H No. 1 oil well which is two offsets to the southwest from the Shipp gas well is shown in green. Now, this performance curve indicates that between

the Gulf Shipp gas well producing gas from the upper horizons and the Shell State H No. 1 oil well producing oil from the Grayburg or lower horizon, there existed a pressure differential of 530 pounds. There existed a pressure differential from the Shipp producing from the Queen and the Monument Pool, average bottom hole pressure, there was a pressure differential of 366 pounds. That indicates beyond any reason of doubt that those two reservoirs aren't in communication vertically.

The next area, I would like to call your attention to is the area of the Gulf Bell Ramsey B No. 1 gas well located in Section 29, 20, 37. Its pressure performance is denoted in red on this performance curve. The average arithmetic bottom hole pressure of the Eunice Oil field is denoted in brown and the pressure performance of the Gulf Sunshine No. 2 Oil Well producing from the Grayburg is designated in green.

The Sunshine well is located 4 locations west of the Bell Ramsey B-No. 1 gas well. This curve shows that between the Sunshine Grayburg oil well, the Bell Ramsey B- No. 1 gas well producing from the Queen there exists a pressure differential of 575 pounds. Between the Eunice arithmetic average bottom hole pressure and the Gulf Bell Ramsey No. 1 gas well, there was a pressure differential of 315 pounds.

I would like to call your attention to the fact there is an increase in bottom hole pressure shown on these curves in the Eunice field. The reason for that in January, 1953, the operators turned to a key well survey in the Eunice field utilizing the most efficient wells, the wells that weren't pumping to reduce the cost of obtaining those pressures. There-

fore, during this survey the more efficient the wells having the higher bottom hole pressure were pressured and only 55 wells were so tested during this last survey and that accounts for this increased bottom hole pressure.

The next area, I would like to call your attention to is the area of the Gulf Orchid B-No. 2 gas well. We have used bottom hole pressures. In order to use bottom hole pressures both for the gas and oil section, we have used Gulf gas wells entirely. Those were the only wells, only gas wells on which we have bottom hole pressure measurements, that is the reason for our using the Gulf gas wells. The Orchid B-No. 1 gas well is located in Section 5, 21 South, 36 East, as shown in this yellow square. Its pressure performance, bottom hole pressure performance, is denoted by the red line on the performance curve. Again the bottom hole pressure curve for the Eunice Pool is in brown.

The orange curve reflects the bottom hole pressure of Orchid B-No. 2 oil well producing from the Grayburg which is a direct east offset from the gas well we are analyzing. In addition to that in green on this performance curve, we have posted the pressure performance of Orchid B-No. 1 when it was producing as an oil well. That well was plugged back from the Grayburg and converted to gas well in the Queen in 1951. As a result of that conversion the pressure increased in that well bore, the bottom hole pressure increased in that well hore approximately 500 pounds. That is the most conclusive evidence I know of to show that there is no vertical communication between the reservoirs in question.

In other words, within the same well bore a pressure differential of approximately 500 pounds was noted at the recompletion of the well plugging back from the Grayburg and exposing the Queen if there were communication. If there was communication between the Queen, the Yates, the Seven Rivers and Queen and the Grayburg, such a pressure differential could not exist. Exhibit No. 8 reflects the same type information showing the bottom hole pressure history of the Gulf Molly Campbell No. 2 gas well located in Section 7, 21, 36. The Gulf Houston No. 2 oil well producing from the Queen is shown in orange and it is two offsets to the east. The arithmetic average Eunice Pool bottom hole pressure again is reflected by the brown line.

Now, I would like to call your attention here to this green line on this performance curve. Molly Cambpell No. 2 was another oil well that was converted to a gas well by plug back operations. It was converted June, 1951. You will note that there was no increase in bottom hole pressure as a result of that plug back. The reason is, being on the southwestern flank of the Eunice structure, it had basal Queen exposed when it was producing as an oil well. All our bottom hole pressure measurement reflected the higher pressure in the well bore or the pressure of the Queen formation. That is the reason here that we didn't experience a pressure increase because the Queen was exposed, but between the Houston Oil Well from the Grayburg and the Campbell gas well from the Queen there exists now a pressure differential of 567 pounds per square inch.

Exhibit No. 9 shows the same type information with

regard to Gulf's Leonard A. No. 3 gas well located in Section 22, Township 21, Range 36. Again, its the performance bottom hole pressure performance is indicated in red.

I would like to point out one more thing. The performance of our gas wells you will note is shown over only two years life. The reason for that is we didn't start taking bottom hole pressures on these gas wells until two years ago. On this curve is shown the bottom hole pressure of the Gulf Janda C-No. 3 oil well designated in the orange line. That well is a diagonal north west offset to the Queen, Yates, Seven Rivers gas well. You will note between these two wells a pressure differential of 685 pounds exists. This curve also has posted the performance and history of the Eunice Oil Field and in addition it also reflects the bottom hole pressure performance of the Gulf Leonard A No. 3 oil well, when it was producing oil from the Grayburg. It was plugged back in 1951, converted to a gas well from the upper Queen, Yates and Seven Rivers. As a result of that plug back we experienced the same pressure increase that I called your attention to on a previous Exhibit.

There was a pressure increase of 696 pounds within that well bore. Again that established the fact that there can't be pressure communication between the two reservoirs.

Exhibit No. 10 shows the bottom hole pressure performance of the Gulf Ramsey B No. 2 located in Section 25, 21 South 36 East. We have gone now from the Eumont gas field to the Arrow gas field. These last two Exhibits are in the Arrow gas field. They reflect there a pressure differential between the Yates,

Seven Rivers and Queen in the Arrow Gas Field with respect to the underlying Grayburg Oil formation in the Arrowhead Oil Field. On this curve we have the bottom hole pressure of the Arrowhead Oil Pool, arithmetic average bottom hole pressure in brown. We have in green the bottom hole pressure of Gulf Ramsey B No. 1 Oil Well. This well, I don't see it on my Exhibit, it is a direct east offset, the bottom hole pressure history of Humble State G No. 2, which is reflected by the yellow line which is a diagonal, two diagonals to the southwest. Between the Gulf Ramsey B No. 1 and the Gulf Ramsey B No. 2 or between the Queen gas, the Grayburg Oil there exists a pressure differential of 707 pounds.

In other words, the same situation exists here as has existed throughout the area of the Eunice Monument Oil Field. The final pressure comparison is between the Gulf W. A. Ramsey No. 12 oil well located in the Arrowhead Oil Field in Section 35, 21, 36 and other oil wells nearby located in the Arrowhead Oil field and the arithmetic average bottom hole pressure of the Arrowhead Oil Field.

We show this exhibit to show that this oil well has a high bottom hole pressure relative to the other oil wells. The reason being there is Queen exposed in W. A. Ramsey No. 12 oil well. So, that even where there might be some oil in the lower basal Queen in some of these wells, those wells have high bottom hole pressure. So,that within the oil column there is a pressure differential which further substantiates that the Queen is segregated and separated from the Grayburg.

Q Based upon this study which you have presented, Mr. Ross,

what is your conclusion as to the existence or non-existence of a continuous and impervious barrier between the top of the Grayburg and the base of the Queen throughout this area?

A Based on this study because we found the situation existing throughout the Eunice Monument Oil Field and the Eumont Gas Field, I think that the barrier as Mr. Boss has testified exists throughout and serves as a permeability break between the Yates, Seven Rivers, Queen and the Grayburg-San Andres and during the productive history of these fields or during the productive life that barrier is such that these reservoirs will not produce as if they were common reservoirs.

Q In the light of that fact, what would be your recommendation to the Commission as to the treating of these two reservoirs as separate reservoirs for the purposes of oil and gas proration?

A I would concur with Mr. Boss's recommendation that the vertical limits of the Yates, Seven Rivers, and Queen gas reservoir or the vertical limits for the Eumont gas field extend to the base of the Queen, but certainly not extend into the Grayburg formation.

Q If the lower vertical limit of the gas pool was extended in the Eumont area to a point below the top of the Grayburg, what would result from gas production in that area?

A Well, as Mr. Boss has called your attention to the fact that there is quite, there are many acre feet of Grayburg section exposed above the gas-oil content, so that a large portion of the Grayburg reservoir is gas productive.

Now, if you withdraw and I will go further, the Eunice

Monument Field is producing under a combined drive mechanism, it is producing under a water drive, gas cap drive mechanism. As such the driving mechanism is relatively efficient. If you withdrew gas from this gas cap on the Grayburg, you would take away energy that can be used to produce oil from that Grayburg San Andres section.

You would therefore probably reduce the ultimate recovery of oil by the same token, if you took gas from this gas cap in the Grayburg, if you took volumetricaly more gas from that zone than you took oil from the lower zone, you would deplete the gas cap faster than the oil zone. You would permit then oil to expand and be driven into it as a result of the water drive so that you would saturate the now gas saturated section with oil and a portion of the oil that is saturated, that rock could never be recovered and that in itself would result in waste. Therefore it is essential that we keep on the Grayburg and San Andres Oil reservoirs the gas within the Grayburg gas cap.

Q The present existing vertical limits of the pools do protect that, do they not?

A They do, they extend to the base of the Queen.

Q Were you, at the time of the April hearing of the Commission, Mr. Ross, engaged in a study of the effect on various wells in the area of treating them for proration purposes as being all in one oil and gas reservoir?

A Yes. Mr. Boss and the Continental this morning has put on testimony to show that we have an unusual set of geologic circumstances here in this collection of hydro-carbons. Every

one is very well aware of the difficulties that have been encountered in trying to prorate this area. We did investigate the possibilities of calling the Yates, Seven Rivers and Queens throughout the area a common reservoir for proration purposes.

Q Was that study continuing at the time of the April hearing of the Commission?

A That study was not completed at that time. We have continued and have investigated the problem up until the time we came for this hearing.

Q In applying the proposed administrative provisions which were under consideration at that time, what result did you find would acrue insofar as oil production in the area is concerned?

A Well, we found that if you attempted to treat, we were aware that even though we might prorate and regulate this gas reservoir this Yates, Seven Rivers and Queen, we were aware that even though we might try to prorate it and regulate it as a common source of supply, we were aware that there were barriers within, vertical barriers within horizontal barriers within. We were aware of that fact. We were only attempting to devise a method, a practical method for proration, because of past practices, unvalid rules and regulations that method that we were investigating would have created undue hardships on certain and many operators.

Q Would Gulf have been one of the operators?

A No, it so happens that Gulf was not effected, had it been combined into a single gas reservoir for the rules and regulations.

Q What would the result have been with reference to oil

production?

A With reference to oil production, I hesitate--

Q (Interrupting) Or did your study extend to that?

A Well, we were primarily concerned with what would happen to gas production. With respect to gas production we found that treating this area as a large common source of supply, we found that approximately 5,000 acres and that is a minimum acreage, approximately 5,000 acres currently credited as gas wells would have to be deleted. It would amount to a reduction of acreage credited to gas wells of some 5,000 acres. We found it would result in a reduction in current dry gas production based on March proration schedules of approximately 30,000,000 cubic feet of gas a day. We found that there were 65 particular leases effected where acreage would be lost as a result of treating this as a common reservoir. We found a multitude of operators so effected.

Q Is that one of the considerations on the basis of which the proposed single reservoir was abandoned?

A That is true. We were visualizing the rules and regulations for this common reservoir but before we were going to before this hearing, we investigated to see what would happen as a result of trying to put such a proposal in force and when we found that this situation existed, we abandoned that entirely because we feel that these operators had developed their properties according to rules and regulations and to now drastically curtail his production, even shut his wells, we felt that we could not recommend such a plan as that from a practical view point because of past operations. I don't think the Com-

mission can consider a plan of that nature. If this were a conversion oil and gas country, it is possible that such a plan might be put in force.

Q Your remarks are corrected then to the practicability and feasibility of administering such a single reservoir?

A Because of our current completion status and our current operating status.

Q You heard the testimony of Mr. Boss and his recommendation to the Commission as to the vertical and areal limits of the four gas pools here involved, do you concur in that recommendation then?

A I do.

MR. MALONE: That is all. One other question, sir.

Q Were the exhibits used in your testimony prepared by you or under your supervision?

A They were.

MR. MALONE: We offer in Evidence Gulf Exhibits No's. 4, 5, 6, 7, 8, 9, 10 & 11.

MR. SPURRIER: Without objection they will be admitted.

MR. SPURRIER: Is there cross examination of Mr. Ross?

MR. STANLEY: I would like to ask a couple.

CROSS EXAMINATION

By: MR. STANLEY:

Q In your study of bottom hole pressure data, further south in the Langlie-Mattix or--

A (Interrupting) I haven't made an extensive, I haven't--

Q (Interrupting) You are aware of some bottom hole pressures?

A Yes, I am.

Q You have shown us there is a differential in bottom hole pressure between the Yates, Seven Rivers and Queen on the one hand and the Grayburg on the other. Do you think that it is possible to have a pressure differential further south between the Yates, and Seven Rivers on one hand the Queen on the other hand?

A I do.

Q You don't have--

A (Interrupting) I have prepared no exhibits reflecting that fact, no.

MR. SPURRIER: Anyone else? Mr. Foster.

By: MR. FOSTER:

Q Your recommendation here that you have made is based on the difficulties that you find that would occur administratively in prorating this area as one common source of supply?

A Not entirely, no, sir. That wasn't the exact basis. We knew that treating it as a common source of supply wasn't the ideal solution to the problem, even as such for getting past development. We knew it wasn't the most ideal method of proration. We investigated it as a method.

Q Let me ask you this question. Were you present here last month, prepared to testify as a witness in this Case?

A Yes, sir.

Q Were you then prepared to testify in support of a set of proposed field rules prepared by Gulf?

A Yes, sir.

Q Do you know that those field rules that were then pro-

posed by Gulf did delineate this entire area here as one common reservoir?

A Yes, sir.

Q If you had testified last month, would you have testified that this area was one common reservoir?

A No, sir, I would not have.

Q Then, you would not have testified in support of the set of rules that Gulf had prepared?

A Yes, sir, but I would have testified that it might have been treated as a common source of supply. I would not have tried to prove in any way, shape or form that it was a common reservoir throughout vertical and areally.

Q How would you have treated it as one common source of supply when in fact, it wasn't?

A We were, Mr. Foster, I think you are very well aware and I think it has been pointed out here time and time again that we have an unusual set of circumstances here. We have a very difficult problem to solve. If we are going to try to let the exceptions be the rule, we will never settle this matter. We have got to set up some general rules knowing that there are exceptions that will exist. Now, anyone could point out exceptions to the Rules we have proposed today. We are aware of them and every one else is.

It is a problem that we are only trying to solve on a practical basis, the most practical method we know. That is our recommendation today.

Q Well, I don't want to argue with you, Mr. Ross, but what I am trying to get at is this. That this area that we are

talking about, these four gas pools both horizontally and vertically either is or is not a common source of supply. Now, that is one determination I think that we are all trying to make here, is it not?

A Would you state the question again, please.

MR. SPURRIER: It wasn't a question, it was a statement, speak up, Judge.

Q I will try to ask it in the form of a question. I take it that one of our purposes here in this hearing is to try to determine whether this area that we are talking about is or is not a common source of supply?

A The entire area?

Q Yes.

A I think we have established that there are portions of the area that are not common source of supply.

Q I am not contraverting that with you. I am saying that one of the purposes, one of the reasons that we are here is for the purpose of determining whether that area is or is not a common source of supply?

A That is correct.

Q All right. Now, if it is a common source of supply that would furnish one basis for prorating the area if there are no other objections or difficulties--

A (Interrupting) What area are you speaking about?

Q I am talking about the four gas pools, the Eumont, Arrow Jalco and Langmat.

A What vertical limits are you speaking of now?

Q I am talking about down through the Queen?

A All right.

Q I understand that that is what the Gulf proposed last month. I am talking about the Gulf's proposal last month.

MR. MALONE: Gulf made no proposal, if it please the Commission. The witness should not be questioned on that basis.

MR. SPURRIER: Objection sustained.

Q I will ask you if that is what the Gulf was going to propose last month, that is correct, isn't it? I say that is what the Gulf was going to propose last month if it had gotten to testify?

A That is true.

Q It would be beneficial to know, would it not, whether this area that we are talking about is or is not one common source of supply?

A Yes, sir.

Q All right. Now, of course, it follows that there may be difficulties involved in administering the area as one common source of supply and to such an extent that you might want to zone it off into separate areas for the purpose of prorating it. That is true, is it not?

A Well, if you are going to zone it off for the purposes of proration, then it no longer is a common source of supply. We have it zoned off now for the purposes of proration into these four gas fields.

Q Of course, that don't necessarily follow. It may still be one common source of supply but for various reasons you might want to zone it for administrative purposes is what I am saying?

A May I clarify myself in that, I don't think I have gone on record by saying and if I have, I wish to clarify the record to state that I do not know whether the Yates, Seven Rivers and Queen are a common source of supply. I have not been able to prove that fact or disprove that fact. It is my opinion that they are not over this whole area a common source of supply in the strict sense of the word.

Q Let me ask you, you testified with respect to certain bottom hole pressure information here which you say shows that the Grayburg and San Andres formations is not included in this common source of supply that we are talking about. I take it that if you had testified last month you would have also testified at that time--

A (Interrupting) No, sir.

Q Do you mind if I finish my question. That these two formations these two low formations were not included within this common source of supply?

A Yes, sir, I would have testified to that.

Q You would have testified to that. But you would have testified that all of the formations above those two were included in a common source of supply?

A I would have testified, sir, that we might treat them as such for rules and regulations and proration purposes. I would not have testified to the fact that they were in the strict sense of the word one common source of supply.

Q What would you have based that testimony on?

A Because I have not been able to prove that they are a common source of supply.

Q But you say you would have testified that they were, what would you have based that testimony on?

A My testimony would have been qualified by saying we could treat them as such for certain purposes.

Q Why would you have treated them that way?

A As a practical solution to this problem that we are faced with.

Q What problem? I mean, what problem in your mind, not what problem might be in someone else's mind.

A The problem of how to treat and handle a group of formations, oil and gas in Lea County, New Mexico where you have reef complexities, a multitude impression and operators who have operated for a number of years under no rules and regulations. I don't know of any more complex problem than that to be faced with myself.

Q I know the problem is complex but all I am trying to sa what I am trying to find out is on what factual information would you have based that testimony last month?

MR. SPURRIER: Judge, what he would have testified last month is not before this hearing.

MR. FOSTER: Of course, the Commission is the Judge of that. It is not for me to say about that. But I would like to say this to the Commission that I think it is important to understand that here we have a company who, last month at the State-wide hearing was prepared to testify in support of the proposition that the area that we are now talking about designated above the San Andres and the Grayburg formation was all one common source of supply, who are today testifying that it isn't.

MR. MALONE: May it please the Commission, I would like to make a restrained observation if I can restrain myself. I am sure that Judge Foster has no intention of reflecting upon the truthfulness of the witnesses that have appeared before this Commission today under oath. I am sure that he has no intention of reflecting upon the case which Gulf has presented. I am perfectly willing to let the Commission and the members of the industry present judge whether or not Gulf is in good faith in this proceeding but I am not willing to have our motives impugned as they have been impugned before this Commission.

MR. SMITH: I should like at this time since I am more or less an innocent bystander, to inquire of Mr. Foster his purpose, his line of cross examination, if you would profer your point that you are trying to make to the Commission, perhaps the rest of us could understand better exactly what you are driving at.

MR. FOSTER: My point is, if I understand it, it has been stated here that Gulf, and I didn't make the statement, Gulf made the statement, that they have prepared a proposed set of rules to present to this Commission last month which would have delineated these four gas pools as one gas pool down through the Queen formation. That during the time elapse since last month up to now, that they have re-examined this situation and found that the complexities are such that they are now saying that it should not be regarded as one common source of supply.

MR. WOODWARD: If it please the Commission, to clarify the record, I would like to state that Amerada is prepared to

forgive Gulf for what it did not say last month and to forgive them for what they did not recommend. We are also prepared to forgive them for changing their mind if they have done so on the basis of additional information.

MR. MALONE: Thank you.

MR. SMITH: I believe that basically I maybe misinterpreting Judge Foster here, I believe, he, basically has supported what Mr. Woodward has said. There has been a change of mind. I agree with Mr. Malone I am sure that Judge Foster would say that he is not impugning the witnesses of Gulf. I made my observation to clarify the point which has been made, there has been a change in direction due to the development of additional facts.

MR. SPURRIER: I think the document speaks for itself. I can speak for myself at least on this Commission. I understand from what Mr. Ross has said that he had intended to recommend to the Commission that it would be one pool for purposes of proration. He did not say it was one pool. We are wasting valuable time. Does anyone have a question of this witness?

By: MR. GRENIER: A. V. Grenier, of Southern Union Gas Company.

Q I am afraid I didn't fully understand the basis for your statement, that if all the pools were to be put together, some 5,000 acres and 65 leases would be adversely effected, and several, what was it, 30,000,000 MCF of production loss. Just how would that work?

A If you are to treat it as a common source of supply you can't credit the same acreage with production from within two zones of the same common source of supply. Now, there exists

gas production from the Yates, Queen, Seven Rivers or retract that statement. There exists gas production in the Yates, oil production in the Yates, oil production in the Seven Rivers and there exists four oil wells on 160 acre tract producing from Seven Rivers and one gas well from the Yates. In order to produce as common source of supply you must shut the gas zone for example. There are a multitude of problems that arise like that and to make a detailed study to know exactly what would happen only to us, the investigation that there would have been approximately 5,000 acres loss to gas production, acres now credited to existing gas wells.

Q Thank you. Now, another point, I wasn't quite clear on, do you recognize any pressure differential at the present time as between the Jalco and the Langmat field as indicated on your exhibit?

A As I said, if you take an arithmetic average pressure, shut in pressure in the Jalco Pool compare that with an arithmetic average surface shut in pressure of the pools in the Langmat pools, there does exist a differential.

Q Is there also any differential to be observed to the south in the Jalco Pool, taking it by itself?

A In the Jalco Pool, being in the weak area, you have what has been called to your attention, several times today, this reef erratic production, you will find existing in that area a great variation, not a great but considerable variation in pressure.

Q Is that also true in the Langmat?

A To a certain extent because there you are going east-

ward away from your reef area.

MR. SPURRIER: Anyone else? Mr. Stahl.

By: MR. STAHL:

Q Your study of the Eumont gas pool, the pressures, bottom hole pressure study there, did you find that there were some permeability barriers existing vertically within the confines of the Eumont gas field?

A The wells that we investigated from a bottom hole pressure view point were wells that weren't completed in any one of these three zones by Gulf. In other words, we had, we didn't investigate any wells completed only in the Yates. With respect to wells completed in the Queen, the wells in that area generally speaking are completed through the whole section. Therefore, we did not make an investigation between formations in the Eumont area.

Q Let me phrase my question this way. As between the wells, you did study in the Eumont field completed in one of the three sands that comprise the Eumont gas pool, is there a difference in bottom hole pressure of substantial magnitude between some of these wells?

A Now, what do you mean by substantial?

Q Enough so that in your mind it is indicative that there may be some vertical permeability barriers even though they may be localized.

A I don't understand your relationship of vertical permeability barriers and pressure differentials between wells. Are you speaking of a horizontal permeability barrier?

Q No, my point is this. As I understand your testimony,

you said that there was some or in going through your testimony, I got the impression that the bottom hole pressures of the gas wells that you studied was not identical. All the wells do not have the same bottom hole pressure that are completed in the Eumont gas field that you studied. What I am attempting to get from you is why in your mind it is not the same? As I understand it, if it was absolutely effective communication there would be a very close to a common bottom hole pressure in these gas wells. So, in your mind is there sufficient permeability barrier or other barriers of some sort to indicate that there maybe some localized areas which do not have fully effective communication.

A Well, sir, may I call your attention to this, there will be pressure differentials existing even if the reservoirs are in communication throughout. Bottom hole pressure measurements are a function of shut-in time. Perhaps, these wells, none of them in 24 hours were permitted to build up to a maximum. They are a function of depletion and withdrawal. If you have withdrawn from a particular area relatively speaking, much more than another area, it might take a long time for your pressure to be communitized throughout that area. So, there does exist pressure variations within the area not substantially but a variation. Now, I have not found from my investigation of bottom hole pressures any indication that in the Eumont area, the reservoir is separated horizontally by vertical barriers but I want to call your attention to the fact that we have relatively few bottom hole pressures. If you investigate the surface pressures in the area you find a wide variation in

surface pressure, but that is to be expected because surface pressures are not a measure of bottom hole pressure, depending on the fluid in the hole and other conditions. You may be referring to surface pressure and the variation there which I don't think is the true variation of the measurement.

Q I was referring to bottom hole measurement. I do not mean to mislead you. I did not want to ask you whether it was a complete barrier all the way across. Do you have an opinion whether there are any localized--

A (Interrupting) We don't have enough bottom hole pressure information to substantiate whether they are or not.

MR. SPURRIER: Anyone else?

MR. FOSTER: I don't want the record closed without stating that the questions were not designed to impugn bad faith to anybody. Certainly, there is enough factual situation here to afford ground for honest difference of opinion between operators in this area. If tempers flare and feelings get exposed I am sorry for that. I have no intention of impugning improper motives to anyone in this matter.

MR. MALONE: Thank you, Judge Foster.

MR. SPURRIER: Thank you. If no further questions--Mr. Selinger.

By: MR. SELINGER:

Q I want to ask him a question. Mr. Ross, calling your attention to your recommendation of dropping the line of separation between the Jalco and Langmat Pools. You stated on direct examination that there was not engineering basis such as pressures and sulfur content to make these separations between

those two fields. Is there any other basis such as proration or rate of withdrawal that would sustain any separation between the Jalco and Langmat Pools?

A I perhaps am not qualified to talk about the proration problems in themselves. In my opinion, I do not know of any.

MR. SPURRIER: Anyone else? Mr. Kelly.

By: MR. KELLY:

Q I would like to ask a question. Referring back to your statement that some 5,000 acres and 30,000,000 cubic feet might be loss if the area was considered one common source of supply. This gas that might be lost is mainly coming from dual completion wells, is it not?

A There has been a fifth well drilled on 160 acres.

Q But mainly from dually completed wells?

A No, I don't have a break down of just what the effect of the duals were but you see there were, there have been wells recompleted in the area where you had four oil wells on the 160 and recompleted one and now assigned it 160 acres. If you treated it as a common source of supply that well that now has 160 acres could only have 40 acres, so it would have lost 120 acres. There are a multitude of conditions that made up the conditions of 5,000 acres.

Q It is coming from the dually and recompleted wells and fifth wells on the 160? A Right.

Q If it is a common source of supply. You feel from your testimony, I take it that you feel that the Commission should continue to recognize the dual completions and fifth wells and the recompleted wells in drawing up an order, is that true?

A Yes, sir.

MR. SPURRIER: Thank you. Anyone else?

MR. MONTGOMERY: I have a short question to clarify something on the same line, Mr. Kelly was talking about.

By: MR. MONTGOMERY:

Q If these anomalous situations of oil accumulations hwere the gas pools and the oil pools contain the same vertical limits, if those could be separated then would we have any problem such as you stated in proration?

A Yes, you would because they haven't been developed as separated.

Q They haven't what?

A They haven't been developed as separated.

Q Well, if it is proven that they are separate, then, would you have the problem? Wouldyou like me to restate it?

A You mean separate as we now propose a gas reservoir and an oil reservoir?

Q Well, I am thinking of my own testimony that is getting ready to come up possibly. If it is possible and it is proven that we can't separate the oil from the gas and these anomalous accumulations be named as separate pools with distinct and separate vertical limits not overlapping them, would we have that problem, that proration problem?

A That is what we have proposed today.

Q Do you understand my question?

A I think I do. You would not have those problems as we have proposed today.

MR. MONTGOMERY: Thank you.

By: MR. MACEY:

Q You say you wouldn't have the oil pools and the gas pools overlapping?

A No, I didn't say that.

Q I thought that is what he asked you.

A No, sir, he didn't. He asked me if you treated them as two sources of supply, would you have this problem that has been called to our attention today and I said no.

Q That is all. I want to ask you another question. On your Exhibit No. 4, you have listed bottom hole pressures on that map. Are all those pressures taken on wells that are producing from the Grayburg formation?

A No, no, those are pressures as taken from key wells during the 1953 surveys for the Eunice and Monument fields, the brown are, any key well so pressured during that survey.

Q Well now, what I am trying to get at is, you were comparing the Queen gas reservoir I took it with the Grayburg, so-called Grayburg pressure, weren't you?

A Yes.

Q If all those average pressures aren't Grayburg, I don't see how you can compare them?

A Well, I made some comparisons, I think if you will recall of some Queen oil wells. I made those comparisons to show that those pressures were relatively high and were considerably higher than the wells known to be producing from the Grayburg in itself.

MR. MACEY: That is all.

MR. SPURRIER: Anyone else?

MR. MONTGOMERY: I would like to ask one more question.

By: MR. MONTGOMERY:

Q You made a statement that you compared the pressures in the Arrowhead and in the Eunice Monument area, I believe your testimony earlier in your evidence on the charts up there, I believe you said that they reflected the same condition?

A No, I didn't relate Arrowhead well pressures with Eunice Monument Oil pressures at all. Neither did I relate Arrow gas pressures with Eumont gas pressures. I said that there existed a pressure differential in the Arrowhead oil pool area much the same as that pressure differential existed in the Eunice Monument area.

Q Does that prove that they are separate reservoirs, the Eumont and the Arrow? A The Eumont & Arrow

Q Could you interpret that from your information?

A No, sir.

Q Could you prove that they are the same from that information? A No, sir.

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

MR. SPURRIER: We will recess until 3:40.

(RECESS)

MR. SPURRIER: The next victim I have on the list is the Oil Conservation Commission staff, Mr. Yost.

MR. YOST: If the Commission please, we would like at this time to put on the testimony of Mr. Montgomery concerning the gas pool delineation. We have other testimony on other matters. We would like to reserve that until a later time in the hearing in order not to ruin the chain of thought, chain of continuity.

R A N D A L L F I E L D M O N T G O M E R Y ,

a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. YOST:

Q State your name, please?

A Randolph Fields Montgomery, Geologist, New Mexico Oil Conservation Commission.

Q Mr. Montgomery, have you made a study of the problem of gas pool delineations now under consideration before the Commission?

A Yes, sir, I have.

Q In general what did that study consist of?

A Well, my study consisted of numerous cross sections which you see around the wall. The ones on the wall in front of me are the east to west cross sections, the ones behind me are the south to north cross sections.

Q How many wells are involved approximately?

A I studied many wells that are not on the cross sections, but approximately 550 to 600 wells.

Q How many wells are there in the shallow oil zone, the gas pool?

A Well, appearing on the present gas proration schedule there are 2400, as I recall.

Q You have studied ~~there~~ then AS. and are prepared to testify about approximately 20 percent of the wells?

A Yes, I am.

Q You say you studied the well, just what did that study

consist of?

A Well, these excellent cross sections which were prepared by the Committee in the original hearing in Case 245. I used those as the basis to start and checked the information on each and every one, using records that were on file with the New Mexico Oil Conservation Commission and the United States Geological Survey in Hobbs, New Mexico, plus radioactive logs and electric logs and sample logs.

Q Directing your attention to Commission's Exhibit No. 3, did you prepare that Exhibit? A Yes, sir, I did.

Q Would you please explain it?

A Exhibit No. 3 is a base map of Southeastern New Mexico. On the map I have superimposed the gas pools over the oil pools. The oil pools are shaded in with a solid color. The Eunice Monument being in the shade of red, the Skaggs in the shade of green, the Hardy in yellow, the Penrose-Skelly in green, Arrowhead in gray, South Eunice in the shade of violet, Cooper-Jal in green, the Langlie-Mattix in yellow, Rhodes in the shade of blue, Eaves in the shade of brown, Leonard and the South Leonard. Superimposed over those oil fields are the oil lines of the gas pools.

The Eumont is outlined in a broad blue band which overlaps all of the Eunice Monument area and some other areas that are not within the Eunice Monument Oil Pool at this time. The Jalco Gas Pool is outlined in a broad red color which goes clear to the State line and has a common boundary on the east with the Langmat Gas Pool and then the Langmat is outlined with a broad brown color

and stops at this point and then from there northward has a common boundary with the Jalco. Also on this map, I have illustrated with lines the cross sections that are on the walls there where they pass through the area. Also on this map, I have in the large green numerals over above the well symbol, have put in the shut-in well head pressures as reported by El Paso Natural and Permian Basin Pipeline Company. Beneath the well, I have a smaller numeral which is in red, which indicates sulfur content in grains per hundred cubic feet. Also on the map I have shaded in other colors which overlie some of these pools, within those there is a numeral which are pools that I will recommend be named as new areas.

Q Before we go into these other Exhibits based on your study, have you reached certain conclusions?

A Yes, sir, I have.

Q Would you please state those conclusions?

A The conclusions were that nowhere was I able to find in general, nowhere was I able to find oil above a minus 100 feet below sea level with certain exceptions which I will point out as we go along. Those exceptions can be named and explained on a sound scientific basis, geologically and engineering wise. The oil then, for what I will refer to as Number One reservoir, would lie from a point 100 feet below sea level to a point 450 feet below sea level. I recommend that the vertical limits of each pool, as illustrated on this map that I named earlier, be redefined in this manner.

My next recommendation was on the gas, that nowhere was I

able to find, I say nowhere with one exception, was I able to find dry gas below a minus 75 feet below sea level.. My recommendations on the dry gas would be at the top of the Tansil formation to a point minus 75 feet below sea level.

Q Directing your attention to Commission's Exhibit 13 A to H, inclusive, which appear on the wall over here. Would you relate again the source of those Exhibits?

A Those were prepared by the Committee which set up the present gas pools in Case 245. I would like to, at this time, compliment that Committee on the amazing accuracy, and almost complete lack of human error in such a preponderous project. I have changed those Exhibits slightly, made additions due to workovers and recompletions, dual completions and a very few human errors that did exist on these cross sections.

Q You have personally checked the Exhibits for accuracy?

A Yes, sir, I have personally checked each and every well.

Q And to your knowledge they are substantially accurate?

A Yes, sir, they are.

Q Would you please explain the red and the green that appears on these Exhibits?

A The shade of red represents the zone of oil production. I do not want to leave the impression that it necessarily represents the thickness of the pay zone because it does not. It does represent the zone of oil production. The green represents, I would like to point out, on the oil that I did not illustrate any, I believe there would be exceptions. For the purpose of illustra-

tion, the well that was plugged and abandoned was a commercial well, but they did get a show of oil in that interval. I put it in there for purposes of illustration only. In each and every well the well besides that has produced oil, gas well and has been an economic gas well and produced from that zone.

Q You put the red and green on the Exhibit yourself?

A Yes, sir, the green represents gas. I have only indicated the green in every case where it has produced gas, the well has produced gas.

Q Directing your attention specifically to Exhibit 13 A, which is over here.

A Yes, sir, this is Exhibit 13 A.

Q Would you explain that Exhibit?

A This is a west to east cross section, west being on this side and east which is in the northern part of the Eunice Monument Oil Pool and represented on the base map by a black line. This is slightly north to the apex of the Eunice Monument structure. The highest portion, I would like to point out, if you will notice that nowhere does the oil occur above a minus 100 feet in the area.

Q Minus 100 feet below sea level?

A Yes, sir, 100 feet below sea level.

Q I do notice that you show gas here which is down below 75 feet?

A Yes, I recommended that the vertical be from the top of the Transil to a minus 75 feet. This is the one exception on the

first Exhibit that I have found in my survey, but even though this is the Gulf Ship No. 1, which was illustrated on Gulf's impressive testimony and, even so, our records are not clear and I am not sure that all of this zone is productive down here. Irregardless of that, the evidence they presented today indicates that that gas is definitely separated from the oil reservoir which underlies.

Q How would you handle that type of situation?

A Since seeing Gulf's testimony in regard to this, and it is definitely separated from the oil zone, possibly we might have to make one exception. If it is proven that it is dry gascap gas that it be limited in the oil ratio in the oil pool that it lies.

Q Anything further on that Exhibit?

A I would like to point out, it is not well to illustrate it on this Exhibit, but the oil accumulation is nowhere controlled by structure.

Q In connection with 13 B, would you please explain your interpretation of that Exhibit?

A 13 B is another west-east cross section which passes t rough Township 20 South and represented on the base map with a black line, and is just slightly south of the apex of the structure Again, the red represents oil and the green gas. Nowhere in this area, it is better illustrated, the structure has no control whatsoever over the accumulations of oil, and that everywhere it lies below a minus 100 feet from sea level. The gas is everywhere above a minus 75 feet.

Q Directing your attention to 13 C, explain that Exhibit?

A 13 C is a cross section, Township 21 South, and it passes through, perhaps I had better show it, it passes through this, being the Jalco Gas Pool in this area, this being the Eumont Gas Pool here.

This cross section crosses the boundary of the Jalco-Eumont Gas Pool and then crosses the boundary of the Eunice Monument Oil Pool into the Penrose-Skelly Oil Pool. I have indicated here, for purposes of illustration, I would like to point out that this boundary between the Eunice Monument and the Penrose-Skelly apparently has no basis from this information, that the oil zone everywhere occurs below a minus 70 to 100 feet below sea level. I would like to point out that the oil zone crosses formational boundaries. The oil in this area is probably all Grayburg and passes from the Grayburg into the Queen and then into the Seven Rivers within three miles. In other words, the formation in the middle is in one formation, on either side, both west and east is in another formation.

Q Moving to Exhibit 13 D?

A I have thought of something I would like to say here. One of the wells in this area is producing from the Transil formation and my recommendations will validate that well production.

Q Moving to 13 D, will you please explain that?

A 13 D passes through Township 22 South and is illustrated again by a black line on the map and begins in the South Eunice Oil Pool and goes into the Jalco Gas Pool and then passes into the Langmat Gas Pool, and then passes from the South Eunice Oil Pool

into the Eunice Monument Oil Pool and back out again into the Arrowhead and the Arrow Gas Pool, and then into the Penrose-Skelly Oil Pool.

MR. HINKLE: I would like to ask Mr. Montgomery one question so we can better understand the plats. Why is there a variance in the red sections you have colored red in the thickness there?

A Mr. Hinkle, these were pay zones that were reported by the company. They do not mean to leave the connotation that that entire thickness was the pay zone, but that is what they reported in their well records as being the pay zone. Now, much of it would not be productive and possibly some of them, if they keep them a little bit, would net more production. Does that clear that up?

MR. HINKLE: I think so.

A Starting from west to east in this area here, as I explained on the map, the different pools that it passes through, I would like to point out the accumulation of oil that occurs in this well, in portions of the Yates and Seven Rivers and these wells are in the Seven Rivers and then into the Queen and a portion of it back into the Seven Rivers and back into the Queen again, this beginning the boundaries of the South Eunice.

The South Eunice is identified as the Seven Rivers vertically. As you can see here, only small portions of the well represented on the cross section actually produce from the Seven Rivers formations. There are wells in the South Eunice Pool that are not

illustrated in this cross section that produces from the Yates formation. Then we pass from the Jalco Pool lying in this area and go into Langmat from which the Gulf Remsey State No. 1, which we had testimony on earlier, then into the Arrowhead Oil Pool, which extends for this distance in here. Then we go, (indicating) jumping here quite a bit. Also we pass from the Langmat Gas Pool into the Arrow Gas Pool. I would like to point out that in the Arrow Gas Pool again that the gas is everywhere above the minus 75 feet from sea level, and that the oil is everywhere below a minus 100 feet below sea level. This being the boundary that went between two wells, the boundary between the Arrowhead and Penrose-Skelly Oil Pool.

Q Do you have anything further in Exhibit D, if not please explain 13-E?

A Exhibit 13 E is in the portion of the southern part of Township 22 South. Again, I would like to point that out on the base map. It starts in this area here in the South Eunice Pool and then passes into the Langlie-Mattix Oil Pool and then into the Penrose-Skelly Oil Pool. Also, a portion of it here is in the Jalco Gas Pool and a portion here in the Langmat Gas Pool.

Q I notice in this Exhibit you show oil above 100 feet below sea level? A Yes, sir, I have.

Q How do you account for that?

A Here on the west side this is the higher portion of the line build-up which many of us refer to as the reef. In this area and immediately to the west we have no more control in the wells,

but we have a very active water drive from the west and due to the lithology of the Seven Rivers formations in this immediate area the porosity and permeability was developed. There was a very active water drive from the west and a porosity pinch out to the east. We have oil controlled by structure which was not true in any of the other previous illustrations.

Q Would you define that as a separate reservoir?

A Yes, sir, I would.

Q I believe you have that numbered 2 on this Exhibit?

A Yes, sir, I have it numbered 2 and it is also colored in the horizontal dimension on the map

Q You also have another reservoir of that type, No. 3, or similar to it.

A Reservoir No. 3 is a different type of an occurrence. It violates the rule of being below a line that is 100 feet of sea level. It is a distinct and separate reservoir from Reservoir No. 3. Reservoir 3 is a synclinal occurrence of Yates oil. There is no water drive active in this occurrence but there is a very active gas drive.

Q Do you have any comment to make concerning the sulfur content of the gas as shown in the Jalco as compared with the Langmat?

A Yes, sir, generally you can say in the Jalco area, the sulfur content is considerably higher than the sulfur content in the Langmat, but we can, I think, have an explanation for that, possibly.

Q Give your explanation.

A As I stated earlier, these are on the very western side of the oil and gas pools and we have a very active water drive from the west. This water drive is very high in sulfur content, and many of these wells produce this sulfur water, many of these gas wells produce this sulfur water, that plus the lithology over over the reef in this particular area, I believe, has contaminated the gas with the H_2S and that is the reason for a higher sulfur content in the general area of the Jalco as opposed to the Langmat Pool.

Q Do you have any comment you care to make concerning pressures which appear on the Jalco side as compared with the Langmat side?

A Generally, again the pressures in the Jalco area are lower than those pressures in the Langmat area but we can also, this is also generally true that the lower the pressure the higher the sulfur content and we also know wells, gas wells that are producing water and that lower pressure is a result of lifting fluid.

Q What kind of pressures are we talking about?

A These are shut-in well head pressures.

Q Do you find anything at all in your study in relation to this Exhibit that show a barrier to prevent the communication of gas on the Jalco side of this line and the Langmat side?

A No, sir, I do not.

Q You don't show any gas on here immediately to the right

of the line between the two pools, why is that?

A I will ask you to remember that we are looking at only one dimension here and that one location directly south of this well here, and one location north of the same well, we have dry gas wells producing from this same section. This oil accumulation is in a synclinal area, goes in a northerly direction as outlined on the base map. I recommend that it be named as a new pool.

Q This pinch out that you were talking about applies to the reservoir in No. 2, is that correct?

A Yes, sir, that is right.

Q There is nothing that you know of to prevent the gas from communicating between the Jalco and Langmat at that point?

A No, sir, there is nothing.

Q Any further explanation regarding this Exhibit?

A I would like to point out after some more of Gulf's testimony, I believe Mr. Ross said that if these sections were named separate and distinct reservoirs we would not have the proration problem that he has stated, something like 50,000,000 cubic feet a day, or some such figure. I don't exactly remember.

MR. SPURRIER: Thirty.

A I have recommended that these be named separate reservoirs.

Q We will move on then to Exhibit 13 F.

A It passes east through Township 23 South. This cross section begins in the Cooper-Jal Oil Pool and passes eastward into the Langlie-Mattix Oil Pool and then also passes east in the Jalco Gas Pool and the Langmat Gas Pool. Starting from west to east,

the Cooper-Jal, the boundary of the Jalco-Langmat boundary lies between these two areas here (indicating). We have another occurrence of oil that is very similar to that occurrence which I call Reservoir No. 2 on Exhibit E. I have designated that as Reservoir No. 4. It is the same type of oil accumulation that we had on the previous Exhibit, an active water drive from the west, a porosity pinch out to the east. It is definitely controlled by structure as opposed to Reservoir No. 1. I have indicated the horizontal limits on the base map and recommended that be named as a new oil pool, overlying Reservoir No. 1.

Q On this Exhibit, do you find any gas below 75 feet of sea level? A No, sir, I do not.

Q And except for that reservoir, there is no oil above 100 feet below sea level?

A No, sir, there is not. I would like to add at this time that in these reservoirs on the west side of this oil that is controlled by structure, that the gas pool be limited by the vertical limits of the oil pool which this will only cover a very small area.

Q If you have nothing further on Exhibit 13 F, please explain 13 G?

A I just happened to think of something else I would like to say about that. We had testimony earlier today that states that roughly in the Jalco area it should be called an oil and gas reservoir, but this is the dual completed well from the Seven

Rivers oil zone in this dry gas section. These wells are very expensive. The well is presently receiving two allowables, as it should, and since they are distinct and separate reservoirs, proof of those distinct reservoirs is in the pressures. The shut-in tubing pressure for the gas zone was 698 pounds and the bottom hole pressure for the oil zone was 1,027 pounds.

Q Will you please explain Exhibit 13 G?

A Exhibit 13 G passes through Township 24 South and also runs from west to east direction. It is illustrated on the map as passing through Cooper-Jal, then into Falby-Yates and out of the Falby into the Langlie-Mattix and also is in the Jalco and Lagmat Gas Pools. I would like to point out that if you will notice the Reservoir No. 1, which overlies 100 feet below sea level, is present throughout this area. Also, on the west side, that in some areas, in the Falby-Yates area presently defined we do have oil that occurs above the minus 100 feet below sea level. This is another synclinal occurrence of Yates oil as Reservoir No. 3. It only covers a larger lateral extent. I recommend that the Falby-Yates Oil Pool be retained and that Reservoir No. 1 be extended throughout the area of the Falby-Yates to overlie that pool. This will validate some of the Queen wells in that area at this time, and will permit them to receive two oil allowables, which they should since they are a separate and distinct reservoir.

Q Explain what you mean by validate.

A Due to the way the vertical limits are presently described on many of our present oil pools, they do not take into account

all these anomalous occurrences and it is almost impossible by a formational basis to include them on a formational basis, which is due to the occurrence of the oil. These wells I say validate -- The Langlie-Mattix Oil Pool presently does not underlie the Falby-Yates Oil Pool and we have wells in the Falby-Yates Oil Pool that are producing from this lower reservoir. That will, I say, validate.

Q Bring them within the defined limits of the pool?

A Yes, sir, bring them in, yes, sir.

Q You also show on this Exhibit, I believe, do you show any gas on this Exhibit at all, 75 feet below sea level?

A No, sir, all the gas lies above 75 feet below sea level. I did illustrate in one place that the gas is not being produced. I illustrated that for the purpose of showing that oil is overlying gas.

Q Moving on to Exhibit 13 H, will you please explain that Exhibit?

A 13 H passes through Township 25 South and lies within the Cooper-Jal Oil Pool, this area here (indicating) and the Langlie-Mattix to the furtherest extent, and also in the Jalco Gas Pool and the Langmat Gas Pool. Again, on this cross section, we have another occurrence of oil which is above minus 100 feet from sea level and is controlled by structures. It is the same type of reservoir that I pointed out as Reservoir No. 4 and Reservoir No. 2. I recommended to the Commission that it be named as a separate oil pool and it is illustrated on the base map in its horizontal

extent.

Q That is Exhibit 3 that it is illustrated on?

A Yes, sir, that is Exhibit 3. Going eastward we run into the synclinal Yates occurrence again which Mr. Boss pointed out earlier today and I have numbered that as Reservoir No. 7, and recommend that it be named as a new reservoir. Then, it overlies the Reservoir No. 1 which lies below a minus 100 feet from sea level, also Reservoir No. 6, all of these reservoirs that I have named, these synclinaloccurrences and the occurrences that are controlled by structure, all of those will overlie Reservoir No. 1 which is this one. I have also outlined on Exhibit No. 3 the horizontal extent of this synclinal occurrence of Yates oil. Here is a well that lies, a gas well, its vertical limits being below a minus 75 feet from sea level.

This gas well is outside the present horizontal limits of the Langmat Gas Pool. The Commission is not able to prorate it at this time anyway, and I can see that it does not take from my testimony. A portion of this gas maybe gascap gas but I recommend that this type of occurrence be controlled by the limiting gas-oil ratio in the pool in which it falls.

Q Directing your attention to Exhibit 14-A to 14-G, inclusive, which appears on the opposite wall, what do those Exhibits represent?

A These are south and north cross sections passing through the identical area that the west-east cross sections did and illustrated on Exhibit 3, they are limed sections.

Q Do you have on these exhibits any place where gas occurs above 75 feet or below 75 feet?

A Yes, sir, there are a few occurrences.

Q I wish you would point those occurrences out. Refer to the Exhibit and explain those individual situations.

A On Exhibit 14-A, we have the Western Gas Wimberly No. 1, which is the same well that appeared on 13 H, which I pointed out earlier. It is probably gascap gas and should be controlled by the limiting gas-oil ratio in the oil pool in which it falls. It is not presently in any gas pool and the Commission is not able to prorate that well at this time, anyway I would like to point out that the well offsetting it to the north was originally drilled as a gas well, but through several years of production, they are now producing oil and the present allowable is 32 barrels a day.

Going further north, we have another well that is producing only dry gas and not making any oil at this time but probably will. I recommend that all of these wells be, the production be limited to the limiting gas-oil ratio in the pool in which they fall. That is true of this well here , which is apparently producing gascap gas, that is Conoco State A-2-1.

I would like to point out these other exceptions. Remember that these are on the east side of the area. They lie in this general region in here and they are outside the present defined horizontal limits of the Langmat Gas Pool. The Commission is not able to prorate those gas wells at this time anyway. This parti-

cular well here is shut-in (indicating).

This well here (indicating) was originally drilled, it is the W. J. Construction Company Jack W-Number 2, it was drilled as a dry gas well, but is now presently making 32 barrels of oil a day. The two wells which lie to the north, have not started making oil as yet, but they probably will and I recommend that their gas production be limited by the limiting gas-oil ratio. The last well here, the Gulf Bertha No. 1 is shut-in anyway, no, it isn't. I am sorry. We go on back, the porosity and permeability becomes more favorable for the accumulation of oil in this same horizon. We get oil production again. We are in the Penrose-Skelly Pool here. No, we are not, that Exhibit ends here and then the next one begins here in the northern part of the Langlie-Mattix Oil Pool, and then goes into the Penrose Skelly.

I would like for you to keep in mind again that we are outside the horizontal limits of the gas pool and that everywhere the oil occurs below minus 100 feel below sea level. We do have some gas indicated in the two wells, Gulf Elson No. 1 and the Skelly-Harrison 2-B. They are producing gascap gas and the gas production should be limited to the limiting gas-oil ratio in the pool in which they fall. I would like to say, very few of the wells on the eastern side are very good wells to begin with, as far as gas is concerned.

Q Directing your attention to Exhibit 14-D. That is this Exhibit here. Do you find any gas on that Exhibit below 75 feet below sea level?

A Yes, sir, a few of the wells as you see here, are below a minus 75 feet. I think that the maximum is minus 9, that is, they are plugged back and this particular well here and here (indicating), is actually producing gas. I don't know that it is actually producing gas out of that lower 20 feet. It violates my vertical limit, but it may be or may not be, I don't believe it is supporting since they are in no way endangering the oil horizon anyway.

Q Direct your attention to Exhibit 14-D?

A Exhibit 14-D is in the southern portion of the area and starts right on the State line and goes through the Rhodes Oil Pool into the Langlie-Mattix Oil Pool through Reservoir No. 7, which I pointed out earlier on one of the other Exhibits going northward, and it ends here in the Langlie-Mattix Oil Pool. Started northward here you notice that the oil is everywhere below a minus 100 feet with the exception of this reservoir here which is a synclinal occurrence in this area here, which I have already recommended be named as a new pool overlying Reservoir No. 1.

We do have gas below a minus 75 feet in this area also, but this area is exempt from present proration plan since it falls within the Rhodes storage area and is not a problem at this time. Going northward, the oil, of course, occurs below the minus 100 feet. We do have two wells here that violate the vertical limits of the gas pool that I have pointed out. They do fall within a

defined gas pool, but they are very apparently producing, at least this well, is very apparently producing gas cap gas and probably at this time is not favorable for oil production, but I predict that it probably will start making oil but I do recommend that its gas production be limited to the limiting gas-oil ratio in the pool in which it falls.

Q Do you have any further explanations on those exhibits?

A The rest of it is rather repetitious, Mr. Yost. All of the exceptions that you find where the oil lies above the minus 100 feet, I have recommended a new reservoir to be named to the Commission. My recommendations will keep the oil horizons and the gas horizons separate.

The administrative problems that the Gulf witnes pointed out as he said they will not effect this problem, and I just happened to think of something that I didn't mention that I would like to mention.

Gulf's testimony brought out that it would be a problem in that the Grayburg in some areas in a very small area, it probably wouldn't cover over a 160 to 640 acres in area that it would extend above the minus 75 feet below sea level.

In that area we should probably restrict the gas horizon to the top of the Grayburg formations. I also would like to point out and say that I agree almost one hundred percent with Gulf's testimony today and it supports my testimony in every way, I believe. Except for the recommendations. Gulf's testimony was very good but the recommendations did not follow the testimony as I interpreted it. I would like to point out on Exhibit 13-C the impervious zone that Gulf had illustrated

at the top of the Grayburg apparently is not present in this area because we have two wells producing both from the Grayburg and the Queen in this area.

Q Mr. Montgomery, would you please restate again your recommendations or conclusions?

A My conclusions are to redefine the vertical limits of all of the shallow oil pools in this area in Lea County to be from a minus 100 feet to a point 450 feet below sea level. That the dry gas pool be from the top of the Tansil formation to a point 75 feet below sea level and that these anomolous occurrences be named as separate and distinct reservoirs. I would like to point out at this time that people have been saying these little oil pools add accurrences and anomalous occurrence, they are very important because they are some of the best oil pools we have in the entire area due to their character and the type of drive they have, they are among the most important wells we have in the area. Many of them are top allowable. I don't know what the average would be but if we average the production of them all together they would approach the top allowable well.

Q I believe you had a statement you wanted to read from a bulletin.

A I would like to read hastily from this New Mexico School of Mines Bulletin No. 18, this was published in 1942 and was compiled by Robert L. Bates. There were certain contributors from the oil industry who were selected because they figured that, well due to their professional experience and integrity that their word would carry some weight. On the

Arrowhead Pool it is by Rouel L. Boss, resident geologist of Gulf Oil Corporation, "As in most of the pools of the back-reef area in southeast Lea County, the general zone within which accumulation has occurred lies between 200 and 300 feet below sea level, rather than in intervals between stratigraphic horizons. Thus from the crest of the structure toward the flanks, progressively younger beds form the reservoir. This condition allows all wells to be drilled to approximately the same depth below sea level." This article is restricted to the Cooper-Jal and was written by P. W. Miller and Robert L. Bates, it says: "Toward the north, oil and gas are found in progress-ively older strata. Thus in the Jal pool production is chiefly from the limestones of the middle Seven Rivers, and in the Cooper field most of the porous producing limestones are in the lower Seven Rivers, and possibly in the uppermost Queen formations." This is rather redunant, this is Langlie-Mattix and written by P. W. Miller and Robert L. Bates, "This tendency of the oil and gas to occur in stratigraphically lower zones toward the north is also shown in the Cooper-Jal area to the west, where, however, the accumulations are in limestone rather than in sandstone." This article is on the Monument and written by Robert L. Bates. "The zone that produces oil at Monument occupies a definite position between a depth of 200 feet below sea level and a common water table at 360 feet below sea level. In this respect the pool is similar to a number of other pools to the south, including the Eunice pool. Probably in no well does the entire 160 feet produce oil, but all productive zones fall within this interval."

This article is on the South Eunice Pool was written by Delmar Quinn Cities Service, "The gas-oil contact and the oil-water contact seem to follow the sea-level datum more nearly than stratigraphic lines, but do not conform entirely to either of them."

Q Do you concur with the authors of those articles or do they concur with you?

A I concur with the authors.

MR. YOST: That is all. I would like to ask Mr. Montgomery to the stand for one more question.

Q Mr. Montgomery, would you please define horizontally, these ~~currents~~ occurences A.D. of oil about which you have testified from your base map, Exhibit No. 3?

A Yes, sir, I will. The reservoir that I indicate with a numeral 3 which is a Yates accumulation, synclinal Yates accumulation, lies in the north half of Section 22 and the south west quarter of Section 22, Township 22 South, Range 36 East. Section 27, the west half same Township and Range, Section 28, the southeast quarter, Section 33, the east half, Section 34, the northwest quarter. The next reservoir they indicated with a numeral No. 9 is located in Section 32, Township 22 South, Range 36 East, lies in the southwest quarter and the east half of the north west quarter of Section 32.

The reservoir that I indicated with a numeral 4 which lies in Township 23 South, a portion of it that lies in 23 South, Range 36 East, is in Section 28, the north east quarter and 27 the southwest quarter and in Section 34, the west half. The portion of it extends into Township 24 South, Range 36 East,

as in Section 3 the northwest quarter.

I would like to point out that in these reservoirs in the synclinal Yates reservoirs that the gas production will be controlled by the limiting gas-oil ratio of the pool.

I recommend that the Falby-Yates be retained and the reservoir that I have designated with numeral 7 which is Yates accumulation of oil again in a synclinal area is in Township 25 South, Range 37 east, section 7, the southwest quarter. In section 18, the east half of the west half and all of the east half. In all of Section 17 and the west half of Section 16. In section 19 the north east quarter and the east half of the northwest quarter. In Section 20, the north half and all of Section 21. The reservoir that I indicated with a numeral No. 6 which lies in Township 25 South, Range 36 East, would be the southeast quarter of Section 13, the east half of Section 24, the east half of Section 25 and the northeast quarter of Sectio 26. As I recall I believe I gave the wrong range for the reservoir, that is 37 East Township 25, South. The reservoir that I have indicated with a numeral No. 8 lays in Township 26 Sou Range 37 east, and would be the west half of Section 7, the west half of Section 18 and the southeast quarter of Section 19.

MR. YOST: That is all.

MR. SPURRIER: Does anyone care to cross examine the witness?

MR. DAILEY: I would like to ask one question right off to start.

CROSS EXAMINATION

By: MR. DAILEY:

Q Have you in effect testified that there is an impermeable barrier throughout most of the area between minus 75 feet subsea and minus 100 feet?

A I have said there is no accumulation of oil in those horizons other than the ones I pointed out.

Q What about the gas, there is no accumulation of gas in there, either?

A Yes, sir, there is possibly an accumulation of gas in there. That is the reason I had a so-called no-man's land between the vertical limits of the gas pool and the oil zone to prevent an operator from producing that gas cap gas and ruining the oil horizon.

Q Then, in the absence of that then all the gas must be gas cap gas?

A No, sir, it is not.

Q You have to have either an impermeable barrier between your oil or else it has to be gas cap gas?

A Well, it is probably impermeable to the extent that there is no production, yes, sir. It is not like the concrete, I feel sure of that or glass.

MR. DAILEY: That is all.

By: MR. SMITH:

Q Mr. Montgomery, as I understand the effect of your testimony you have taken the coincedence of the respective locations at a point below which you find only oil and above which you find only gas and that you use that as your sole premise for basing those lines, is that a correct analysis of your testimony?

A May I elaborate, I am afraid that your question--

Q Surely--

A I believe there is a horizontal porosity and permeability was developed throughout this entire area. It is evident from these cross sections that structure, that is in the normal sense that we refer to a name of structure, has no effect on the accumulation of oil. Now, I have heard the opinion that they think possibly these are oil rims in each separate unit, each separate formation or each little horizon within a formation.

It is beyond my comprehension the odds that could possibly be that each one of them is an oil ring with a gas cap occurring at almost identically the same horizon. There is a horizontal reservoir with horizontal porosity and permeability in which oil occurrs.

Q Then, simply figure elaboration, it is based purely on coincidence so far as determination of sub-sea line for your oil and gas?

A Well, I see nothing coincidental about it. That is the way the oil occurrs. I have illustrated it on my cross section.

Q The point I am trying to make is that you have stated a conclusion and you have stated that it is impossible for you to see how that could occur without their being permeability throughout?

A Yes, sir.

Q And that is your reason for it?

A Yes, sir.

Q I think a short time prior to the close of your testi-

mony you made some remarks about the northern end of the field with reference to the impermeable barrier about which the Gulf witnesses testified and, as I recall your testimony, you stated that it probably didn't exist because they had wells that were completed in both the Grayburg and in the Queens?

A Yes, sir.

Q And is that your reason for saying there is no impermeable barrier or do you have other reasons?

A May I elaborate some more. This impermeable barrier as Mr. Boss testified, he said that he did not believe it was a blanket occurrence as I recall. He said that it occurred at that horizon. If it occurrs at that horizon somewhere in there it has to dip through that oil zone and possibly that it is impermeable in small sections but due to the tortuous loops and the possible overlapping of the impermeable beds that the porosity and permeability was developed around the impermeable beds.

Q I guess I can't quite understand your answer. I will ask you this question. In completing an oil well into the Grayburg, it would be necessary to penetrate any impenetrable substance from the standpoint of permeability in order to get to the Grayburg, is that correct?

A Are you speaking--

Q (Interrupting) I am talking about the Bentonitic substance that they were testifying was approximately four inches thick that could afford a shield so far as the question of pressure or oil going through it or gas coming down through it?

A Yes, sir.

Q In order to complete an oil well in the Grayburg, you would have to penetrate that bentonitic shield, wouldn't they?

A Yes, sir, that is correct.

Q If you set your casing and all of your other paraphanalia in the hole so as to be perforated above and beneath the benotonitic shield, you would have a completion of both zones, wouldn't you?

A Yes, sir, you would.

Q So, that the mere conclusion that you have a well completed in the Grayburg and also in the Queens, wouldn't necessarily follow as being the only reason why there is permeability?

A Well, Mr. Smith, if we go up structure from that well and where the Grayburg is on up above the zone of porosity and permeability the Queen is not productive there, it only becomes productive when it falls within that zone of porosity and permeability.

Q You don't have any geological evidence to establish that as the structure dips coming over on the side that the same bentonitic structure does or does not exist all the way down that sharply dipping structure?

A I will have to rely on Gulf's testimony for that. I will have to assume that it possibly does overlie the entire area. I don't know, I don't know that that is a problem. I can't see that it effects anything.

Q It is a problem if you find that there is that impermeable shield that does exist over the Grayburg and at a point above 100 feet below sea level or 75 feet you encounter gas,

because in that event you would have a localized gas cap in the Grayburg without communication with the Queens. Wouldn't it be your opinion if that condition did exist that the proration of gas in the zone, despite the fact that it is above the minus 75 feet, should be controlled with reference to the oil reservoir rather than just your general gas as if it were one continuous reservoir throughout the entire area?

A Yes, sir, you are completely correct and you will recall in my testimony that I recommended in this very small area where that would happen that the vertical limits be restricted to the top of the Grayburg formation. That is one of the exceptions of this.

Q The reason why I am getting into this, Mr. Montgomery, is to try to determine your idea, as to how localized or how small that area maybe?

A Well, I think the interval between the top of the Yates and the top of the Grayburg, about 1200 feet. Now, you notice on Gulf's Exhibit they had about a thousand feet. Those were sample logs and I don't know whether the time that was computed when they reached the surface or not, I don't know. Say, it is a thousand, all we have to do is look on the structure map and outline the area in appropriate manner and I don't care what figure you decide to choose for safety sake. Say, we will take a thousand feet that should cover it very well. Then on our structure map outline the area which would be relatively small in the Eunice Monument area and say that in that area that the gas pool would be restricted to the top of the Grayburg formation.

Q You have not made that analysis yet?

A I can in half a second, about half a minute.

Q I would like to have it.

A Which figure would you like to choose?

Q I think you are the witness and you choose.

A I will choose 1200.

Q 1200 being with reference to the--

A (Interrupting) The thickness of the Yates and the top of the Grayburg.

Q Can you identify, say from minus 75 feet sub-sea or some other. I think we could settle the whole thing by saying in your opinion if from a geologic basis it would be possible to identify the top of the Grayburg from any point in the Eumont area that as far as you are concerned, you would be willing to have that go as gas cap gas to be controlled with the Grayburg production?

A Yes, sir.

Q Don't you think then that it might be just as well to adopt Gulf's testimony in this respect insofar as the bentonitic substance or other pressure differential testimony which followed after the testimony with reference to bentonitic substance and say for the purposes of administering the proration here that all of the Grayburg gas or all of the gas produced with wells completed in the Grayburg which can be identified by geologic morpha be accepted from your sub-sea data?

A If we can use the sub-sea datum elsewhere.

Q We will come to that later. I am just talking about the Eumont area right now.

A Well, that may take another involved answer. I would make that recommendation if the minus datum was retained throughout the entire field and if at such a time that the Grayburg came within my vertical limits of the defined gas pool, defined on the sub-sea, that the sub-sea datum be restricted to the top of the Grayburg.

Q I assume that the Commission's records show the geological area in which the wells are completed, would you therefore assume as an automatic exception to your gas prorationing all wells that are shown to have been completed in the Grayburg or San Andres?

A I think they should be controlled by the limiting gas-oil ratio in the pool they fall.

Q The point I am trying to make without reference to the sub-sea datum, if the well has been completed in the Grayburg-San Andres, it would be automatically an oil well without reference to any necessity to look at a sub-sea data point to determine whether or not it is a gas and oil well?

A To my knowledge, I think there is possibly one well and it is a Gulf well that is producing so-called dry gas from the Grayburg formation. That is the only well that I know of.

Q If any other wells are completed and by relation to known geology morphus in the Grayburg, it would be your recommendation, I assume, that such well also be granted the same type of exceptions. In other words that it not be a gas well but be controlled by the gas-oil ratio?

A I am sorry, Mr. Smith, I lost you.

Q You say there is only one well that is producing dry

gas in the Grayburg. You have had that same rule, I assume, from your statement that it being a gas well in the Grayburg, it will be controlled by the gas-oil ratio rather than by listing it on the proration schedule as the base well?

A Yes, sir.

Q It would be your recommendation that any other wells completed in the known Grayburg below the top of the Grayburg marker would also have the same treatment?

A Yes, that is correct.

MR. SMITH: That is all.

By: MR. KELLY:

Q I would like to ask some questions along that line. You have given us your designations of what you call a gas zone and what you call an oil zone. In order to arrive at a gas zone, I presume you defined to yourself what a gas well was. I would like to know your definition of a gas well?

A Mr. Kelly, I do not have any. I have not made a study of that. I have no testimony but I understand that testimony will be given to that effect.

Q As to what a gas well is?

A Yes, that is my understanding.

Q If that is true, I will wait until that testimony comes on, otherwise I would like to repeat the question to you, because I feel that you had to define a gas well in order to get to a gas zone?

A No, sir, I don't follow you. If there is some doubt there, I would certainly like to clear it up. Above this zone with the exception of these areas, synclinal occurrences of

Yates oil and the Seven Rivers Section where oil is controlled by structure and which I named and are on the map, nowhere above that point is there any oil present. Those are dry gas wells and they are not producing any oil with the exception of a few wells that have penetrated the dry gas.

Q I am not asking for any specific area. I wonder what your general definition of the gas well was?

A I have no opinion on it. I haven't made a study of it.

By: MR. MACEY:

Q In your analysis of what a gas well was or what it wasn't, wasn't your simple thought on it being that a gas well was a well that produced gas and no oil?

A Oh, yes.

MR. KELLY: Would you say that a well that produced a 100,000 feet of gas to each barrel of oil would be a gas well?

MR. YOST: There is no definition of a gas well. I don't think that is within the scope of his testimony here. I object to the question.

MR. KELLY: I will withdraw the question.

MR. WOODWARD: If it please the Commission.

MR. SPURRIER: Mr. Woodward.

By: MR. WOODWARD:

Q We would like to ask you some questions about your No. 1 reservoir, will you describe it again, please?

A From a point minus 100 feet from sea level to a point 450 feet below the sea level.

Q What are the areal limits of the red form?

A The Eunice Monument Oil Pool, the Skaggs Oil Pool, the Hardy, the Penrose-Skelly, the Arrowhead Oil Pool, the South Eunice Oil, the Cooper-Jal, the Langlie-Mattix Oil, the Eaves, the Rhodes, and the Leonard and the South Leonard.

Q It is your opinion that that is all one common source of oil?

A In my opinion, yes, sir, it is. I didn't state that.

Q Well, I am trying to understand your definition of the word, reservoir.

A Yes, sir.

Q Is the word reservoir a common source--

A (Interrupting) Is what?

Q Is the term, "common source of supply" synomous with the term reservoir in your thinking?

A I believe it is, yes, sir.

Q Now, from what formations are the oil wells in this N_o. 1 reservoir producing in the Eumont field?

A In the Eumont?

Q Yes.

A Well, there is no oil producing in the Eumont Field.

Q In the Monument Eunice area?

A Eunice Monument area, I don't know whether some of the new completions have been brought in or not, but referring to your W. E. D., I am not sure but I believe it is the Seven Rivers. I do know that we have Queen, Grayburg, San Andres, Seven Rivers and wait, Queen, Seven Rivers; Queen, Grayburg and San Andres.

Q All those formations are productive of oil in the pre-

sent limit of the Monument field?

A I don't know of any field by the name of Monument.

Q Are you familiar with the Eunice pools?

A No, sir, I am not.

Q All right, is that your Eunice Monument area?

A Well, you are a lawyer, I was afraid you were going to do something.

Q I can ask legal questions as well as he can give legal answers.

A Would you restate the question again?

Q From what formation or formations is your oil production in this reservoir, this No. 1 reservoir coming from the Eunice Monument area?

A Well, I know definitely from the Queen, Grayburg and San Andres and Seven Rivers.

Q But you limit it definitely to the Queens, Grayburg and San Andres?

A Yes, sir.

Q Is that correct?

A Yes.

Q Do you know from what formations or formation your oil production is coming from in the south of this field?

A Yes, sir, it is coming, it is presently defined--

Q (Interrupting) As presently defined?

A Yates, Seven Rivers and Queens.

Q You have no oil production from the San Andres or the Grayburg in the South Eunice field?

A No, sir, you do not.

Q You heard the testimony this morning of Continental and Gulf concerning the point at which the structure and particularly the Grayburg hit below the water-oil table between Eunice and South Eunice, did you not?

A Yes, sir, I did.

Q Does that in any way constitute a lateral barrier separating the sources of oil supply in the Eunice Monument area from the South Eunice area and south to the state line?

A No, sir.

Q In your opinion? A It does not.

Q Is it possible that you have communication through that water saturated zone?

A No, sir.

Q You would say your communication occurred above that?

A Yes, sir.

Q What formations in that area between Eunice and South Eunice are above the water table?

A What portions are above it?

Q What formations or portions of formations are above the water table in the area between the Eunice and the South Eunice field?

A Well, shall I pick from the highest point that is above it, structural?

Q Is a portion of the Queens above the water-oil contact in that area, the Queens, South Eunice and Eunice?

A Yes, sir, it is.

Q Are you assuming that your communication of oil which would make this one common source of oil, is through the Queens?

You have got your Grayburg going to water, do you not?

A I made a statement earlier that I thought there was horizontal porosity and permeability developed in this area which crossed boundaries.

Q I understand that. You accept the testimony of Continental and Gulf, that the Grayburg is entirely under water in that area of Eunice and South Eunice?

A In a portion of that area, it is, yes, sir.

Q That would extend from the western limits clear across to the eastern limits?

A Would you designate the area a little more definite? In some areas the San Andres is above the water table.

Q We are moving down into the Eunice field.

A The South Eunice?

Q The South Eunice from the Eunice field.

A All right.

Q The testimony that is in the record now is to the effect that you have an area extending east-west horizon through which the Grayburg dips. Now, I think there is evidence that a portion of the Queen also dips through that area. If you have any communication across it, you state it is not through the oil saturated portions, it must therefore be through the Queens, is that not correct?

A Well, I stated that the oil migrated in a horizontal plane which crossed formation boundaries.

Q Does it migrate through a water saturated--

A (Interrupting) No, sir, it does not.

Q It must migrate above it?

A That is right.

Q If the only formation above that zone that is productive of oil in the Eumont area is the Queens, it must migrate through the Queens, is that not correct?

A I am having a little difficulty following you. I am not trying to evade your questions. I would like to encourage every one. I just don't understand what you are getting at.

Q Let's say you have door A and door B is locked, if you go through the door, is it door A or B?

A If I didn't have the key, I would go through A.

Q If the communication through the Grayburg in this area is prevented by the water saturation, you would expect your communication through the Queen, would you not?

A Yes, sir.

Q If you had a series of dry holes in that area, dry in the Queens, would it indicate to you a lateral separation from the nath end of this trend from the Eunice Monument area down through the South Eunice?

A Well, where does this Queen, where does that fall in reference to the oil reservoir?

Q Well now, we are talking about the zone generally where the Grayburg goes under water. If in that same zone or area you have a series of wells which are non-productive in the Queens, the only other formation through which you might expect communication, you would have some indication there of a lateral separation, would you not?

A May I ask myself the question, I think you are asking me? May I?

Q All right, phrase the question and I will see.

A Do you mean that in this area that you are referring to near the South Eunice Northern Border of the South Eunice area?

Q Yes.

A That is right.

Q Assuming that this is the Queen and the Grayburg is down here and that it is in the water zone?

A Yes.

Q And that the Queen formation is within this reservoir No. 1 or the oil zone, that is correct. I am talking about the Queen formation that is overlying the Grayburg in that area where the Grayburg first dips below the oil-water table.

A First dips below it?

Q Yes, that is the area we are talking about. I think we have established if there is any lateral communication, it is through the Queens?

A Yes.

Q If the Queen is unproductive in that area, if it in that region had undeveloped porosity or permeability, would that indicate to you a lateral separation in the oil supply in the Eunice Monument, from the oil supply from the South Eunice on?

A It would in that one area, yes, sir. in that small area of the well bore.

Q If it extended across the trend, would it indicate to you that you have common sources of supply?

A If you have a dry hole across there, say one location apart or two locations apart.

Q You would prefer two locations apart?

A I think we have to keep this in mind that in local areas, we have had testimony that in local areas there is tightening up. There are local barriers due to pinch out.

Q So far as the communication of the Queens production in the Eunice Monument area is concerned, you feel that there is communication between that Queens production and the Grayburg production in the Eunice Monument field?

A Yes, sir, I do.

Q As a result of these classifications how many common sources will you come out with when you add them all up here?

A Well, we will have one major oil reservoir which would be No. 1. I believe we had two other distinct and different types of reservoirs, the synclinal reservoir and the reservoir controlled by structure. We have three different types of reservoirs here since a portion of two of these types of reservoirs are not connected laterally or, I believe, I end up with five or six. I ended up with six.

Q Let me ask you this one further question, which suggests the significance of a common sub-sea level below which one substance predominates in production above which separate substance predominates. Does the fact standing alone that you have this similiarity in the area from which you are obtaining oil production throughout this entire 42,000,000 trend from the north end of Eumont down, does that fact standing alone, indicate to you that you have a single common source of supply?

A Yes.

Q Below that line?

A Yes, sir, it does.

Q The fact that Death Valley and the Dead Sea have the same sub-sea data wouldn't mean they were a common source of anything, would it?

A Well, I understand that this is a hearing on gas and not oil, but I would like to continue this argument, if you want to argue about it.

Q I am asking a question as to whether under those circumstances the fact that they are both the same sub-sea level notwithstanding the fact, the further fact that you have got two or three oceans between them, whether that fact standing alone establishes the fact that they are a common source of anything?

A Which two areas are we referring to Death Valley --?

Q We are now referring to Death Valley and the Dead Sea. Those are issues outside the call of the hearing.

A I imagine there would be considerable changes in lithology in that distance.

Q Lithology aside, we are talking about the fact or assuming that they have a common sub-sea datum point. That fact standing alone is not indicative of anything concerning the communication between them?

A The Dead Sea, I can't even get your anology. I refuse to answer the question. May I refuse?

MR. SPURRIER: Certainly.

MR. WOODWARD: I think the question is a perfectly logical question. He is basing his opinion upon the fact that there appears to be a similarity in the sub-sea data point and

this is perhaps a little farfetched but it does illustrate the fact that that common sub-sea datum line has no necessary relationship whatsoever in determining whether you have a common source of supply or not.

Q You do have a further similarity in the analogy here, you have an area in which you have considerable water saturatior and analogy maybe compared with the miles of separation encountered in two different parts of the globe. The fact standing alone that you have the common sub-sea datum line does not indicate so far as we can make out any necessary relationship in the connection between these reservoirs. I think the point is perfectly self evident as it stands. What I would like to find out, is what information taken with that fact you are relying on in classifying these together?

A Experiences of geologists that have worked in the area for a number of years.

Q Do you have any evidence of vertical communication between the Grayburg and the Queen, which would explain the communication might be effected between the Grayburg and the formation south from South Eunice. We have established that it must be through the Queen. Do you have any evidence whatever of vertical communication between the Grayburg in the Eunice Monument area and the Queen in the Eunice Monument area?

A Any difference in what?

Q Do you have any evidence of vertical communication between the Grayburg and the Queens in the Eunice Monument area?

A There might possibly be a little bit of vertical communication.

Q Possibly aside, do you have any evidence of that fact?

A No, sir, I do not, do you?

Q I am not the witness.

A Excuse me, I am sorry.

Q We are trying to find out in addition to this sub-sea data point whether or not there is any other evidence of communication?

A Well, I have gone to considerable extent here working on evidence. I mean I have arrived at certain conclusions that are based on the evidence that I find and that is one of the conclusions that I arrived at. As I pointed out earlier, it is difficult for me to conceive that all of these different formations would have a gas cap and an oil rim and happen to accidentally by coincidence fall on the same horizon. Using that analogy the gas and the oil are distinctly separate as illustrated by the pressures. They are not connected in anyway, fashion or manner. Assuming that they were and that they all fell about the sub-sea datum, I don't know how many factors a person would have to take into account to figure it up. It must be an astronomical number.

Q We are not asking for any astronomical calculation. The only question is as to any tangible evidence as to any vertical evidence of communication between the producing oil in two formations. There is no evidence to that effect in your testimony?

A There has to be in a certain extent to my testimony. Are you speaking of right angles to the formation?

Q We are talking about any vertical communication whether

it is significant or goes straight up and down.

A There is a small amount of vertical communication, yes, sir.

Q That is a conclusion?

A Well, I have to arrive at that conclusion, you restrict me in my answer.

Q On the basis of what evidence?

A Well, if the oil passes, which I have illustrated here, passes from one formation to another irregardless of structure.

Q Isn't that what we are trying to find out whether it does or not?

A I have arrived at that conclusion. I have found out.

Q That statement does represent a conclusion on your part?

A Yes, sir, it does.

Q One other question. Most of your testimony as I take it, is designed to show a vertical coincidence of oil and gas above a certain line. Have you made extensive studies as to the lateral movement of either substance through the reservoir?

A Well, we know that oil and gas both will migrate.

Q Have you made any particular study of how the oil and gas migrate in this particular reservoir? In other words, what you are emphasizing has been on this point above and below the sea level rather than lateral communication?

A No, sir, I have said three or four times that there is a, that this reservoir No. 1, which I have called, is a zone of horizontal porosity and permeability.

Q Which is continuous from the north end of Eumont to

the State line?

A Yes, sir, and further.

MR. WOODWARD: That is all.

MR. CAMPBELL: Let me ask one question.

MR. SPURRIER: We are going to recess until 8 o'clock in the morning. You may ask your question.

By: MR. CAMPBELL:

Q My question is confined to the area now encompassed in the Jalco and Langmat gas pools. From your investigation, your study of this area, do you find any reason, geologically for the horizontal delineation between the Jalco and Langmat gas pools as they now exist?

A No, sir, I do not.

Q Did you make any study of that area with reference to pressures and sulfur content of gas or not?

A Yes, sir, I did.

Q Based upon those studies, do you find any reason, due to pressure differentials or difference in sulfur content of gas for the present horizontal limits between the Jalco and Langmat gas pools?

A The way I interpreted those pressures and sulfur content I see no basis for it, no, sir.

MR. SPURRIER: The meeting is in recess.

(RECESS)

MORNING SESSION, TUESDAY, May 11, 1954 at 8:00 A.M.

MR. SPURRIER: The meeting will come to order.

MR. YOST: I don't believe I offered into evidence the Exhibits 13A to 13H inclusive, 14A to 14G inclusive, and Commission's Exhibit No. 3. If I did not, at this time, we offer those in evidence.

MR. SPURRIER: Is there objections? Without objection, they will be admitted. Is there anyone who cares to cross examine Mr. Montgomery?

MR. MALONE: Mr. Spurrier.

MR. SPURRIER: Mr. Malone.

BY: MR. MALONE:

Q Mr. Montgomery, you referred yesterday to a Gulf well which you thought might be producing gas cap gas from the Grayburg. Can you identify that well for us, please?

A Well, I don't recall the specific statement.

Q I just want the name of the well, if you know, or the location of it.

A Well, it seems to me there was a Gulf well, Gulf H. W. Ellison No. 1.

Q That is a Queen well, is it not?

A Yes, sir, it probably is a Queen well.

Q You don't have in mind the well that you might have been referring to.

A I can't think of it, Mr. Malone. If you want me to look around I will find it.

Q Gulf doesn't know it, if they have gas cap gas producing in the Grayburg and I would like to have the information if there

is one?

A I don't remember making that statement. I assume I did or you wouldn't be asking. I didn't recall saying Grayburg.

Q If you didn't say it, I am happy to hear it.

A I believe I made a remark about a Gulf No. 1 Shipp.

Q That was an exception to - -

A (Interrupting) I thought possibly it was gas cap. I don't recall saying Grayburg formation. But, I also went on to say that due to Gulf's testimony, the pressures they have on the well, it apparently was not gas cap gas.

Q Perhaps, I misunderstood your testimony. You do agree with Gulf as to the importance of preserving the gas cap gas in the Grayburg and San Andres in order to increase the ultimate recovery of oil from that reservoir?

A Yes, sir, I do.

Q As I understood your testimony yesterday, while you first indicated that the interval from the top of the Yates to the top of the Grayburg might be as much as 1200 feet, you would accept the thousand feet that was shown by Gulf's Exhibits as indicating the top of the Grayburg?

A Yes, sir, I would.

Q You did also say that it would be agreeable with you to accept any well producing below the top of the Grayburg from the datum designation which you have recognized as far as the rest of the pool is concerned?

A Yes, sir.

Q With reference to the School of Mines Bulletin to which you referred, was there any respect in which you felt that Mr.

Boss's testimony was inconsistent with the statements that he made in that bulleting?

A No, sir.

Q He did refer to the fact that the communication which had existed in this area was in geologic time rather than in the normal performance of the reservoir, did he not?

A As I recall, yes, sir.

Q Is it your feeling that there is communication throughout this reservoir at the present time or only that such communication has existed in geologic times?

A Well, I feel that communication has existed in geologic times, yes, sir.

Q That would not necessarily mean that communication would be reflected in reservoir performance during the normal course of these pools, the normal life of these pools?

A Oh, no, sir, it is very evident from one location to another when we pass into a different type of lithology the reservoir characteristics are very dissimilar.

Q Does that indicate the lack of communication in your opinion, between certain portions of your oil pool No. 1?

A Possibly, in our life time, in our life time of the well possibly it indicates that it maybe very slow. I don't know, migration, of course, is a very slow process. Something that well records probably are rather slow in indicating.

Q As I understand your recommendation, it would eliminate all of the present delineations of oil pools in this area, would it not, and throw them into a single oil pool with the additional pools which you testified would be required because of the

structure?

A No, I recommend that all of the vertical limits of the present oil pools be redefined, the vertical.

Q The areal limits would remain as they are?

A Yes, sir, that is what I recommended.

Q I misunderstood your testimony. I thought you were going to have one oil pool below your datum point that was going to be the entire length of all the pools shown on your Exhibit, some 43 miles long?

A No, sir. Amerada asked me if I thought it was one reservoir. I said, "yes." In my testimony, I didn't want to get on to such a controversial subject so, I just merely recommended that all the pools be redefined vertically.

Q Vertically?

A Yes.

Q But that the areal delineations remain as they are at the present time?

A The oil pools, yes, sir.

Q If, in fact, that vertical delineation throws them all into a single pool, there wouldn't be much point in keeping the areal delineation, would there?

A I don't care whether there is one, seven or how many.

Q The problem I am trying to reach is this. I am sure you have taken into consideration the fact that the power of the Commission to allocate oil and gas is limited to pools and fields and the statute only gives the Commission as, of course, you are aware, the power to allocate as between wells in a

pool. If the Commission should accept this datum designation and if the result of that designation would be to include more than one pool in the area, there would be no doubt but that their order would be invalid, I assume. That is my legal opinion. It is no doubt the order would be invalid. It is of considerable importance that we, not because the convenience of the thing, throw together pools which as a legal proposition are separate pools. Geologically communication has to exist throughout a reservoir in order for it to be a pool, does it not?

A Yes, sir.

Q So, in order to be sure that we have an entity or a unit that the Commission is authorized to prorate. It has to be where the communication exists as between the various portions of the pool. Well now, how do you reconcile that situation with Gulf's testimony yesterday as to this barrier which apparently exists somewhere at the top of the Grayburg or the base of the Queen. If that prevents communication and if the result of your recommendations would be to throw the Grayburg and Queen into a single oil pool, wouldn't we have a situation in which the Commission's order would have to fall legally?

A Well, I understand that the present vertical limits of the Eunice Monument is the Seven Rivers, Queen, Grayburg and San Andres.

Q With areal limits which you now recommend be retained or that you have no objection to retaining?

A I have no objection to retaining them.

Q You do not feel then that there would be any problem so far as a common source of supply or a pool existing if there is no communication between certain of the oil formations which

are in the pool?

A Well, I don't, of course, I am not a lawyer--

Q (Interrupting) From a geologic point of view, you could testify that it is a pool and a common source of supply?

A Yes, sir, I could.

Q That would be in the face of the pressure differentials that exist in these various pools that are now delineated by the Commission?

A I didn't quite understand your question, Mr. Malone.

Q I think that as long as the areal delineation is continued, that probably isn't of much consequence and I will withdraw the question. I had misunderstood your testimony. You referred to a number of wells that were exceptions to our general proposition with reference to the occurrence of gas above minus 75 and oil below minus 100. Do you happen to know what the total number of those exceptional wells would be?

A I believe the total number of exceptions on the gas well was one gas well, which was the Gulf No. 1 Shipp that was within the presently defined limits of the gas pool. The other exception I pointed out, I believe I stated, they were gas cap gas.

Q Of course, it hasn't been possible for you to study all of the logs of the individual wells in this area in preparation for your testimony, has it?

A Well, I have studied more than twenty percent of the wells in the area, Mr. Malone. Of course, the area has very definite pattern and without being a statistician there are certain things I will have to accept, I had accepted as being

true for the entire area.

Q What type of exception would you recommend that the Commission make in order to take care of such a well as the Shipp which you referred to?

A Well, I, that would be an administrative problem, I believe. I stated that it is not gas cap gas.

Q The thing that concerned me a little bit was that the thing that recommends your program, it seems to me is its simplicity. If it isn't simpler and easier of administration, it probably doesn't add a great deal to a situation that we have followed before as far as oil pools is concerned, does it?

A Would you restate it, Mr. Malone?

Q I am not trying to confuse you.

A No, I know you are not.

Q I merely had felt that the principal thing that recommended your plan was its ease and simplicity of administration. If there are too many exceptions that simplicity of administration, of course, is reduced. That is why I was interested in the individual well exceptions that would have to be made if we adopted.

A I believe I cited one dry gas well that was an exception, as it is presently defined, I believe I stated in the testimony that there are at least 50 or 60 wells possibly more that do not fall within the vertical limits of the presently defined pool. My recommendation will also keep separate all of the dry gas and all of the oil which is very important to the pressure differences between the dry gas reservoir and the oil. My recommendations will cure that problem. An operator will not

be able to open a dry gas section in an oil section in the same well bore.

Q There was some reference in your testimony yesterday as to the extent of the structure, the top of the structure in the Grayburg and San Andres up in the Eumont area. I understood you to refer to its extent, the extent of the gas cap, perhaps, as only 160 acres. Have you actually made any study as to the area of that structure?

A Well, I did after the question was raised yesterday, Mr. Malone, looking at the structure map, I was going on the basis of 1200 feet. My map is contoured on the Yates and going on the basis that the interval from the top of the Yates to the top of the Grayburg was 1200 feet, it probably covered roughly that area or slightly a little more. Using Gulf's 1,000 which I have no objection to wherever the Grayburg is that is the important thing, it would be a larger area considerably, yes, sir.

Q You would accept whatever area was indicated by application of that one thousand foot interval?

A Yes, sir, to the top of the Grayburg whever it might be.

Q Have you ever known of any other Commission or regulatory body which has undertaken to delineate a pool for gas or oil proration on the basis of a datum point as you have recommended?

A No, sir, I haven't.

A It is pretty unique in regulations, isn't it? The information on which your recommendation is based, is not new

information, is it?

It has been available to the Commission and to all of the Geological Committees that have been working with this problem since the discovery or shortly thereafter?

A I am sure that everyone has been aware of this occurrence but I don't know that they have probably interpreted it in the light of keeping the gas and the oil pools separate which has not become a major problem until gas became important economically. That has only been in the last few years.

Q Insofar as the oil pools are concerned the datum could have been used prior to the time of gas allocation?

A Yes, it could have been.

MR. MALONE: That is all, thank you.

MR. SPURRIER: Anyone else? Mr. Hinkle.

MR. HINKLE: Clarence Hinkle representing Humble.

By MR. HINKLE:

Q Mr. Montgomery, as I understand it, the green portions on this well section and plats represent your gas areas and your red shaded portions the oil producing areas, is that right?

A Yes, sir.

Q Take the green area for instance, does that represent the top of the gas horizon and the bottom necessarily?

A No, sir, it does not.

Q What does it represent then?

A Well, often the operator would report the top of a pay and well the interval of the pay which does not indicate that the entire section is productive.

Q It does not represent the top of your gas production

or the bottom, the whole producing zone then necessarily?

A No, sir, it indicates the zone that is open to gas production from which the operator has assumed that it would be produced.

Q Is the same thing true of your oil production, does that only repressnt the zone reported on the logs or does it represent the actual top of the oil, the bottom of the oil producing zone?

A No, it does not, it represents what has been reported.

MR. HINKLE: That is all.

By MR. SMITH:

Q Mr.Montgomeey, as I understand it, from Mr. Hinkle's questioning of you, that there is a possibility that the information from which you worked represents the completion depths of various wells rather than the location of the oil?

A Well quite often Mr. Smith, an operator doesn't drill the entire pay section in a well bore that is true, yes, sir.

Q That is the point I am making?

A Yes, sir.

Q The information on the various charts around here would be reflected from reports of completion depths rather than at the point at which oil is first encountered?

A Well, the operator reports on Commission forms and on United States Government forms, the tops of the pay and the intervals of the pay. I have to assume those are correct?

Q The point I am trying to make is so far as the data on these charts are concerned and your dissovery upon these charts that oil occurred above a certain sub-sea datum point and gas below a sub-sea datum point and in listing the information, did

you accept the figures that appeared on the charts or did you make additional investigation to determine whether the oil was found at a higher or lower point than indicated on various charts?

A Naturally, I relied upon the intelligence of the Committee that prepared the charts. I went further and checked each and every well record that we have on file in our office.

Q When you checked that record, did it say, does it show on the particular report form the top of the pay, the point at which perforations are made and other data from which you could make a determination as to when the top of the pay was encountered?

A Yes, sir, they do.

Q In checking that back on these charts, are the lines which reflect the top of the oil pay, the top of the pay as reported on the forms or is it the point at which the well was completed?

A Well, I assume that if they reported on the forms that is where they are completed.

Q I am asking when you verified the information back on these forms on to these Exhibits here, whether or not the information indicated on the Exhibits reflects from these forms the top of the pay or the point at which the well was completed, If you didn't make that investigation, just say so.

A It comes from the forms, Mr. Smith.

Q I am asking your obswrvation of those forms. I know it comes from the forms. I am asking for your observation of the forms. You say you checked the forms back to the informa-

tion on these charts, you made an investigation of the forms you said?

A Yes.

Q When you made that investigation of those forms, did you take the information that you acquired personally from those forms and verify the location on the various Exhibits around here?

A Yes, sir, I did.

Q Then, we come to the next question. What is the information that you verified from those forms, the top of the pay or the point at which the well was located or completed, just what did you do?

A Well, sometimes, very obviously the forms were wrong. That is true. Then going by the drill stem test and the information that was available from scout tickets in some cases, when they were very obviously reported wrong and those are the things you can pick out, I would have to interpret that, yes, sir.

Q You have got me completely confused.

MR. SPURRIER: Off the record.

(discussion off the record.)

MR. SPURRIER: Now, on the record. Ask him again.

Q Mr. Montgomery, in making your verification of the locations sub-sea at which point you find oil and no higher from the forms which were submitted by the operators what basis did you use for your verification, the top of the pay as reported on the forms or the point at which the well was completed, perforated?

A Well, where it was perforated.

Q Where it was perforated?

A Yes, sir.

Q In other words, what we have then so far as this data is concerned through here is the fact that the operators were completing at a certain depth rather than the location of the highest point at which you would encounter the oil, isn't that right?

A Well, in some cases, Mr.Smith, the casing shoe is above the top of the pay zone reported.

Q So, that what I am getting at is this. I will ask you as informally as I can. The coincidence to which you attributed the communication throughout, could be the coincidence that one operator offset wanted to complete at the same depth that the other operator completed at?

A That could be.

Q That is just a reasonable conclusion that there was communication?

A I assume that the operator is drilling oil and he certainly is going to drill to the oil horizon.

Q He is going to try to complete where somebody else has completed at the same depth. That means that the information with regard to the sub-sea datum is based entirely at a point at which a mechanical completion occurred rather than upon a point where the oil would be first encountered if that is the basis upon which this evidence is put up here, isn't that correct, Mr. Montgomery? That being the case I will ask you this last question here. That being the case, it is quite

possible that you would encounter oil at a point higher than minus 100 below sea level in many of the locations throughout this entire field and still be in the same reservoir as that below the 100?

A Other than the exceptions that I pointed out, are distinctly separate reservoir, I doubt that there is any oil. I do not know of any oil that occurs above a minus 100 feet.

Q You haven't made any investigation except off the reports filed here and the Exhibits, isn't that right, Mr. Montgomery?

A I believe I have exhausted the supply, essentially exhausted the information.

Q I am talking about the information that you have exhausted?

A Yes, sir.

Q Which is the information of the reports and these particular exhibits which were prepared by the Committee?

A Yes, sir.

Q That is all your investigation consists of?

A Well, electric logs and cross sections and sample logs, I have examined those also.

Q You have stated that based upon the information which you have around here and your investigation of these completion reports which show the completion point at which the well was completed, you have come to the conclusion that there is no oil above that particular point?

A Yes, sir.

Q Isn't it a customary practice to complete your wells

somewhere below the top of the pay?

A Yes, sir, it is.

Q Wouldn't that naturally follow that if you used the point at which the well was completed that you would have some oil pay above the particular points reflected on these exhibits around this room?

A I believe I do have some oil pay and I do believe there is some oil pay above the points reflected in this room, but they do not get above a minus 100 feet. We take in the San Andres formation up in the Eunice Monument area, every week or so, we have wells up there that are replugged back and reperforated but none of them have reached the minus stage yet, and that is the most active reservoir we have in the entire area.

Q We are still talking about completions and not the top of the pay and we also complete the well somewhere in the pay and not right at the top?

A Yes, sir.

Q Now, about the new reservoirs that you are recommending I believe yesterday, you stated that they were extremely efficient and the best pools in the State, is this one of them right here?

A I said they were very good pools. No. 4?

Q This one of them here, No. 4?

A Please, let me see, which one it is. Yes, sir, that is one of the better ones.

Q Let me ask you in your investigation, you have this outlined by quarter sections here and apparently consists of four quarter sections strung out, approximately a mile north

and south. What is the type of energy drive which makes these reservoirs perform so well?

A An active water drive.

Q Where is the water drive coming from, below?

A No, sir, it is coming from the west.

Q You will notice that there is some additional green area over there which is apparently in a known oil field, now which one is that?

A Cooper-Jal Oil Pool.

Q Cooper-Jal?

A Yes.

Q Is the Cooper-Jal Oil Pool effected by the active water drive from the west?

A Portions of it as presently defined, portions of it, yes.

Q It is lying west of your reservoir No. 4. Do you know of any particular reason why it would not be effected only after the western part of the Cooper-Jal pool has been effected?

A Well, it would depend on where it is completed, Mr. Smith, the well. I mean, the water is encroaching along different planes of strata and it does not encroach regularly along those different planes.

Q Do I understand you then to say that the completion depth in this reservoir No. 4 is at a different depth than in the Cooper-Jal?

A That is possible, yes, sir.

Q Do you know whether or not it is?

A Some of those wells are completed at different depths

than some of the other wells in the Cooper-Jal, yes, sir.

Q Are they higher or lower?

A They are higher structurally.

Q As I understand your testimony, then, you have a linticular condition which lies above the Cooper-Jal Pool which permits the entrance of water by means of this linticular intrusion over across the Cooper-Jal and forces the water drive from the west on your number 4 reservoir?

A Well, many of these wells on the west have been watered out, Mr. Smith, and they are no longer productive and many of these wells in the particular reservoir 4 are producing oil out of that reservoir at this time, not in Reservoir 4, do I know of, but in similar type along the reef front here, many of the wells were drilled and produced as dry gas wells for a number of years and then went to oil wells and became top allowables and eventually some of them have been going to water.

Q Of course, that isn't quite responsive to the question, I asked you, but I assume from your statement, I hope I am interpreting it that the linticular condition about the water does not exist and that we do have a water drive coming through the Cooper-Jal Pool and afforded your water drive in the recommended Reservoir No. 4?

A Yes.

Q Is there any reason why the No. 4 should be treated differently than Cooper-Jal?

A Yes, sir, they are very differently and distinctly separate reservoirs.

Q You mean there is an impermeable barrier that lies along

the west flank of Reservoir No. 4?

A No, sir, there is not an impermeable barrier there. It is very permeable in fact.

Q Well, that is the point, why should it be treated in a separate reservoir if there is communication?

A May I point out?

Q Surely.

A In this area right here we have the Continental Shole A-24 No. 2, it was completed in this low reservoir and was later plugged back and completed in this Reservoir No. 6 which I have outlined up here, which is a distinct and separate reservoir. That is not the only one there are several others up there.

Q Then, as I understand your testimony, there is quite a bit of linticularity in the field which maybe found at different elevations depending upon the geological conditions that exists at that location.

A There is very considerable linticularity.

Q That being the case, since you encountered the linticularity at different depths throughout the field, there is a reasonable possibility of finding oil at many locations that you know not about right now elsewhere in the field which would require the exception that you are recommending for Reservoir No. 4?

A Well, they are all explained on geological and engineering basis, Mr. Smith.

Q I understand that.

A May I use the analogy that if the Benton field, even

thought it was discovered should we name it, this is another field. I mean it has been producing for a number of years but has not been designated as a separate field. I have recommended to the Commission that they do that.

Q The point I am trying to make to be as brief as I can, is that because of this linticular condition, isn't it your opinion, that it is a unrealistic attitude to take, an arbitrary line 100 feet sub-sea and say everything above that is gas and everything below is oil? You may encounter the linticular condition at any number of points throughout the entire area which have not been under investigation as yet?

A I chose that point, probably what you say is in part true, Mr. Smith. I chose that point. We want to cure the problems of gas proration. I have not heard any recommendations made to this Commission that will take care of as many problems as this datum will take care of.

Q As I understand your recommendation, it is really a rule of convenience rather than one based upon geological evidence or testimony?

A It is based upon geologic evidence and testimony and I have stated my evidence and my testimony but also there is an absolute matter of convenience involved in the line, yes, sir.

Q Do you see anything more inconsistent between following the present definition of the vertical limits of these pools. I believe that they encompass the top 200 feet of the Queen formation in the gas the lower 100 feet of the Queens in the oil, isn't that the present definition of most of these various pools that we have?

A No, sir, it isn't.

Q What is the definition?

A Well, in the Eunice Monument, the definition is the Seven Rivers, Queen, Grayburg and San Andres.

Q It covers it all?

A Yes, sir.

Q You mean the Grayburg and the San Andres are classified as oil pools, are they in the Eunice Monument area?

A The Seven Rivers, Queen, Grayburg and San Andres is designated as the vertical limits in the Eunice Monument for the vertical limits of the oil pool.

Q All of those formations?

A All of those formations.

Q What is in the Eunice gas?

A Yates, Seven Rivers and Queen, the Seven Rivers and Queen in the gas pool overlapping the Seven Rivers and Queen in the oil pool which does not permit the Commission to prevent an operator from opening up over the oil and gas zone which would be very detrimental to the reservoir. My sub-sea datum with the exception of keeping out the Grayburg would cure that problem there.

Q In other words, you are still of the opinion that so far as the sub-sea datum is concerned, that the Commission can permit separate treatment of the Grayburg and San Andres reservoir if the wells are drilled below a certain known geological marker?

A They can treat them separately.

Q Separately, that is right, from the sub-sea datum?

A For administrative purposes, they can, yes, sir.

MR.SMITH: That is all.

MR. SPURRIER: Anyone else? Mr. Kellahin.

By: MR. KELLAHIN:

Q Mr. Montgomery, after hearing your response to Mr. Malone's questions, perhaps, I am a little dense but I am confused. As I understood your testimony yesterday, you say there is a permeability area through there at the sub-sea datum minus 100 feet, which you have defined as your Reservoir No. 1, is that correct?

A Yes, sir, that is correct.

Q In response to Mr. Malone's questioning, you indicated that you meant during geologic times. Now, my question is do you think that that permeable zone exists from the point of view of the life of the reservoir as an effective permeable zone?

A Well, that is something that, well, I don't know whether we could ever prove or disprove that. I don't believe it could be disproved. I have no conclusive proof other than conclusions that I can draw from my investigation.

Q Well, do you think there is an effective communication throughout the major portion of it? Is it your opinion as of now?

A Well, in some areas this oil reservoir has essentially been depleted and in others, it is still an active reservoir. I believe we can say from that that possibly if there is migration, that the migration is very slow.

Q From the point of view of the life of the reservoir,

then, it would not be considered effective communication, is that correct?

A It would be very slow. I am not sure whether it would be economic or not.

Q You don't want to answer one way or the other, is that the situation?

A Well, I hate to--

Q (Interrupting) In view of your answer, Mr. Montgomery, I would like to refer you to Exhibit 13-F with reference to Continental Line A-28 No. 5 well which falls on the side marked as the Jalco area. You recognize the well, I am referring to?

A Yes, sir, I know the well.

Q According to your chart there you show the gas reservoir overlying the oil reservoir and as I understand your testimony, yesterday, you considered that a separate pool, is that correct?

A Yes.

Q The stratigraphic traps?

A Of the gas and the oil?

Q The oil.

A The oil, yes, sir, I did.

Q You considered that as separate from your, what you referred to as your Reservoir No. 1?

A Yes, sir, I did.

Q Well, if there were an area of porosity at the sub-sea datum would it not encounter that stratigraphic trap and make it a part of the same reservoir?

A Yes, sir, it probably would.

Q In your opinion, it does not do so then?

A In that, well, it is possible in areas that it would, yes, sir, Mr. Kellahin.

Q I mean in this area.

A Well, I have no evidence in that area. The well offset to the west does fall below that line and apparently is producing from the same reservoir as the Line A-28 No. 5, but that was just a matter of interpretation there.

Q You could extend your reservoir No. 1 over there too, couldn't you, as easily?

A To that one well?

Q Yes.

A Yes, sir, I could.

Q As I understand your testimony yesterday, you were of the opinion there was another reservoir underlying that?

A I said there was a possibility as evidenced on this cross section.

Q In that event, it would indicate that it was following the formation rather than the sub-sea data?

A Reservoir No. 4, yes, sir.

Q Well, I mean reservoir No. 1, if it underlies that Reservoir No. 4?

A Reservoir No. 1 would not follow stratrigraphic horizons necessarily.

Q I don't mean necessarily. If you are correct in your assumption that there is another reservoir underlying No. 4, then it would indicate that it was following the formation, wouldn't it?

A No, sir, I don't see that it would.

Q Well, if it doesn't follow the formation, it has to intersect it, then?

A Yes, sir, it would intersect it possibly.

Q Number 4, then, would not be a separate reservoir, is that correct? If Reservoir No. 1 intersects, then Reservoir No. 4, would not be separated?

A Yes, sir, there would be communication between the two in part.

Q Now, then referring to Exhibit 13 C, I would like you to step over and look at that, if you don't mind, please?

A All right.

Q Referring to the exhibit over here. Referring to Lockhart A-18 # 4 well which is up at this end of the Exhibit, I believe.

A The Number 4?

Q Yes, sir, and the Number 5?

A Yes, sir.

Q Did you make a study of those two wells?

A I made the study as far as the records were concerned, yes, sir.

Q Did you determine from the records a substantial difference in the performance of those two wells?

A Number 4 and Number 5?

Q Yes, sir. They are offsetting wells, are they not?

A Yes, sir, there apparently is not much difference between the two wells.

Q You say there is not much difference?

A No, sir, I don't see that it would.

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A Number 4 and Number 5?

Q Yes, sir. They are offsetting wells, are they not?

A Yes, sir, there apparently is not much difference between the two wells.

Q You say there is not much difference?

A As I know right now.

Q Isn't the Lockhart A-16 No. 4 an active dry gas well?

A I would say that it has probably considerable amount of gas in solution.

Q The A-18 # 5 is it not an active water drive well completed in a different formation?

A Yes, sir, the Grayburg formation has very active water drive.

MR. KELLAHIN: I would like to call the Commission's attention to the production records for the month of February, which show the Lockhart A-18 # 4 producing 112 barrels of oil and 8 barrels of water in the Queen and the A-18 # 5 an offsetting well on the same report producing 252 barrels of oil, 64,804 barrels of water producing from the Grayburg.

Q In view of that, can you explain that situation, Mr. Montgomery?

A Yes,sir, the Grayburg formation as we know has a very active water drive. The Grayburg, wait a moment, generally, the Grayburg doesn't have an active water drive. I don't know what happened. Generally the Grayburg doesn't have an active water drive.

Q I didn't mean to confuse you.

A I know. Ordinarily the Grayburg has a very active gas drive.

Q Well, that is all with reference to that, thank you. In reference to your Exhibit 21, yesterday, Mr. Montgomery, Mr. Dailey put on testimony pertaining to that Exhibit and pointed out to instances where water was coming from the middle

of the pay zone in our State J # 7 and State J # 11, I don't remember, do you remember the specific wells? You do remember the testimony where there was oil production below the water?

A I don't recall it offhand, Mr. Kellahin, what area is that located in, the Eunice Monument?

Q It is in the Arrowhead.

A Arrowhead, there was water above the oil?

Q Yes, sir.

A I must have missed it, I am sorry.

Q It was located within your reservoir which you have defined as Reservoir No. 1?

A Well, I assume it is knowing the occurrence of the oil in the Arrowhead Pool.

Q You don't recall that testimony?

A No, sir, I don't, I am sorry.

Q Assuming that is the case, could you offer an explanation of that?

A For the water above the oil?

Q Yes.

A No, sir, I would not attempt to at all.

Q If that occurs, would it not seem to indicate to you that it is a separate reservoir from its own performance characteristerics?

A Well, I would say that it indicates that something is happening there definitely.

Q It is an abnormal condition if you assume it is all one reservoir, it is extremely abnormal?

A Especially in the Arrowhead, yes, sir, it would be.

Q In your study, Mr. Montgomery,have you made any attempt to correlate the oil production and the individual pay sections on the basis of structure rather than sub-sea datum?

A I have noticed the differences. I haven't attempted to correlate it, I have, I am aware there are differences.

Q You have not attempted to do that in connection with the presentation of this case?

A No, sir, I haven't.

Q Gulf pointed out in their testimony a wide pressure differential within the Eunice Monument field, do you consider that significant?

A Yes, sir.

Q In connection with your Exhibit No. 13 C again the Tidewater Marshall No. 1 Well, you have indicated as lying within your reservoir No. 1, pinch out section. That is a dry hole, is it not?

A Tidewater Coleman No. 2?

Q Marshall No. 1?

A Marshall No. 1, oh, here, yes, sir, that was plugged and abandoned.

Q How can you account for a dry hole in Reservoir No. 1, if there is some communication?

A This is one of the cases for purposes of illustration that I did show an oil zone field in there. As I stated at that time that I did in a few exceptions do this but the well did flow one barrel of oil per hour at one time and I thought it was significant that that was there. There probably was a local tightening of porosity and permeability in the area.

Q On your exhibit 13-B, the Gulf Ramsey State No. 1 is a dry hole, is it not?

A In the oil zone?

Q In the oil zone?

A Yes, sir, it was. They had a show of oil as I recall in there.

Q That forms a break in your area of permeability?

A Yes, sir, in that particular area, there is no obstruction.

Q Is that not also true of Exhibit 13 H, Western Gas Wimberly No. 1?

A Yes, sir, it is too tight for production of oil.

Q In connection with your testimony as to Reservoir No. 1, Mr. Montgomery, what, in your opinion, puts the limits on the field? If you are correct in your assumptions there is an area of permeability?

A Puts the limits on it?

Q Yes, sir.

A Porosity and permeability.

Q In other words, outside of the area, delineated in the color section on the map the porosity and permeability pinches out?

A They haven't drilled any wells out there so we have no information.

Q There has been exploration out there, hasn't there?

A Yes, sir, but there has been very few dry holes drilled in the entire area.

MR. KELLAHIN: Thank you.

MR. SPURRIER: Recess.

(RECESS)

MR. SPURRIER: The meeting will come to order, please. Are there any other questions of this witness?

MR. SELINGER: I would like to ask a question or two, if I might.

By: MR. SELINGER:

Q As I understand your testimony, your recommendations do not differ very much from the recommendations of Gulf except that they have used the formations and you have used sea level in your line of demarcation between the oil and the gas, is that right?

A Yes, sir, that is right.

Q In the studies that you have made, have you ascertained whether or not there are any formations that lie astraddle of the sea-level, the same formations?

A That crosses the sea level, yes, sir, all of them do. I don't know about the San Andres but all the rest do.

Q Then, is it possible in those formations that do go across the sea level to have an operator complete a well below your vertical definition into the oil and be classified as an oil well and at the same time complete a well above your vertical limits for a definition for gas and secure gas allowable and an oil allowable?

A Yes, sir, that is correct.

Q That would be permitted under your recommendation, is that correct?

A Yes, sir, it would.

Q Under your recommendation then that any well that is completed below a minus 100 feet sea level would automatically be classified as an oil well?

A Yes, sir, it would.

Q And under your definition a well that is completed above a minus 75 feet below sea level, would automatically be classified as a gas well?

A Unless they completed in one of the reservoirs that I have pointed out.

Q The nine reservoirs that you have picked out here?

A Well, I believe the six.

Q Plus the exceptions that you mentioned, one or two?

A Yes, sir.

Q In your opinion, Mr. Montgomery, is the Yates oil connected to the Seven Rivers oil?

A Depending on what area you are talking about, Mr. Selinger.

Q Well, step to 13 D and let's pin it down to that area.

A Yes, sir, I believe that Yates and Seven Rivers oil are connected in here.

Q Is the Yates Oil connected to the Yates Gas on that Exhibit, in your opinion?

A Well, I have no Yates gas on this Exhibit but according to pressure studies roughly, this reservoir in this general area is four to five hundred pounds and the gas varies from, well, I would say about a thousand pounds roughly, five hundred pounds difference between the gas and oil zone. That would indicate separation at least.

Q Is your Seven Rivers oil connected to your Seven Rivers gas in this area?

A The same applies, Mr. Selinger, the difference in pressures indicates the separation.

Q You would say that was a separation in the Seven Rivers oil and gas?

A Yes, sir.

MR. SELINGER: That is all.

MR. SPURRIER: Mr. Stahl.

By: MR. STAHL:

Q Mr. Montgomery, your examination of these areas, particularly your examination of these various wells, did you have an opportunity to examine the conditions which exist between what is now in the area, what is now delineated as the Jalco and Langmat gas pools?

A Yes, sir, I did.

Q Do you have any recommendations with respect to whether they should be one pool or two?

A I recommend that the boundary be removed, yes, sir.

Q You recommend that it be removed?

A Be one.

MR. STAHL: Thank you.

MR. SPURRIER: Anyone else. The witness may be excused.

(Witness excused.)

MR. SPURRIER: The next company on the list is Amerada. Mr. Woodward.

MR. WOODWARD: If the Commission please, Amerada's witnesses will be Mr. John Veeder and Mr. Robert Christy. I

ask that they be sworn, please.

(WITNESSES SWORN.)

MR. WOODWARD: I would like to ask each of you if you have read the statements that appear in an evidence brief of Amerada containing a summary of its contentions. Have each of you read those statements?

MR. VEEDER: That is right.

MR. CHRISTY: I have.

MR. WOODWARD: Are they true and correct to your knowledge and belief?

MR. VEEDER: Yes, sir.

MR. CHRISTY: Yes, sir.

MR. WOODWARD: At this time, I would like to introduce this summary into the record for the purpose of facilitating an understanding of the evidence in sequence. I would like to introduce it all at this time, although there are statements and contentions which will not appear by oral arguments at this time.

MR. WALKER: Any objections to this testimony being introduced? If not, it will be introduced.

MR. GRENIER: I would like to know what the testimony is. Does it purport to be a summary of what is coming?

MR. WOODWARD: It is a summary of Amerada's contentions and a summary of the testimony that the witnesses will give. They have each read the statement and it is true to the best of their knowledge and belief. It is devised purely to facilitate matters as between their oral testimony and any conflict that would appear in the testimony, and it is understood that

the oral testimony would control. We are not trying to get any evidence into the record of which there would be no oral testimony.

MR. GRENIER: I don't know what the purpose is.

MR. WALKER: It is a brief.

MR. GRENIER: If it is a brief, or if it is evidence it is something else.

MR. WOODWARD: It is an evidence brief which contains statements of fact. We have gone to the trouble of asking that the witnesses be sworn and they testified they read it and the statements are true. We can't submit it as a brief without submitting it in that fashion.

MR. GRENIER: It leaves the rest of us in the dark as to whether there is anything more being presented than we are not aware of, than comes to us and what we can see from Exhibit

MR. WOODWARD: There will be nothing in there concerning which a great deal of oral testimony will not be introduced There are statements in the nature of argument and conclusions, all of it in fact, that portion will be read.

MR. SPURRIER: May we have your name, please?

MR. GRENIER: A. S. Grenier, Southern Union Gas Company Dallas.

MR. WOODWARD: The relevant portions of this brief, at this time, begin on page 2 and continue to Page 4 being a summary. If the Commission please, if we are going to wait for an examination of this thing, I can read it aloud about as fast and let everybody read it.

MR. SPURRIER: No, I think you can go ahead with your

testimony.

MR. WOODWARD: Amerada's first witness will be Mr. John Veeder.

J O H N V E E D E R

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. WOODWARD:

Q Will you state your name and where you live?

A John A. Veeder, Midland, Texas.

Q By whom are you employed and in what capacity?

A District geologist for Amerada Petroleum Corporation.

Q Have you previously testified before this Commission in the capacity as petroleum geologist and expert witness?

A I have.

Q State what experience you have had as a geologist in Southeast New Mexico, particularly Lea County, New Mexico?

A I have had slightly over ten years experience. A big part of that time was spent in Southeast New Mexico.

Q Are you familiar with the subject matter of Case 673?

A I am.

Q Have you made any special studies with respect to geological questions raised in this case?

A I have.

MR. WOODWARD: Are Mr. Veeder's qualifications accepted?

MR. SPURRIER: They are.

Q Mr. Veeder, Amerada's Exhibits 1 through 5 have been placed on the wall. Will you point out those exhibits and tell briefly what each of them is?

A Well, Exhibit 1 is a subsurface contour map of the Eunice Monument and South Eunice fields. This map is contoured on the top of the Yates restored to sea level contour, interval is 50 feet. Exhibit No. 2 is an AA prime which is this long traverse extending north south from the northern limits of the Monument field down to the Souther, approximately the southern limits of the Eunice Monument Field. A prime A double prime is also a north south cross section and I would like to point out that this well does tie into this well. These traverse or cross sections are established on sea level and for convenience, we broke these two down rather than have it too long. We have two other traverses BB prime which is a west east traverse across the crest of the Monument structure. CC' Prime the final traverse is also a west east cross section across the southern part of the Eunice Monument Field. We have pointed out as shown on this contour map the relative relationship of these traverses. We have one AA prime goes down to this point and a short one, the second one is in this position. The third one is across this way and the fourth is in this position here.

Q Mr. Veeder, do these Exhibits indicate or represent some of the results of your study of the area covered by Case 673?

A That is right.

Q Were they prepared by you or under your direction and supervision?

A That is right.

MR. WOODWARD: We ask that Amerada Exhibits 1 through

5 be accepted?

MR. WALKER: Any objections to these Exhibits? If not, they will be admitted.

Q Considering now, Exhibits 2 and 3, which you state are north-south traverse from point A to point A double prime extending through the Eunice Monument and South Eunice Field, what geologic formations are shown by these two Exhibits?

A These two exhibits are our breakdown of the Whitehorse Formation. At this point is the base of the salt and the top of the Tansil and the top of the Whitehorse. Below the Tansil is a sand section which has been called from the early time, earlier exploration, the Yates, and it has been used extensivel by more geologists for shallow correlation. This sand averages 100 feet in thickness. Below this sand is a dolomite section and this would be the top of the Seven Rivers by definition. The carbonate section is broken in places by minor developments of sand, but it could be considered for all purposes a carbonate section. Below the Seven Rivers is a development of sand which persists all over the area and that is called the top of the Queens. I believe most geologists recognize this particular sand as the top of the Queens. On Gulf's cross section yesterday, they used sample logs, I believe their determination very close to ours. We have used electrical logs because I believe that we are going to have to use electrical logs more and more in our studies. Below the upper Queen sand, I would like to call that, there is another carbonate section, which is present throughout the area. Below this carbonate section is a well developed sand which we have called Penrose-sand or

possibly what is called the prominent sand. This sand can definitely be picked by Schlumbergers throughout the area.

Q That takes you through the Whitehorse formation then, does it not, Mr. Veeder?

A That is right.

Q You have by means of electric logs, picked the tops of these formations from each of the wells shown and correlated them across the cross section?

A I have one exception to that, of course, and this is the sample log and electrical log was not available.

Q The majority of the wells, the source of your information for the majority of the wells was electric logs which gave you results very close to those obtained by Gulf using sample logs, is that correct?

A That is right.

Q I believe you have stated in the study of these formations you were able to find a clearly identifiable geologic feature, namely the prominent sand which you pointed out. Is that the sand colored in yellow?

A That is the sand colored in yellow on all four traverses.

Q You have decided lithologic change both at the top and the base of the sand?

A That is right.

Q Approximately, how far above the top of this prominent sand or Penrose, do you pick the tops of the Tansil, Yates, Seven Rivers and Queens?

A Approximately, the Tansil would be 1040 feet, the Yates

would be 880, the Seven Rivers would be 750, the top of the Queens 135.

Q Are these formations of approximate uniform thickness throughout the area as shown by Exhibits 2 and 3?

A That is right.

Q Would you then expect your elevation above the top of the Penrose to be uniform or approximately the same throughout the area?

A That is correct.

Q Now, Exhibits 2 and 3 are set up on sea level in the line from A to A prime represents sea level, is that correct?

A That is right.

Q What is the elevation of the top of the Yates above sea level in the Phillips 1 - Monument well?

A The elevation?

Q Will you point that well out?

A The Phillips 1 well is the first marked well on any of the traverses and that plus datum would be plus 1,003.

Q In the Amerada No. 3 - State "A" well?

A Plus datum in that particular well is a plus 1189.

Q That is for the Yates?

A That is right.

Q In the Empire or Cities Service No. 1 Closson, what is the elevation of the Yates above the top of the Penrose?

A That plus datum is a plus 328.

Q Looking over the whole area, what range and elevation above sea level do you note for the top of the Yates in this entire area?

A These particular wells you have a range of 861 feet. There are higher wells and there are lower wells, and actually there is a range approaching 1,000 feet.

Q One thousand feet variation above the top of the Penrose or your prominent sand?

A No, I beg your pardon.

Q Above sea level?

A That is the range of elevation.

Q Above sea level?

A Yes.

Q You have then, fairly uniform elevation for the Whitehorse above the top of the Penrose, but widely different elevations above sea level?

A That is right.

Q What do these variations above, what do you attribute these variations above sea level to?

A The variations above sea level, of course, would be due to the structure which is shown on the map here.

Q What is that structure?

A The structure could be considered anticline.

Q The east west axis of this anticline is in the area of the Amerada 3 State "A" well, is that correct? Referring now to Exhibit no. 2, you might point it out there on the contour?

A Three "A" well is in this position.

Q Will you point that same well out on Exhibit No. 2, No. 2 is the north south traverse?

A Well, I will point it out on this one.

Q The axis of this anticline then, the anticline dips

generally to the south, there is a long slope to the south, is that correct?

A That is right.

Q Do any of these formations, now going from the axis of the anticline to the south, dip below the water-oil contact?

A This prominent section below the base of the prominent sand does dip below the water-oil contact, in this particular position.

Q Were you present, yesterday, when Gulf presented their testimony?

A That is right.

Q Were you present yesterday when Continental presented their testimony on delineation?

A That is right.

Q To what extent, if any, does the point you are picking here as the point in which the formations particularly the base of the Penrose, dip below the water table conform to the areas that were testified to yesterday?

A I would say they roughly conform possibly our point might be roughly, slightly further south.

Q You were also present yesterday when Gulf's witness, Mr. Boss testified as to the lithologic barrier below the base of the Penrose?

A That is right.

Q Have you, in your study, been able to observe such a condition?

A In our studies, both by samples and electrical log interpretation there is in our mind, a definite barrier below

this prominent sand. Actually, I have one well here, the Amerada No. 2, State "W". This well was perforated from 3550 to 3600. That well was treated with 500 gallons of acid and the well was swabbed dry. This is the zone I am talking about.

Q Above that zone, what is the predominant production?

A Above the base of the Penrose, the predominant production is gas.

Q Below the base of the Penrose?

A It is oil.

Q Is there any oil production above the base of the Penrose in the Eunice Monument Field?

A There is a small amount of production on the very south west flank of the Eunice Monument Field.

Q From what formation is that production coming?

A That production is coming from Seven Rivers and Queens.

Q Considering the point at which the Grayburg dips below the water table, does that indicate to you the lateral production limits of the Grayburg in the Eunice Monument area?

A That is right.

Q Does this impervious zone below the base of the Penrose indicate the vertical limits for that pool, that is the Grayburg?

A That is right.

Q In the Eunice Monument field?

A Grayburg.

Q In your opinion, what are the possibilities of communication vertically between the Grayburg oil field in the Eunice Monument area and the production above the base of the

Penrose to which you have just testified?

A Well, Mr. Boss testified about bentonitic shales. I will go along with that. I have examined several, many wells in this area and I can vouch for that bentonitic shale being present. I definitely think that is a barrier. I also, think by electrical logs also that you can also indicate there is a barrier without using the bentonitic shales or you can use them additionally. Besides that we do have this perforated section which we actually have acidized and can't get anything out of it.

Q It is your opinion that whatever oil production is present above the base of the Penrose, there is no communication vertically below the base of the Penrose?

A That is right.

Q Returning to your testimony with respect to the elevation of the Whitehorse formations above sea level which of these two reference points, the top of the Penrose, or sea level, represents a more valid geologic delineation of the vertical limits of this common source, in your opinion?

A In my opinion, the geological delineation should be established from the Penrose.

Q That is from a geologic feature?

A That is right.

Q If delineation were based on a geologic feature, would you have any objection to identifying and locating that geologic feature by reference to the number of feet it was above or below sea level or for administrative purposes?

A I would not object.

Q Your marker is a geologic marker?

A That is right.

Q You stated that most of the production above the base of the Penrose was gas. What are the area limits of the gas production from the Yates in the Eumont gas pool?

A If gas production in the Eunice Monument Field is confined essentially to the crest of the structure out of the Yates formation.

Q Does that production extend southward below the midpoint of Township 20?

A We have not found production south of that, within this area.

Q What limits is the Yates gas production to the crest of the--

A (Interrupting) I would say the prasence, the situation of your Yates sand being located on the top of the structure.

Q Do you have any lithologic change preceeding from the center of the crest of the structure to your periphery?

A Your sand is present, possibly there would be some lack of permeability in the Yates and when you get off the crest of the structure.

Q From what area is the gas production in the Seven Rivers coming in the Eumont?

A The gas production from the Seven Rivers is confined essentially to that of the Yates. There are sporatic little areas which can be found which apparently have no communication. There is a small amount of gas production on the very north end of the field but the major part of your Seven Rivers,

upper Seven Rivers production conforms to that of the Yates.

Q What are the areal limits of your gas production in the Queens Field, indicate those?

A The gas production on the Queen is found throughout this whole area, where it is found on structure.

Q Generally, throughout the Eumont gas pool?

A That is right.

Q So, that you have Yates and Seven Rivers production from the crest of the structure and widely distributed production of Queens throughout the entire area, is that your picture above the base of the Penrose?

A That is right.

Q If you had drainage or communication of gas from the north to the south end of this structure, or from the north end boundary of the Eumont Pool, down to the State line, to which formation or formations would you expect such communication of gas above the base of the Penrose?

A That formation would have to be the Penrose sand or the prominent sand.

Q That is the only possible continuous reservoir you have?

A That is right.

Q Moving south from Amerada 3 State "A", again on this north-south axis, are there any indications of separations, that is lateral separations above the base of the Penrose? Which would effectively retard lateral communication of gas to these sands?

A We have in this position six dry holes. Three of these

dry holes did penetrate the carbonate section below the base of the prominent sand, it did encounter water in this carbonate section, there was no fluid, gas, oil or water found above the Penrose sand in those formations above were barren. There were three other wells drilled in the Seven Rivers and Queens, they were plugged and there was no record of any gas-oil, or water being found in any of those wells. Besides that we do have an indication, subsurface indication of a saddle between Eunice Monument and South Eunice.

Q Mr. Veeder, do you have the same structural conditions existing to the north and south of that saddle?

A No, sir, north of the saddle the Eunice Monument Field this field is the only field in this whole general area which produces, does produce oil of the San Andres. To us this field should not be correlated with that to the south. Its relationship would be closer to Hobbs, where your oil production is coming from. The reason you have oil production in the San Andres is because of the high relief of your structure. You definitely have a deep structure below the Monument similar to Hobbs, south we have no knowledge of any deep structure.

Q Mr. Veeder, you were, there pointing to three possible zones of separation and impervious zones below the base of the Penrose. The water-oil contact of the Grayburg formation to the south and this area of the saddle and the dry holes between Eunice and South Eunice?

A That is right.

Q You, therefore, are pointing to the possible existence of at least three separate common sources of supply. A common

source of supply of oil below the base of the Penrose and north of the water contact. It would be a common source above the base of the Penrose extending south to the saddle, and source of your production south of the saddle?

A That is right.

Q Looking for a moment south of the saddle, do you know of any valid geologic reason for retaining the present line between Jalco and Langmat?

A I know of no definite reason.

Q Mr. Veeder, are you indicating by your testimony in any way, that additional separation may not exist within any or all of these three possible common sources of supply?

A Additional separation definitely may exist at this time. I don't think we have enough proof to definitely say that that separation would cover the whole field. It possibly might, but I definitely would not want to say so.

Q There could be additional separation both in the Eumont the Eumont area, the Eunice Monument area and the fields to the south of this saddle you are pointing out?

A That is right.

Q You are simply pointing out three zones of separation which you think the Commission should recognize in pool delineation in this area?

A That is correct.

MR. WOODWARD: We have no further questions on direct examination.

MR. SPURRIER: Does anyone have cross examination of Mr. Veeder?

CROSS EXAMINATION

By: MR. MACEY:

Q If you were going to draw the line on a map, Exhibit 1, separating the so-called Eumont Gas Pool with the one or two gas pools to the south, which are presently the Jalco and the Langmat, where would you draw, exactly where would you draw that line?

A Well, I would bring that line, using these dry holes which show that we definitely have an impervious barrier. I would bring that line through here and carry it on through here. (Indicating) There is a dry hole here in this position. That would pretty much conform with the saddle.

MR. WOODWARD: That line has been drawn on this contour over here which is actually the same as the other and would be testified to in greater detail by Mr. Christie. But we will have some additional engineering evidence there on which we are basing that line alone with the geological testimony.

Q Mr. Veeder, you said that the wells which are indicated on that map by red arrows were barren in the productive zones of the presently defined Eumont Pool? Were they actually tested or was--

A (Interrupting) I can give you the detail if you want it, do you want it?

Q I would like to see it. If you say--

A (Interrupting) They were tested by drill stem tests, production test.

Q If you say they were that is good enough.

A I have the detailed information on all six wells, if

you want it. I actually, do have production tests and drill stem tests on practically all wells.

Q I don't want you to read it to me.

A It is here if you want to read it.

MR. WOODWARD: We will tabulate it down and give it to the Commission for your perusal.

Q I have one other matter. I have one other question. Is it your contention that the Eumont Pool should be defined as being the Yates, Seven Rivers and the Queen formation down to the base of the Penrose, is that your testimony?

A That is right.

Q Your W. E. A. well which is on the west side in 21, 35 Section 1, I believe it is.

A That is right, it is entirely out of the Eumont Field.

Q It is just a location out of the Eumont Field, isn't it?

A No, I believe there is definitely more separation. This is a recent completion, W. E. D. your W. E. F. is situated, I believe, in this position so actually that would be half a mile. It is not an offset.

Q Let me ask you what pool is the W. E. A. in, what pool should it go in?

A I definitely think-- the W. E. A. you are talking about.

Q That is right.

A The W. E. A. is definitely, well, it is in this position here, its production, it is one of those wells where the production is coming out of the Seven Rivers. There is no production in the W. E. A. out of the Penrose. There is no

oil production out of this carbonate section below it. It is in that group of wells which I pointed out which we do have as the exceptions.

Q Is that well a dual or is it just a single drill completion?

A There are three W. E. A. wells.

Q The well on the exhibit?

A No. 2 was perforated in the lower Seven Rivers and it had oil production. It was perforated in the middle Seven Rivers and we had gas production.

Q What I am trying to get at, is it a common reservoir or is it a separate reservoir? I am thinking of it as an administrative angle, Mr. Veeder, because if you define the Eumont Pool to include that Seven Rivers oil, obviously the gas and oil would be a common source of supply as Mr. Malone pointed out today. It is very important, what the common source of supply is. You can't prorate a well one way and then prorate it another way?

A That is right. I can say definitely that the source of oil in the Seven Rivers is definitely different than the source of oil in your dolomite below the Penrose sand. You are dealing with two different sources.

MR. WOODWARD: I might clarify that question just a bit, if I understand your question correctly, is it possible that there is an additional separate common source of oil above the base of the Penrose here, which is not part of the Eumont Gas Pool? Is that a possibility?

A That is a possibility.

MR. WOODWARD: Do you have the necessary information to testify at this time as to whether that is a probability?

A I definitely don't have the information to prove it.

Q You definitely don't think the well should go into the Eunice Monument Oil Pool?

A That is right, it is from a different source.

MR. MACEY: Thank you.

MR. SPURRIER: Anyone else have a question of Mr. Veeder? If not, the witness may be excused.

(Witness excused)

MR. WOODWARD: Amerada's next witness is Mr. R. S. Christie.

R. S. C H R I S T I E

a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. WOODWARD:

Q State your name, please?

A R. S. Christie.

Q Your address?

A I live at Tulsa, Oklahoma.

Q By whom are you employed and in what capacity?

A Amerada Petroleum Corporation, petroleum engineer.

Q Have you previously testified before this Commission in the capacity of a petroleum engineer and as an expert witness?

A Yes, I have.

Q What experience have you had as petroleum engineer in Lea County, New Mexico?

A I have worked in this area approximately 25 years.

Q Have you made any special studies with respect to the subject matter of Case 673?

A Yes, I have.

MR. WOODWARD: Are the witness's qualifications accepted?

MR. SPURRIER: They are.

Q Mr. Christie, Amerada's Exhibits 6 through 9, have been placed on the wall. Will you tell me what those exhibits are?

A Exhibit No. 6 is the same map as Exhibit No. 1 that Mr. Veeder testified to, with the exception that we have placed the south end of the Eunice Monument Field, the bottom hole pressures in the oil wells, and the bottom hole pressure of the gas wells starting at the top of the Township 21, South, and going to the State line. It also shows cross sections of the bottom hole pressure traverse.

Q What does the graph on the lower left hand corner of Exhibit 6 show?

A The red and green lines, that run approximately vertical, are the average bottom hole pressures of the various tiers of sections in Township 21 South and the portions of 22 South.

Q That is actually plotted against the tiers of Sections that appear opposite that line?

A That is right.

Q What do Exhibits 7, 8, and 9 show?

A Exhibits 7, 8, and 9 are simply a break down of this

particular area across the saddle which shows the pressures north and south of the saddle.

Q Turning your attention to Exhibit 2 for a moment, will you show the productive zones from which the oil pressures, I believe you stated were shown in black on Exhibit No. 6? Show on that north south traverse where those pressures were taken.

A Those pressures were taken in the carbonated section below the prominent sand or the Penrose sand and with the pressures reported in the October, 1953 survey.

Q Will you point out the zones in which the gas pressures shown in red on Exhibit 6 were taken?

A The gas pressures were taken from wells above, from the Queen and above.

Q Turning your attention to Exhibit 6 over here and moving south along the north, south axis of the structure that is shown there, what variations do you note in the pressures shown in red, which are the gas pressures taken above the base of the Penrose?

A I am sure this line is a little hard to say at a very great distance, so, I will just read the average gas pressure for these tiers of sections. The gas pressure, average gas pressure was 1128 pounds. The average oil pressure is 438 pounds. Moving to the next tier of sections the average gas pressure is 1113 pounds, the average oil pressure 465 pounds. Moving south to the next tier of sections the average gas pressure was 1121 pounds, the average oil pressure was 579 pounds, which indicates very little change in the first top three tiers of sections. Moving farther south to the next

line of sections, the average gas pressure was 998 pounds, the average oil was 773 pounds. Then, we get into the area of the saddle where the pressures are primarily or almost entirely above or north of the saddle. The pressure of the gas wells was 989 pounds, the pressure of the oil wells 676 pounds. Crossing the saddle then into the next tier of sections, we have a rather sharp drop in the gas pressure which averaged 842 pounds. The oil pressure averaged 615 pounds. From there on south both the gas and oil pressures almost coincide, having approximately 650 to 700 pounds.

Q Mr. Christie, in that area that you describe the sharp drop, I note there is a red line running generally north and south above and below it and a diagonal line connecting those two. Will you explain that line?

A You are speaking of this? (Indicating.)

Q That is correct.

A The line as shown in red from the bottom of Section 5 running south to about the middle of Section 29, then crossing the saddle continuing on south, is the same line that is shown on Exhibit No. 7, with the gas pressure shown correspondingly.

Q That diagonal line is then perpendicular to the contours of the saddle, is that correct?

A Essentially so, yes.

Q Will you compare the variations in the bottom hole pressures for the oil zones shown by the green line on Exhibit 6 and the bottom hole pressures for the gas zone with the red line, would you compare the curve for those two pressures?

A Well, I believe, that is essentially the same infor-

mation as I pointed out over to the left.

Q Is there a wide variation in those pressures?

A There is a very wide variation from this point down to the saddle and after you pass over the saddle, then there is very little change, very little variation.

Q Do you have the same kind of curve for the two, aside from the differential between them, do you have the same kind of curve down to the saddle for your oil production, for your oil pressures and your gas pressures? Do either one or the other tend to be more uniform so far as the curve you have drawn?

A I don't know that I understand your question.

Q Do you have fairly uniform gas pressures shown by that red line down to the saddle?

A Yes, they are reasonably uniform down to the saddle and then they drop sharply after you pass the saddle.

Q What is the situation with respect to the oil pressure, are they as uniform as the gas?

A Well, they are more uniform. There is not near as much change in the oil pressure as in the gas pressure.

Q Then you have in addition to this differential in pressure, you have a different pressure curve?

A Yes, sir, I think it shows definitely there is a separation between the oil zone and the gas zone, and also that there is a break, an impermeable barrier here at this saddle.

Q Directing your attention particularly to the testimony, which I believe you heard, concerning the possibility

of impervious zone below the base of the Penrose, would the differential in pressures between the gas production above the base of the Penrose and the bottom hole pressures for the oil production below that tend to confirm or contradict that geologic evidence?

A My opinion, it would tend to confirm it.

Q Would the differential and the different pressure curve indicate to you whether there is any communication across that impervious barrier?

A My opinion there would be very little if any communication across the saddle.

Q Would you point out specifically the possibility of communication of oil production from the Grayburg formation to the oil producing area above the base of the Penrose? What is the relationship of the pressures of the Grayburg in that area and the oil production obtained above the base of the Penrose in the Eunice Monument area?

A Well, as I pointed out, if I understand your question correctly, the gas pressures are considerably higher than the oil pressures in the same area.

Q Now, is there any difference in the oil pressures as to the oil production above the base of the Penrose and the oil production below the base of the Penrose?

A Where you have oil production above the base of the Penrose that corresponds more nearly to the gas pressures than the pressures in the area below the base of the prominent sand or the Grayburg.

Q Would that indicate to you whether or not there is any

communication between the oil production below the base of the Grayburg and above?

A It would indicate to me there was no communication.

Q Mr. Christie, I believe you have testified concerning this saddle, looking now only at the red line as it passes across the saddle, or the red line as they pass across the saddle, do you note any variation in gas pressure going generally from the South Eunice Field?

A In addition to the curve shown on the left here on Exhibit No. 6, I have picked out two areas, directly across the saddle at various positions and have shown those on Exhibits No. 8 and 9. Exhibit No. 8 is shown as the bottom hole pressure traverse BB which is over on the eastern side of the saddle. Pointing to Exhibit No. 8, we have north of the saddle a pressure of approximately, nearly 1100 pounds and still north of the saddle, a slightly less than 1000 pounds, and then after crossing the saddle it drops down to a little above, about 650 pounds, a little less. The same thing is true in Exhibit No. 9. We have practically no change in the pressures until you get to the saddle. After crossing the saddle it drops appreciably. I would like to point out on these Exhibits we have designated in black, the actual call of the formations as reported to the Commission. They do not check with our geological interpretation and interpretation is shown in red. We find there is quite a difference in the way the companies call those different formations which I think most of us realize.

Q Mr. Christie, have you made a study of a few of these

productions of gas in the field north and south of this saddle?

A I have had that prepared. I didn't make it myself.

Q Mr. Christie, will you state what conclusions you have reached or what information you have gathered concerning the cumulative production of gas, that is the cumulative withdrawals of gas from the fields north of that saddle and south of it?

A The cumulative production as reported as official figures is 94,903,757 MCF which is the total gas reported from the gas-cap and the Bradenhead wells, or rather the gas zones and the Bradenhead production. That is the cumulative production from the Eumont field. The Jalco pool totals are 338,552,950 MCF. The reported production in the Langmat Pool is 248,378,451 MCF, those figures include both the Bradenhead gas and the dry gas.

Q The total of those figures indicate that you have had a greater withdrawal of gas south of the saddle than north of it?

A Substantially greater.

Q Despite this substantially greater cumulative withdrawals to the south, you show on Exhibit 6, and on your Exhibits 7, 8, and 9 a relatively sharp increase at that saddle and an immediate leveling off, is that correct?

A To the north, yes, sir.

Q No withstanding disproportionate withdrawals from the south?

A Yes, sir.

Q Does that indicate to you that there is a communica-

tion or drainage of gas to the south across that saddle?

A It indicates to me there is very little if any, communication across the saddle.

Q If there were such communications, would you expect a gradual increase in your pressure curve for gas north of the saddle?

A Yes, I might add for the records, these cumulative figures I gave are to March 1, 1954.

MR. WOODWARD: We would like to ask that tabulation be introduced as Amerada Exhibit No. 10?

MR. SPURRIER: Is there objections? Without objection it will be admitted.

A I might point out that the Exhibit also includes gas productions in other gas fields. We were only primarily concerned with the Jalco-Langmat Field in this field.

Q Incidentally, from what formation or formations are your gas pressures taken?

A They are taken from the Queens, Seven Rivers.

Q This is in the Eumont Pool?

A In the Eumont Pool, yes.

Q You have produced relatively little gas in the Seven Rivers in Eumont?

A Very little, yes.

Q Turning your attention to the dry holes that Mr. Veeder testified about, to what formations were those wells drilled?

A According to Mr. Veeder's testimony, three of them were drilled down into the carbonate section and the other

three were drilled to the Queens or the Seven Rivers.

Q Mr. Christie, assuming that there is geological evidence that the productive limits of the Yates gas cap north of the saddle did not extend south of the center of Township 20, and that the areal limits of the gas production from the Seven Rivers is approximately the same, limited to the crest of the structure. Assume further that the Queen is the only continuous reservoir north of this saddle and that six dry holes have been drilled to the Queens or below that, you have a different type of structure above and below that saddle or north and south of the saddle, and that withdrawals of gas south of the saddle have been many times greater than withdrawals north of the saddle. Nevertheless existing in an abrupt increase in pressure immediately north of the saddle. Assuming all these things what is your opinion, as to the probable extent of drainage or communication of gas, if any, across this saddle?

A My opinion would be very little, if any.

Q Mr. Christie, where would you draw the line delineating the southern limits of the Eumont Gas Pool?

A On Exhibit 6, I would draw a red line which I believe would be a reasonable division between the two areas. The red line beginning on the west extends eastward to the south boundary of Section 30 Township 21 South, 36 East. It is bounded on the east by the north east quarter of Section 31, in Township 21 South, Range 36 East, and continues on east and south taking in, including the south west quarter of Section 32 and then continues on east to approximately the area of the

saddle.

Q You are suggesting now, on the basis of your pressure study a possibility of a separation above the base of the Penrose on the gas formation?

A That is a lateral separation in the Whitehorse formation, that is correct.

Q Your pressure studies tend to confirm the vertical delineation of the Grayburg Oil Pool in the Eunice Monument area?

A Yes, sir.

Q Turning your attention for one moment south of the saddle, do you know of any engineering reasons for continuing the line between the Jalco and Langmat at this time?

A No, I do not.

MR. WOODWARD: Those are all the questions that we have.

MR. SPURRIER: We will take a short recess.

(RECESS)

MR. WOODWARD: That finishes our direct examination and we would like to call him later to present Amerada's recommendation with respect to this matter.

MR. SPURRIER: Is there any cross examination of Mr. Christie? Mr. Macey.

CROSS EXAMINATION

By: MR. MACEY:

Q Mr. Christie, first of all in connection with your reservoir pressure information, I don't know what Exhibit numbers those are. I can't see the figures from here.

A This is Exhibit 8.

Q What is the other, nine?

A Exhibit 9 .

Q Those pressures , are they reservoir pressures or are they shut-in tubing or casing pressures?

A They are reservoir pressures.

Q They are actually sub-surface pressures?

A Yes.

Q I would like to ask you, as a reservoir engineer, whether or not your Well W. E. A. No. 2, whether you consider that that gas zone which is productive in the well and the oil zone which is also productive in the well are common reservoirs?

A In my opinion, they are not common at that location. There is a separation between the gas and the oil which doesn't seem to have any permeability as I understand, but that doesn't mean that somewhere in the reservoir there is a connection.

Q Do you have any subsurface pressures on the oil zone in there at all?

A Yes, the sub-surface pressure on our W. E. A. lease are approximately 1,000 pounds. Originally, that is when we originally drilled them, that I believe was about the highest pressure we had, around a thousand pounds.

Q What about the Houston Well to the east, do you have a reservoir pressure on that well?

A We had a pressure shown here as 502 pounds on No. 1, Houston No. 1.

MR. MACEY: I believe that is all.

MR. SPURRIER: Anyone else have a question of Mr. Christie?

By: MR. GRENIER:

Q Mr. Christie, I wonder if you would continue giving us the average pressures in the gas reservoir. He says from a certain point on they came out about the same. I don't think you quite completed that for the last three or four tiers of sections, would you give those once more to us?

A I believe I gave 989 and 676 as the oil, the next tier was 842 for the gas and 651, I believe I didn't give that to you.

Q That is the bottom tiering going south, is that right?

A Yes, sir, and continuing in Township 22 South, the next row, tier of sections, the average gas pressure was 624 and the oil pressure was 655. The next section below we had an oil pressure of 620, no gas pressure shown, although we do have one gas pressure that was reported as 921 pounds in the Yates which I chose to eliminate in this study because it looked to me like it was out of line with all the other pressures in the general area. Continuing south in the next tier the average gas pressure was 641 pounds, the oil pressure 750 pounds, the last tier of sections gas pressure was 327 and we have just one oil pressure which for some reason has a pressure of 1186 pounds.

MR. GRENIER: Thank you.

A It could well be over in the next, in another province, really, it is located, isolated by itself. There could be some reason for it, that I didn't check into.

MR. SPURRIER: Anyone else. If not Mr. Christie may be excused.

(Witness excused.)

MR. SPURRIER: The next company on the list is Skelly.

MR. SELINGER: If the Commission please, so much of the factual data, geological data has already been presented to the Commission, although we have a geologist and two engineers available, we think there is sufficient information on file that we believe it is highly unnecessary to make it cumulative. The statements of Gulf and the conclusions of the Gulf Oil Corporation are our conclusions after a study of the area. Namely, that the present vertical and areal limits of the field, as now defined by the existing orders of the Commission, be continued except that the Jalco and Langmat fields be combined, and secondly, that the Tansil be included as a part of the gas pays in the various classified gas pools.

MR. SPURRIER: El Paso is the next company.

MR.HOWELL: We have some brief testimony in connection with the Rhodes area that we would like to put on in this pool delineation.

H. F. S T E E N,

a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. HOWELL:

Q Will you state your name for the record, please?

A H. F. Steen.

Q What is your position with El Paso Natural Gas Company.

A I am the general superintendent.

Q Are you familiar with the area in Lea County, located in Township 26 South, Range 37 East, that is known as the Rhodes storage unit area?

A Yes, sir, I am.

Q Will you refer to what I believe is the Commission's Exhibit 3 and show the general outlines of that area?

A It is in purple.

Q How long has El Paso Natural Gas Company been operating that as a storage area?

A Since about 1945.

Q What, in general, is the manner in which it is operated?

A In general the manner in which this area is operated is that when we have flus production of gas or have spray flare gas that we do not have a sale for, it is pumped into this area. We have facilities and compression available for an input of some 70 to 80,000,000 cubic feet of gas per day. We have likewise facilities whereby we can take to shave peaks and give us quick withdrawals of gas of some 70,000,000 feet of gas per day.

Q Have the companies studies indicated that that area is reasonable separated from surrounding areas?

A Reasonably so, that is true. A study was made and the area was unitized with the State and with the Federal Government back in 1945, I believe, it was started. I believe the order was issued probably in 1948. We find that we have or it is our opinion, now, I am not an expert witness on this communication and vertical and horizontal limits and things of that nature. The statement is what our experience has been. We find there is a very good closure on the north, also on the east. We realize there is some leakage on the south but the

operators running the oil wells down here don't seem to mind that it is leaking a little in this area. We also feel that there is something of a form on this side over here. (Indicating) Part of the area is probably benefiting from the gas we are pumping into the Rhodes storage area.

Q For the purpose of the storage area, is it reasonable efficient and effective?

A Yes, sir, we have found it so.

Q Of course, in operating the storage area the wells that are committed to that unit should not appear on the proration schedule or be subjected to proration?

A That is true.

Q And the company is asking in this connection that any wells committed to the Rhodes unit be committed from the delineation of any gas pool in that area?

A That is true as they are right now.

Q In order to save time, we have, I think you have the file, Mr. Macey, on Case No. 140 resulting in Order No. 772 of the Commission and we would just like to offer this as Exhibit 1, El Paso Natural Gas Company's Exhibit 1 and not clutter up the record with new details.

MR. SPURRIER: Is there objections? Without objection it will be admitted.

A I might add that there might be communication, we have been hearing about communication here, if there is communication to the north, it is more or less on an "ox-cart type" communication. It isn't a "jet plane type" communication, because we pulled this thing down to about 300 pounds in 1944.

The pressures on these surrounding area varied on up to a thousand pounds. We have since then raised the pressure to, at times, 900 to 1000 pounds and again pulled it back down to 300 or 400 pounds. We think that if there is communication it is very slight in these areas. We realize we do have a small amount of leakage down in the southerly direction.

MR. HOWELL: That is all.

MR. SPURRIER: Anyone have a question of Mr. Steen? If not the witness maybe excused.

(Witness excused.)

MR. SPURRIER: Permian Basin, Mr. Stahl.

MR. STAHL: We are ready to go forward at this time, if the other people have finished with the pool delineation, but all of our remarks and testimony got mechanics of proration rather than pool delineation.

MR. SPURRIER: Very well, is there anyone else? I have Texas Pacific Coal and Oil Company, Southern Union and Stanolind yet on my list. Is there any more testimony on delineation?

MR. CAMPBELL: Did you think that Texas Pacific was next after Permian?

MR. SPURRIER: Yes, sir.

MR. CAMPBELL: As the Commission knows, our principle concern about delineation from the beginning has been the horizontal boundary between Jalco and Langmat. There is in this record, by virtue of Continental's presentation yesterday, some evidence that that should be retained. There is also, at least that was their recommendation, there is also a

considerable amount of evidence in this record that it should, that line should be eliminated. I believe all the witnesses have made that suggestion. We are in this position that we want to cross examine Mr. Dailey, on that point and probably will be required to offer some additional evidence to that already offered in Case 582, which is now a part of this record, in order to have before the Commission all of the evidence we have, which we believe justifies the elimination of that line and the elimination of the differentials and allowables in this area. Consequently, we would like to have the opportunity to cross examine Mr. Dailey on that point and then if necessary after that cross examination, offer some evidence on delineation only with regard to that point. We have no quarrels in connection with vertical limits at all.

MR. SPURRIER: Mr. Dailey, would you agree to undergo cross examination on that particular point?

MR. DAILEY: We agreed, yesterday.

MR. SPURRIER: At this time?

MR. DAILEY: Yes.

MR. SPURRIER: Mr. Campbell, your witness.

MR. DIPPEL: May I ask the Commission a question before we go into this cross examination? Is Mr. Dailey being submitted for cross examination generally at this time or only with respect to the one line. I understood that he would be available for cross examination after everybody got through with pool delineation?

MR. SPURRIER: Everybody is apparently through with pool delineation except Texas Pacific.

MR. CAMPBELL: I don't know if Stanolind or somebody else has something direct, we will wait.

MR. SMITH: For Stanolind Oil and Gas Company. We do not intend to put any additional testimony into the record. We feel that the factual data offered by Gulf and Amerada is the position that our witnesses would support and our testimony would be merely cumulative of testimony that is already in the record and would burden it. I would like to state for the record that for pool delineation purposes we are in the position that Skelly stated, that we recommend the elimination of the Langmat Jalco line and preserve the pool delineation otherwise as they now stand.

MR. DIPPEL: Then, he is to be cross examined generally, not only about this particular line, but everything else at this time?

MR. ADAIR: Mr. Dippel, purely in the interest of trying to speed it and shorten the hearing, I think I see possibly an out. If it will shorten the hearing, I will put it this way, the Texas Pacific's main objection to Mr. Dailey's testimony is the line, the testimony with respect to maintaining the line between Jalco and Langmat, let me ask you this, does Continental have any objections to removing that line?

MR. DIPPEL: I don't know whether it is proper for me to do it at this point.

MR. ADAIR: Let me rephrase, if I may, before you answer that. I realize that is a difficult question. In light of the testimony that has been heard since Mr. Dailey testified, that is Gulf's engineer and geologist, Amerada's engi-

neer and geologist and in light of the Phillips' testimony at a prior time on this same hearing and in light of the Texas Pacific testimony in Case 582, which is in this record, I will ask you if there is any objection on the part of Continental to removing the line between Jalco and Langmat? If your answer is that there is any, and the Commission is satisfied, why I think we can eliminate about two hours of time here. That is what I was trying to do.

MR. DIPPEL: If it is all right with the Commission, I will try to answer your question. It may not be the answer you want. I definitely feel that I should say and that I can say that none of the people connected with Continental, whether they are here at this hearing or whether they are in our headquarters department want to unnecessarily burden the record of this case with a lot of testimony that isn't going to accomplish anything. We want to speed it, this thing and we realize that time is short. If it is the consensus of all of the other operators that the line should be eliminated, I think that the recommendation of all of these operators will weigh very heavy in the balance when the Commission gets ready to consider that line. I will state very candidly that we discussed this among ourselves at considerable length last night. Our engineers tell me that they are not convinced that the line should be removed even on the basis of the testimony that has been offered on that matter in this case, but we definitely will not object if the Commission sees fit to eliminate that line. We are not insisting on the line. We have previously stated and at the risk of being boresome to some, I

want to reiterate that Continental feels that it has an obligation to the Commission, perhaps a little greater than the obligation of any of the other operators. I do not mean to imply that anybody doesn't feel his obligation or want to discharge it, but we put on the testimony in Case 245, and the Commission acted on it. They put the line where it now is on the basis of that testimony. Our engineers feel honestly that the testimony doesn't convince them, it doesn't belong there but we definitely will have no objection to the Commission's removing it. If that will eliminate the necessity of spending time cross examining Mr. Dailey on that point, I would like for the record to show that we have absolutely no objection to removing of the line but we will not recommend its removal. If that is satisfactory to you?

MR. ADAIR: I wonder if it would be in order to ask if any other operators have any objections to removing the line? I am not trying to poll a vote on it. I am trying to shorten the hearing.

MR. SPURRIER: Does Southern Union--

MR. GRENIER: (Interrupting) We have no objection to the removal of the line.

MR. SPURRIER: I have no one else on the list. I assume that -- is there anyone who objects to the removal of the line excepting Continental, or who doesn't recommend it? We will recess until one o'clock.

(RECESS)

A F T E R N O O N S E S S I O N
1:00 P. M., May 11, 1954

MR. SPURRIRR: The meeting will come to order. I think we left off where the question was whether the Commission would say or wouldn't say whether there shall be a line between the common boundary between Jalco and Langmat, shall remain or be thrown. The Commission does not feel that it is proper for us to do that at this time, either for or against. The Governor and Commissioner Walker both will be here later and we will take that up at that time. Mr. Macey has requested permission to cross examine Mr. Dailey at this time, not on this boundary, but on a slightly different proposition involving Jalco and Cooper-Jal. If there is no objection to that procedure we will go ahead.

MR. MACEY: Mr. Spurrier, don't you think Texas Pacific Coal and Oil Company were the ones that requested this determination, or whatever you want to call it?

MR. CAMPBELL: Well, Commissioner Spurrier, I feel that in the interest of trying to speed up this thing, if there is any way possible to do it, that if it is agreeable with Continental and with you, that we might defer the cross examination of Mr. Dailey. We all know the phase on which we are going to cross examine him, until later in the afternoon when the other Commissioners get here. If there is any possibility of resolving this thing at this time to do away with the hour or two that it will take to put on additional evidence, we will do it. If the Commission is unable to make that decision now, we feel it is up

to us to put on all the evidence we have, and to cross examine Mr. Dailey to bring out what his views are. So, we would like to request that our cross examination of Mr. Dailey be deferred until later in the afternoon, and that we proceed with the other matters that the Commission wants to hear in this case.

MR. SPURRIER: Very well. Is there objection to Mr. Campbell's motion?

MR. DIPPEL: We have no objection to the procedure except that we hardly feel that it is fair to Mr. Dailey to cross examine awhile about a matter and then go to something else and let somebody else cross examine him about a similar matter. We would like to have his cross examination over with at one time, if we can. We are here for all purposes, and if it suits the Commission better to take it up peace meal, we will do it that way, but in the interest of orderly procedure, I think all the cross examination of this witness ought to be disposed of at one sitting. Texas-Pacific asked to cross examine him and he is here if they want him.

MR. MACEY: I want to cross examine him. I don't think we ought to have the repetition two or three times.

MR. YOST: Off the record.

(Discussion off the record.)

MR. SPURRIER: In the face of these comments, I think the Commission will defer until Governor Mechem makes his appearance, at least, and in the meantime we can go on with the other type of testimony. I presume we can start down the list again. Southern

Union said they had no testimony.

MR. GRENIER: Not on the delineation aspect, no, sir. We do on the matters of proration.

MR. SPURRIER: We will start again. Mr. Woodward has asked that we ask if there is anyone who desires to cross examine Mr. Veeder any further. Apparently no one does, so I presume it is all right to excuse Mr. Veeder. Now, we can start.

Does Gulf have anything further?

MR. MALONE: We have no further testimony. We will put in some rules which can be prepared and handed to the Commission.

MR. SPURRIER: The Commission wants to give all of you whatever time you feel is necessary to make these rule amendments. However, the thought occurred to me, and I haven't discussed it with the Commissioners, that rule modification may or may not be testimony. We have always asked, and we are going to definitely ask in this case, for proposed orders, whether you want to consider those changes in proposals as testimony and introduce them at this time, or whether you would be willing to submit them as proposed orders is something that you may decide.

MR. MALONE: So far as Gulf is concerned, we will be glad to conform to that procedure if the Commission would like to follow it.

MR. SPURRIER: I think it would save time.

MR. MALONE: In any event, it doesn't make any, we don't need to make the testimony for the rules because a statement can be made.

MR. DIPPEL: Continental will be glad to follow that procedure.

MR. SPURRIER: Amerada?

MR. WOODWARD: We have no more testimony as such, however, we had planned an explanation of some recommendations. We were not at all jockeying for position in that matter, we were simply interested in seeing the testimony, particularly with respect to waste and various species of waste that might be shown before any undertaking, any recommendations based on that factual condition. It would be our recommendation to go ahead and get into the record everything that could be construed as testimony at this time, and if you run short you can always submit these recommendations in the form of briefs.

MR. SPURRIER: Skelly?

MR. SELINGER: We don't have any testimony to present on the rules.

MR. SPURRIER: Permian?

MR. STAHL: We have some rather brief direct testimony which we would like to put in. We also, as you recall, asked to have the privilege of calling two witnesses of someone else, one of which we would probably like to recall immediately following the direct testimony, the other one I don't know yet, it would depend on what happens later on this afternoon.

MR. YOST: That leads to another point. During the hearing last month I believe you asked all those present to designate

the individuals who testified in Case 582, whom they might like to cross examine. At that time, I believe Mr. Stahl was the only one that expressed the wish to cross examine those individuals. I believe we were off the record at that time, last month, that does not appear in the transcript. It should show on the record, I believe that you made such a request.

MR. SPURRIER: Who are those people, Mr. Stahl?

MR. STAHL: It was Mr. Adair and Mr. Grimm. We are prepared to go forward at this time, or did you want to finish running down the list.

MR. SPURRIER: No, go ahead.

MR. STAHL: We would like to have our witness sworn. I am the witness.

(Witness sworn.)

G. E. S T A H L,

a witness, having been first duly sworn, testified as follows:

MR. STAHL: Without benefit of counsel, I want to make a statement under oath which is going to be directed primarily to the question of the minimum take provisions that are in Permian's gas purchase contract. The purpose of this testimony is to show that the establishment of a minimum allowable as proposed by Texas Pacific becomes virtually impossible. This will deal only with our gas purchase contracts.

For the record, I am employed by Permian Basin Pipeline Company, in the Gas Supply Department. My duties primarily con-

sist of negotiating gas purchase contracts and operating contracts which the company engages in. If my qualifications are acceptable with that preface I will proceed, otherwise I will go through the usual list of qualifications, Mr. Commissioner.

MR. SPURRIER: They are acceptable.

MR. STAHL: Thank you. As you all know, one of the primary questions of dispute in this hearing, in the application of the Texas Pacific for rehearing has been with respect to setting up minimum takes under the gas purchase contracts and setting up, having a Commission set up minimum allowables. We feel that it is desirable to explain for the record Permian's minimum take or pay for volumes. The way those are arrived at and how they differ from what we understand the minimum take or pay provisions of El Paso's contracts are, as those have been discussed in this record. There has been apparently some little misunderstanding about Permian's minimum take or pay provision. I am sure if you will review the record with that thought in mind, you will see from some of the cross examination which has been directed toward some of our witnesses in the past that there has been some misunderstanding.

First of all, our minimum take or pay for volumes are not stated per well. It is my understanding that the contracts which El Paso has in force in Southeast Lea County, as well as the contracts which they are currently offering, do have a stated minimum take or pay for volume. From the record it is not clear whether that is 500,000 cubic feet a day or 550,000 cubic feet per day.

But the point is that there is a stated volume.

Permian's, on the other hand, is not. It is based upon the economically recoverable reserves underlying the tract of land involved. Each contract that Permian has stands on its own feet, and the minimum take or pay for volume is for the entire contract rather than for each well involved. Therefore, after determining economic recoverable reserves are under a particular contract, there is then applied against that reserve figure an assumed exhaustion rate.

In other words, what daily or yearly production would exhaust that gas underlying the tracts involved over what is approximately a 20 year period. Then, the minimum take or pay for volume is determined by applying a set percentage against that annualar exhaustion figure. This means that in different wells in the same gas pool we will have different minimum takes. In those cases where a contract covers only one well, for example, if the reserves underlying Joe Doe's well, and that well is the only well under the particular contract with Joe Doe, if those reserves are twice what the reserves of a single well contract with, let us say, Mr. Roe, then the minimum figure that we, in our contracts, will take or pay for, would be twice Mr. Doe's, Mr. Doe's would be twice Mr. Roe's.

Therefore, if you set up, or if the Commission attempts to set up a minimum allowable based on the minimum take or pay for provision, you can have two wells side by side, one contracted to El Paso where the minimum might be 500,000 cubic feet per day,

one connected to Permian where the minimum could be conceivably a million cubic feet per day. Therefore, it is our feeling that from a practical matter and not attempting to make a legal argument as to whether the Commission has the authority to set the minimum allowables or not, that it is from a practical matter impossible to administer such a program as suggested by Mr. Adair.

That covers the evidence which we wish to submit upon the question of minimum allowables. Before getting off the stand, however, before completing the direct testimony, in Case 673, on Page 67, Mr. Adair asked Mr. Ainsworth if Permian's gas purchase contracts or its dedication commitments prohibited, in any way, field change agreements between Permian and other pipeline companies in the area. This is to advise for the record that, in our opinion, they do not. That concludes our direct examination. If there is no cross examination I will get off the stand.

MR. SPURRIER: Does anyone have cross examination of Mr. Stahl? Mr. Adair?

MR. ADAIR: I have no questions.

MR. SPURRIER: If not, the witness may be excused.

(Witness excused.)

MR. STAHL: I would like, at this time, to call Mr. Adair.

E U G E N E A D A I R ,

a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. STAHL:

Q Mr. Adair, in view of the letter introduced into evidence

by El Paso yesterday, signed by Mr. Kersey, and the testimony of Permian Basin Pipeline Company witness, which you have just heard, has your company changed its position on the minimum allowable question?

A Not as a result of your testimony, but as a result of the letter which was read yesterday from El Paso Natural Gas Company. Our company had determined that it would not, at this time, press its request for a minimum allowable. For the sake of the record, however, I would like to state that we came here prepared to put on evidence requesting a minimum allowable, based not upon contract provisions, but based upon having a reasonable relation to waste and the prevention of waste. For example, our figures show that the minimum allowable which we have suggested of 90,000 MCF per month gives the operators of a gas well only one half the break that an operator of an oil well gets to the same depth. Our figures show that an oil well or a gas well, drilled to the depth of the gas wells drilled in the vicinity here that we are talking about, costs approximately $45,000.00 to drill and complete and equip them. That operator of such a well, if it be an oil well gets 40 barrels of oil a day under current proration of oil. Apparently he can count on getting approcimately that much oil, because time after time the Commission's records will show that the purchasers of oil have requested and recommended a cut in oil allowable. Such an oil well costing $45,000.00 and with a top allowable will pay out in approximately 18 months. A similar oil well drilled to 11,000 feet due to the deep well adaption formula

also pays out in approximately 18 months. A gas well with a 90,000 MCF per six months proration period requires 37 months to pay out.

We think that the operator of a gas well should have half as much of a break as the operator of an oil well. The risk in drilling and completing are the same. We also think that there are many other reasons having some direct relationship to prevention of waste to encouraging the greatest ultimate recovery of gas and hydrocarbons from the reservoir. We think that a minimum allowable would tend to encourage ratable take between pools as delineated by the Commission, or as may be hereafter delineated by the Commission. But, as I stated earlier, we had determined after hearing Mr. Kersey's letter in which effect to us meant this, that they had contracted to take those minimum allowables and they would consider that they were nominated to take and would nominate to take what they had contracted to take. That is, I think, to be expected from Mr. Kersey and from the El Paso Natural Gas Company, with whom we have had pleasant relationships and for whom we have a very high regard. It shows good faith. It shows no disposition or tendency whatsoever to take any advantage of a condition over which the producer has no control. Unfortunately, however, not all of your contracts are with El Paso Natural Gas. We have contracts with other purchasers. We have none with Permian that I know of. Although I believe we offered you a couple of wells and were not even privileged with a reply. We had determined not to press the matter, if the Commission please, at this hearing. We

feel that if the situation develops as it apparently may develop in the future where demand for dry gas in Southern New Mexico, due to residue, takes in Texas or other matters, falls too late to be economical, we feel that not only Texas Pacific, but other operators will be in here requesting minimum allowables at that time.

For the purpose of the record, and mainly and solely because of, and relying upon the letter from El Paso Natural Gas Company, which has been introduced here in evidence, we are deferring that request and withdraw that request for minimum allowable at this hearing.

MR. STAHL: In view of that statement, that is all the questions I have for Mr. Adair. The fact that he is withdrawing the request at this time is sufficient.

MR. SPURRIER: Anyone else have a question of Mr. Adair?

MR. MACEY: I missed the first part of your testimony about the 90,000 MCF.

A 90,000 MCF per proration period. I think that is slightly less than an average of 500,000. It was our position that the procedure of the Commission, its bookkeeping, its problems incident to administration of gas proration would be greatly simplified if every standard proration unit, that is of whatever the Commission agrees upon, such as 160 acre units were assigned at the beginning of each proration unit, an allowable of 90,000 MCF against which the gas purchaser and the operator would draw until such time as it ran out, and then only would it be necessary

for the gas companies to come in and nominate additional allowables. We also think that that has a substantial basis in the statutes which say that, as we read them, that the proration period shall be fixed for a period of not less than six months. We are perfectly willing to go forward the way they are doing now in handling the monthly allowables. But we feel that some unnecessary work and some odd results from the way they are handling them in the present, we feel that if the Commission would credit to each unit at the beginning of the proration period, a minimum allowable of 90,000 not based on contracts, because that doesn't tie into our contracts based upon having a reasonable relation to waste and based upon having a pay out, and assuring some continuity of income, that that might be a simpler way of handling the entire situation.

Before I get off the stand, if the Commission please, I would like to make it clear, I think we tried to once and possibl it was misunderstood that Texas Pacific Coal and Oil Company has never intended to leave the impression and does not now attack gas proration as such. We were and are not entirely satisfied with some of pool delineations.

MR. SPURRIER: Anyone else have a question of Mr. Adair? If not, you may be excused.

(Witness excused.)

MR. SPURRIER: It seems to me that we have nothing to come before the Commission now except some direct testimony on waste and also -- Mr. Stahl, do you have another witness?

MR. STAHL: I would like to recall Mr. Grimm.

MR. SPURRIER: Excuse me, I am sorry, I will go on with my statement. I would like for both Commissioner Walker and the Governor to hear this testimony on waste and, therefore, when Mr. Stahl is through with Mr. Grimm, if any of you desire to put those rule amendments in, that is perfectly all right with me. I will be here. In the absence of that indication we will recess until we can gather in our other two Commissioners.

MR. FOSTER: Can you take the statements?

MR. SPURRIER: It will be all right with me.

MR. STAHL: I would like to recall Mr. Grimm, please.

MR. SPURRIER: You are also reminded that you have been sworn in this case?

MR. GRIMM: Yes, sir.

R. D. G R I M M,

recalled as a witness, having been previously duly sworn, testified as follows:

CROSS EXAMINATION (CONT'D)

By MR. STAHL:

Q Mr. Grimm, in reviewing your testimony with respect to your suggested method of prorating gas in Southeast Lea County, I believe you testified that you would set up the proration so that you deducted or would deduct casinghead gas from the total market demand before arriving at a calculation of the dry gas well allowables. Am I misstating in this instance your recommendation?

A Yes, that is essentially correct. I believe I stated I

would deduct the amount of casinghead gas that was produced with the oil under a gas-oil ratio limitation from the gas allowable assigned to that acreage unit.

Q What I don't recall, what was the gas-oil ratio that you proposed?

A I didn't definitely tie it down, I said between six and ten thousand cubic feet per barrel should be in that order.

Q If it was ten thousand cubic feet per barrel, what would the production be, casinghead gas production be from 160 acres?

A 3,600,000.

Q Do you know what the gas allowable has been running out in Southeast Lea County per 160 acre unit, roughly?

A I think it is somewhere around half a million, roughly.

Q Around half a million?

A I am not sure, in the last month I haven't checked, but I think that is approximately right.

Q That would mean then, under your theory, that all the dry gas wells would be shut-in where there were four wells, would it not?

A Not necessarily, if they were making that amount of gas they would be, yes.

Q Yes, I was assuming that, then the operator who has completed a dry gas well would get no return on that particular well, would he?

A If the other conditions were true, that is correct.

Q And --

A (Interrupting) At the present time.

Q Then, market demand would have no effect on setting the allowables, would it? A Yes, sir, it would.

Q Wouldn't the oil allowable set the gas allowable in those particular tracts?

A The oil allowable and its attendant casinghead gas production would certainly limit the gas allowable on those particular tracts, that is true.

Q In some cases it would limit it to zero, wouldn't it?

A That is correct.

Q What is the basis for your recommendation, Mr. Grimm? Why do you recommend that?

A Well, I so testified here, I believe this is all one common source of supply and I do not see why an operator should be allowed to take gas from an oil well and gas from a gas well and in effect have a reservoir voidage more than the acreage contiguous to his own tracts.

Q Would you apply that same reasoning if it were conclusively demonstrated that these were essentially gas pools?

A If they were, that is true.

Q I don't understand. If they are -- let's assume for a moment that they are essentially gas pools, would you still apply the same reasoning?

A By the same reasoning, I don't quite understand what you

mean.

Q Would you make the same recommendation?

A As to the limiting gaspool ratio?

Q Yes. A Yes, sir.

Q You would still cut out then those gas wells from producing any gas? A Yes, sir.

Q Would you follow that same theory near the depletion of the oil reservoir, Mr. Grimm, when you are getting down to pretty much marginal proposition?

A At such a time, I might recommend to change the limiting gas-oil ratio, but, yes, sir, I would still follow the same theory.

Q All the way down? A Yes, sir.

Q Aren't you wasting reservoir energy, Mr. Grimm, in that casinghead gas, its reservoir energy is disipated through the separator when the pressure is reduced?

A It is my belief that I am using reservoir energy for a different purpose, wasting it by exhausting it through a separator. You might call it waste, it depends on the separator pressure.

Q Isn't the standard separator pressure out in Southern New Mexico 40 pounds or less? A Probably.

Q You take gas coming our of the reservoir as high as 1200 pounds and bleed it down to 40 pounds, isn't that waste, Mr. Grimm?

A I don't really know of any place that that is occurring. If such were done, it would be waste of reservoir energy.

Q Do you think from a standpoint of economics of pipeline operations, with which I know you are very familiar, that your recommendation is economically sound?

A I think I will have to pass, thank you, anyway.

MR. STAHL: Well, I think that answers the question. That is all.

MR. SPURRIER: Anyone else have a question of Mr. Grimm? If not, the witness may be excused.

(Witness excused.)

MR. SPURRIER: Now, Mr. Continental, do you have some rule recommendations you would like to put into the record? You have your choice, if you want to su mit them in a proposed order form perhaps you have a statement you would like to make?

MR. DIPPEL: About what?

MR. SPURRIER: As Mr. Foster suggested, he had a statement to make for the record, I suppose it is one of those short closing statements.

MR. DIPPEL: As to the kind of a statement, I would like to ask the privilege to make such a statement later after we find out what they do with our witness here.

MR. SPURRIER: Mr. Howell, do you have some direct testimony?

MR. HOWELL: You passed us on the list with reference to some testimony. We do have some testimony with regard to the effect of the various proposed gas-oil ratios related to the marketing facilities in the Langmat and the Jalco areas and have

made some studies as to what would be the effect of the imposition of some of those ratios. If it was your intention to shut off all testimony, other than the testimony with reference to waste, I think we would like to put it on, but it would probably ome in more logically after the testimony as to waste, because if my understanding is correct, there is some flaring that might be taken care of and the way to take care of it might be shown by the testimony which we have.

MR. SPURRIER: You would rather put that testimony --

MR. HOWELL: (Interrupting) We are willing to put it on either before or after to suit the convenience of the Commission. It comes more logically afterward because then we would know about what particular flare gas is being talked about.

MR. SPURRIER: I would rather it would be logical and I would also rather have the Commission here. You don't have a Commission at the moment. Mr. Howell, I can assure you that you weren't passed intentionally. I actually missed you on the list. Mr. Malone?

MR. MALONE: If it please the Commission, Gulf has some suggested amendments to the existing field rules or pool rules which are in general minor and mechanical. I believe that we will, without putting on testimony in support of them, hand them to the Commission for the Commission's consideration, and we will be glad to give them to the operators to the extent that they are available.

Briefly they would provide for gas allowable to be allocated

at the present on the basis of one hundred percent acreage; that a non-standard unit shall contain not more than 640 acres. The overall length and width of which would not exceed 5,280 feet except in instances where the unit comprises four quarter sections of an irregular section. Such a matter would be considered 640. In other words, that any acreage not exceeding 5,280 feet can be attributed to a well. That exceptions for such non-standard units can be granted automatically by the Commission on evidence that notice has been given to offset and no objection has been received by the Commission within 20 days after the date of the receipt of the application by the Commission. The only other change is to define a gas well as follows: "A gas well shall mean a well which produces gas not associated with crude petroleum oil in the reservoir or be a well which produces more than 100,000 cubic feet of gas to each barrel of crude petroleum oil from the same producing horizon." The rules would also provide that where you had a non-standard unit a standard allowable would be assigned pending approval of the non-standard unit. We will be glad to incorporate these in any proposed order that is submitted.

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

(Recess.)

MR. SPURRIER: The meeting will come to order. The next victim is the Oil Conservation Commission staff. I believe you want to call Mr. Stanley?

MR. YOST: That is correct.

S. J. S T A N L E Y,

a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. YOST:

Q Will you state your name?

A S. J. Stanley, Engineer for the New Mexico Oil Conservation Commission.

Q Mr. Stanley, do you have a statement that you wish to make for the record, before you begin on your testimony?

A I have. If it please the Commission, it is my desire to first of all clarify my position with respect to gas-oil ratio. I am absolutely neutral in this controversy. My testimony will undoubtedly hurt a few operators which is to be expected in any controversial matter. I do feel that it will benefit the majority of the producers. I believe that over a long period of time more gas and oil will be recovered from certain pools in question. I believe that the State of New Mexico will benefit by my recommendations, the operators will benefit and especially those operators that believe in conservation, the prevention of waste and the insurance of ratable take.

Last, but not least, I firmly believe that in the final analysis the gas purchaser will realize a greater ultimate recovery of gas to be purchased and processed in the future. My primary and fundamental study has been based on the Langlie-Mattix

and Cooper-Jal Oil Pools which underlie two gas pools, namely the Jalco and Langmat. By virtue of past completion practices the gas produced from gas and oil reservoirs effect the gas pool. I feel that the Blinebry andTubb, Justis, Byars, Queen and even the Eumont are unique in that the producing horizons are fairly well defined and do not present an associated casinghead gas problem at this time. Therefore, I feel that the Langmat and Jalco are the problem of our gas proration system, and these problems should be resolved.

I firmly believe that in order to prevent waste and protect correlative rights, certain rules should be enacted pertaining to the oil pools underlying the Jalco and Langmat Gas Pools and essentially I recommend that this Commission adopt a no flare order; a gas-oil ratio limitation in those oil pools that have an unlimited ratio at the present time, namely, the Langlie-Mattix, Cooper-Jal, South Eunice, Penrose-Skelly, Falby-Yates, Leonard, South Leonard, Rhodes and Hardy; that this Commission will proceed with caution in combining the horizontal limits of certain pools, namely, the Eumont, Arrow, with the Jalco and Langmat; that this Commission should have more time and experience in gas proration before naming one common source of supply for the four main pools.

Q Mr. Stanley, did you prepare Exhibits 1 and 2 which are on the wall?

A Yes, sir, I prepared all these Exhibits with the excep-

tion --

Q (Interrupting) Would you please explain Exhibit 1 and 2?

A I prepared all these exhibits with the exception of No. 3. I borrowed this exhibit from our geologist, Mr. Montgomery.

Q Please explain Exhibits 1 and 2?

A Exhibits 1 and 2 are directly connected with each other. If you will notice in Exhibit 1, these are two oil wells located in the Langlie-Mattix Oil Pool. These are two gas wells located in the Jalco Gas Pool. I would like to show from Exhibit 2 that whenever you refer to the Langlie-Mattix Oil Pool, you also refer to the Jalco Gas Pool, also you refer to the Langmat Gas Pool, for the following reasons: That the Jalco Gas Pool which extends from Township 21 South as outlined here in this red line and extends nearly to the State line, in fact, it does extend to the State line and at the same position of the Langmat-Jalco and underlying these new pools are the Langlie-Mattix Oil Pool which is colored in yellow and the Cooper-Jal which I colored in Green.

The vertical limits of the Langlie-Mattix are the Yates, Seven Rivers and Queen. The vertical limits of the Cooper-Jal Oil Pool are the Yates and Seven Rivers, with the exception of the last 100 feet. However, the vertival limits, excuse me, I wish to make a correction, the Cooper-Jal Oil Pool includes the Yates and Seven Rivers.

Now, the Jalco Gas Pool includes the Yates, and the Seven Rivers with the exception of the last 100 feet. This is also true of the Langmat Gas Pool. So, in reality they incorporate

each other, they overlap each other and whenever tou produce from anyone of the two oil pools, you may be producing from one of the gas pools, as I will show in this particular exhibit.

Now, returning to this Exhibit, on Exhibit No. I, we have Well No. 6, Well No. 5, Well No. 2, and Well No. 1, which are shown on Exhibit 2. Here is 6, 5, 2 and 1. Now, each of, the two oil wells are each located on 40 acres as shown here and each gas well has a contributed acreage of 160 acres.

Now, both wells appear, both oil wells appear on the oil proration schedule at the present time, both gas wells appear on the present proration schedule with an attributed acreage of 160 acres apiece. They are both producing oil and both producing gas. I, personally, inspected No. 5 and No. 6. The first inspection that I made was on February 25, 1954, at 12:00 Noon, Mountain Standard Time.

No. 5 well was flowing on a 39/64 inch choke with a flowing tube pressure of 365 pounds. No. 6 well was flowing at a 1 inch choke with a flowing tubing pressure of 280 oounds. Both of the oil wells were connected to a meter to a casinghead gas well line and both wells were being metered on that particular day that I made the inspection. I calculated that there was 263,000 cubic feet of gas per day. In the meantime considerable gas was being flared and at a later date, I can estimate the amount of gas that was actually being flared by actual measurements, because on March 31, at 12:45 P. M. Mountain Standard Time, No. 5 well was flowing c on a 27/64 inch choke at 500 pounds pressure and No. 6 well was

flowing on a 38/64 inch choke with 420 pounds pressure. So, that, actually there was less gas being produced on March 31st inspection than there was on February 25th, due to the fact that the wells were slightly pinched in during the later inspection.

Now, on March 31st, I have asked El Paso Natural Gas to turn the wells into their metering system. They turn them in for a period of 15 minutes because prior to that time the plug valve on the meter run was in a 60 degree closed position. I had observed that during the 15 minute period of time that the wells were stable, they were flowing in a stable manner and I calculated that prior to opening the wells completely into the casinghead gas line the wells were producing that particular day, were selling this much gas, 440,000 cubic feet, but they were flaring 3,905,000 cubic feet of gas.

Now then, referring back to Exhibit No. 1, I would like to prove that this gas even by virtue of the definition of casinghead gas as provided in the rules and regulations of the Oil Conservation Commission, that this gas that was actually being flared was casinghead gas plus dry gas. When we refer back to Exhibit No. 1 well, note that the casing in No. 6 and No. 5 wells is set in the Tansil formation above the Yates. This No. 2 well which is the gas well producing from the Yates, the pipe was set through, and it was perforated adjacent to the Yates gas dry section, and the No. 1 well also had the casing seat in a Tansil formation above the Yates. However, in the process of drilling

No. 5, the operator had drill stemmed tested in this interval from 2,880 to 2,900 and our geologist had correlated that point to be somewhere in the vicinity of the Yates, Seven Rivers contact or perhaps up in the Seven Rivers, which would classify this well at this particular point as being in the Jalco Gas Pool. However, the operator had chosen to deepen his well, deepen it to the Queen formation which is all producing and produces this entire section.

Therefore, I feel that most of that gas that is actually being produced from that well is dry gas and that it is being flared. Now, since dry gas or any gas will flow through a formation much easier than a fluid, if this situation is permitted to exist, I think that eventually this Yates formation or the Upper Seven Rivers, wherever the dry gas reserves are, it will eventually pull down to a pressure equal or lower than the Queen formation. When that happens the oil that is contained in the Queen formation will flow up into the dry gas section and I believe that that will result in underground waste. I do think in this particular point that you can classify this flare as showing surface waste and underground waste in the future. I believe I have some other cases, in fact, I have quite a few,that I had inspected but for the sake of the record and brevity, I would like to mention one or two more here.

I might proceed and compare, first of all just how you would compare the production of these two wells. Now, I am going to

assume that the average dry gas allowable over the year will be a million cubic feet per day. I don't think it will be that high, but with this operator flaring four million cubic feet of gas on two wells located on 80 acres and whenever you consider that you have a million cubic feet of gas allowable from each of the gas wells, he is in reality producing four times as much dry gas as his offset operator when you compare this on the 160 acre basis. He is actually producing eight times as much gas when you compare it to the present allowable of, let's assume it to be half a million a day. This operator is actually flaring and producing 16 times as much gas.

Now, on this particular well, Mr. Spurrier, himself, had directed me to look for these flares along with Mr. Macey and I had worked in the Jal area and they are rather difficult to find sometimes, because occasionally they are not fired by the pumper. However, I do know that all the pumpers arise early in the morning about ten o'clock, and if you go to the pool hall at eleven you will find where all these flares are.

At this particular flare that I will proceed with next, at this particular time, unfortunately, Continental Oil Company had their Bell Lake Unit Fire Well No. 1 and quite a few people were coming to Jal from surrounding areas to really see a good oil well fire. It was a good one. This particular flare you could see it from Jal very easily, and occasionally some of the town's practical jokers would direct these strangers to this particular

flare that I am going to talk about. I don't know whether you can see this Exhibit or not. These wells that are named here shows you the Conoco Sholes A-23, this is not the well, but neither is it any well appearing on this particular Exhibit.

However, I chose this Exhibit because this well is located not very far away. I have also referred to it by a question that I asked Mr. Homer Dailey when he had testified for Continental Oil Company yesterday that when you are on the back side of the reef, you have a peculiar condition in the fact that it dips upward and to the east as you come up to the apex of the structure. Furthermore, this producing formation in this particular area has a producing characteristic in that it has a very good water drive from the west.

This particular well was located in this area and our Commission records show that the top of the Yates is 2,910 feet. The oil and gas pay is from 3,045 to 3,079 feet, the oil string is set at 3,019 feet with a total depth of 3,079 feet plugged back. Our geological interpretation is that the well is producing from the Yates formation and this is confirmed by the operator as evidenced by his forms. It is also interesting to know that this well file shows that in 1950 on May 22, the operator had filed a 24 hour shut-in pressure of 906 pounds. On December 5, 1950, the operator reported a shut-in pressure of 963.3 pounds dead weight gauge. In other words, at that time, it appeared to me that the well was classified as a gas well. Our records indi-

cate that the plug back operation in a 5,000 gallon treatment of acid were conducted during the initial completion of the well. The well produced one barrel per day, natural, increasing to 110 barrels per day following the 5,000 gallon acid treatment. The operator on Form C-105 shows an interval from 2,865 wiich is behind the pipe. The casing was set at 3019, and below the casing shoe and in the open hole the operator shows a gas zone from 3045 to 3050 and from 3072 to 3077. In other words, what the operator actually shows is that he has a gas zone along with the oil zone.

Now, on this particular day of March 3, I made the inspection at 10:00 P. M., Mountain Standard Time. The well was flowing the gas was being flared and burned at the well site. I observed the tubing pressure to be 330 pounds on a full one inch open choke The well was tied into a high pressure gas line by a high pressure separator. However, with the well flowing on 330 pound flowing pressure, I observed that the high pressure gas line had a static pressure of 560 pounds and in oil file terminology, could not buck the line pressure. Therefore, to produce his oil, he was actually venting considerable amounts of gas. I did not measure the gas, but whenever I compared this particular flare with the other, I would say that it was in the neighborhood of four or five million cubic feet per day.

I have another exhibit over here (indicating), I might point out that it is not the intention of the Commission to discriminate on pointing out certain wells. This well was not being flared.

We have the name covered up. This particular well has an oil string set at 2,808 feet and a total depth of 3,260 producing from the Yates and Seven Rivers. It was completed in March of 1949 with an initial gas potential of 58,500 cubic feet per day. It was produced as a dry gas well to August of 1951 and was completed in September of 1951, by deepening the total depth of 3,670. The well produced 55 barrels of oil for a 24 hour period and was given an oil allowable by virtue of deepening to the Queen pay. In the meantime, on September 22nd of 1951, the well potential was produced by a gas purchaser for 23,300 MCF per day. During January of this year the dry gas sales were 40,651 MCF. February of 1951, the producer sold 13,600 MCF. It is presently carried on the oil proration schedule for 17 barrels per day. You may wonder what I am leading up to, but I believe that the only way that we can insure ratable take is to inaugurate a gas-oil ratio limitation in these particular fields.

Q Do you have some bottom hole pressures?

A Yes, I would like to introduce into the record all the pressures of the Falby-Yates case heard abour four or five months ago. I would also like, at this particular time, to read some pressures that we have recorded and show the differential of pressures that we have. From north to south, actually in the Eumont field, the pressures of dry gas wells vary from 1,000 to 1,100 pounds. The pressure is pretty uniform until you reach approximately this particular area here.

Q What area is that?

A The Falby-Yates area, in other words, they gradiate down

to lower pressures and the shut-in pressures are 600 pounds tn that particular area.

Now, I would like to go ahead and for the sake of the record show that there was quite a bit of differential pressure between the Yates and Seven Rivers formation on one hand and the Queen formation on the other. This was brought up in the Falby-Yates. I would like to, for the sake of the record, they are the John M. Kelly's Jack No. 3 to 5, I would like to show the differential pressure that exists in these two wells, these two particular wells. One well was completed in the Falby-Yates Pool for the pressure of 625 pounds. The other well which was deepened to the Queen zone and had a pressure of 240 pounds in the lower Queen oil formation or a differential of 385 pounds. I found some other pressures of the same nature, two wells drilled on the 40 in the Jal area in Township 25 South with about the same differential. I think our study of bottom hole pressures taken throughout this area shows that there is a differential in the general area, the general classification, you might call it, of three to five hundred pounds differential between the Yates, Seven Rivers on the one hand and the Queen on the other. Now, I don't mean to say that we have two separate reservoirs but maybe that the pressure differential is due to the fact of the excessive oil withdrawals from the Queen formation and no one has proven to me, and it is hard for me to visualize, and I worked on this particular problem, whether or not we have one common source of supply. I

don't know. I finally came to the conclusion after studying the problem that the only way that you can tell whether you had a Yates, Seven Rivers and Queen with a common source of supply is to shut the entire field down for a period of, it may take ten days, a hundred days, or a thousand days, and allow equilibrium, allow the pressures to build up and reach the equilibrium and then selectively open up certain wells to see if we have interference and see the bottom hole pressure draw downs.

It is evident to me that that is economically impossible and by virtue of the fact of past conpletion practices where operators have drilled their wells in good faith, have completed them under theexisting rules and regulations at that particular -- I don't feel we should upset the applecart at the present time and deprive them of the rights that they had at that time and should have today.

Q Mr. Stanley, are there several occurrences which you have shown by Exhibits 1 and 2?

A Yes, sir, there are. I didn't have them all drawn up, but we have quite a few of these cases. Now, I would like to continue with Exhibit No. 4, 5, 6, 7, 8 and 9.

Q You prepared these exhibits also?

A Yes, sir, the girls in our office did the coloring, however, Exhibit No. 4 is casinghead gas sales for 1953 in the Langlie-Mattix Oil Pool. It is 25,251,867 MCF. These figures were obtained from the Commission files.

Now, on the vertical scale or the scale that is in percent range from zero percent to 50 percent, these bars represent gas-oil ratio intervals. These bars represent, say, that all the wells producing from the zero to 6,000 interval, gas-oil ratio interval produce 10.08 percent of this total amount of gas or have produced it in 1953.

From the 6,000 to 10,000 interval, it is 5.9 percent. From the 10,000 to 15,000 interval produced 6.6 percent. From the 15,000 to 25,000 interval produced 18.3 precent. From the 25,000 to 50,000 interval, 20.49 percent. From the 50,000 to 100,000 interval, 17.8 percent and those wells producing in excess of 100,000 to 20.81 percent.

Now then, I have compared Exhibit No. 4 and would like to compare it with Exhibit No. 5. Now, Exhibit No. 5, instead of using the total amount of casinghead gas that was produced in the Langlie-Mattix Oil Pool, I have prepared this Exhibit on the basis of 497 oil wells in 1953, those wells having a ratio of zero to 6,000, 29.37 percent; 6,000 to 10,000, 9.1 percent; 10,000 to 15,000, 12.27 percent; 15,000 to 25,000, 19.32 percent; 25,000 to 50,000, 12.27 percent; 50,000 to 100,000, 11.27 percent and only 6.44 percent for those wells producing in excess of 100,000.

In other words, it is plain to me that in the Langlie-Mattix only 6.66 percent of the number of wells produce in excess of 20 percent of the total casinghead gas. Now, instead of reading these figures into the record,to save time I would just like to go

ahead and state that I have studied the Cooper-Jal on the same basis, and have found that those wells in excess of 100,000 to one amount to 18.87 percent of the gas. When you figure it again on the oil well basis only seven wells produced 18.87 percent of the total amount of gas that was produced in the Cooper-Jal field or percentagewise, it is only 4.49 percent. Now then, I have combined the two pools. I believe that the two pools should be combined anyway. Based on the Langlie-Mattix and Cooper-Jal 25,000,000, plus the other 7,000,000 gas, approximately, this reflects the same manner then you throw them together. That over the ratio of 100,000 to one, those wells produce approximately 20.38 percent of the gas. On percentagewise basis, on the well basis of 653 oil wells, only 5.97 percent of the wells produce 20.38 percent of the gas in both the Cooper-Jal and the Langlie-Mattix Oil Pools. Unless you want help to read all these figures into the records, I would like to present the figures that appear thereon.

MR. YOST: The figures are on the Exhibit and they will be part of the record.

Q Please explain Exhibit 10.

A This particular Exhibit here (indicating), what I have tried to do in this exhibit again, I have broken down by colors to show you that the yellow color, as you gradiate from yellow to dark blue, you increase the gas-oil ratio. In other words, with yellow you start with zero to 2,000. Pink is 2,000 to 6,000; red is 6,000 to 10,000; blue is 10,000 to 50,000 and dark blue or

purple is 50,000 or over. What I am trying to show in this particular exhibit is that there is no rhyme or reason, or no sequence or no regularity of gas-oil ratio distribution throughout the two pools. That it actually depends in the manner in which the wells were completed, perhaps ten years ago or 15 or 20 years ago.

Q Please explain Exhibit 11.

A Exhibit 11 has numerous curves on it based from 1938 through 1953. First of all the blue curve is the number of wells in the field. We can see that from 1938 to the present time we have had a considerable increase in the number of wells in the particular field. This red exhibit --

Q (Interrupting) Red line?

A I mean red line, excuse me, represents the total gas plant take from 1938 to 1953, based on the figures available to us at the Commission office. This represents the dry gas plus casing head gas. The green line is the total gas that was reported by the operators, submitted on forms and presented to the Commission. We know that that is an impossible situation. First of all that green line should at all times appear above the red line for the simple reason that that green line should represent the total gas plant take, plus the gas that was being flared, yet only one time during 1948 did it exceed the red line, but ordinarily fell under the red line, the green line falling under the red line at all times from 1941 to the present time.

The orange line represents the casinghead gas sales. There is a slight increase and this curve, it is important that it is increasing, the casinghead gas, because actually the oil is decreas-

ing and the dark line represents the dry gas production which shows that it is increasing rapidly and especially during the past two years.

Now, this Exhibit which is Exhibit No. 12, the black line is the oil production from 1938 to 1953. It shows a great amount of oil that was produced in 1939, a gradual decrease or perhaps you might call it a rapid decrease to 1945, rather stable from 1945 to 1949, a little increase from 1949 to 1951, and then it assumes its downward trend. We attribute this increase in production due to the discoveries that were made in the Yates formation interval or at the dry gas interval. The number of wells is the blue line. It is the same line in effect that appeared on the other Exhibit. The orange line is the gas production which also shows you that we can't expect increasing gas production in the future.

What I would like to bring out about this Exhibit is as follows: In these two oil pools or in this particular area of the Jalco, the Langmat, the Langlie-Mattix, and Cooper-Jal, based on oil being worth $2.60 a barrel in that particular area, based on dry gas worth 9.5 cents per 1,000 and casinghead gas 3.5 cents per thousand, during 1953, from my calculations, the total value of the gas was $7,884,735.00. The oil was $7,079,167.00. In other words, in 1953, the value of gas was worth some $800,000.00 more than the value of the oil and I think that this would be exaggerated in the future.

Q Does this same situation that you have shown in Exhibit 4 to 9, in your opinion, exist in other pools?

A Yes, sir, it does, probably not to such an extent that they do in the Cooper-Jal and Langlie-Mattix.

Q Based on your testimony and the information from Exhibits that you have prepared, do you have any recommendation to make?

A Yes, sir, I do have.

Q Will you give those recommendations?

A Due to the absence of controlled production of casinghead gas, as presently defined, and due to the manner by which the wells have been completed in the past, first, casinghead gas is partly dry gas production.

Secondly, since the vertical limits of Langlie-Mattix, and Cooper-Jal Pools coincide with the vertical limits of the Langmat and Jalco, the withdrawals of gas and fluid from each and every pool have a direct bearing on each other, that there is non-ratable take of gas between the oil pools a ompared to the prorated gas of the dry gas pools. For the protection of correlative rights, the insurance of a greater ultimate recovery of oil, and the prevention of rapid decline in pressures in certain areas to insure the recovery of gas at higher pressure and to utilize the full extent of the present reservoir energy, I feel that the no flare order and a gas-oil ratio limitation are long overdue and are essentially needed for a successful program of gas proration. From my calculations, the average gas-oil ratio from the Langlie-Mattix Oil Pool is 17,600 to 1, and the Cooper-Jal, the average gas-oil ratio is 7,400 to 1. That as a recommended GOR/gas-oil ratio for a trial period during our first step in gas proration, I

recommended the limit be 10,000 to 1.

Q What do you think ~~by~~ about A.D. the wells having a gas-oil ratio of over 100,000 to 1?

A Well, I think that we should give them some consideration and use the statutory definition that Texas has of defining a gas well of being 100,000 to 1. Anything in excess of that should be defined as a gas well. However, I thought perhaps others would present testimony along that line, but that is my general feeling.

MR. YOST: That is all the questions we have.

MR. SPURRIER: Anyone else have a question?

CROSS EXAMINATION

By MR. OWEN:

Q On this GOR, do you want it to apply to all the fields, ti... this recommendation of gas-oil ratio?

A For both dry gas pools?

Q No, for the Cooper-Jal and Langlie Mattix?

A Yes, there are others that were mentioned.

MR. CAMPBELL: Just one question, I believe that you may have stated your testimony on this point, but I wasn't certain of it.

By MR. CAMPBELL:

Q Based upon your study in the Jalco and Langmat areas, is it your opinion that the horizontal division between the Jalco and Langmat Gas Pools should be eliminated?

A Yes, sir, based on my study, I think they should be elimi-nated. However, at this time, I did not want to go ahead and in-

corporate those two pools with the Eumont.

MR. SPURRIER: Anyone else?

MR. YOST: I would like to offer in evidence Exhibits, Commission's Exhibits 1 and 2, and Exhibits 4 to 12, all inclusive.

MR. SPURRIER: Is there objection? Without objection they will be admitted. Mr. Howell?

By MR. HOWELL:

Q Mr. Stanley, if that definition, the statutory definition in Texas of a gas well having a gas-oil ratio in excess of 100,000 to 1 be adopted, would the mere adoption of that definition prevent any waste in the field?

A I don't know whether it would or not, Mr. Howell?

Q In other words, the no-flare order clearly would?

A Yes, sir.

Q And limiting gas-oil ratio would?

A Yes, sir.

Q But the mere change in the definition of some wells that are now defined as oil wells, to wells defined as gas wells, would not have any effect upon conservation as you can see at the present?

A Yes, sir, that is correct. I know that you are concerned with this particular problem, Mr. Howell, that we have some high gas-oil ratio wells that enter a casinghead gas line, is that not true?

Q That is correct.

A If they were classified as gas wells it would be assumed

that they would expect to get the price of a dry gas well, is that right?

Q It might effect a great many contractual relationships.

A Well, I don't know, but I think it is a moral obligation of the operators not to take advantage of that definition, if it should ever pass.

MR. SPURRIER: Mr. Stahl?

By MR. STAHL:

Q You stated that you wanted to utilize the definition as presently in effect in Texas, as I understood your testimony. You mean both parts of the Texas definition or only the 100,000 to 1?

A Only the 100,000 to 1. I am not familiar with the other part.

MR. SPURRIER: Anyone else have a question?

By MR. MACEY:

Q Exactly what do you accomplish by defining a gas well as having a limit of 100,000 and over?

A Simply for administrative purposes.

Q If you had a well producing more than 100,000 at a ratio of 100,000 to 1, you would put that well in the gas pool?

A Yes, sir.

Q Irregardless of where it was producing from?

A Not necessarily. I believe that we may end up with a problem of having defined some gascap wells and I don't know how I would handle that problem, where we are producing gascap. If it would appear in the Queen formation that we are having 100,000

to 1, I believe I would prorate it as a gas well or prorate it under a gas-oil ratio limitation. I have never hurdled that problem.

MR. SPURRIER: Anyone else? Mr. Woodward?

By MR. WOODWARD:

Q Mr. Stanley, have you been able to determine approximately how many oil wells are at the present time completed in, what you would call a predominant gas pool, that is using your definition of 100,000 to 1, for the moment, and on the basis of that definition, have you been able to determine approximately how many oil wells are at the present time completed in that common source of supply that you would call the gas zone?

A I can tell you ow many wells have a gas-oil ratio in excess of 100,000 to 1, on these Exhibits I would assume that would --

Q (Interrupting) That is --

A (Interrupting) In the Langlie-Mattix Oil Pool, we have 32 wells at the present time. They have a ratio in excess of 100,000 to 1. In the Cooper-Jal Pool we have seven wells in that category.

Q These are pools, defined primarily as oil pools?

A Oil pools, yes, sir.

Q You have a relatively small number of gas wells in those pools?

A Yes, sir.

Q What is the situation with respect to the gas pools?

A Well, now, in the gas pools, and I would like to make a point here, we have a number of wells that are producing actually from what we call a dry gas reservoir, actually producing oil. A typical example is the Falby-Yates, and we have other synclinal areas that were brought out in this particular testimony, especially, the Winter area, which falls in the neighborhood of Jal, New Mexico. Several of those pools that we have that may be effected also by this gas-oil ratio limitation. The reason that I recommended a rather, it seems, a high gas-oil ratio limitation is for this reason: I would like to, at all times, see that these oil wells are produced in such a manner that they will void more space than the surrounding dry gas wells volumetrically. I believe that is in the interest of conservation. I believe that if we withdraw volumetrically the greater volume in the Falby-Yates Pool, you are actually surrounded by gascap, and the flow will be a natural repressuring project. If the reverse were true the oil would flow into the dry gas zone and that would certainly create waste. Therefore, I feel that these gas-oil ratio limitations that I had made is not a steadfast rule. They could change with changing conditions.

Q Now, Mr. Stanley, in your experience do a great many of the pools that have been classified as either oil or gas pools, either in New Mexico or other states, are a great many of those pools productive of both oil and gas?

A Yes, sir.

Q Have the Commissions of this State and other states, to

your knowledge, classified them simply as an oil or gas pool, depending upon the predominant production from that pool?

A Yes, sir, they have.

Q Have they often found it necessary to call any one of these things an oil and gas pool?

A Well, they may have, but I am not familiar with an actual example.

Q You are acquainted with the fact that they have taken some common sources that are productive of oil and gas, or called it either an oil or gas pool?

A Yes, sir.

Q One other series of questions. As I understand, you have pointed out the possible sources of gas production by well. I believe you have testified that you are getting some gas production from oil wells completed in oil pools?

A Yes, sir.

Q You are getting some gas production from oil wells that are completed in gas pools?

A Yes, sir.

Q And, of course, you are getting some gas production from gas pools as such?

A Yes, sir.

Q There is one other possibility of the gas well in the oil pool?

A Yes, sir.

Q And I believe you have a statewide rule concerning volu-

metric displacement?

A Yes, sir.

Q Concerning that problem, are there any other combinations as to gas production by well that that list does not include?

A No. I would like to bring out a point along John's questioning. The reason that I would like to have two pools is that I would like, like I originally stated, I would like to protect the operators who have dually completed, who have twin wells, who have done these things in good faith under the then existing Rules and Regulations of this Commission and I don't think that this Commission or any other regulatory body should deprive them of the rights of those operations that have been conducted in the past in that manner.

Q And then view the problem of the oil well and gas well as one of working out some sort of practical solution?

A Yes, sir.

Q Whereby you eliminate to the greatest extent the waste of both oil and gas?

A Yes, sir.

Q And permit the greatest of recovery of oil and gas?

A Yes.

Q Recognizing the expenditures of money and assessing, to some extent, some reasonable and limited amount of gas available for the production of that oil, is that correct?

A Yes, sir.

MR. SPURRIER: Anyone else?

MR. COUCH: Terrill Couch of the Ohio.

By MR. COUCH:

Q Mr. Stanley, I don't believe I got quite clear whether your recommendation of the 10,000 to 1,000 to 1 gas-oil ratio would apply to all of the 12 oil pools that have been mentioned in connection with this hearing or not, that would increase the gas-oil ratio in some of them and put one on where in some cases there is none?

A I only referred to those that did not have a gas-oil ratio.

Q The others you recommend leaving as is?

A Yes, sir, I might elaborate a little further. I made the study in the Langlie-Mattix and Cooper-Jal Pools. I definitely believe that a gas-oil ratio of 10,000 to 1 should exist in the two pools. There may be something that I overlooked in the named pools, where the 10,000 to 1 would not be practical and would not be workable. If that is the case, I think it should be called to the Commission's attention and some other arrangement made as far as the gas-oil limitation is concerned.

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

(Witness excused.)

MR. SPURRIER: We will take a short recess.

(Recess.)

MR. SPURRIER: Mr. Stanley has been excused, but I understand some one wants to ask him a question for the record. Is

that true?

MR. MACEY: Yes, sir.

S. J. S T A N L E Y.

recalled as a witness, having been previously duly sworn, testified further as follows:

CROSS EXAMINATION (CONT'D.)

By MR. MACEY:

I asked you the question when you were on the stand a few minutes ago about the purpose of defining gas well at the 100,000 to 1 limit. You answered, if I remember correctly, that it was for administrative purposes, more or less?

A Yes, sir.

Q I think you should explain to the Commission exactly what you mean by that answer.

A Whenever, I said, for administrative purposes, any gas well as so defined would naturally be subjected to certain rules, and I would like to read into the record Rule 404, Natural Gas Utilization. "After the completion of the natural gas well, no gas from such well shall, first, be permitted to escape to the air; secondly, used expensively in engines and pump and then vented; thirdly, used to gas lift oil wells unless oil gas produced is processed in a gasoline plant or beneficially used thereafter, without waste or; fourth, used for the manufature of carbon black."

MR. MACEY: That is all.

MR. HOWELL: May I ask one question following that? Ben Howell representing El Paso Natural Gas Company.

By MR. HOWELL:

Q Could not the same result be obtained by amending Rule 404 to make it applicable to any gas produced from a gas well or any well having a gas-oil ratio in excess of 100,000 to 1?

A I see no objection to that.

Q Would not that achieve every result of prevention of waste without changing the status of any existing wells?

A Possibly, it could be.

MR. HOWELL: That is all.

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

MR. CAMPBELL: May I ask one more question?

By MR. CAMPBELL:

Q Mr. Stanley, how would you define a well that happens to be open in both the gas zone and the oil zone?

A Well, sir, at this present time, we are defining that as an oil well, being open in the lowermost zone and the gas-oil ratio limitations would actually take care of such a situation.

Q You are defining all those as oil wells at this time?

A At the present time.

Q Don't you think that administratively it might be wise to take care of those wells by defining them on the basis of a gas-oil limit such as 100,000 to 1, so that anyone who has wells in that condition would have to make his decision as to what to do with them, but in either event he would be subject either to gas prorationing or the gas-oil ratio limitation?

A That is correct.

MR. CAMPBELL: That is all.

MR. STANLEY: I think Judge Foster had a question for an order that he could not find. I would like to answer that question, if you want it answered, Judge.

MR. FOSTER: I wanted to call the Commission's attention to the fact that in these oil pools that Mr. Stanley has testified about here this afternoon, there is a Commission Order that is in effect, which declares tham to be essentially gas pools and which abolished the gas-oil ratios in those pools. I want to call it to the Commission's attention because I think you will want to deal with it in the overall problem.

MR. SPURRIER: Anyone else have a question? If not, for the third and last time, the witness may be excused.

(Witness excused.)

MR. SPURRIER: Mr. Woodward, are you ready to put on your testimony?

MR. WOODWARD: Yes, sir. If the Commission please, I would like to make a preliminary statement with respect to Amerada's interest and position in this matter and make a brief reference to the species of waste that are now in the record and then ask Mr. Christie some questions with respect to his recommendations on the types of Rules and Regulations that he feels are desirable.

"Amerada Petroleum Corporation is interested in Case 673 as a producer of gas and oil from the Eumont, Jalco and Langmat gas

pools and from the Monument, Eunice, Falby-Yates, and Langlie-Mattix oil pools in Lea County, New Mexico, as presently delineated by the Commission.

It is Amerada's contention that the production of natural gas from the gas wells and from the gas pools included within the call of this hearing is in excess of the reasonable market demand for the types of gas produced from such wells and pools, that such production is defined as waste by Section 2(e), Chapter 168, Laws of New Mexico 1949, and that gas proration orders are necessary to prevent such waste. It is also contended that the unrestrained dissipation of reservoir gas energy from oil wells and oil pools constitutes waste as defined by Section 2(a) of said Chapter and that a limiting gas/oil ratio should be placed on production from oil wells and oil pools for the prevention of such waste. It is further contended that the flaring or blowing into the air of natural gas without beneficial use constitutes waste as defined by Section 2(b) of said Chapter and that a "no-flare" order is necessary to prevent such waste.

For substantial evidence of waste in the record of Case 673, and Case 582 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at page 126 et seq., with respect to the relationship between the allowable for residue gas in Texas and the market for dry gas in the Jal area of New Mecico indicating, at least seasonally, the capacity of wells in the Jalco area to produce in excess of Market demand.

2. Stanley J. Stanley, the January hearing in Case 582 at page 136 et seq., with respect to the possibility of underground waste of oil in the Cooper-Jal area resulting from excessive production of gas cap gas.

3. R. D. Grimm, the February hearing in Case 582 at page 13 et seq., with respect to the underground waste of gas resulting from disproportionate withdrawals from different portions of the same gas reservoir.

4. R. D. Grimm, the February hearing in Case 582 at page 29 from Phillips' Exhibit 4 showing the volume of natural gas vented from New Mexico gasoline plants which process casinghead and gas well gas in 1953.

5. R. D. Grimm, the February hearing in Case 582 at page 29 to the effect that productive capacity in the area covered by Case 673 is 7-10 times greater than the capacity of present gas transportation facilities.

6. R. D. Grimm, the February hearing in Case 582 at page 38 in connection with the surface waste of gas by venting and flaring it in the field.

7. G. E. Trimble, the March hearing in Case 673 at page 57 in connection with the venting of gas from a gas transmission facility in the Langmat Pool.

For substantial evidence of prejudice to correlative rights in the record of Case 673, and Case 382 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at

page 138, et seq., with respect to disproportionate withdrawals of gas from adjacent leases in the Langmat Pool.

2. R. D. Grimm, the February hearing in Case 582 at page 16 et seq., with respect to the adjustment in disproportionate withdrawals in the Jalco, Arrow, Langmat, and Eumont Pools during 1953 that would result from gas prorationing.

3. R. D. Grimm, the February hearing in Case 582 at page 20 et seq., with respect to disproportionate withdrawals in the Jalco Pool.

4. R. D. Grimm, the February hearing in Case 582 at page 22 et seq., with respect to the number of wells that have secured pipe line connections as the result of gas prorationing.

5. G. E. Trimble, the March hearing in Case 673 at page 54 et seq., with respect to disproportionate withdrawals and drainage from and to adjacent leases in the Langmat Pool.

R. S. CHRISTIE

recalled as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. WOODWARD:

Q Mr. Christie, you have been present at each of these hearings that is at the January, February and March hearing in Case 582 and in Case 673, is that correct?

A I have been present but I haven't attended the full hearing on all cases.

Q You have heard a substantial part of the testimony on these cases?

A Yes, sir.

Q You have heard Mr. Stanley's testimony today concerning waste in this area?

A Yes, sir.

Q Mr. Christie, for the prevention of waste and the protection of correlative rights in pools coming within the call of Case 673, what is your recommendation with respect to the production of gas from gas wells completed in gas pools?

A We would recommend, Amerada recommends that the present rules remain in effect with some minor modifications. The principal modification being suggested by Gulf of the 660 acre unit with a standard 160 acre unit as being the base and the provision be made for securing unorthodox units more easily.

Q Mr. Christie, what would be your recommendation with

respect to the production of gas from oil wells completed in oil pools?

A We would recommend in those fields that do not have a limiting gas-oil ratio that a limiting gas-oil ratio be placed on those wells. We would suggest to start off that this limit be 6,000 cubic feet until such time as testimony or evidence would indicate it might be something different than that.

Q Mr. Christie, are you suggesting that limitation should be placed on the production of gas from oil wells in oil pools as a result of this hearing or as a result of special study concerning individual pools?

A I personally think it might be as a result of study.

Q That is after notice and hearing of the special study?

A Yes.

Q What is your recommendation concerning the production of gas from a gas well completed in an oil pool?

A That provision is already taken care of in the present State-wide rules which is State-Wide Rule 506B-2, which briefly is, "A volumetric displacement rule allowing you not to produce more gas than approximately the volumetric displacement of oil and gas."

Q Mr. Christie, what would be your recommendation with respect to the production of gas from oil wells completed in gas pools?

A It is my opinion that the rules should be promulgated to take care of this class of well and as a sample, I have

one that I would like to read into the record. "The unit allowable for gas shall be increased 2,000 cubic feet per barrel of oil produced from oil wells located on the unit and completed in the gas pool for which such unit is established, and such oil well shall be permitted to produce the entire unit allowable for gas, provided their production of oil does not exceed the top unit oil allowable for such a well as determined by Rule 505."

Q That rule contemplates a situation where the same operator has both oil and gas well and he is merely given an option of producing the increased unit gas allowable so long as he does not exceed the oil allowable, is that correct?

A That is correct.

Q What is the justification, Mr. Christie, for permitting an additional allowable of gas for a gas unit that has both oil and gas wells located on it, and completed in the same common source?

A Well, an operator should be entitled to produce his oil so that it wouldn't move off his lease or move up structure into gas zone and he is entitled to produce that amount of oil or gas that is in the oil in solution. This 2,000 that we recommend which is more or less arbitrary, could be anything from the actual solution ratio at the present time to any other arbitrary figure.

Q Are you suggesting that such a Rule be adopted as a result of this hearing in this Case or as a result of special study and hearing at some future date?

A I think it should be something the Commission should consider and set for hearing at a future date after study and so forth.

Q Considering then that the provlem of the gas well and the oil pool is taken care of by the Statewide Rule and you are recommending that the production of gas from oil well in oil pools and the production of gas from oil wells in gas pools be taken care of at a subsequent hearing that leaves this then for the scope of any order issued as a result of this case to the production of gas from gas wells in gas pools, is that correct?

A Yes, sir.

Q What recommendations do you have concerning the no-flare order applicable to the production of dry gas casinghead gas and gas cap gas, residue gas?

A We favor a no flare order.

Q As a practical matter, do you think that gas proration would work without it?

A No, I do not, not satisfactorily.

Q Do you have any recommendations concerning the definition of a gas well?

A We must have a definition, I think the one that has been proposed by Mr. Stanley is all right. That is 100,000 cubic feet per barrel of oil, over 100,000 cubic feet per barrel of oil.

Q Do you have any further recommendations, Mr. Christi in this matter?

A No, I don't.

MR. WOODWARD: That concludes Amerada's presentation here. We might say in parting that we feel that all of the operators that have testified before this Commission

over the last four or five months have indicated the common recognition of the fact that gas prorationing is necessary, it is for the prevention of waste and protection of correlative rights and if a difference of opinion exists, I would suspect that it exists as to the ways and means and not as to the ultimate object to be accomplished. We have purposely left or urged the Commission to leave out some very important areas of gas production, namely, the production of gas from oil wells and oil pools, and the production of gas from oil wells in gas pools, until that matter can be given additional study and some investigation made of the appropriate amount of gas to allocate to oil wells to prevent the underground waste of oil or the premature abandonment of such oil wells. We have, also, pointed out that at the present time, the Statewide Rules do take care of the situation of the gas well in an oil pool. We believe that such a suggestion will eliminate a great deal of subsequent debate and confusion at this hearing if the scope of those orders are limited to that extent at this time, but we would like to get in the record that we are urging the Commission's study of these on the two important areas.

MR. SPURRIER: Anyone have a question of Mr. Christie?

MR. SELINGER: May I ask Mr. Christie a few questions?

By MR. SELINGER:

Q I want to direct your attention to your recommendation, as to only that part of your recommendation in which you recommend as a temporary measure the adoption of a 6,000

foot gas-oil ratio limitation in those oil pools. I didn't understand whether you were making that recommendation as to the Langlie-Mattix and Cooper-Jal only or whether you were applying it to all those fields that have no limiting gas-oil ratio?

A I was recommending it for all fields that do not have a limiting ratio.

Q Does Amerada have any production in the Penrose-Skelly field?

A Yes, we do.

Q Are your wells connection as to its casinghead gas?

A As far as I know, they are.

Q Aren't all the wells in the Penrose-Skelly connected to gasoline plants?

A I believe that is true.

Q In which you differ from Mr. Stanley's recommendations of a 10,000 cubic foot limitation. Have you undertaken to determine whether or not that would have an adverse effect in reducing the gas-oil ratio limitation from 10,000 to 6,000, whether or not that would have any adverse effect on the gasoline plants?

A I haven't make an analysis of that, no, sir.

Q If that lowering of the recommendation of Mr. Stanley, from 10,000 to 6,000 would have an adverse effect on the gasoline plants, would you be agreeable to having the limitation remain at 10,000 as made by Mr. Stanley?

A Yes, I would.

MR. WOODWARD: I would like to say, I think that

line of questioning illustrates the desirability of deferring that very subject for subsequent study. There are so many ramifications to the thing, I don't think within the time alloted, we can get them all in. We are specifically urging that that subject of gas produced from oil wells in oil pools be deferred for further study.

MR. SPURRIER: Anyone else have a question.

MR. GRENIER: A. S. Grenier of Southern Union.

By MR. GRENIER:

Q Mr. Christie, the questions I would like to ask you, relate primarily to the situation involving gas wells in gas fields and more particularly your first recommendation. As I understand it, do you recommend that the present allocation formula based one hundred percent on acreage be retained?

A Yes, sir.

Q Why, is it your opinion that that be so or rather, perhaps you could get at it this way. How can you reconcile that with the rather material variations in pressure between the northern portion of this area that we have under discussion and the southern?

A I reconcile it the same as we do oil. We prorate oil on the acreage basis and we have all those conditions in the oil fields. I think it would work just as well as gas.

Q Can you compress the oil in a small area the same way as you do gas?

A No, you can't.

Q Are the two problems then physically identical in your thinking as between oil and gas?

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A No, you can't.

Q Are the two problems then physically identical in your thinking as between oil and gas?

A Well, they are similar in one respect that you have to prorate them. That is one factor and I think that is all we need.

Q Assuming that a formula based in part, at least, on deliverability could be worked out which wasn't too elaborate and complicated, would you have any objection to that on principle giving recognition to a deliverability component?

A I would have to see the formula first.

Q It doesn't strike you as shocking, just as a general proposition that a deliverability should be given some consideration in a matter of this kind?

A I think it is proper to look into it.

MR. GRENIER: Thank you.

MR. SPURRIER: Anyone else? Mr. Stahl.

MR. STAHL: I would like to make this observation before Mr. Christie gets off the stand with respect to deliverability, at least, as far as Permian Basin Pipeline is concerned. We have refrained, during this hearing about going back into the question of deliverability, Primarily, because, as you all know, there is an Industry Committee which is currently working on some of those problems. There are tests that are currently being run, deliverability tests. It is our feeling and belief, possibly, it was a erroneous feeling, that it was the general consensus of opinion that we would wait until the work of this Industry Committee was flanked up, before we got back into the question of deliverability. I appreciate that Mr. Christie has made a recommendation. I think he has made it and will admit he has

made it without putting in any evidence to support it. If we might defer the question of deliverability until such time as the industry committee has had an opportunity to get farther along with their work, I am quite sure that we can resolve the question of deliverability at this time in that way. For that reason, I would like to request that Mr. Woodward withdraw that particular recommendation at this time, for that reason and no other reason?

MR. WOODWARD: If the Commission please, I believe Mr. Christie urged the adoption of a rule with respect to gas wells in gas pools, substantially in the form of the present order.

Mr. Christie, let me ask you this question, with respect to the present orders which you are urging a continuation of, substantially in there present forms do those orders in your opinion, contemplate further study of the allocation factor?

A I understand all orders are subject to renewal.

Q Is there any statement in the statement of facts in that order which would indicate that the matter is being given thorough study, do you recall?

A No, I don't recall that.

MR. WOODWARD: We will introduce one of the orders, if necessary, or make reference to it. It is part of the Commission records which clearly indicate that this matter is being given further study. In fact, what Mr. Stahl had recommended is that they go along on an acreage basis now, pending a further study of the allocation formula. Not that

we are committed in any way to the present formula but that we adopt a rule substantially as we have now.

MR. STAHL: That is satisfactory to me as long as it is understood that deliverability has been postponed and as long as Mr. Christie's recommendation includes that postponement.

MR. WOODWARD: We make reference to Order No. 4-370-A.

MR. SPURRIER: Anyone else have a question of Mr. Christie? If not he may be excused.

(Witness excused).

MR. SPURRIER: To be very frank at this moment, I am lost about who comes first.

MR. CAMPBELL: We have nothing further except a statement. I want to make a remark with reference to the matter that arose before lunch in connection with Mr. Dailey's testimony. The statement made by the attorney for Continental relative to their position on the line between Jalco and Langmat.

In view of the fact that at this hearing and at previous hearings in connection with this matter, all of the witnesses who have testified have testified that there should be in their opinion, there was no reason for any line between the Jalco and Langmat gas pools, these, including the witnesses, geological and engineering witnesses for Gulf, Amerada, the Commission, Phillips, Texas Pacific Coal and Oil Company, statements made on behalf of Skelly and Stanolind, in view of the fact that Continental has indicated that they will have no objection to the removal of that line, we have

decided not to add to this already voluminous record or to the time that is being spent here belaboring that particular question.

We are willing to forego the cross examination and the introduction of additional evidence which we have available in the light of these developments. We do not, however, in the event, someone else decides to cross examine Mr. Dailey, we wouldn't want to close the door to asking him some questions, if that particular phase of his testimony arises in connection with other cross examination. Other than that, I do have a statement that I want to make at the proper time as to the position of Texas Pacific Coal and Oil Company as a result of these additional hearings. I assume that you are taking those in order when you make the recommendations and I have no testimoney to offer in connection with it.

MR. SPURRIER: We would be glad to have your statement, if you have it ready.

MR. CAMPBELL: Well, I have it ready.

MR. KELLY: I would like to ask a question on a point of order. On the statement that Mr.Campbell is going to present and other people, time might run out on your five o'clock dead line, does the Commission intend to keep the case open for other operators to file written statements after that time, if they don't have the chance to present an oral one?

MR. SPURRIER: If it isn't sworn, it isn't testimony. I am sure that you can submit your statement at any time.

MR. KELLY: Supposing the written statement is filed under oath, that is sworn to before a notary?

MR. SPURRIER: We can't close the case then. We will have to continue the case. It is not testimony because no one can cross examine, Mr. Kelly.

MR.KELLY: I am not asking about testimony statements. You will keep the case open for statements to be filed?

MR. SPURRIER: That can always be done. We will take the case under advisement and give you ten days to get those statements.

MR. KELLY: The case will be open after ten days for ten days for the filing of written statements by any operator that so desires?

MR. SPURRIER: It will.

MR. CAMPBELL: I am not jockeying for position but I understand Mr. Howell has some testimony he wants to offer. I feel that perhaps the testimony should be received before the statements start.

MR. SPURRIER: I realized that Mr. Howell was there. You were on your feet.

MR. CAMPBELL: I don't know what Mr. Howell is going to do. I would rather go back and sit down.

MR. HOWELL: We would like to have Mr. Baulch and Mr. Steen sworn as witnesses.

(WITNESSES SWORN)

J. W. Baulch, Jr.

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By: MR. HOWELL:

Q Please state your name for the record?

A J. W. Baulch.

Q What position do you occupy with El Paso Natural Gas Company?

A I am the supervisor of the gas dispatching and the gas production departments in the Permian Division.

Q Where are your headquarters?

A At Jal, New Mexico.

Q Are you familiar with the gathering facilities which the company has in the Jalco and Langmat Gas Pools?

A Yes, I am.

Q Now, what facilities do you have that take casinghead gas from those two pools?

A Well, at the present time, we have three plants that we are processing casinghead gas through. Namely, what we call our Jal, No. 2 plant, Jal No. 3 plant and the Jal No. 4 plant. We have a network or a gathering system that we interconnected between the three plants with the exception of No. 4.

Q Now, is there any other pipeline connections, substantial pipeline connections taking casinghead gas out of those areas?

A Not that I know of.

Q As to the low pressure casinghead gas, do you have the figures of the daily volumes which were processed through your plant in the last six months?

A Well, I have it over a four month period from December.

Q Well, over the four month period?

A It begins in December, 1953 and continues through March, 1954. During that four months period we averaged gathering 118,401,000 cubic feet per day.

Q Is that themaximum capacity of the plants that handle that gas?

A Roughly, our capacity is around 120,000,000 to 123,000 000.

Q Now, are there wells with which that system and that plant is connected which are unable to deliver gas into the lines and the operators are flaring some in the field?

A That is right.

Q Is that gas in excess of the plant capacity you have for processing it?

A Yes, it is.

Q Have you made studies based upon the reports of the gas and oil produced from wells connected with that system as these reports are filed with the Commission?

A Yes, sir, I have.

Q Have you estimated the average daily volume that will be available in the event, a limiting gas-oil ratio of 10,000 to 1, be placed in that area?

A Yes, I have.

Q What is your estimate as to the volumes that will be produced from the wells to which your system is connected?

A Well, with the 10,000 to 1 gas-oil ratio limitation as best I can tell, we would be able to gather approximately the 99,761 cubic feet per day.

Q That is 99 MCF, is it not?

A Yes, sir.

Q 99,000,000 cubic feet?

A That is correct.

Q Is that within the capacity of your plants to process?

A Yes, it is. Now, that would reduce the volume of gas that we have averaged gathering for the past four months by 18,640,000 cubic feet.

Q Would that furnish an available market then for gas which is now being flared?

A That is right.

Q Now, if that ratio were 6,000 to 1, have you made computations as to the volumes that would be gathered and processed through that system?

A Yes, I have. The amount of gas available would be reduced to 85,558,000 cubic feet per day.

Q That would leave idle plant capacity for some 35,000,000 cubic feet a day?

A A little under that, to be exact 32,843,000 cubic feet.

Q Is there a limit on the treating capacity for the dry gas that can be handled by El Paso Natural Gas Company's system?

A Yes, there is.

Q Just briefly in 1952, what was the daily volume of dry gas that could be processed through El Paso Natural Gas Company's facilities in Lea County?

A Well, approximately 300,000,000 cubic feet of gas.

Q Has that been increased?

A Yes, it has.

Q What is it now?

A At the present time, our normal facilities, that is facilities, that we would normally use for processing high pressure dry gas is about 400,000,000 cubic feet per day. As a replacement of casinghead gas, we can utilize up to an additional 140,000,000 which makes our total capacity for dry gas about 540,000,000 cubic feet per day.

Q In order to get that, you would have otherwise have to dispose of 140,000,000 casinghead gas to get to that?

A That is right.

MR. HOWELL: I think that is all.

A I might add one thing, these volumes that I have been quoting are on a 13.45 pound pressure base.

MR. W LKER: Anyone have a question of the witness? If not, the witness maybe excused.

(Witness excused.)

H. F. S T E E N

the witness, having been first duly sworn, testified as follo:

DIRECT EXAMINATION

By: MR. HOWELL:

Q Will you state your name for the record?

A H. F. Steen.

Q You are the same H. F. Steen, who testified previously in this hearing for El Paso Natural Gas Company?

A That is correct.

Q Now, Mr. S$_t$een, will you tell the Commission briefly what the facilities are in Lea County for marketing both dry

gas and residue gas, that is the character of facilities that are required for each?

A Well, briefly, the facilities required for marketing dry gas in Lea County, all of the gas is not, not all of it is sour, but it is all handled as sour gas because the sweet and sour is enterconnected so far as the gathering system is concerned, consequently, pipeline systems are required. Purification compression dehydration plants are required. On the low pressure gas you have the same thing, if you gather the casinghead gas you have a gathering system. If you buy this residue gas from the tailgate of someone else's gasoline or residue gas plant, you have a pipeline there, then you have compression facilities, you have dehydration and purification facilities.

Q Just roughly, what is the total cost of the marketing facilities that are installed in Lea County--

A (Interrupting) Mr. Howell, I do not have it for Lea County. I have it roughly for the Permian Basin and it is averaged over a period of some eight or ten years. There is roughly 116,000 horse power installed which costs, at the time installed some $15,000,000.00. The average price of that or the price today would be some 25 percent higher than that. There is some 15 and a half million dollars worth of gasoline extraction facilities. There is some $13,000,000.00 of purification and dehydration, not to speak of pipelines. A rough estimate of the pipelines would be $10,000,000 to $20,000,000. I couldn't say just what that is. I speak only of our facilities. On top of that other operators, particularly, those who

have gasoline plants in the area have facilities that I would imagine would be comparable to the figures that I have given or, they could be more or less, I am not sure about that. When I say other operators, I mean such as Phillips, Gulf, Skelly, Warren, Stanolind and I am not purposely leaving anyone out. There are numerous others that have gasoline facilities, all sell the gas as residue or other operators, particularly us, take it as sour gas. We compress it to a higher pressure, purify it and dehydrate it and put it into our main line. In some cases such as the Gulf Eunice Plant at Eunice, the Warren Saunders Plant, the Denton plant, all in Lea County, we buy the gas from the operators as pipeline gas. He has done all of these things that I have spoken of. He has gathered the gas, purified it, dehydrated it and compressed it and sells it to us to meet the rigid requirements of the pipeline specification gas.

Q Have you considered the question as to whether or not, without the necessity of constructing additional facilities, your present facilities can handle the casinghead gas that might be produced in the Langmat and Jalco field, if a no flare order and a limiting gas-oil ratio be imposed?

A I have studied the figures that Mr. Baulch gave earlier concerning that. I concur with them. I think it is correct. I would like to add at this time that we had purchased some six or seven months ago two 2500 horse power, it happened they were Clark engines, they are at this time stored in Clark's Factory at Holland, New York. The purpose of this purchase was to install these two engines at our No. 4 plant.

Incidental to that, there would have been a number of pipelines to be installed to take this flare gas which we feel it is our duty to do in the Jalco-Langmat area as we have tried to build commensurate with the gas venting there. Our records indicated that there was some 13 to 16,000,000 cubic feet of gas build up and up of that volume that was flaring. Consequently, we bought these engines and intended to install them in the No. 4 plant. The engineering work is complete. The engines are stored in New York. However as the case opened again before the Commission and has been continuing now for some period of time, we did not feel that we should go ahead with that installation until we were sure what the outcome of this case might be. From where I sit right now, I am certainly happy that we did not spedn that million and a half dollar that would have been required to install the two engines and the pipeline to gather the gas that is now venting.

Q As a practical operator, Mr. Steen, would you state to the Commission, if you can see any conservation measure that would be achieved or waste prevented by defining as a gas well, any well that produced in excess of 100,000 to 1 cubic feet?

A I can not see where it would be a conservation measure particularly, Mr. Howell. I believe all the operators feel that we are worried about that because of the price of the gas. That is not the case primarily. I think if the gas-oil ratio which I certainly hope goes into effect, I might add here, I think it will be the greatest step toward conservation if the no flare order and the gas-oil ratio go into effect and

are enforced that has ever happened in the history of the New Mexico Oil Commission. If the Commission puts the orders in effect and enforces them so far as conservation of natural resources are concerned, we are highly in favor of it. We would hate for it to be so placed that we would lose the operation o a great part of the operation of any of these plants, however, we are not worried about that. That is beside the point. Back to your question about the 100,000 to 1 oil-gas ratio. It is my feeling that not only on the 100,000 to 1 ratio well but other high gas-oil ratio wells, say 50 or 60 or 30,000 to 1, it is my feeling that some experience will have to be obtained in producing those wells. I do not know that the geologists or the gas engineers presently concur in this and I do not speak as an expert, merely from some degree of experience. When they cut this field back, if it is done, I think it will raise the pressure over the various gas pools and oil pools, particularly--I don't mean gas pools, I mean oil pools throughout this area, by so doing, particularly, when a well is completed in three formations, say that the Yates, Seven Rivers, and Queen formations is opened, the Queens being the oil production formation, maybe the Seven Rivers, the Yates, also being open into the well bore, when that well is cut back, I am inclined to believe that in some instances the gas pressure from the Yates, which is generally higher than the other formations, would cause an increase in pressure in the other formations and possibly restrict or cut off the flow of the oil now coming into the oil bore which will leave essentially a gas well into the pressures equalized in an oil pool.

I don't think that will be universal. I think it will happen in certain instances. In those instances I think the operators are going to come to the gas purchaser in the area and want him to take that gas from that oil well, perhaps, as gas cap or high pressure gas. In most instances those wells will not buck a high pressure line. They will go into a line anywhere from 150 pounds up to maybe 300 pounds. Well, that is going to cause a great deal of trouble with the gas operator so far as having equipment available and not only trouble but an awful lot of expense so far as having equipment available to take that medium pressure so-called gas. I think that it will require some study because I am not sure that I am right about this and some of the other fellows may have much better ideas than I have. The only reason that I hate to see 500,000 to 1 ratio wells classified as gas wells over night, that have been classified as oil wells is that I don't know that the facilities would be available to take the gas. On top of that if they are available or that is if the gas will buck the high pressure line and you can buy the gas as high pressure gas, of course, at that time, the gas company will have the latitude of making its minimum requirements and using that gas as a flexible well to meet his peaks and ups and downs. That is no problem. I am not particularly upset about it. I would hate to see it done all at once. I would rather see it done on a trial basis.

MR. HOWELL: That is all.

MR. SPURRIER: Anyone have a question of Mr. Steen?

By: MR. MACEY:

Q Mr. Steen, if the Commission were to put into effect no flare order in south east New Mexico the gas would, of course, in all probability, be marketed into your plant, I believe in the Jalco-Langmat area. How long will it take you to provide the facilities to pick up that gas?

A Mr. Macey, it would be hard for me to tell you exactly. Some of the wells already are connected and the other is a matter of pipelines generally speaking, short pipelines, so I would say in a matter of 30 days at the most and I think two weeks time. We could be able to be taking all of that gas that is now being flared should the 10,000 to 1 ratio be put in effect. If you were to put it in effect today or tomorrow A.M., I think half or two-thirds of it could be turned into the plant day after tomorrow. That is my understanding of time.

Q Is there any casinghead gas economically for you to pick up?

A I would have to check the records on that. The majority of it, we could pick up economically and we would be very happy to do so, provided that we could get a contract. When you say any, that would be uneconomical, what range are you speaking of, Mr. Macey?

Q I am referring to a relatively very low volume oil well which had a low volume of casinghead gas produced that might be so low that it wouldn't pay you to run a line out to pick it up.

A That is almost unheard of in the Langmat Pool, but nevertheless if it is near our system, we would try to pick it

up. However, if it is of a mile or maybe a half a mile and it is a very low volume, well, we would look it over before we ran a pipeline out there. We have run some long pipelines to get a small amount of gas. We don't like to see it flare and if they pass a no flare order here, you know these operators, they concur with you on these things sometimes. Then, there is a combination of effort there, it might even be a dual ownership of a pipeline or something like that should happen around here.

Q What,actually, I was thinking about, was if you were faced with a no flare order in the Cooper-Jal Pool and he realized that he couldn't get any exception whatsoever to that no flare order, he might hesitate in drilling a well, possibly because he would be faced with a shut-in, if he can't market his gas, his well is going to be shut in as I understand the proposal. I believe that eventually, it maybe perfectly possible that we haven't found the extreme limits of the Cooper-Jal Pool. I don't think we have found the limits of the Monument, I don't know definitely whether the same thing is true of Cooper-Jal. I am thinking down the road of possibly a loophole in the order to give some one exception to the no flare rule, if it is proved unfeasible, uneconomical altogether.

A I think your statement makes a great deal of sense because, just because a man has a well that is displaced out from the limits of the gathering system, I don't know that he should be penalized to the full extent that he could not produce his well. You might give him a certain time limit or

see what the field is going to do in the way of development. If any of these companies that have gasoline plants, I believe they will concur, that if any of us see, in our area, a field developing and our geologist and engineers are reasonably sure after two or three wells are drilled that there is going to be something of a field in the area, they have no hesitation in running a line to the field although it is unprofitable at the outset.

MR. MACEY: I believe that is all.

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

(Witness excused.)

MR. HOWELL: That is all our testimony.

MR. CAMPBELL: I want to state very briefly the position of Texas Pacific Coal and Oil Company in connection with this gas proration matter. I feel that it is incumbent on us to explain it rather fully, though I will do it briefly. In view of the fact that the original rehearing in the Jalco Pool was at the request of Texas Pacific Coal and Oil Company, I believe that the results of these new hearings have at least furnished to the Commission and to operators who have had occasion to go into their own situations, some information that was not available to them at the time that the original order was entered I think the testimony presented by Mr. Stanley this afternoon, if taken alone would have been well worth the time that the Commission and industry has spent in conne ction with these hearings.

At the time that we raised the objections to the Jalco

Gas Pool Order, it was based primarily upon four things. First, our concern about contracts entered into in good faith. Second, the delineation of the pools. Third, the establishment of proration units, and fourth, which is really a part of delineation of pools, the treatment of oil wells in these areas that have now in the last few years, because of the price of gas, primarily become important as gas areas.

The testimony and evidence offered here during these new hearings have presented to us some possibilities, at least, of not a solution because none of us probably are going to be fully satisfied, but certainly a partial solution to some of our concern.

First, with reference to the contracts that were explained here by Mr. Adair, by virtue of the letter offered in evidence here by El Paso Natural Gas Company that they would pay for gas which they failed to nominate provided they were given the opportunity to make up their shortages in accordance with their contracts has caused us to withdraw from the time being any request to the Commission for a minimum allowable. That takes care of that problem at least for the time being. In the event there is in the future a situation where the dry gas market becomes so low in New Mexico that dry gas wells are not being given the opportunity to produce on an economic basis, of course, all of us are going to be concerned about it. With reference to delineation of pools we have asked all along that the line between the Jalco and Langmat pool be removed. All of the testimony that has been offered hereby engineers and geologists, with the possible exception of

Continental's question on the matter, has been that there is no reason for that line. We believe that the evidence shows that it should be removed. With reference to the vertical limits of the pool, of course, we are concerned essentially with the Jalco-Langmat area. We are willing to go along with either the present definition of 100 feet above the base of the Seven Rivers or the recommendations of the Commission's geologist with reference to sea level datum, but in either event, we feel that the simplest method of determining where you stand, and that is one of the problems that most people are concerned about, is deciding whether your wells are oil wells or gas wells and how they are going to be treated.

We suggest that all wells that are completed solely above the vertical limits, whatever they maybe, shall be gas wells in a gas pool. That all wells completed solely below that point shall be oil wells in the oil pool, and that wells which are completed both above and below that line be defined as oil or gas wells by some method of definition adopted by the Commission which we suggest to be 100,000 to 1, and those wells that are completed, both above or below then will either be prorated as gas wells or controlled by limiting gas-oil ratio.

We do want to clarify one point with reference to vertical limits. As I understood the Gulf testimony, they are recommending that the present defined limits of the Cooper-Jal Oil Pool and the rest of the oil pools remain as they are, and that the definition of the gas pools remain as they are except the elimination of the line between Jalco and Langmat.

As I understand it there is presently considerable overlap between the oil pools and the gas pools lying above them. In order to avoid the confusion that naturally results from that situation we recommend the redefinition of the oil pools so that they will constitute laterally the same area but actually on a vertical basis, they will be only that area below whatever vertical limit the Commission sets so that it will not be an overlap between oil pools and gas pools.

Now, with reference to the units, the proration units, we have not had an opportunity to study carefully the recommendations that have been made, but we do concur generally in the proposition that we should be allowed to obtain unit allowables up to 640 acres without the necessity of hearings on each and every one of them provided offset operators are given an ample opportunity to raise any objections that they may have. We think that it will not only help the operators but will help the Commission in its administration of gas proration. I have already covered the question of how to treat oil wells and gas wells. There maybe exceptions in certain areas, I am sure there are, as the Commission geologist has indicated. There has been one recognized in the Falby-Yates area and there will be others.

We believe that a general definition such as we have suggested would take care of the general problem and then those exceptions whether in areas or units can be brought up on special hearings. We favor the adoption of the gas-oil ratio limitation in the oil pools as the Commission ultimately finds them. We believe that in the area of the Jalco-Langmat

areal distance there in the Cooper-Jal Pool and in the other pool in that area, that a 10,000 to 1 ratio would be a fair one on which to start at this time. We are also in favor of a no flare order because we do not believe that you can properly enforce any limiting gas-oil ratio or any gas proration system unitl you accompany it with a no-flare order.

As I say, we do not know what the results of these hearings will be, but we believe that they have brought out evidence and testimony by which many of the problems that have arisen can be resolved and, at least, we can know where we stand in connection with gas prorationing if a proper order is entered.

MR. SPURRIER: Mr. Smith, with Stanolind.

MR. SMITH: Our position in this matter, as I understand the presentation to be, is substantially that which has already been taken by Gulf and supported substantially by Amerada and by Texas and Pacific. We think that the present limits of the field as presently set out in the existing orders should be maintained with the exception that we did recommend a short time ago that the line between the Jalco and the Langmat pool be eliminated. We have no objection to that whatsoever. We believe that the present vertical limits in the field should be maintained as they are in existing orders both for the oil and the gas fields for the reason that we may create more problems than we may solve by adopting some other system without further and more detailed study in each of these areas. We have been operating under the present delineation without any great trouble so far as I understand the

situation to be.

If the Commission should decide to adopt the sub-sea datum basis a system as recommended by the Commission's geologist I certainly want the Commission to keep in mind the geologist's testimony that the Grayburg, San Andres could be considered an exception and that wells completed below the non-geological marker in the Grayburg and San Andres would be considered as oil wells and gas cap wells and not be subject to the same proration rules as would be the case for the other gas fields located throughout the area. I do think that, perhaps, the Commission geologist made a detailed study. I would like to commend him on his energy and his perserverance in this particular matter but I do think that an arbitrary line of the nature that he recommends would cause localized disturbances and would require a great number of exceptions on the partof the Commission and could eventually lead to more administrative trouble than the apparant simplicity of his plan would indicate at first examination.

We are in support of the proposition, passing on to other matters, with respect to the definition of a gas well, the adoption of the 100,000 to 1 definition as indicated by Mr. Stanley, and by other people who have made recommendations here. We are also in support of the adoption of a reasonable gas-oil limiting ratio in all oil fields where there is no limit set at present. In that connection, it appears from the testimony of El Paso Natural Gas Company and the recommendations of other witnesses that at least as a starting point, we could take 10,000 to 1. I agree with Mr. Woodward

of Amerada that perhaps the figure might be at present a little unrealistic but it certainly is a great deal better than affinity. I would be inclined to take a higher figure at the outset than a lower and that would be our recommendation that it be commenced at 10,000 to 1, to see how it works.

With respect to the no-flare gas portion of Mr. Stanley's recommendations, we are in favor of that too. We think that it is highly essential to gas prorationing where you have such a complex geological situation as you do have in this area that you do have a no-flare gas order. However, I would like to direct the Commission's attention to certain practices that are presented by a no-flare gas order. One of them would be, of course, in the event of new completions that if the well has been completed and while you are testing, it is necessary to flare gas to know what you have, I think a reasonable period of time after the well has been reported to have been completed should be in order. What is a reasonable period of time, I am not in a position to recommend now, but I would say that as a rule of thumb that you should be subject to the no-flare gas order within 30 days after the completion of the well or failing which you should come to the Commission to request an exception to explain your hardship situation.

One other matter, with respect to minimum allowables has been withdrawn by Texas Pacific and I think requires no further comment by any operators here. I would like to commend the Commission on their extreme patience in this matter. We have had a very complex matter. I think from the testimony

that has come out and the statements that most of the operators are in substantial agreement about what should be done. I believe if the Commission can take what we have now and set out a set of orders which will be acceptable perhaps we won't all like but it will be acceptable to all of the operators.

MR. FOSTER: It may seem to some of us that we have spent a lot of time here in these hearings. Of course, a lot of time has been spent, but looking out of the back of the wagon, again, I think that we have come along ways, in a mighty short time. It is certainly encouraging to see the Commission assembling a very efficient staff and that they are actually working. These Exhibits here that the Commission staff has prepared, I think are due some complimentary remarks. They certainly evidence a great deal of interest in these questions and a lot of hard work and they certainly have been most helpful I know to the Commission and I know they have been to me.

Now, as to some of the features of this proposed order. I think it is in this record without dispute that a gas well in the areas that we are talking about will efficiently and economically drain 640 acres. If there has been any testimony contradicting that, I haven't heard it or I have failed to hear it. I would like to suggest to the Commission that the standard proration unit here be established as 640 acres as the drainage area for gas wells in these fields. It seems to me that that would simplify the matter. Other units smaller than that could be fractional units.

Of course, the testimony is just as conclusive on the

question of the limiting gas-oil ratio. I haven't heard anyone that actually opposed that. Of course, I think it goes without saying that the Commission would give it most serious consideration and in all probability will adopt those ratios. Now, I don't care whether you adopt them any where within those limits that we have mentioned here, 6, to 10,000. It does occur to me, however, that it would be better to start maybe low and come up if necessary than to start high and then try to come down, because that is always most difficult.

The most highly controversial issue, I suppose in this whole series of hearings has been the question of the vertical limits of these pools. I want to state Phillip's position as clearly as I can, regarding that. Our testimony is to the effect that these reservoirs are all one common source of supply. We still think that is true, but we are not going to be dissappointed or upset or put out or make any attack upon an order that doesn't give us all the things that we ask for. If the Commission wants to delineate them in some other manner, why we will go along with that for the time being. I think we have to say that in good faith because certainly we had no intention of making any attack upon the order as it was originally written when we participated in those hearings. We took part in the Committee Meetings that delineated those pools and we knew our position at that time but I don't think any one operator can just be obstinate and insist that his position be adopted on any particular point. For that reason, we were perfectly willing to accept the rules as they were originally written.

We thought they were workable then. We think they are workable now. I think you could make some changes at least to put all of these four pools that we have been discussing here, combine them as one pool and extend the vertical limits down to the base of the Queen, at least. I think you could do that and not do violence to the evidence in this case at all.

Now, as to the changes in the rules. There is one matter that I am particularly interested in. I think you should clearly and definitely define a gas proration unit, whatever area you may want to make. I think in that definition you should limit exceptions to that rule to those cases where it is necessary to prevent waste in order to prevent the confiscation of property. If the Commission will permit me the privilege of drafting that sort of a rule and sending it in for your consideration, I will be glad to do so.

MR. SPURRIER: The Commission will not only permit you, Judge, we want any and all proposed orders that we can get.

MR. FOSTER: I think too, that the Commission should give some consideration to the statutory powers that it has of compulsory unitization here for the purpose of preventing the drilling of unnecessary wells. Now, I don't mean that you ought to go just hog wild about it. I don't mean that at all, but I do mean that you do have within your power the provision in the statute and in your present rules that would permit you under certain circumstances to require the unitization of some of these tracks. I think that is a good rule and I think it would be a good practice. I think it would be a step forward

and in the right direction.

Of course, no one that advocates conservation and prevention of waste can seriously say that it is not necessary to have a no-flare order in connection with the program which you are undertaking. That shouldn't be just a hard and fast matter. I realize the hardships in some instances may occur and the Commission can always temporarily, within its judgment and wisdom, take care of those matters, but I do think that the no-flare order is essential if you want to make this thing work and I think that you do.

Mr. Chairman, other members of the Commission, I want to thank you for the time that you have afforded my company during these long tedious hearings and our witnesses and whatever order you write, ain't going to suit us in all respects, I know, but I don't believe you are going to come up with something that we can't live under and that wouldn't be acceptable.

MR. SMITH: May it please the Commission, Judge Foster reminded me of a matter that I didn't mention. We also concur in the suggestion that gas units be increased to 640 acres, that is in line with Gulf recommendations which I stated that we had substantially adopted.

MR. SPURRIER: At the risk of hurting someone else, I am going to request that from now on, if a company has a statement, the Commission is not interested in reiteration of what somebody else has already said. If you don't have a change to make in the recommendations that have already been made, we suggest that you withhold and we will assume that

you are in agreement. Southern Union.

MR. GRENIER: Limited slightly by that last suggestion I think I would like to limit my remarks simply to this, that I hope that the Commission will keep an open mind on this subject of the allocation formula. That was the matter which was of principle interest to us when we came here and that was the only matter that we had planned to introduce any direct testimony on and so long as the ideas expressed by Mr. Stahl and apparently concurred in by the Commission that this thing is to carry on and perhaps be subject to further examination in the light of what the Industry Committee finds, I am sure that, as Judge Foster said, any order can be lived under.

MR. SPURRIER: We are not taking a poll here and we don't want to limit you, but as you can see the time is getting short. El Paso, Mr.Howell.

MR. HOWELL: I think El Paso has no further statement to make. We have stated the points that seem material to us. We would like to be heard when the proper time comes on the question of deliverability as a factor.

MR. SPURRIER: Very well done, Permian.

MR. STAHL: I have only one point I want to add and I want to make it for the record. That is that Permian, as you all know, put in its proposed rule changes under oath, Mr. Ainsworth did that I believe at the last hearing. Mr. Ainsworth has been available for any questions and I think it was made clear at the time that he put in those recommended

rule changes under oath that he would be available. There has been no attack of any nature or kind on those proposed revisions as they were put in under oath. It is my personal assumption and the Company's assumption that those recommendations, as far as the ones put in by Mr. Ainsworth, are supported by all operators here.

MR. SPURRIER: Mr. Selinger.

MR. SELINGER: We concur in the recommendations of previous witnesses with respect to the rules. We have already expressed our opinion as to the vertical delineations. We want to specifically point out that we urge the Commission to not have a gas-oil ratio limitation of less than 10,000 to 1, particularly in the Penrose-Skelly area. From benefit of the previous experience, this is one operator that is not in favor of deliverability in the allocation formula. We concur in the one hundred percent acreage factor.

MR. SPURRIER: Amerada.

MR. WOODWARD: We have said our say.

MR. SPURRIER: Gulf.

MR. MALONE: Gulf's case is before the Commission except on the point of no-flare order and gas-oil ratio and we approve of both of those.

MR. SPURRIER: Continental?

MR. DIPPEL: Maybe I am plubm out of order, Mr. Chairman, but I want to ask a question, if I may. I take it that Mr. Dailey is no longer subject to call for cross examination?

MR. SPURRIER: Well, there were two people interested as I remember. Texas Pacific and Bill Macey. They have both

indicated--

MR. DIPPEL: Permian indicated they wanted him available. I have forgotten who else, if anybody.

MR. SPURRIER: Anyone else want to cross examine Mr. Dailey? Time has run out.

MR. DIPPEL: Continental has prepared some proposed changes in the rules. I have here, approximately 30 copies in mimeographed form which I would like to leave here on the table with permission of the Commission, so that they would be available to representatives of any operators that would be interested in having a copy of them. I should like to leave several copies with the Commission and their personnel. I merely want to call attention to the fact that we provide substantially the same rules that Gulf proposed with the addition of a no-flare gas rule and then we set up a definition of a gas well and then we provide that wells that are not classified as gas wells under the rule will be classified as oil wells. Then we have a rule that gives these kind of oil wells an oil allowable equal to the normal unit allowable under Rule 505, subject to the gas-oil ratio limitations. I don't want to abuse my privilege but I think that in view of what has gone on here before today I should make a few remarks about Continental's position in this amtter, because unfortunately we have been placed in a somewhat unique position that we are not at all too uncomfortable in. But I do think it requires of us some few additional comments over and above what perhaps we normally would make.

I heard some comment incidentally during the day that

there were a number of people amazed when they learned that the Commission in writing its orders in Case 245 had had so much material available for consideration before it wrote those orders. The main purpose of our appearing in the record today has been to put into the record the exhibits that were considered by the Commission but for some reason through inadvertence were never introduced into evidence. We have them all introduced into evidence today. Other exhibits have been introduced and certainly there can be no question but what the necessary ingredient for the Commission to exercise its jurisdiction are now in the lap of the Commission.

Certainly there has been a showing that this gas proration is necessary to prevent waste and to protect correlative rights and do all the other things that are designed to be accomplished by gas proration. Continental Oil Company would like to urge the Commission to move as rapidly as it can, consistent with the proper care that it certainly will want to exercise but we feel that the Commission could reasonably proceed in this matter and it would expedite everything, including its own administration of gas proration if it came up with orders that were substantially the same as the ones they adopted in Case 245.

I want to say only this one thing further with respect to the line between Jalco and Langmat. We have not receeded from our position because of any desire to be obstinate, it is the honest conviction of our engineering staff that they can not join in the recommendation with the other operators that that line be removed and we ant the record to

clearly show that we are not recommending it now.

But I want to reiterate what I said before noon, that we have no objection to its removal if the Commission feels that it should be removed, I believe that is all I need to say excepting thank you for being patient with me this long in this closing statement.

MR. SPURRIER: Mr. Hinkle.

MR. HINKLE: In view of the Commission's ruling about duplicating statements, I think we will avail ours of your earlier proposition that we may file a written statement so that it will keep the record straight as to the position of the Humble. We will probably have some recommendations to make to the Commission.

MR. SPURRIER: Ohio.

MR. COUCH: In keeping with this recommendation and with your request, we adopt what Humble has just said on his statement.

MR. SPURRIER: Anyone else?

MR. OWENS: That also applies to Shell.

MR. WHITE: The Texas Company wishes to go on record as concurring with and joining in the recommendations made by Gulf at yesterday's hearing. We also favor the proposed rules that were submitted to the Commission by them today.

MR. SPURRIER: Anyone else?

MR. VICKER: Mr. Vicker with Atlantic, wishes to file a written statement.

MR. SPURRIER: Anyone else? In the interest of time, now, again, we will give you ten days which would be May 22,

we will make it May 24th, since that falls on Monday. If we do not have the statements in by that time, we will consider that it is not necessary to wait for them before we promulgate an order. Does anyone else have a comment in this case?

MR. WALKER: There have been a lot of complimentary things said the last few minutes on behalf of the Commission or for the Commission, I think that it is only fitting that I say in behalf of the Commission that we want to thank you sincerely for the patience and the help that you have given us and we do appreciate it very much.

MR. SPURRIER: Anyone else? If not, the record is closed.

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

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings in Case 673 taken on May 10th & 11th, 1954 before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

In Witness whereof I have affixed my hand and notarial seal this 10th day of June, 1954.

Ada Dearnley
Notary Public, Court Reporter

My Commission expires;
June 19, 1955

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
at
Santa Fe, New Mexico

Transcript of Hearing in

Case No. 673

March 17, 1954

Regular Hearing.

ADA DEARNLEY & ASSOCIATES
COURT REPORTERS
ROOM 105-106, EL CORTEZ BLDG.
PHONES 7-9645 AND 5-9546
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
at
Santa Fe, New Mexico
March 17, 1954

In the matter of:

The application of the Oil Conservation Commission upon its own motion for an order amending, revising, or abrogating existing Rules and Regulations of the Oil Conservation Commission, and/or promulgating additional Rules and Regulations, relating to gas pool delineation, gas proration, and other related matters, affecting or concerning the Jalco, Langmat, Eumont and Arrow Gas Pools, Lea County, New Mexico.

Case No. 673

The order contemplated will pertain to gas pool delineation, gas proration, gas well spacing, gas well allowables, gas proration units, and related matters, affecting the following designated gas pools situated in Lea County, New Mexico, to-wit:

Jalco Gas Pool, Langmat Gas Pool, Eumont Gas Pool, Arrow Gas Pool

In considering the foregoing matters, notice is further given that the contemplated order may affect the following designated oil pools situated in Lea County, New Mexico, to-wit:

Eunice-Monument Oil Pool, South Eunice Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Cooper-Jal Oil Pool, Arrowhead Oil Pool, Langlie-Mattix Oil Pool, Falby-Yates Oil Pool, Rhodes Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Eaves Oil Pool.

(Notice of Publication read.)

MR. SPURRIER: The Meeting will come to order, please. The next case on the docket is Case 673. Mr. Campbell.

MR. CAMPBELL: If the Commission, please, Jack M. Campbell, Roswell, New Mexico, appearing on behalf of Texas Pacific Coal and Oil Company. In view of the fact that Case 673 is on the docket

partially, at least, due to the position taken by Texas Pacific Coal and Oil Company in the Jalco Gas Pool case, I feel that we have some responsibility to explain to the Commission and the interested operators here present the exact position of Texas Pacific Coal and Oil Company in connection with Case 673.

It has been said sometimes in jest and sometimes not in jest, that Texas Pacific Coal and Oil Company has been doing a lot of sharp shooting at gas prorationing and has not yet offered any substantial suggestions or methods by which it could be put into effect in the event the Commission continues to think it is necessary. We hope at this hearing today to make such suggestions and to explain the position of Texas Pacific. It has also been said, usually in jest, that if Mr. Gene Adair is going to testify any more in this gas prorationing, that he should be put under oath. I am going to put him under oath today and put him on the witness stand so that any of you who desire to cross examine him may do so. Before I do that, I want to again explain to the Commission and to interested operators why Texas Pacific Coal and Oil Company has attacked the proration order in the Jalco Gas Pool which case is now concluded. We do not believe that we have been entirely chasing after ghosts. The nominations made at this morning's hearing by the gas purchaser in the Jalco Gas Pool were 63 percent below the nominations made last month. They were 66 percent below the nominations made last month in the Langmat Pool. While the Commission does not yet break the nominations down by proration units, it doesn't take much of a mathematician to calculate that on the basis of the per unit allowable in March in each of those pools, particularly in the Jalco Pool. And assuming the same number of proration units in the Jalco Pool this

month, that the per unit allowable will in the month of April, before summer is over upon us, drop below the 500,000 minimum take provisions of gas purchase contracs. It may be that during the year that average will be brought up, but certainly we do not know, the gas purchasing companies probably do not know, and the fact that the third month gas prorationing is in effect, the proration unit allowable is going to drop below the take or pay provision of the gas purchase contract causes us some serious concern.

We believe essentially that the principal problem of the Commission in prorating gas is that they must prorate these gas fields as they find them and not like they would like to have found them twenty-five years ago. In the first place, these wells were drilled, completed and have very, many of them, been produced for twenty-five years as oil wells. They were spaced as oil wells and drilled in that manner. It is not an easy problem for the Commission to undertake to move into a field with that historical background. In the second place, not only do we believe we have established historically, but we believe we have vested contractual rights. We believe these contracts were entered into at arm's length. We believe coming into a field at this date after the contracts have been executed and have been operating under them for a number of years, the Commission must give the owners of properties in these particular fields adequate protection against abrogation of any of these contracts. We believe that the Commission, at any time, for the purpose of preventing physical waste, can do either or both of these things. We do not believe that the Commission should or can, for any other reason than for the prevention of physical waste, change vested rights acquired many years ago,

or change vested contractual rights which we believe we own. That is basically the reason we have taken the position we have in connection with the existing gas proration order. Now this Commission has set down Case 673 to re-examine to some extent prorationing of gas in southeastern New Mexico. In the meantime the present orders are remaining in effect. We believe that if the Commission can, before the end of the first six months' period, make adjustments in the gas proration orders which will be to the benefit of all operators and will assure the protection of rights that exist in these areas, that it will be for the best interest of the State and for the best interest of the operators. We propose and will suggest to you through Mr. Adair that the Commission consider the following steps.

We want the Commission to know and you to know, that we do not presume to tell the Commission or you or anyone else how this should be done, but we do have serious concern about our property rights and we offer this as a possibility of a way in which those rights can be adequately protected and gas prorationing still put into effect in southeastern New Mexico. First we believe that it is necessary to redefine oil pools, gas pools or oil and gas pools in southeastern New Mexico. It is our present feeling that at least insofar as the Langmat and Jalco Pools are concerned, which are the only ones about which we have made personal studies, that those pools are all one reservoir, vertically and laterally, and that it should be defined as an oil and gas pool which the Commission has the power to do under the statute. Once it is defined as an oil and gas pool we believe, secondly, as a correlary to that we must undertake to define a gas well. We will make a suggestion

along those lines as to how to define a gas well, basically, along the same lines as is done under the statutes in Texas. Then, we believe that those gas wells can be prorated as gas wells under our statute once they are defined. The third proposition is the establishment of gas-oil ratios for the oil wells that remain in these areas after the pool is defined. In some of these areas there is no gas-oil ratio limitation. In others there is a 6000 to 1 gas-oil ratio limitation. Probably both of those are wrong. We believe that the Commission should hear evidence and establish a gas-oil ratio throughout an entire pool area which will be at a point which will recover the greatest possible ultimate amount of oil on initial efforts, and at the same time now allow anyone to produce an unfair amount of casing-head gas in connection with the production of his oil.

We will make a suggestion as to where that gas-oil ratio limitation should be placed and we will state to you the reasons why we make that recommendation. The fourth step which we suggest be taken is that the method of establishing proration units and obtaining exceptions to standard proration units be simplified. We suggest that the Commission make it possible to approve proration units within a section within section lines up to 640 acres without the requirement of a hearing, provided notice is given to all offset operators and a ten-day period allowed to elapse for them to demand a hearing. If the hearing is demanded on the attributing of acreage beyond 160 acres, but within a section, then of course we believe a hearing should be held. In that manner we believe we will eliminate a large number of the exceptions that are being sought, or proration units in excess of 160 acres,

since the evidence so far presented certainly indicates that one well will drain at least 640 acres. Finally we are going to suggest a method by which we believe we can protect the contractual rights which we have bargained for in connection with the take or pay provisions of gas purchase contracts including low pressure gas provisions as we move along this thing down the road. Mr. Adair will make a recommendation as to a provision in gas provision orders setting up a minimum allowable for gas wells. As I say, these are certainly not all of the answers I am sure, but because it has been said that we have not made any definite recommendations, we felt that at the outset of this hearing, it might be worthwhile for the Commission and interested operators to have something upon which to work. We know there are a number of people who wish to offer evidence either now or at next months' hearing. We want to give this information to them through Mr. Adair on the witness stand so that they may have it before them when they are prepared to present whatever testimony and evidence they want to put into the record. So if you will swear Mr. Adair, I will ask him some questions.

EUGENE ADAIR

having first been duly sworn, testifies as follows:

DIRECT EXAMINATION

By MR. JACK CAMPBELL:

Q State your name please.

A Eugene Adair.

Q Where do you live?

A Ft. Worth, Texas.

Q By whom are you employed?

A Texas Pacific Coal and Oil Company.

Q In what capacity with that company?

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A Primarily as their attorney.

Q Are you an officer of the corporation?

A I am.

Q What office do you hold?

A Vice President and general counsel.

Q Mr. Adair, in connection with your association with Texas Pacific Coal and Oil Company, are you acquainted with the, generally with the history of the oil and gas wells drilled and now owned and operated by that company in southeastern New Mexico in the general area of the Jalco, Langmat, Eumont and Arrow gas pools as presently defined?

A Yes, Mr. Campbell, I am. At this time I would like to make it clear, however, that I am not attempting to qualify as an expert witness or a technical witness. I merely want to present for the record our company's recommendations with respect to gas proration in that particular area where those leases and our wells are located.

Q Mr. Adair, how many gas wells does Texas Pacific own in this area?

A In the Jalco and Langmat Pool I believe that we have forty wells on the gas proration schedule.

Q How many oil wells on the present oil allowable schedule do you own and operate in that area?

A I believe there are thirty-nine oil wells.

Q Are those oil wells all located in the Jalco, Langmat area or are they in the other areas also?

A No, I believe that there are five or six wells in the Arrowhead area, but the rest of the wells, oil wells, or wells appearing on the oil schedule are in the Cooper-Jal, Langlie-Mattix and South Eunice areas which are in the Jalco and Langmat areas.

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Q Mr. Adair, historically speaking, when were the earliest wells of Texas Pacific drilled in this area?

A About twenty-five years ago.

Q Do you know generally how those wells were completed at that time?

A So far as our records are concerned, yes, I am generally familiar with the way the wells were completed.

Q Were those wells drilled at that time completed in the same manner as you would complete a well now?

A No, in some instances in an attempt to open casing to production gun, perforations were not known at that time, or at least they were not known to us. We, having cased through productive formations, had to shoot the pipe in some of our earlier wells, shoot the pipe with nitroglycerin in an attempt to open the well into production and through a zone that had been cased through.

Q Is it not a fact that based on the records that were generally maintained at that time and required at that time, that you can not tell with certainty at this time exactly where those wells are completed, where they are producing from?

A That is correct. I am sure that is not only true of our wells, that is true of most of the wells drilled in those days.

Q What would be the result of that with reference to going in now and reworking the wells and dually complete them, for instance?

A We have had some rather unfortunate experiences in attempting to rework or dually complete these older wells. Usually we have found that we could drill a new well cheaper than we can rework or dually complete. The pipe, the casing, we don't know what is in the well to start with, the pipe and the casing is in many cases in

such poor condition that it collapses, or we lose a well before we get through with it. We also found that in reworking or plugging back wells that the deliverability or producibility of the well is not as good as it would have been had we drilled a new well on the same acreage. For mechanical reasons the gas or the oil will not come through the cement or what other material might be behind the pipe, particularly where in the early days we had blowouts, where we pumped sacks of cement and other materials into the ground in an attempt to remedy the blowout.

Q Mr. Adair, you heard me state to the Commission generally what the suggestion of Texas Pacific Coal and Oil Company would be with reference to prorating gas in this area. I am going to go down through those five propositions that were suggested and ask you to explain to the Commission and to the interested parties here, what your recommendation is and why you make it. First, with reference to the definition of pools. Your experience, as I understand, your studies have been confined to the wells which you own in the Jalco and Langmat gas areas, is that not correct?

A That is right.

Q Have you made any studies with reference to the Arrow and Eumont Gas Pool areas?

A We made no study with respect to the Eumont area. We made only a cursory study in connection with the Arrow or Arrowhead area.

Q With reference to the study that you had made in connection with the Jalco, Langmat area, what is your suggestion as to how the matter should be handled with reference to the delineation of pools there?

A We believe that almost all, if not all, the problems of gas proration in the Jalco, Langm- area would be greatly simplified and possibly solved by designating the entire area, that is both Jalco and Langmat areas, as an oil and gas pool, both laterally and vertically.

Q Laterally and vertically? A Yes.

Q I presume that you are not excluding the possibility of including the Arrow and Dumont areas in there, but you have no information, your company, that they should or should not be included, is that correct?

A That is correct. That is our position. We have no objection to their being included if they belong in it, we do not know.

Q It is the opinion and belief of your company, that by virtue of original geology or development in the area, that this has become essentially one oil and gas pool?

A I think that is true. And historically, I think that has been recognized by the Commission as shown by some of the orders we put in evidence in the other case. I don't believe there was any real difference of opinion among the experts that testified in the hearings held up to the present time.

Q Mr. Adair, assuming the designation of this area as an oil and gas pool, the entire area, I presume that as a correlary to that it would then be necessary to define a gas well, is that not correct?

A It would, and as a correlary, to define an oil well as being a well that produces oil and not a gas well.

Q What is your suggestion with reference to the definition

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of a gas well?

A We have found that a definition that we have in Texas works very well. It is statutory in Texas, it is any well that produces oil at a gas-oil ratio rate of greater than 100,000 feet per barrel of oil is a gas well. We throw that out here. We don't say we think it should be 100,000 feet, maybe it should be 150, maybe it should be 200,000. We believe that you should define gas wells in that manner and then as a correlary to that, define all other wells which produce oil, as oil wells and prorate them as such.

Q You are suggesting, then, that you proceed to prorate the gas wells that are defined as such as gas wells?

A Right.

Q And prorate the oil wells as oil wells?

A Right.

Q How would that affect, Mr. Adair, affect the many wells which have recently been dually completed in this area?

A I think it would protect those wells. Otherwise, if you consider, as has been suggested and has been recommended by one or two operators, that if you consider the entire vertical area productive area in the Jalco, Langmat area as being a gas pool, you, in effect, are going to have to do away with the many dual completions that the Commission has heretofore approved. Because both of the productive zones would lie within the one gas zone if you so define the gas zone.

Q Assuming a definition of the pool, the definition of a gas well and the prorating of gas wells as such and oil wells as such, what is your suggestion with reference to the control of gas withdrawals from the oil well?

A We, frankly, wanted to concur with Mr. Macey and some of the members of the technical staff of the Commission in their suggestion that some such withdrawal, or to put it another way, that a gas-oil ratio limitation should be imposed on all wells. However, at the time it was brought up we did not think it had any particular place in that particular case, so we kept quiet about it. We have found by checking our wells the some thirty-nine wells that appear on the oil schedule, and assuming that those wells are representative wells of the wells in the area as a whole, we have found that the producing ratio is somewhere in the neighborhood of 25,000 feet per barrel of oil. We suggest that as a starting place, 25,000 feet per barrel of oil, gas-oil ratio limitation. That is considerably greater than some fields which has 6,000. It is considerably less than no ratio at all, which is a condition which prevails in most of the Jalco, Langmat area.

Q Speaking from a cold calculated economic point of view, have you made a study to see what effect that would have on your wells and the recovery from them from the point of view of economics?

A I have had such a study made.

Q What is your study?

A We started out with 6,000 foot ratio which I believe is in effect in the Eumont or Eunice-Monument. We have no wells in that field. To impose a 6,000 foot ratio limitation on our wells would result in a loss of revenue to us from our oil wells of 32 percent. Assuming that our wells are representative, which I think that the same loss would probably carry throughout the area where our wells are located. The 10,000 foot ratio limitation would result in a revenue loss of 22 percent. A 20,000 foot ratio limitation would result in

a loss of revenue of 12½ percent. Our engineers feel, and if this case is continued, or later on we expect to put them on, feel that the most efficient rate at which these old oil wells can be produced is the actual producing rate. We do not feel that imposing the gas-oil ratio limitation upon them is going to get the oil at any better ratio. It is just going to get it slower, that is all. Possibly if the gas is associated with the actual gas well gas, it possibly could result in the draining off of the reservoir energy which is one of the things Mr. Macey was concerned with at the prior hearing.

Q I don't think you said what the effect of the 25 to 1 ratio would be on your picture.

A We did not calculate it. It would be somewhere in the neighborhood of 10 percent loss of revenue to us, 25,000 to 1 ratio. From those particular wells.

Q For present purposes, you are suggesting the 25,000 to 1 gas-oil ratio on the wells which would be defined as oil wells with this procedure followed.

A Yes.

Q Mr. Adair, with reference to the next step that you are suggesting which is the establishment of proration units, what is your suggestion to the Commission as to how proration units and exceptions thereto can be obtained without the large number of hearings which are now being required?

A I think the problem there is that most of the contracts and many of the wells, gas wells, particularly the newer wells, have been drilled and developed on 160 acre basis. On the other hand, the testimony that we have heretofore heard has been that one well will adequately drain 640 acres. If that is true, then to require a

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producer to drill more than the necessary wells to drain his acreage or to put it more accurately, to assure him of getting his share of gas out of the common reservoir, would be in our opinion an economic waste. Therefore, we feel that the problem can be greatly simplified and many of the exceptions that the Commission is being forced to hear at these hearings for the past few months can be eliminated by allowing a producer to attribute to any gas well which he has any acreage that he wants to that is contiguous to it within section lines. That the Commission could issue an order or an administrative order without the necessity of a hearing, allowing such a producer to attribute anything up to 640 or anything within section lines to such a gas well unless the offset producers after ten days', we'll say, written notice protested to the Commission and requested a hearing. In other words, it is just a question of where the burden is. If you put the burden on the producer whose well will drain 640 acres to get waivers from his offset operators, he may not be able to do it. On the other hand, many offset operators will not ask for a hearing, but will allow him to go ahead and do it without a hearing. At least that is our feeling.

Q Why is it that you are suggesting that approach leaving the 160 acre standard unit as we now have it rather than suggesting that we go to 640 acre proration unit?

A As you pointed out, one of the reasons is that the contracts have been written on a basis of 160 acres. The Commission has already started out prorating gas on a basis of 160 acre units and many of the wells have been drilled on that basis as well as many operators have proceeded to get pooling agreements or attempt to work out their problems on a 160 acre basis as a result of the

Commission rules in effect at the present time.

Q In other words, you feel that would require less adjustment on the basis of proration since January first than to move now to 640 acres?

A I think it would require very little adjustment in any event, and certainly less than going to a 640 proration unit as a standard unit.

Q That leads us to the last suggestion that relates to the protection in some manner of the contractual rights requiring a gas purchaser to take or pay for a certain minimum amount of gas. I wonder if you would explain to the Commission for the record, your concern in that regard and why you feel that some protection should be given in the proration orders by means of a minimum allowable to protect you against the possibility of loss in that manner.

A Of course our main concern is that the allowable, or gas allowable, does not drop below the minimum take provisions of our contracts. I believe in most of our contracts that is 500,000 cubic feet of gas per day averaged out over the year. Any time that the allowable was set at a figure less than that those minimum take provisions of our contract would be abrogated in our opinion. There are other provisions in our contracts which I think we as producers, and all producers, are interested in seeing remain in full force and effect. Those are the provisions relating to low pressure gas. We fear, and we have already seen it suggested, that some deliverability factors may be imposed or adopted which could abrogate the low pressure gas provisions of our contract. At the moment any well that we have that will produce gas against 100 pounds pressure under our contract, the gas purchaser must take 50 percent of the amount

that the well will produce against 100 pounds pressure. In no event will he take less than 500,000 cubic feet of gas per day. We feel that this will prevent premature abandonment of wells and actually prevent waste as well as to protect contractual rights if the Commission will, by rule, establish what for want of a better term I will call a marginal gas well rule, and say that in either its general rules or in each proration order which it issues, that the Commission will not set an allowable less than 500,000 cubic feet of gas per day, nor will it set an allowable less than what that well will produce against one-half of what that well will produce against 100 pounds pressure, protecting both the minimum take provisions of the contract and the low pressure provisions of the contract. That 500,000 cubic feet of gas per day is based upon the 160 acre standard unit. If you had forty acres, it should be reduced proportionately. If you had 640, it should be increased proportionately, provided the well would make it.

Q You feel that a provision of that kind would offer you some protection against the possibility of the purchasing companies taking the position that by setting the allowable below the take or pay provision of the contract, the Commission had abrogated that provision and the purchaser did not have the obligation to pay for the gas it did take? A That is correct.

Q Do you have any other statement that you want to make at this time in connection with the recommendations of Texas Pacific?

A What I have suggested is a solution. We do not say that it is the best solution. We do not say it is a perfect solution. We do think it is a good starting point. We would suggest that the producers present carry it back with them and apply it to their

properties, because after all, that is going to be the final test how our suggestion works when actually applied to each individual producer's wells and come back here at the next hearing, and if they have something better, let them put it on at that time and we certainly would be interested in hearing it.

MR. CAMPBELL: That is all I have from Mr. Adair at this time.

MR. SPURRIER: Are there any questions of Mr. Adair?

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

CROSS EXAMINATION

By MR. STANLEY:

Q Mr. Adair, I would like to clear up one point for future study of the Commission which we are doing at this particular time, and let's assume that you had a gas allowable on your particular well of one million cubic feet of gas per day. Offsetting you is a well, I am actually reading production figures, that makes 31 barrels of oil per month but has a ratio of two million to one, or has produced approximately during that month, a little over 60,366 MCF. Would you say that that well was getting more than it's fair or prorata share of the reservoir energy?

A I prefer to answer that this way, Mr. Stanley. If my suggestions were followed, the well making 31 barrels of oil per month would automatically be classed as a gas well, because it's ratio is more than 100,000 feet of gas per barrel. And it would be prorated as a gas well. That would solve the problem.

MR. STANLEY: That is all I wanted to know.

MR. SPURRIER: Anyone else?

A I might say also in connection with your question, that setting anallowable at a million feet a day, or as was set in

February, one million four I think in Langmat, one million plus in Jalco, does not assure the producer of going to market with that gas. We found in our February production, for example, that although we had an allowable in Langmat of one million four, and in Jalco of one million one, or approximately that, that the average take from our leases in the area was 686,000. That is based on the 160 acre unit and based upon nominations now which we have heard from April, if the allowable is set paying attention solely to those nominations, we will be already below our minimum take provisions of our contract.

MR. SPURRIER: Mr. Hinkle.

MR. HINKLE: Clarence Hinkle representing Humble.

CROSS EXAMINATION

By MR. HINKLE:

Q I would like to ask a question or two. I believe you stated that you would like to see the Jalco and Langmat areas consolidated into one and that they would be, you advocate, a limiting ratio on the oil wells of 25,000 to 1, is that right?

A I believe more accurately I suggested, and I think one is a correlary of the other, if you don't do one, don't do the other, I suggested that the Jalco, Langmat area be consolidated and defined as an oil and gas pool. And that the oil wells therein be subjected to a gas-oil ratio limitation of, we suggested, 25,000.

Q Would you also take in the Arrow field in connection with that?

A Our study has not shown that the Arrow is part of the Jalco, Langmat area. It may be, Mr. Hinkle. We just haven't gone that far with our study.

Q What about the Eumont?

A Nor have we gone that far with our study. We have no properties in Eumont.

Q Your statement then, is limited to --

A (Interrupting) To our own properties where we know a little something about what we are talking about. We do recognize this, Mr. Hinkle, if you threw it all in one pool, that is Eumont, that the vertical interval in Eumont is so much different than your vertical interval in Langmat and Jalco that we might have some problems. We haven't thought that through.

MR. SPURRIER: Mr. Montgomery.

CROSS EXAMINATION

By MR. MONTGOMERY:

Q If the vertical limits be defined on the gas and oil in this area, if they could be defined, what problems would be involved then?

A Well, you have difficulty in defining, or at least we do. We don't know for sure where our oil is coming from. We think that is probably true of most of the wells, that is oil wells in the area. We know where the well was originally completed. But I am afraid that you would wind up with a number, a large number of small oil fields in a gas pool. We think it is simpler, we think it serves every purpose that the Commission has in mind, that is in prevention of waste and protection of correlative rights to throw the Jalco and Langmat areas together and call them an oil and gas pool. That also has historical basis and precedent too, and define the gas wells as wells that produce gas, or define the oil wells as subject to 100,000 to 1 limitation. That is if I make myself clear there, any well that produces oil at a ratio greater than 100,000 to 1 or

200,000 to 1 if the Commission imposes that, would be a gas well and prorated as a gas well. What I have suggested serves this purpose. It is going to permit the producers who have three or four wells on a 160 acres, we have quite a few cases like this ourself, to know what is going to be an oil well and what is going to be a gas well, and it is going to enable him to have some idea about what his plans are in recompleting and attempting to get gas production as well as oil production.

Q What problems would be involved if the vertical limits could be defined of the gas and oil zones?

A If they could be separated I don't see any problems. But the testimony, and undisputed thus far has lumped them altogether in the Jalco, Langmat area.

Q The only problems would be in the old wells where you couldn't go back in and repair where you have gas, dry gas zone and oil zone producing from the same well bore. Would that be your problem?

A Yes, I can see a lot of problems there that you wouldn't have under the method that I have suggested. I believe if you try them and apply them to your properties you will see the same thing. I think the Commission, I certainly know the technical staff of the Commission is aware of the way the wells have been completed and the danger of trying to rework them to make them conform to any vertical, certain definite vertical interval.

MR. SPURRIER: Anyone else?

CROSS EXAMINATION

By MR. HINKLE:

Q I have another question or two. I believe you testified

that the evidence here clearly shows that one well will efficiently, effectively and economically drain 640 acres, is that right?

A I don't believe that was quite it, Mr. Hinkle. I said that the testimony that the Commission had received thus far indicated that.

Q If that is the case, why is that you would advocate any other unit for proration purposes than 640?

A I tried to answer that question in response to Mr. Campbell's question. One is, we started out gas proration on 160 acre basis. Two, most of the producers have contracted their gas production on 160 acre unit basis, to be enlarged to 640 acres if the acreage is contiguous. The third thing is that many producers in obedience to the gas proration rules that have been already been in effect have attempted and actually formed units by pooling or unitization units of 160 acres or less.

Q Isn't it true that those units have not yet been approved by the Commission?

A I don't know about that.

Q Is there any reason why you can't just as effectively assign acreage to the wells which are already drilled within a section and have them set up as standard unit of 640 acres as you can take 160 and add to it or rearrange it?

A I think that the administrative problems of the Commission and also of the gas purchasers as well as the producers in auditing their contracts and producing their gas would be greatly simplified by staying on 160 acre standard unit basis. I see know objection if you wanted to go to 640.

MR. HINKLE: That is all.

MR. SPURRIER: Mr. Kelahin.

MR. KELAHIN: Jason Kelahin, representing Continental Oil Company,

CROSS EXAMINATION

By MR. KELAHIN:

Q Mr. Adair, in connection with your recommendation of minimum allowable, is it your suggestion that this Commission can require a pipe line company to take less than the market demand?

A No, but so long as this Commission establishes a marginal gas well definition which in effect would establish a minimum allowable, then the producer may look to the pipe line purchaser for payment under his contract.

Q Whether the gas is produced or not, is that what you mean?

A Yes, sir.

Q Assuming that your nominations or your market demand fell below the minimum allowable. It is not your recommendation that that gas be produced?

A Not produced, absolutely not.

Q It is up to the pipe line company to pay for it whether they get it or not?

A That is right. We think those are valuable provisions in our contract and you do too. It took us a long time to work them out. We feel that you share that feeling with us too.

RE-DIRECT EXAMINATION

By MR. CAMPBELL:

Q Isn't it true that the statutes of Texas and the regulations of Oklahoma and Kansas both, I believe, have a minimum allowable arrangement for oil?

A They do in Texas. I am not sure of Oklahoma and Kansas. They have a marginal well statute.

MR. CAMPBELL: That is all

RE-CROSS EXAMINATION

By MR. SELINGER:

Q May I ask Mr. Adair a question? You made a recommendation, Mr. Adair, with respect to the Jalco, Langmat as to a gas-oil ratio using as a basis the Texas procedure. We don't have any particular quarrel with your recommendation, but if this Commission issues such a regulation, don't you think that they should incorporate the entire Texas rule rather than just the one part that you quoted?

A What part now are you referring to?

Q You know, that the gas-oil ratio, the gas definition in Texas is composed of two parts, not of one part. The first part, if I might refresh your memory.

A You are talking about a definition of a gas well?

Q That is right. A Not gas-oil ratio?

Q The first part is pure out and out 100,000 foot and the second part is that there are many gas wells that are classified whose ratios do not equal 100,000 with respect to the gaseous phase in the reservoir which also is a basis for a definition of a gas well. Would you be willing or unwilling to insert the whole Texas rule here?

A We haven't given any study at all or any thought at all, to the second part of the statute. Just only the first as applied here. By classifying the pool as an oil and gas pool, Mr. Selinger. I think you get away from the necessity of that.

Q No, there are many gas and oil wells in the same field in

Texas where that classification works for gas wells. It works both on the basis of 100,000 cubic feet to one and also on the basis of the gaseous phase in the reservoir. I particularly point out one of the largest fields is Carthage where we use that, but it is in the statute. It is in the Texas rules and regulations and I was just inquiring whether you had any objection to incorporating the entire rule rather than just a portion of the rule.

A I think I would prefer to defer my guess on that until I have had a chance to think about it. I do not believe or recall any testimony in the Jalco, Langmat area that would indicate that there was any fluids in gaseous state in the reservoir. I may be wrong about that. Bear in mind that we are talking here primarily about Jalco and the Langmat area. That is where our properties are located. Of course that is where our primary interest lies.

Q Of course, Mr. Adair, if you are talking about just these two fields, the Commission is likewise faced with a similar ruling in the other fields and there may be situations in these other classified fields which you may have to resort to the second part of that classification.

A That is entirely possible.

Q Mr. Adair, do you feel that the productive capacity of gas wells exceed the market demand?

A Unrestricted production of gas wells probably does exceed the market demand.

MR. SELINGER: That is all, that you.

MR. SPURRIER: Mr. Macey.

RE-CROSS EXAMINATION

By MR. MACEY:

Q I am not quite sure that you want to answer this question. Did you include the Queen section in that?

A Yes, sir.

Q Were you here when we had some testimony on the Falby-Yates Pool when we created that pool?

A No, I was not here.

Q The Commission received some evidence to show that the bottom hole pressure in the Queen zone, and I am grabbing these from memory, the bottom hole pressure in the Queen in the Falby-Yates was about 350 to 400 pounds. The Yates gas section was eight or nine hundred pounds. We opened up the entire zone and said that that is a common reservoir. Don't you think it would be a little wasteful if an operator was to, say, deepen the Yates gas well, say to get a little bit of oil out of the Queen in one well bore?

A It would be, still if you had a ratio of 100,000 to one, it would be prorated as a gas well.

Q I agree with you there.

A And I think if the owner had oil under his property he had a right to produce it.

Q Do you think that the differential in pressure of 5000 pounds represents a common reservoir?

A I am not qualified to answer that.

Q Let me ask you about the contracts, what are the specific points in the contracts pertaining to minimum take, take or pay provision?

A I don't believe I have got the contract with me. It is in evidence in the Jalco case. You have got it with the exhibits.

Q I am sure we do. Here it is.

A Do you want that read into the record?

Q What I am interested in mainly; as I understand it, if the El Paso Natural Gas Company does not take the minimum allowable. You said it was 500,000. I think it is 550, I may be wrong, but nevertheless, if they don't take it they have to pay for it during that calendar year, is that right? Every adjustment is made on a calendar year basis?

A Yes, I believe that is right. They have a right to carry over and take it up in the following years, but the Commission, by setting a minimum allowable of 500,000 for the 160 acre unit, automatically --

MR. SPURRIER: Can you speak up?

A By setting a minimum allowable of 500,000 per standard 160 acre unit, you automatically take care of the minimum take provisions without bothering with the carry over part of it. That is, the carry over of the make up provisions of the contract need not be the concern of the Commission unless it wants to make it it's concern. You are affording the producer full protection when you set the allowable at 500,000 or more.

MR. SPURRIER: Anyone else have a question of Mr. Adair? Mr. Montgomery.

RE-CROSS EXAMINATION

By MR. MONTGOMERY:

Q How can the Commission prevent an operator from the vertical limits of the oil and gas zone, if you call the vertical limits the same, how is the Commission going to prevent an operator from drilling into the dry gas and drilling into the oil section and preventing the dry gas at a pressure of 1,000 going into the oil section

which has pressures --

A I think that is the same question Mr. Macey asked. I am not qualified to answer that.

Q The thing I want to point out there is an oil zone below the gas zone.

A In some places.

Q Then possibly the vertical limits of the oil zone and the gas zone can be determined?

A Possibly. We think the way we have suggested is a simpler way of handling the problem. We think it is a more practical way and we think it also recognizes a method which the wells have been completed.

Q At the present time the vertical limits for the Langmat and the Langlie-Mattix Pool are the same and some wells are able to produce quite a bit of oil and quite a bit of gas. In fact, one well has the dry gas section open and the oil section open and is able to produce forty million cubic feet. It sold forty million and five hundred thirty-four barrels of oil in one month. If we continue to have these vertical limits the same, we are not going to be able to get away from that situation.

A That sounds like the ratio there is over 100, 100,000 to 1, isn't it?

Q Well, slightly less than 100,000 to 1.

A Well, if our suggestions were followed through, that particular well would be prorated as an oil well and gas-oil ratio limitation of 25,000 to 1 would be imposed, resulting in a cut of the oil allowable.

Q Preliminary investigations indicate that this oil zone, this dry gas zone can be separated, do you think it would be warranted to continue the

study to try and make the separations?

A Let me make myself clear. If it can be done we see no objection in doing it. Possibly the solution is -- I don't know what the solution is, but possibly a solution would be to say that the Yates and Seven Rivers formation was an oil and gas pool. And that the Queens formation was an oil pool. But when you say that you immediately are faced with the situation where you have the Queens and Seven Rivers both open in many wells, possibly. What we are trying to do and what I think should be done is to protect the manner and method in which hundreds of these wells have been drilled and completed. We don't think that our, we don't pretend that our solution is perfect, but we do think it is a good starting place.

By MR. FOSTER:

Q Do I understand you to say that if you define a gas well and then define an oil well, that that would go a long ways toward solving our problem?

A We think it would, yes, sir.

Q Would you explain to the Commission why you think that is so?

A We have many instances, I know of other producers also who have wells drilled that we don't know whether they are oil wells or gas wells. We do not know whether they should be prorated or produced as oil wells or gas wells. We have two or three wells that are connected to the gas purchaser that he doesn't, the purchaser doesn't know whether to pay us under the dry gas contract or under a casinghead gas contract. We think that it would simplify matters for the producer as well as for the Commission to

establish these rules, to follow the Texas, or one-half at least of the Texas statute and definition of gas wells and say that all other wells that produce oil are oil wells and prorate them as such. That in effect, is what is taking place right now. We don't think that, we don't think there would be too great a change. We hope there isn't. I don't think that the Commission wants to disturb, I should not think they would want to disturb the way things are going now so long as they can accomplish the aims of gas proration.

Q I am not unsympathetic to a lot of your suggestions, but isn't it true that the classifying of the wells, that is the defining of this well as a gas well and this well as an oil well is only for the purpose the Commission exercising it's regulatory authority in prorating that well either as a gas well or as an oil well. That is about as far as that goes, isn't it?

A That is possible, yes, sir.

Q It seems to me, and I think you have the same idea about this as we have, what we are confronted with, is that we have an area, whatever the area may be, finally determined to be in which you have oil wells that produce gas, and in which you have gas wells that produce gas but produce no oil. As far as the record now stands, the evidence is that this gas production, whether it comes from an oil well or whether it comes from a gas well, it is all coming from a common source of supply. The problem, it seems to me, is that we have to find some equitable or acceptable method of adjusting gas production as between the wells that are producing both gas and oil and those wells that produce only gas. Do you see that as essentially our problem here?

A I think what I have suggested.-

Q However it may be solved, that is a problem.

A I think what I have suggested goes a long way to solve the problem that you have posed.

Q I think first --

A (Interrupting) I realize, of course, Judge Foster, that the individual producers are going to have to apply our suggestions to their individual properties before they are going to know how it affects them, and until such a time as they know how it affects, they are not going to know whether the problem is being solved or made worse.

Q You mean they are not going to know whether they are for it or against it? A That is right.

Q How it may affect an individual producer doesn't furnish any measure of, or basis for determining whether this or that formula ought to be adopted, does it?

A Well, I think it is extremely important to the producer.

Q No doubt about that.

A Whether or not the Commission should consider how it affects an individual producer is something else.

Q That is what I am saying. It really isn't going to be solved on that basis.

A We have to bear in mind, at least what I have in mind, is that the entire gas proration project is done for one purpose, and that is to prevent waste, and to protect correlative rights. If we go on any other basis, I am not qualified or prepared to talk about it.

Q I wouldn't know any other basis to put it on. I think that is the only basis the statute puts it on. Of course that limits

the provision in whatever delegation they have under the statute in prorating the pools. They prorate both to prevent waste and protect correlative right. One other question I wanted to ask you. That is about the position that you take on the contract rights that you say that you have, that is I am not clear whether you are saying that the Commission doesn't have the power or jurisdiction to so prorate this field as to abrogate those contractual provisions or minimum provisions, is that your position?

A No, sir, my position is that the Commission has such power to abrogate them to prevent waste. But absent waste, we feel that those provisions of our contract should not be abrogated.

Q Assuming there is no waste, is it your position that the Commission is without power or jurisdiction to so prorate the field as to protect correlative rights, that they can't in doing that, abrogate the minimum take provisions of the contract?

A I would prefer not to argue the legal question of whether the Commission has authority to prorate gas solely for the purpose of protecting correlative rights.

Q Well, I am not asking you that question. I am asking you whether or not it is your position that the Commission can not so prorate gas to protect correlative rights only as to abrogate the minimum take provisions of your contract?

A I don't believe the Commission can, no.

Q That is your position?

A That is my position, yes.

Q I want to get your position. You suggested here a marginal well definition as being a well that would be permitted to produce, say, 500,000 cubic feet of gas per day. Did I understand

that correctly? A That is part of it, yes.

Q In other words, you would allocate to every proratable gas well in a gas pool a minimum allowable of 500,000 cubic feet of gas daily?

A That is based on a standard 160 acre unit.

Q Whatever you base it on.

A Go up and down with the size of the acreage.

Q I am not concerned about that. Every gas well would be allocated at a minimum of 500,000 cubic feet of gas daily, that it would be permitted to produce, is that correct?

A It would be permitted to produce that providing the gas was used for beneficial gas.

Q I am assuming that we don't --

A (Interrupting) Lawful use of the gas. Yes, sir.

Q It is entirely possible that the marginal wells would take up the entire market demand or gas allowable for the pool?

A That would be every well, though.

Q I understand each well would -- I am saying that it is entirely possible that that would occur?

A I think it already has occurred, based upon the April nominations.

Q Well, I don't quite follow that. You mean now that every well in the field is getting less than 500,000 average?

A I am talking about Jalco and Langmat.

Q Just take any pool.

A The nominations in those two pools, as I understood them this morning, were less than 500,000 cubic feet of gas per day.

Q Isn't it also possible that the minimum allowable take

from those wells might exceed the market demand for gas?

A Apparently it already has.

Q Apparently already has? A That is what I say.

Q Then you would have to qualify the amount of gas that might be taken from a gas well to either 500,000 cubic feet or to an amount equal to the market demand?

A No, the 500,000 cubic feet of gas per day would be a permissive figure at which the producer could produce if he could find a market for it.

Q Of course I understand that. If my question assumes that the total of the marginal wells, the allowable would exceed the market demand, how could you then regulate the production from all of those wells?

A By setting a minimum allowable of 500,000 cubic feet per well.

Q When you add up all the 500,000 you have more gas than you have market demand.

A It is already more. The producer would have to depend on his contract to protect him. The Commission can not do it. The Commission can not force the purchaser to take the gas.

Q I have lost the stirrup or either one, I don't know which. We are going to give each well a marginal allowable?

A That is right.

Q Whether it is 5,000 or anything else. Suppose that the allowable exceeds the market demand for gas for any given period?

A All right.

Q How are you then going to regulate the production from the so-called marginal wells?

A Just the way it has been regulated, let the purchaser take what he is going to take. That is all he is going to do anyway.

Q You have to have some means of limiting him to less than 500,000 for each marginal well if taking 500,000 would exceed the market demand.

A No, I don't agree with that.

Q You just let him take the 500,000 whether he has the market for it or not?

A No, I am not suggesting that 500,000 cubic feet of gas be produced.

Q It is an allowable production that would be assigned to the well?

A It is a permissive allowable that the producer can produce if he has a market for it.

Q Then what you are saying is that if you didn't have a market for it, then you would have to write in to the rule a provision that even though he had a minimum allowable, that that would also have to conform to the market demand?

A No. That doesn't serve the purpose at all, for which it is--

MR. FOSTER: That is all.

MR. FOSTER: Let me just ask this one question. I am talking about the exercise of the regulatory functions of the provision, I am not talking about the private contractor. Between the producer and the purchaser of the gas.

A I know what you are talking about.

Q I don't see how you are going to establish a lawful allowable for all the wells in the field in excess of the market demand with the possibility that the market demand may be in excess of the

minimum allowed and at the same time not permit gas to be produced in excess of the market demand, unless you limit also to market demand whether it is 500,000 or less.

A Under your hypothetical situation, if the allowable was limited to the market demand, then the minimum take provisions of the contract would be abrogated, that is what I am trying to prevent.

Q Then you are saying to me on that basis that is the point I am trying to make is that you are going to permit gas to be taken from a well up to the minimum contract provisions whether it is more or less than the market demand? A That is correct.

Q Well, of course you know that is defined as waste.

A If the gas, no, not unless the gas is actually taken. I don't believe that.

Q It certainly is. Any take in excess of market demand is defined by the statute as waste.

A We don't share that belief with you.

Q You mean you don't interpret the statute that way?

A We don't believe the statute says that.

By MR. SELINGER:

Q May I make an obeservation here while Mr. Adair is on the stand? The statute in Section Two states, as used in this account, "The term waste in addition to it's ordinary meaning shall include E: The production in this state of natural gas from any gas well or wells, or from any gas pool, in excess of the reasonable market demand from such source for natural gas of the type produced, or in excess of the capacity of the gas transportation facilities for such type of natural gas". By terminology of the statutes, Mr. Adair, in answer to a cross examination question that the full

production capacity of the gas wells is in excess of market demand, has admitted by his own definition that there is waste now.

A No, you misinterpreted what I said. We can go back and have the reporter, George, read my answer to your question, but what I said was this, you asked me if and what my answer was that the unrestricted production from gas wells in Lea County probably exceeded market demand. In my opinion it would. But in the situation that I have been talking about and the situation that Judge Foster mentioned, there would be no waste because there would be no production in excess of what the purchaser wanted. Absent production there can be no waste.

MR. SPURRIER: Anyone else have a question of Mr. Adair?

By MR. YOST:

Q In order to get an exception to a proration unit, you think that the producer should show any particular grounds therefor, or is it just given under the automatic, under the circumstances that you have outlined?

A We are assuming that the acreage is known to be productive. That is the entire acreage that essential to attribute to the well and if he is not, well some of the offset operators are going to object and you are going to have a hearing.

Q Do you have to show any particular grounds that would result in confiscation of property or be detrimental to correlative rights?

A I think that when you recognize that the well will drain 640 acres, that is as far as you have to go. The only reason for staying on 160 acre is one of convenience and because we started out on that basis.

MR. YOST: That is all.

MR. SPURRIER: Any other questions?

By MR. STANLEY:

Q Don't you mean if you did assign a minimum allowable to 500,000 per day and the transporter did not take that amount of gas, let's make a hypothetical case out of it, he would only take 300,000, you could carry your overage into the next month and carry it from one month to another until you come to the winter months, it is where your demand was great, then you could abolish your overage at that particular time?

A It probably could be worked out at that time, that is correct.

MR. SPURRIER: Anyone else? Mr. Macey.

By MR. MACEY:

Q Mr. Adair, I think I understand your problem, but I would like to know if I have interpreted your ideas correctly. Suppose the market demand, I am talking about 160 acre units, suppose the market demand for a unit was 250,000 to 1, 250,000 for every one unit. When assigned an allowable 500,000 cubic feet for that unit, the pipe line company is not required necessarily to take that 500,000, is he?

A No, he certainly is not. He is required under the contract to pay for it even if he doesn't take it.

Q Couldn't he take under that condition, couldn't he take 500,000 from your neighbors well and leave yours all shut in during the month?

A He can do that now.

Q Suppose you rock along over a considerable length of time and you build up a considerable underage you have under produced your well completely, yet your neighbor has sat there and

produced his well at the normal allowable, he is not going to get paid for any make up gas, is he?

A No.

Q But you are?

A That is correct.

Q And yet all that time his well has been produced and if that is a common reservoir he theoretically could be taking gas out from underneath your property?

A Except that I would be paid for my gas whether he took it or not.

Q I agree with you there. The point I am getting at is that an operator under your problem doesn't have any protection as to gas which is in place under his property, does he?

A I don't think he has any now, Bill. Let me give you a hypothetical example. This is rather a strained one. Let's take a two well gas field just to make it simple, we will say that purchaser X is connected on to one of the wells and purchaser Y is connected to the other. Purchaser X nominates on the basis of 500,000 cubic feet per day for the month of April, we'll say, and purchaser Y nominates on a million feet. You are going to set the allowable, if you just pay attention solely to those nominations, at a figure that will average 750,000 cubic feet for the two wells. Which is more than purchaser X wants and not as much as purchaser Y wants. Purchaser X may or may not take the full 750,000, purchaser Y may take it all. The fact that you make the nominations, the fact that you set the allowable, doesn't assure the producer of going to market with his gas at all. The only thing that assures him of going to market is his contract, and that is what we are trying to protect. For example, in February the allowables in Langmat, for example, were more than twice what was actually taken by the purchasers, or the

purchasers from our wells.

Q Let's carry your case a little further, suppose we ran that same situation over a long period of time and the well with the smaller, that is connected to the purchaser who only wants to take a half a million, that well builds up a tremendous underage. He has not taken, the purchaser hasn't taken that gas and he has been allocated 750,000, binds up a great amount.

A I don't know of any way you can force him to do except possibly through some sort of ratable take order. I don't know how you can force a purchaser to take gas that he doesn't want.

Q That is what I am getting at, if that well builds up a large underage and over month by month the allowable assigned the other well in the pool connected to the purchaser who wants to take a million, his allowable will be cut back to the extent that he can't get enough gas out of that well. He has to get it somewhere and the only other place he can get it is through an interchange through pipe line.

A I don't know how those work. You get into FPC and other things when you run into interchanges of gas. They have interchanges of oil as we know. I don't know how it works out in gas.

Q I don't either.

A There is no easy, there is no easy, no simple solution to the problem you pose or to any of them. In the final analysis, the producer has to fall back on the terms of his contract to insure his going to market with his gas, or either that or being paid for it.

MR. SPURRIER: Anyone else have a question of Mr. Adair? If not, the witness may be excused. We will take a recess.

(Witness excused.)

MR. SPURRIER: The meeting will come to order. Mr. Campbell.

MR. CAMPBELL: If the Commission please, it is our understanding that a number of operators want to produce evidence in connection with this Case 673, and certainly that is the purpose of the case. In all likelihood the Commission will continue the case until next month's hearing for the purpose of allowing these people to produce their evidence. We would like to suggest this possibility that the Commission, in proceeding on this case, follow a definite line of attack. In other words, that we first introduce, receive evidence with reference to pool delineations and we receive evidence in connection with the definition of a gas well if the Commission wishes to, the gas-oil ratio limitations on oil wells, the establishment of proration units and exceptions thereto and then this contractual question so that everybody will know the order in which these things will be presented. In the light of that, Mr. Russell is going to offer at this time some evidence relating to pool delineation from Case 582 with one exception, all of these exhibits refer to pool delineation. We are offering them at this time so that other operators and the Commission will know those exhibits which we intend to use in this case. The witnesses that were available in that case are available now and will be available at next months' hearing for anyone interested in this. We are following this procedure, hoping that it will shorten the hearing in this case. Mr. Russell is going to offer the exhibits by number and by description.

MR. SPURRIER: Before I forget, do you move for a continuation to April 15, or next month?

MR. CAMPBELL: Yes, I think we should have a continuation until next month. I think everyone will have ideas they want to thresh

out and evidence they want to present at the next hearing.

MR. YOST: In your statement of these matters on which we should hear evidence, we feel that it is basic in connection with this matter that we hear evidence on the question of waste and correlative rights.

MR. CAMPBELL: I am sorry I neglected to mention that one. First, the delineation of pools and then abuse of correlative rights and prevention of waste.

MR. DAVIS: May I ask Mr. Campbell a question? Quilman Davis. It has been our opinion that in considering these, or re-opening these pool cases that it might be advisable for the Commission to actually make a determination as to pool delineation before we are tempted to get into the pool rules or allocation formula. There may be ideas one way or the other that would affect your thoughts on the allocation formula if you knew the pool delineation.

MR. CAMPBELL: So far as Texas Pacific is concerned, I am sure we concur in that. I doubt that anybody can properly appraise their situation unless they know first what the definition of the pool is going to be. I think that is the reason the statute is written like it is.

MR. KELLAHIN: If the Commission please. Jason Kellahin representing Samedan Oil Corporation and Continental Oil Company. We ascribe to Mr. Campbell's motion that the case be held open for the April hearing. However in outlining his order of procedure, I would like to state in behalf of Samedan that we have some brief testimony to present at this time on waste and we would like the opportunity to present it today, because we may not have the witness available next month. It will only take about twenty minutes.

MR. CAMPBELL: We have no objection, it is entirely up to the Commission. I was just hoping that maybe next month we could procedure in the fashion that everybody would be aware of at that time.

MR. HINKLE: I would like to know what the status of the record is at the present time in connection with Case 673. That is to say whether or not all of the evidence heretofore introduced in connection with these orders leading up to the proration of the gas in the Jalco, Langmat, Eumont, Arrow fields and also in connection with rehearing of case 582 are to be considered as a part of the record in this case.

MR. SPURRIER: They haven't been introduced, so we can't consider them yet.

MR. HINKLE: Was it your idea to introduce parts of the record in case 582?

MR. RUSSELL: Yes. Leaving out things that were not pertinent to this hearing, in our opinion.

MR. HINKLE: I would like to make a motion that all of the evidence heretofore introduced in connection with the orders that have heretofore been entered in connection with the Jalco, Langmat, Jalco, Langmat, Eumont, Arrow Pools be incorporated and considered as a part of the record in Case Number 673.

MR. CAMPBELL: You are just talking about the evidence?

MR. HINKLE: All the evidence leading up to proration orders in these specific cases.

MR. YOST: In what cases?

MR. HINKLE: In the cases providing for the orders in the, provided for in the Jalco, Langmat, Eumont and Arrow fields.

MR. YOST: Can you specify the cases?

MR. HINKLE: I don't have the numbers right now.

MR. DAVIS: I am a little bit confused by Mr. Hinkle's request. Does he mean the entire record put in cases 582, three, four and on down?

MR. SPURRIER: I don't know. Is that what you mean? From 582?

MR. HINKLE: That is right. 582.

MR. DAVIS: That was the first case, the Jalco 582.

MR. SELINGER: Case 582 to 589.

MR. YOST: Do those cases, do they come within the scope of the notice of this hearing?

MR. SELINGER: Not all of them, no.

MR. HINKLE: Your notice in this hearing as I understand it, that some of the other fields might not be affected. I think it ought to be limited to those cases that are specified in this particular hearing.

MR. DAVIS: In Case Number 673 we are only considering the Jalco, Langmat, Eumont and Arrow Pool. For the reasons that I have stated awhile ago, we would like to have a final determination of the pool delineation by the Commission before we introduce or change our testimony as to the proper allocation formula. We naturally oppose any request of anyone to simply carry over all evidence and all testimony introduced even in these four cases into Case 673, because our testimony there might not be the same if we have a single or two pools out of the four.

MR. SPURRIER: The Commission will sustain Mr. Davis objection. As we go along, testimony can be introduced or offered, but to make a blanket offer of all the testimony, the Commission will sustain

Mr. Davis.

MR. FOSTER: Mr. Chairman.

MR. SPURRIER: Mr. Foster.

MR. FOSTER: I would like for the Commission to be considerate of the matter. One of the principal objections in the Texas Pacific case was that there just wasn't any evidence in the record for anything. They went back in detail to a lot of different hearings, gave the case numbers and the order numbers and then said, "Well, there just never was any testimony here to support any of this". He went back there to Case Number 200 or something. I don't remember all of those numbers. Then we came in Case 582 and put on a lot of testimony which I think is very pertinent here to Case Number 673.

MR. CAMPBELL: We are going to offer that.

MR. SPURRIER: That is the point I am trying to make. Let's take it in as it is offered without saying all the testimony.

MR. FOSTER: That way you just leave it up to Mr. Campbell to put in there what he wants in.

MR. SPURRIER: You can offer yours.

MR. FOSTER: I don't have any independant recollection of all the testimony that went in there. I can't see any reason why all of the testimony that was offered in 582 insofar as it is material here to the 673 shouldn't be received by the Commission just on a general offer of it. I can't see where that violates anybody's rights, or I can't see where it is prejudicial to anybody. If it is there, it is there and you can take it and look at it and put up whatever argument you want, based on it. This is not a court.

MR. YOST: Maybe I could explain our thoughts on it. Case 582, there was objection to the form of the notice and so forth and

that we were going outside the scope of the hearing to receive certain evidence. We have now called a new hearing to reconsider all matter regarding gas prorationing in these four pools. The offer was to put in all the records and the prior proceedings in several cases into the record in this case. To that we had an objection. The parties present here may not have participated in all those hearings, may not have had an opportunity to cross examine witnesses, and we feel that by over-ruling that objection we would be jeopardizing the record in this case. We are going to do everything we can to get the record in this case. We would like very much for the relevant testimony in Case 582 presented by all sides be made a part of the record in the case, but as long as there is objection to it we don't feel like it would be safe to do so.

MR. FOSTER: I don't see how anybody could complain about it.

MR. SPURRIER: Somebody did.

MR. DAVIS: Since I complained, suppose I answer your question.

MR. FOSTER: Let me ask him and then I will get to you. These rulings here before this Commission are more or less arbitrary. If you don't see fit to permit us to put into this record all of the record in 582, there is no place we can go to explain abut it. That, likewise applies to Quilman's objection.

MR. YOST: The Commission has no objection to the records of 582 being made a part of the record in this case providing nobody objects.

MR. FOSTER: Why be arbitrary as to kick it out because somebody might kick it out, because it might do something to them. That is the point I am making. For whatever it is worth, it seems to me it ought to be in the record. Whether somebody objects to it or whether they don't object to it. I can't see how it can

hurt him. If it don't apply, it just doesn't apply. If there is something in there that isn't material, it can't hurt him. I can't see the objection to putting all the previous testimony in from 582. I had intended if Mr. Hinkle hadn't made the motion, to make the motion myself. I think the record ought to be complete. Whether anybody has had a chance to cross examine the witnesses or not, they had a chance when the witnesses were here and if they are still here, if they aren't satisfied, they can recall them and re-cross examine them if they wish. I don't think that is a good procedure.

MR. SPURRIER: Mr. Davis.

MR. DAVIS: You ready for me now?

MR. FOSTER: I am ready for you.

MR. DAVIS: Judge, I am not objecting to Phillip's introducing any part of their testimony. As I recall, you had very little in these cases except for statements, but what I am objecting to is someone else putting any testimony that we offered into these cases which are totally different from Case 582. We may or may not want to put or propose the same allocation formula. We have offered testimony supporting an allocation formula based on the Langmat and Eumont Pool. We may or may not want to follow the same procedure, depending on pool delineation. We are not interested in having all of your testimony simply transposed over to this record without our own offer.

MR. FOSTER: If what you put in before just doesn't apply under the facts, I don't see how you are hurt.

MR. DAVIS: If they apply under the facts, if they do, I shall ask that the Commission incorporate our record into this case.

MR. KELAHIN: Samadan Oil Corporation, we were the primary objectors to Case 582 and the basis of our objection was that we were without notice or opportunity to be heard. We do feel at this time that the Commission is following the proper procedure. We have the opportunity of cross examination, we have had notice, for that reason I would like to state now that we withdraw any objection, we have no objection to the introduction of the record in Case 582 in this case.

MR. SPURRIER: Judge Foster, do you want to offer your testimony in 582 in this case?

MR. FOSTER: I do. But I think all of the other testimony ought to go in too. I don't think we ought to just, I don't think the Commission ought to be placed just at the mercy of somebody that offered the testimony and wants to re-offer it here at this time. I think you ought to have the benefit of whoever has come here and testified -- and certainly this Commission is intelligent enough to distinguish between what is relevant and material and what isn't.

MR. WALKER: Don't you think we are going to take that into consideration when we read the record?

MR. FOSTER: It isn't in there.

MR. YOST: Would you have any objection to its being placed in evidence providing you had an opportunity to explain any part of the past transcripts?

MR. DAVIS: With the understanding as to any part of our testimonies introduced in 673.

MR. ADAIR: Off the record.

(Discussion off the record.)

MR. FOSTER: I move that all of 582 be placed in 673.

MR. WOODWARD: We would like to speak on that motion in favor of it and further make a statement with regard to our understanding of the use to which the record in past cases can be put. It is our understanding that that record doesn't belong with anyone, not even the people that testify, that is a matter of record. If the Commission finds it of probative value, it is up to them to pass on whether they will admit it in a general hearing or not. It should not be controlled by any body other than the Commission itself. As a practical matter here, the only difference is that, that in order to get all of the relevant and valuable information in, somebody has to sit down and screen all the records come forth, introduce portions of them. The alternative is to introduce the records, the material irrelevant portions, or those which have no probative value can be ignored, those that have some value are in the record, or if necessary are available to the Commission for supporting any action that it takes. It is difficult to go through there and screen out everything that may relate to some action the Commission may want to take. Put it another way, you heard a lot of testimony, your judgment will be affected by it, but if you try to go back and see what portions of the record you are basing that judgment on, it would require you to brain wash yourself of everything that does not appear in that record. There is no necessity of taking on that burden. We see no possible objection or prejudice. The Commission, incidently, has the power to call some of these witnesses if somebody wants to cross examine them. There is no notion that the proponent owns his testimony or the portion of the record.

MR. SPURRIER: Mr. Davis.

MR. DAVIS: I would like to answer one question. I believe

673 is a new case. I don't believe that the Commission needs to have authority. If they want to introduce the testimony in these other cases, I don't have objection so long as my rights of taking that part of the testimony in the Langmat and Eumont Pools out insofar as it is inapplicable to our condition. Case 673 is a new case. You don't go in and pull all the records that may have been introduced before this Commission in every case that has been held out here to support 673.

MR. SPURRIER: Mr. Girand.

MR. GIRAND: If the Commission please, W. D. Girand on behalf of Metex. I was only interested in the Eumont pool during the many hearings covering the nine pools or delineated pools. I have been here in the hearing room during the 582 procedure. I did not take any part in it because I necessarily did not want to be bound by what went on in that hearing. We are now confronted with the fact that in Case 673 they propose to offer in evidence exhibits and testimony that was pinpointed to the Jalco area and have it apply to four different areas. We feel that the Commission can only consider it in regard to the Jalco area and not to the Eumont or any of the other pools. We object to its being offered insofar as it affects the Eumont Pool.

MR. CAMPBELL: If the Commission please, there is not an iota of evidence in that case that affects the Eumont Pool.

MR. GIRAND: That is correct. If it is adopted that a four-pool hearing, unless it is pinpointed to apply to Jalco, we object.

MR. CAMPBELL: It must be limited.

MR. FOSTER: There is nothing in there that bothers him, why is he objecting?

MR. SPURRIER: In order to save time, the Commission will consider all the evidence up to this point in 582 for this case. I mean we will accept it. Now, Mr. Davis and everybody else for that matter, has the absolute right to get up at any time and object to whatever they want to, and at that time we will decide on the motion.

MR. CAMPBELL: That takes care of Mr. Russell's problem.

MR. RUSSELL: Did you have a question?

MR. SPURRIER: I wondered if you had anything further.

MR. RUSSELL: Did Mr. Campbell answer it satisfactorily?

MR. SPURRIER: He did. Did you have some testimony at this time?

MR. CAMPBELL: With this record from 582 in the case for present purposes, we are going to conclude,we may want to offer some testimony at the next month's hearing if the case is continued in connection with the other testimony offered here.

MR. SPURRIER: Mr. Kelahin, you have some testimony?

MR. KELAHIN: Yes, sir.

G. E. TRIMBLE

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. KELAHIN:

Q Will you state your name, please?

A G. E. Trimble.

Q By whom employed? A Samadan Oil Corporation.

Q What position? A Petroleum engineer.

Q Have you testified before this Commission before and been qualified as an expert in petroleum engineering?

A I have.

MR. KELAHIN: Are the witness's qualifications acceptable to the Commission?

MR. SPURRIER: They have and they are.

Q Mr. Trimble, in connection with your duties with the Samedan Oil Corporation, are you familiar with a well designated as Samedan Hughes B Well Number 1? . A I am.

Q Are you familiar with a well offsetting that designated as Gulf Janda G?

A I am to the extent of the available data.

Q Have you prepared a plat showing the location of those two wells? A I have.

Q Would you mark that as Samedan's Exhibit Number 1.

(Marked Exhibit Number 1.)

Q Would you state briefly to the Commission what that plat shows?

A This plat shows a portion of the Langmat gas pool in Lea County, New Mexico, particulary with respect to Section 24, 23, 36, Section 19, 23, 37. In 19, 23, 37 the Samedan Oil Corporation has a gas well located in the northwest one-quarter of the Section. In Section 24, 23, 36 the Gulf Oil Corporation has a gas well located in the northeast one-quarter of that section. This would make the wells offsetting wells.

Q Tell us what the color reflects.

A The color red indicates or shows the Samedan Well, the color yellow shows the well owned by Gulf Oil Corporation.

Q Are those wells connected with any gas pipe line facilities?

A They are.

Q Do you know what facility that is?

A The Samedan well is connected only to the facilities and transmission system of the El Paso Natural Gas Company. The Gulf Oil Corporation, the Janda G-1 is connected to El Paso and it also has another, what might be termed, a connection. It is tied into what is commonly known as Gulf's, the gas lift transmission system.

Q Have you compiled any data on the completion and casing program of those two wells? A I have.

Q Would you mark that as Samedan Exhibit 2?

(Marked Exhibit 2.)

A The Samedan Hughes B Well Number 1 was completed 7-25-48, elevation of 3327 feet, 5½ inch casing was set at 2755 feet, the total depth was 3350 feet. The gas pays were 2800 to 2890 feet, 2940 to 3080 feet and 3280 to 3350 feet. The Gulf Janda "G" Well Number One was completed in 6-2-48 with an elevation 3355 feet, 5½ inch casing set at 2816 feet, a total depth of 3352 feet. Gas pays as submitted to the Commission were as follows: 2870 to 2945, 3010 to 3130, 3155 to 3240, and 3275 to 3315.

Q Does that exhibit reflect that both wells are producing from the same formations?

A The Commission records for the Gulf well show the well to be producing from the Yates and Seven Rivers sections. The log on our well indicates that the well is also producing from the Yates and Seven Rivers sections.

Q What pool, desiganted pool are those wells located in?

A At the present time this is known as the Langmat Pool.

Q Have you compiled any data on gas withdrawals from those two wells? A I have.

Q Would you mark that as Samedan Exhibit Number 3?

(Marked Samedan Exhibit Number 3 for identification.)

Q Would you state briefly to the Commission what that exhibit reflects?

A Before I do that I would like to say this, that the testimony that I am about to give from here on in is in no way to be taken as a criticism of the operating procedures of the Gulf Oil Corporation. It is only to show that waste is present, that correlative rights are not being protected and that the waste and the protection of correlative rights will give the Commission a means by which they both may be reduced to a minimum, or completely eliminated.

Q Before you start commenting on that exhibit, what is the source of those figures, Mr. Trimble?

A The Samedan well, the Hughes "B" 1-G, the source of these figures have been taken from the monthly gas report which we filed with the Commission. On a pressure basis of 15.025 p.s.i. I have another well in the Gulf Janda "G" 1, the source of these figures were taken from the records of the Gulf Oil Corporation in Ft. Worth, Texas, were on a 15.025 p.s.i. pressure base. Prior to that time I had compiled the production data for the ulf well from their dry gas reports and with the exception of a minor percentage deviation, the figures compared, or agreed.

Q Does that exhibit show the production figures for another well than the two you have mentioned?

A It does. Another well is placed on here.

Q For what purpose did you place that on there?

A This well is the Continental Stevens B-18 Well Number 2 which is indicated on the plat as the north offset to the Samedan well. The purpose for which this was placed on the data sheet is

for this reason. Originally Samedan negotiated a contract with the El Paso Natural Gas Company and the acreage in this contract was 40 acres even though we were producing from 160 acre unit. Therefore, we had no basis on which to compare production from the Gulf well since the El Paso contract with Gulf was on the basis of 160 acres. Therefore, we felt it best to select a well which offsets not only our own, but offsets the Gulf well to the northeast. The Continental Stevens well is the outlet for gas from this well is to the El Paso Natural Gas Company only, and since it does have a 160 acreage stipulation in the contract, the withdrawals from this well could be compared to the withdrawals from the Gulf Janda G-1. In November of 1952 we renegotiated our contract with the El Paso Natural Gas Company. Our acreage was increased from 40 to 100 acres. Therefore, we are not going to bring the last two months of 1952 in, but we are going to state that during the year 1953 our acreage, our 160 acreage allocation in the El Paso contract was the same as that of the Gulf Oil Corporation so that we, therefore, could compare withdrawals on an equal basis.

Q What does that exhibit reflect in the way of withdrawal?

A In the total year, 1953, the Samedan Oil Corporation sold 280,423 MCF to the El Paso Natural Gas Company. The Gulf Janda G-1 for the year 1953 produced a total of 891,501 MCF.

Q You stated that Samedan sold to El Paso the amount you quoted. Was that the total production from that well?

A That is correct, that is the total production from that well.

Q Have you anything further to add to that?

A Yes, I do. To justify the statement that correlative rights are not being protected, it was our opinion that it would be

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necessary to show that inequitable withdrawals, that those withdrawals would be, what I might say is this, that the production from the Gulf well was affecting, or indicated communication in our well which would mean that the acreage under the Samedan well was being drained as a result of these unequitable withdrawals.

Q Have you made a study of the bottom hole pressures of each of the wells involved? A I have.

MR. KELAHIN: Would you mark that as Samedan's Exhibit Number 4.

(Marked Samedan's Exhibit Number 4 for identification.)

A I would like to say that this exhibit marked "Comparison of Static Bottom Hole Pressures", I would like to say that these bottom hole pressures were calculated from the shut in pressures as submitted to the Commission office and theoretically they may be criticized since, I mean a bomb wasn't actually run to the bottom of the hole and a formula was used which took in the surface pressure and from this formula the bottom hole pressure was calculated. This formula was taken from the Spanghang book and I don't have the formula with me, but it is available in the handbook. Previous experience, why this formula fairly well will agree with actual bottom hole pressure bomb tests.

Q Does that reflect a regular decline --

A (Interrupting) It does. I have plotted this on a --

(Marked Samedan's Exhibit Number 5 for identification.)

Q What does Exhibit 5 reflect?

A Exhibit 5 is a curve showing static bottom hole pressure, p.s.i. versus time and years. On this exhibit the static bottom hole pressure is calculated in Exhibit Four, is plotted for both the Samedan well and the Gulf well. Even though that Samedan was on a

40 acre, what might be said allocated unit, and Gulf was on a 160 allocated unit; the total cumulative production from the Samedan well from its completion date to January 1st, 1953 was 579,988 MCF, the total production from the Gulf well from its completion date was 2,874,017 MCF.

Q In your opinion, does that reflect that there is communication between the two wells?

A In my opinion this reflects that a well on 160 acres is capable of draining far more than that 160 acres and that this production data in my opinion shows that excessive withdrawals from the Gulf well has definitely reflected withdrawals from under the Samedan 160 acres.

Q Or in other words, there has been drainage of the Samedan lease? A That is correct.

MR. KELAHIN: I offer in evidence Samedan's Exhibits one through five inclusive.

MR. SPURRIER: Is there objection?

MR. CAMPBELL: If the Commission please, for the present purpose of the record, we would like to have the record show objection to this evidence upon the ground that it does not constitute evidence of waste, upon the further ground that statutes do not authorize the Oil Conservation Commission to prorate gas lift gas inasmuch as it is not delivered to a gas transportation facility.

MR. KELAHIN: If the Commission please, we do not agree with Texas and Pacific's position that the Commission can not prorate for the purposes of protecting correlative right. On the basis of the testimony offered up to now we propose to show waste. If the counsel will reserve his objection until we have completed, I feel

sure he will see our position.

A During the year 1953--

MR. CAMPBELL: I will withhold my evidence until he has completed.

MR. KELAHIN: You prefer I withdraw the introduction of the Exhibits?

MR. CAMPBELL: I don't care.

MR. SPURRIER: We will note the objection and the Exhibits will be admitted.

Q The testimony you have given up to the present time, Mr. Trimble, indicates that correlative rights have been affected. Do you have any further evidence which would show that the excessive gas withdrawals from the Gulf Janda "G" well had resulted in waste?

A I do. As heretofore pointed out, I stated that the production from the Gulf well was going both to the El Paso Natural Gas Company and to what Gulf calls their Teague transmission system. I have taken the C115 as submitted to the Commission by the Gulf Oil Corporation for December 1953 to determine what happens to this gas after it goes into the Teague transmission system. I have some leases here I am not positive that they are all the leases, but I think there are enough leases here to illustrate that waste is occurring as a result of the gas lift gas. On the LaMunyon lease, they show wells 6, 7, 8, 9, 10 and 12. Said all wells gas lift except Number 7. Total gas produced from six wells, 44,605 MCF. Five MCF used on lease, 45,600 MCF sold to El Paso Natural Gas Company. Input gas from Teague gas system, 8,869 MCF Well Number 6, 4,268. For Well Number 8, 6,184 MCF to Number 10, 6,787, to Number twelve and 7,034 MCF to well Number 9. No waste occurred

from gas lift gas on that lease. The Travis leaselisted wells Number 1 gas lift.

Q The Travis lease listed to the Teague transmission?

A Yes, sir. Total gas produced, 13,682 MCF. Eight MCF used on lease. 5,674 MCF sold to El Paso Natural Gas Company. 8,000 MCF blown to air. Input gas from Teague gas system, 12,230 MCF. There are two other leases, I don't think there is any need to go on because --

Q (Interrupting) Go ahead and put those in evidence, Mr. Trimble.

A The Saltmount lease Number 1 gas lift, total gas produced, 10,138 MCF, 5 MCF used on lease. 6,898 MCF sold to El Paso Natural Gas Company, 3,235 MCF blown to air. Input gas from Teague gas system, 8,087 MCF to Well Number 1. The Hillis Well Numbers 1, 2, 3 and 4, 1, 2 and 4 gas lift. Total gas produced, 40,628 MCF. Ten MCF used on lease. 29,446 MCF sold to El Paso Natural Gas Company. 11,172 MCF blown to air. Input gas from Teague gas system, 8,045 MCF, to well Number 1, 19,866 MCF, to Number 2, and 8,070 MCF to Well Number 4. That completes that data.

Q In your opinion, then, is gas which is produced from Gulf Janda "G" well contributing to gas that is being vented on other leases? A It is.

Q Do you have any evidence showing any other waste?

A No, sir.

MR. KELAHIN: That is all.

MR. KELAHIN: I again offer Samedan's Exhibits one through five in evidence.

MR. SPURRIER: They will be admitted. Does anyone have a

question?

MR. MALONE: Ross Malone of Gulf Oil Corporation. Mr. Trimble, you stated, did you not, that the gas connections on the Gulf Janda "G"-1 was to the Gulf gas lift system and the El Paso Natural Gas?

A Yes, sir.

Q Those are the only two sources to which gas from that well is being delivered?

A From the dry gas report, that is correct.

Q It is correct, is it not, that all of the gas was put to beneficial use?

A Produced from the well?

Q That was produced from the well used in the gas lift system with the exception of the amount that you testified was vented?

A Yes, sir.

Q It is also correct, is it not, that if Samedan had had a gas lift system through which it might have used a portion of the gas from it's well, that it might have produced a greater proportion of gas from the reservoir?

A Yes, sir.

Q You used the term waste with reference to the withdrawal of gas from the Janda well?

A No, sir, I did not.

Q In what connection did you use that term?

A I used the term the waste that the gas was being vented to the leases where the gas lift transmission system was tied into those leases at the gas lift wells.

Q That was the only respect that you intended to use the word waste in your testimony?

A That is correct.

Q Have you been able to compute the amount of gas from the Janda G-1 which has been so vented?

A No, sir.

Q It isn't possible for you to testify actually that any

portion of the gas from Janda G-1 was so vented?

A We do not say that. We say it contributed to the waste.

Q Your testimony then, is that the venting of gas which occurred on the leases to which you referred, constituted the waste to which you were testifying? A Yes, sir.

Q The source of that gas you are unable to testify to?

A It is the gas wells tied into the system. Any well that would be tied into that gas lift system would certainly be contributing toward that waste.

Q The extent of the contributions or the other conditions which might contribute to it are not within your knowledge, are they?

A That is correct.

MR. MALONE: If the Commission please, the Gulf Oil Corporation would like to move that the hearing on this case be left open to April in order that we may verify some of the records that were produced in evidence. We do not have available the information to verify their correctness.

MR. SPURRIER: The Commission will grant your motion. This case, the whole case has already been continued, but we will specifically refer to that which you just mentioned.

MR. SPURRIER: Mr. Stanley.

MR. STANLEY: Mr. Trimble, are you familiar with Rule 404 of the Commission Rules and Regulations?

A Not by number I am not.

Q I would like to read this rule into the record. "Rule 404, Natural Gas Utilization. After the completion of a natural gas well, no gas from such well shall be first permitted to escape to the air, secondly, used expansively in engines or pumps and then vented.

Thirdly, used to gas lift oil wells unless all gas produced is processed in a gasoline plant or beneficially used thereafter without waste. Or four, used for the manufacture of carbon black."

MR. SPURRIER: Anyone else have a question of Mr. Trimble? Mr. Macey.

By MR. MACEY:

Q In connection with what Mr. Stanley just read, does, if you have got a gas well, you have to have a gas pool, you have to have a common source of supply before you can have a gas well.

A State that again.

Q You stated that the Janda well and your well were gas wells?

A Yes, sir.

Q Why did you say they were gas wells?

A Because the check upon these wells, what you might say, I mean including that gas being fluid that fluid produced from this reservoir at this particular location is in a gaseous phase in the reservoir and to all practical extent is in a gaseous phase when it is produced at the surface.

MR. KELAHIN: If the Commission please, the Commission itself has defined the Langmat as a gas pool. As far as I know that order is still in effect and has not been rescinded. The witness has testified that these are producing in the Langmat Pool.

MR. MACEY: I agree with you Mr. Kelahin, but the question is before this Commission in this case.

MR. KELAHIN: Yes, sir. If his testimony can be helpful, I have no objection to it. I just wanted to point out that he referred to them as gas wells, they are in a gas pool and on a gas proration schedule.

MR. MACEY: In order for the Commission to enforce the provisions of Rule 404 pertaining to the gas produced from the gas wells, they have got to have a gas pool before they have got a gas well, haven't they?

A It all depends how you look at it.

Q I am talking about the definitions. We have a definition of a gas well. The definition reads, "A well producing gas or natural gas from a common source of gas supply as determined by the Commission".

A Yes.

Q In order for us to prohibit the Gulf from venting that gas we had to have that gas pool, did we not?

MR. KELAHIN: I don't believe he is qualified to answer.

A Whether it was a gas well in an oil reservoir, it appears to me as long as you have waste that it can be set up as such, then.

MR. MACEY: I have no other questions.

MR. SPURRIER: Does anyone else have a question of Mr. Trimble? If not, the witness may be excused. (Witness excused.)

MR. KELAHIN: That is all we have to offer at this time. We would like to also join with the other companies in asking that the case be held open to April and perhaps have a right to offer further evidence at that time.

MR. SPURRIER: Does anyone have anything further in this case to present?

MR. FOSTER: Mr. Chairman.

MR. SPURRIER: Just answer my question yes or no. Do you, Judge?

MR. FOSTER: Yes.

MR. SPURRIER: We will recess until 9:00 o'clock tommorow in this same room.

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MORNING SESSION, MARCH 18, 1954, 9:00 A. M.

(Whereupon the Hearing in Case 673 was resumed as follows:)

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

(Witness sworn)

MR. AINSWORTH: W. E. Ainsworth, Omaha, Nebraska. Mr. Stahl and myself have some suggested changes in certain rules that were issued in conjunction with Cases 582 and 589, Orders 368-A to 375-A. These orders, 368-A to 375-A were identical, except as related to separate pools, and there are seven rules on which we would like to suggest the changes be made. The first one is Rule Number Two, which now requires, or prohibits the drilling of a well on less than 160 acres. When viewing the deletion of that rule in its entirety, Rule Number Seven, we suggest a few minor changes, one of which is to take into consideration those along Township 21, where more than 640 acres are involved, and to waive the requirement that a standard proration unit be 160 acres. The other changes would require that the Secretary of the Commission grant exception to Rule Seven without formal notice and hearing, assuming that certain conditions have been met. Rule Eight, the changes we recommend there eliminates the need for filing preliminary and supplemental nominations except as the preliminary nominations are found to be wrong.

MR. SPURRIER: Let me interrupt. Do you have any more copies of your--

MR. AINSWORTH: I brought about a hundred copies and I thought everyone got copies yesterday. I have about three or four

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extra copies here, one of which I would like to introduce as our Exhibit, the others are available for distribution.

(Marked Exhibit Number One for Identification)

MR. AINSWORTH: Back to Rule Eight, the way it is written now, we are required to file preliminary nominations, then to duplicate them as a supplemental nomination, whether or not our requirements change. Rule Number Nine, again deletes some portions that require supplemental nominations in addition, suggests the change in the Rule that requires the recomputing two months later of allowables that have been already assigned. Rule Number 10 has to do with the cancellation of under production. The way it is written now, if a well goes into one balancing period, five million under, for example, and into the next balancing period 10 million under, the original five is cancelled, whether or not it was made up in the interim. Rule Number 11 is essentially the same thing except it has to do with over production, and Rule 14 is simply to eliminate duplication of reports to the Commission by the operators and the gas purchasers. That is the substance of the changes that we recommend.

MR. SPURRIER: Off the record.

(Discussion off the record.)

MR. SPURRIER: Go ahead.

MR. AINSWORTH: Well, I simply wanted to distribute these suggestions at this hearing and give everybody a chance to think them over, and maybe next month, if they want to correct or talk to us any further about the changes, we would be glad to go into it. That is all I had.

MR. SPURRIER: Without objection, they will be admitted. Does anybody have a question of Mr. Ainsworth? Mr. Macey.

MR. MACEY: In connection with your recommendations, Rule Nine, the suggested revisions which you have suggested would simply allow the Commission to adjust, basically would allow the Commission to adjust the allowables as in the second months, on the second month following the period in which your shortage would occur?

MR. AINSWORTH: That is right. You would adjust your March allowable to conform with your January period, and April with February performance rather than going back two months later and recomputing the January allowables.

MR. MACEY: All right. Now, in connection with that, yesterday, Mr. Adair suggested a minimum allowable. Under your proposal, could you work a minimum allowable and be able to balance a pool or what do you know about it?

MR. AINSWORTH: Well, if the minimum allowable is greater than the market demand, I don't see that you can, I mean if you set a minimum allowable at five hundred thousand and the market demand is only three, I don't see how it can be handled rateably. I haven't given that much thought, frankly.

MR. SPURRIER: Anyone else have a question?

MR. ADAIR: Eugene Adair, Texas Pacific Coal and Oil Company. I believe your statement was you didn't see how you could take rateably in a minimum allowable higher than market demand. What would prevent you?

MR. AINSWORTH: Well, if one pipeline was all that is involved that could be done. Shore Permian and El Paso connect on it

at a rate of three hundred thousand at the connection, there is no rateability.

MR. ADAIR: Is there a rateable take under the present proration system?

MR. AINSWORTH: I think so.

MR. ADAIR: You are taking just as much as El Paso.

MR. AINSWORTH: Oh, no. Per well you mean?

MR. ADAIR: Yes.

MR. AINSWORTH: I don't know that.

MR. ADAIR: Then you don't know whether or not you are taking rateably, do you?

MR. AINSWORTH: I know that over a period of time we will certainly have to.

MR. ADAIR: Suppose the allowable is two million feet per day, suppose you take a million and El Paso takes five hundred thousand.

MR. AINSWORTH: You say the allowable is two million?

MR. ADAIR: We will say that.

MR. AINSWORTH: Well, how did the allowable get that high if each of us are taking less than that?

MR. ADAIR: Are you trying to say what you take fixes your allowable?

MR. AINSWORTH: Over a long period of time.

MR. ADAIR: Under February, Langmat was one hundred four thousand feet, Jalco, one million plus per day, did you or did you not take the allowable?

MR. AINSWORTH: I don't know, sir, I think we did, but I don't have the February take figures with me.

MR. ADAIR: The figures we have on El Paso that took an average of about 689,000 feet per day from our wells.

MR. AINSWORTH: Well, if I may be allowed to guess, I would guess that we took about a million per well per day.

MR. ADAIR: Then, your takes and, between the two lines, was not rateable, was it?

MR. AINSWORTH: No, not in a month, but if that were to continue for a year, one of us would find ourselves badly under and the other over produced and we would have to work out some sort of inner connection, exchange gas, balance out.

MR. ADAIR: Have you ever done that?

MR. AINSWORTH: At Hugoton, Kansas, many times.

MR. ADAIR: You think it is permissible under contracts?

MR. AINSWORTH: Under contracts?

MR. ADAIR: Yes.

MR. AINSWORTH: I am quite sure that our contracts do not forbid that.

MR. ADAIR: Is that permissible under your dedication of gas?

MR. AINSWORTH: To exchange gas.

MR. ADAIR: In New Mexico, on this particular gas we are talking about?

MR. AINSWORTH: I don't know anything to the contrary.

MR. ADAIR: Would you be willing to look into that and at next month's hearing give us a statement?

MR. AINSWORTH: I sure would.

MR. ADAIR: That is all.

MR. SPURRIER: Anyone else? Mr. Macey.

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MR. MACEY: Are you familiar with El Paso's minimum take provision of their contracts?

MR. AINSWORTH: Only what I have heard here in the Court room.

MR. MACEY: You heard some testimony to the effect that they have approximately a hundred thousand minimum take provision per day, which is over a one year period. In other words, if they do not take five hundred thousand per day over one year period, they have to pay for the difference they did not take?

MR. AINSWORTH: Yes, sir.

MR. MACEY: Let's assume that we have a pool and in that pool we have two wells on 160 acre units, side by side. The allowable which this Commission would normally assign to those wells which we must assume are capable of producing a considerable amount of gas each, with equal reserves, the Commission takes no nomination and determine that the per unit allowable per day is 250,000 feet of gas. Now, if we set a minimum allowable of 500,000 feet of gas, there is nothing that says you have got to take that gas, necessarily. But let's assume that the pipeline company, or pipeline companies in the area, one of them, takes 125,000 from one of the wells and the other one takes 375,000. Now, over a year's period, those two operators will get the same income won't they, because they will have to pay for the gas they don't take, does that follow?

MR. AINSWORTH: Yes, sir, they are both going to be paid for 500,000, as I understand it, all the dnes selling three seventy-five

and one seventy-five, they are.

MR. MACEY: Now, if that situation continues over a long, long period of time, the one well, even though the operator has gotten the same amount of income for his well that his neighbor has gotten, that one well will have considerably less volume of gas under his property than the other well, isn't that true?

MR. AINSWORTH: That follows, certainly.

MR. MACEY: If they started out with equal reserves?

MR. AINSWORTH: I am not an engineer and may not be capable of answers to further questions.

MR. MACEY: What I am getting at is strictly a pipeline problem, I believe. If you are taking ratably or El Paso taking ratably, do you think you can approach a minimum rate of take within a pool?

MR. AINSWORTH: I do not.

MR. SPURRIER: Anyone else?

MR. ADAIR: What difference would it make, Mr. Ainsworth, whether you had a minimum take or not, set the allowable at 500,000 or whatever you want, under Mr. Macey's hypothetical situation, what difference would it make whether you had a minimum allowable or not, as long as you take 125,000, and El Paso 375,000, that situation is going to exist regardless of what the minimum allowable is, would it not?

MR. AINSWORTH: Are you assuming that both pipeline companies have that pipeline?

MR. ADAIR: Leave that out entirely. Let's assume that

you have an allowable set at 500,000 feet per day, and let's assume, as Mr. Macey has assumed in his hypothetical situation, that you take only a 125,000 feet and the other 375,000 per day, you are going to wind up in the same situation as Mr. Macey has described, are you not? In other words, the minimum allowable has nothing to do with the fact that one purchaser takes more than the others, regardless of whether you paid for a certain quantity or not, is always going to result in inequity, is it not?

MR. AINSWORTH: If you fix the allowable consistently at a greater figure than you know the demand is going to be, you might make that minimum two million, or five million.

MR. ADAIR: There is nothing about the allowable that requires a purchaser to take the gas, is there?

MR. AINSWORTH: No.

MR. ADAIR: You actually take what you need?

MR. AINSWORTH: That is right.

MR. ADAIR: Regardless of what the allowable is?

MR. AINSWORTH: But your nomination is a forecast of what your needs are going to be.

MR. ADAIR: But you don't know what your needs are going to be until a period is passed, do you?

MR. AINSWORTH: Well, we don't know to the MCF, but we know pretty accurately what our requirement might be.

MR. ADAIR: Do you have any idea how much gas you took per unit from either the Jalco or Langmat?

MR. AINSWORTH: A million per day per well, a guess.

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MR. ADAIR: Let's assume that is a good guess. Then in the Langmat, where the allowable is 1,044,000, or something in that order, you did not take the full allowable, did you?

MR. AINSWORTH: If those figures are accurate, that is right, I don't have any way to check them now.

MR. ADAIR: So, setting the allowable, except the place above which you can not go except in an emergency?

MR. AINSWORTH: Well, you have flexibility to go above that.

MR. ADAIR: You do have that flexibility?

MR. AINSWORTH: Sure, the reserves provides six times the current allowable.

MR. ADAIR: The point I am trying to make now, I am not trying to trap you, or anything like that, all I am trying to get out of you is this setting the allowable, that has nothing to do with your actual take of gas.

MR. AINSWORTH: During the current month, that is right, during this month of March what the schedule shows the March allowable to be may not have very much to do with how much we are going to take during the month of May, but what we fail to take, or do take, is going to reflect in our May schedule.

MR. ADAIR: When did you intend taking the 44,000 that you did not take in Langmat when did you intend taking that?

MR. AINSWORTH: I am sorry --

MR. ADAIR: (interrupting) You were somewhere in the neighborhood of a million feet per day per unit?

MR. AINSWORTH: That is a guess.

MR. ADAIR: The Langmat allowable was a million forty-four thousand, approximately, you didn't take that. When did you intend to take it?

MR. AINSWORTH: Maybe this month, if not next month.

MR. ADAIR: Is it in a part of your nominations for the month of April?

MR. AINSWORTH: Our nominations are what we expect to take in total.

MR. ADAIR: During the month of April?

MR. AINSWORTH: Had they been current or what?

MR. ADAIR: So in effect, you have ignored that 44,000 that you did not take in February?

MR. AINSWORTH: No, sir, there are some rather complicated computations that Mr. Macey and I have spent some time on, so the exact method of making adjustments for the overage and underage, I think you have to understand them before you can understand what I am trying to say. One pipeline could in one pool, suppose it is us with our requirement for 10 million a day, three hundred million a month, suppose that pool had a underage of a hundred million at the beginning of the month, all the wells in the pool had a combined under production of a hundred million, we want three hundred million, so the Commission then sets two hundred million of current allowable among all the wells in the fields, adds to that the under hundred million.

MR. ADAIR: That is just a bookkeeping matter?

MR. AINSWORTH: That is right.

MR. ADAIR: You do take only what gas you need, regardless of what the allowable is, is that correct?

MR. AINSWORTH: By month, in one particular month, that is right.

MR. ADAIR: Do you, as a pipeline company, have any objection to the Commission writing an order setting the minimum allowable at your minimum pay provision of your contract, with the understanding now that you don't have to take the gas and you are not going to take the gas unless you need it?

MR. AINSWORTH: No, sir, we do not.

MR. ADAIR: You take only what gas you need, regardless of what the allowable is?

MR. AINSWORTH: That is right.

MR. ADAIR: Now, do you, as a pipeline company, have any objection to the Commission requiring you to live up to the terms of your contract?

MR. AINSWORTH: I don't know whether I should answer that or not, whether I am competent to answer it or not. If you want me to answer for myself, I will say that I don't like a minimum allowable of any size.

MR. ADAIR: But you are willing to contract to one?

MR. AINSWORTH: We strive to fulfill our contract obligations.

MR. ADAIR: For a period of some 20 years or more?

MR. AINSWORTH: We do.

MR. ADAIR: You should then have no objections whatsoever to the Commission's setting an allowable that would permit you to fulfill your contractual obligations?

MR. AINSWORTH: I don't know the answer to that. I think that the pipeline companies, certainly, we must have enough flexibility that we may underproduce those minimums in summer months when your market demands are low and your whole system is going through an overhaul, and to undertake such minimums, since, naturally, within time you have met the annual requirement. Certainly, we expect to do that.

MR. ADAIR: Then if you expect to meet the annual, then you should have no objection whatsoever to the Commission permitting you to do that?

MR. AINSWORTH: Over a year's time or month by month, or with a minimum of 500,000 per well?

MR. ADAIR: Whichever way your contract is, I understand it is a yearly basis, is that right?

MR. AINSWORTH: That is right.

MR. ADAIR: So that it would average over a year.

MR. AINSWORTH: I don't see the need for such an order, if the time should come, then I think the operators might probably come and make a case to the Commission.

MR. ADAIR: Well, if you don't intend to vary from the terms of your contracts, then you as a gas purchaser certainly should have no objection to the Commission setting the allowable in such a manner as will permit you to live up to your contract.

MR. AINSWORTH: I have to ask you again if you mean 500,000 feet a day every day every month, or do you mean some annual lump sum?

MR. ADAIR: If the Commission sets the allowable at 500,000 feet per day per month every month will not that permit you to live up to your contracts?

MR. AINSWORTH: We don't have such contracts as that, and personally I would hate to see that, because we are going to require less than that.

MR. ADAIR: You have testified that you haven't taken the allowable, you take only what you actually need, regardless of what the allowable is. If the Commission sets the allowable at a figure that permits you to live up to your contracts over a year's time, or El Paso, over a year's time, serving you as a gas purchaser, you have no objection to the Commission setting the allowable in such a fashion it would not in any wise cause waste, would it?

MR. AINSWORTH: If they fix the market demand.

MR. ADAIR: Regardless of what the allowable is.

MR. AINSWORTH: I also testified that those amounts that we return one month are going to be made up the following or the second following. They are not going to become cumulative as they would in your proposal, as I see it, if you continually set the allowable greater than demand, you are going to have a pyramiding under production that never will be made up.

MR. ADAIR? Let's look at it this way, let's assume that

you have considered to take a hundred and 80 thousand MCF a year, per unit. Now, if my figures are correct that would average out about 500,000 feet per unit per day, would it not?

MR. AINSWORTH: That is right.

MR. ADAIR: You intend, as a gas purchaser, you have considered to take that unit to live up to your contract, right?

MR. AINSWORTH: Right, we do.

MR. ADAIR: As long as the Commission writes that up and sets the allowable 500,000 per day per unit, how are you hurt, how is the Commission hurt, the production hurt?

MR. AINSWORTH: On July first, underages are going to be cancelled.

MR. ADAIR: I am talking about your actual takes and what you are contracted to take. Let's forget for a moment what is under and what is over, as long as the Commission gives you an opportunity to get a 180,000 MCF per year, the Commission has permitted you to do all you want to, has it not, as long as they permit you to take that much gas, that is your only interest isn't it?

MR. AINSWORTH: We might require three times this minimum that you are talking about.

MR. ADAIR: During one month, I understand that.

MR. AINSWORTH: We might require half of that in other months.

MR. ADAIR: As long as the Commission sets its wells in such a manner as to permit the producer to produce against you if

you do not live up to your contract, do you as a gas purchaser have any objection to the Commission setting an allowable?

MR. AINSWORTH: I think the Commission should set every month what the allowable will be of all the companies buying gas in the pool.

MR. ADAIR: Under the hypothetical situation that I give you, do you think the Commission should set an allowable of 180,000 MCF for a year?

MR. AINSWORTH: No, sir, not necessarily.

MR. ADAIR: In other words, you think the Commission should set an allowable at a different figure than what you have considered to take?

MR. AINSWORTH: At a figure, the total of which will be all nominations, whether they be more or less than one month.

MR. ADAIR: Regardless of the terms of your contract?

MR. AINSWORTH: That is right.

MR. SPURRIER: Anyone else?

MR. MACEY: You have been asked a lot of questions and you didn't answer all of them. I would like to elaborate a little bit about this business of calculating your allowable. Now, as Mr. Adair, to use his example pointed out, the Langmat pool for January was one million, four hundred thousand per well per day, approximately, and you agreed that you took about a million.

MR. AINSWORTH: That is for February.

MR. MACEY: Well, any month you want to name. All right, February. Now, you set your nominations, you will have already

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filed with this Commission your nomination for the month of April?

MR. AINSWORTH: Yes, sir.

MR. MACEY: You failed theoretically to take 400,000 cubic feet of gas in February from a well. Now, if the total allowable for the month of April is reduced, the total current allowable for the month of April which is computed by taking the nomination and dividing among all the wells is reduced by that 400,000 average, you will in effect be taking that February allowable that you didn't take, isn't that correct?

MR. AINSWORTH: That is right. Assuming that we are going to take a million, still, we will in April, we would be taking 600,000 and 400,000 in under production.

MR. MACEY: And your nominations are based on actually what you want to take satisfying preceeding months at all, is that correct?

MR. AINSWORTH: Total takes.

MR. MACEY: So that at the end of April, if you take exactly the allowable, you in effect, would have taken exactly the allowable that has been assigned during a period?

MR. AINSWORTH: The February allowable and the April allowable.

MR. MACEY: That is all.

MR. SPURRIER: Anyone else have a question of Mr. Ainsworth? If not, the witness may be excused. Mr. Foster, did you have some testimony you would like to put on?

MR. FOSTER: Yes, sir.

MR. SPURRIER: Are you ready?

MR. FOSTER: Yes, sir. If it please the Commission, I want to congratulate Jack Campbell a little bit. I kind of like what he said yesterday, and the way he said it, although I didn't agree with all of it. I think it is helpful to everyone to kind of briefly outline what we expect to prove. Mr. Grimm here has heretofore testified to these pool delineations and today he will testify to the same matter. We are going to attempt to show that the vertical limit of the Jalco, Eumont, Langmat and Arrow Gas Pools, as presently delineated by the Commission, should be abolished and the vertical limits extended as one pool to include Yates, Seven Rivers, Queen, Grayburg and San Andres. We will offer by another witness, testimony regarding this matter of minimum well allowables. We will also attempt to show that the real question involved here is how best to limit the gas production from the gas wells and the gas production from the oil wells producing from this common source of supply. We will further attempt to place in the record here, that with as little history and background as we have on proration of gas in New Mexico, that we must of necessity produce largely on a trial and error basis, as a means of finding the point of equalization of reservoir voidance of space between the gas wells and the oil wells. One other remark that I want to make here, it may appear a little bit out of line, that we seem so far out ahead of the parade here in taking such an active part in presenting testimony in this case, when our

interest is relatively speaking, in all these areas, small as compared to other producers' interests. But we kind of got into it and we don't want to just quit and walk off. I think these records ought to have some facts in them and sometime, I don't know how much time should elapse, but we ought to get out of the talking stage on this matter of proration. This has been sort of a running affair for over a year now, and we don't seem to be getting anywhere, except just to meet and talk about our problems. Now, we are going to put the facts in here and if somebody else has got any testimony, and doesn't agree with it, they can put the facts in. We think we owe that duty to the Commission.

MR. SPURRIER: Let's take a recess, Judge, before you start.

(Recess)

MR. SPURRIER: Meeting will come to order.

R. D. G R I M M

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. FOSTER:

Q Would you state your name to the Commission?

A R. D. Grimm.

Q And you have testified here before, haven't you, and stated your qualifications, haven't you, Mr. Grimm?

A Yes, sir.

Q I want you to mark these exhibits here now, that you have on the boards, and on the wall, in the order in which you will

testify regarding each one, starting with Number One and continuing until you have finished.

A (Witness complies.)

Q Directing your attention there, Mr. Grimm, to the Exhibit which you have identified as Exhibit Number One, will you tell the Commission what that Exhibit is?

A Exhibit Number One is a map of the area of southeastern New Mexico, consisting of Townships 19, 20, 21, 22, 23, 24, 25 south and Ranges 36, 37, 38 east. On this map we have indicated the wells which have been drilled as oil wells in the area, or as a supplemental oil or gas well, in addition to gas wells that are on here. Then we have designated the wells in the individual field areas as the Commission presently delineates them for oil pools. The different colors encircling each oil well symbol were put on in order to more easily delineate the field in which the wells are presently listed. However, we did not use a different color for each field, but merely a different color for fields adjacent to each other which are not separated by a non-producing oil area. In other words, the Monument area, the Eunice Monument field, the oil wells are encircled in red and the Eunice, they are encircled in blue; however to the east of the Eunice Monument area, both the Skaggs and Hardy wells are circled in red. However, the Hardy and Skaggs are separated from each other and by Monument, by a non producing oil area simply south of Eunice. I have the southeast Eunice wells encircled in red and the area ahead encircled in red. However, they are separated from each

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other by a non producing area insofar as oil is concerned. The same type of designation is carried through, all the way down to the Texas, New Mexico area, or boundary.

Q Let me ask you this. What producing oil areas are shown there on the map, can you name them?

A Producing oil areas?

Q Presently delineated by the Oil Conservation Commission.

A Those which are presently delineated by the Oil Conservation Commission and which are encircled on the map are the Eunice Monument, Skaggs, Hardy, Penrose Skelly, Langmat, Falby, Leanord, South Leonard, Eaves and Rhodes.

Q Now, as presently delineated, what gas producing areas are indicated on the map?

A The gas producing areas shown include all of the gas pools now under the names of Eumont, Langmat, Jalco, and Arrow.

Q Just those four pools?

A Yes, sir, but they are not separated one from the other.

Q I understand that, what is your source of information, with respect to the facts reflected on Exhibit Number One?

A Allowable schedules of both oil and gas.

Q Now, I notice there that you have the oil wells circled. How have you designated the gas wells in this area that you are talking about, these four pools?

A The gas wells are designated by a star symbol made

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with a brown colored pencil, with the acreage supporting or allocated to each individual gas well, X'd or crossed with the brown colored pencil.

Q Now, again, your information, with respect to that which is reflected on the map was obtained from what source?

A Oil Conservation Commission proration schedules.

Q Now that map, as I look at it, reflects gas wells throughout the entire area of these four pools that you have named, is that correct?

A Yes, sir.

Q And in this area, how many oil wells and how many gas wells are there?

A Within the area and including only the wells so designated in the pools previously mentioned, there are 2306 oil wells and 383 gas wells.

Q As presently reflected on the schedules of the Commission?

A That is not the March schedule, because it was not available to me, that is previous to March.

Q On the February schedule?

A Yes, sir.

Q Now, for what purpose did you prepare that map, Mr. Grimm?

A I prepared the map for the purpose of aiding me in delineating what I believe to be a common source of supply of oil and gas, or hydrocarbon material within this area.

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Q Within the four pools that are presently designated as oil pools and gas pools, is that correct?

A Within the four pools presently designated as oil pools and some, I don't remember the number, eight or ten oil pools, but the area goes outside of the presently designated gas pool limit.

Q Now, you say the area, you mean that laterally?

A Yes, sir.

Q And vertically?

A Yes, sir.

Q Now, directing your attention there to Exhibit Number Two, will you tell the Commission what that is?

A Exhibit Number Two is a structural contour map constructed on the top of the "H" formation, having a contour interval of 100 feet.

Q That is the structural map that would overlay the area you have just talked about, as reflected on Exhibit Number One, is that true?

A That is correct.

Q Now, you have prepared some cross sections of these areas that you have been talking about.

A Yes, sir, I have, and they are located on this map and the cross sections themselves are on an individual exhibit placed on the wall.

Q And you prepared east and west and north and south cross sections?

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A I prepared one north and south cross section, top area of the Eunice Monument field and continuing on down to the Texas, New Mexico line in the south end of the Rhodes Oil pool, and three east-west cross sections, one across the center of it as reflected on the structure map in the Eunice Monument pool. One goes along the south part of the Eunice portion of the Eunice Monument pool and from there over just north of the Arrowhead pool and continuing on to the Penrose Skelly Oil Pool and the three east-west cross sections are across an area between Cooper Jal and the Langlie Mattix Oil Pools.

Q As regards the vertical limit of these four gas pools, that are presently delineated by the Commission, what producing formation are we talking about?

A We are talking about the Yates, Seven Rivers, the Queen, the Grayburg and the San Andres in the entire area.

Q Now, have you prepared a cross section, north and south cross section of these producing areas for the purpose of demonstrating here to the Commission that all these producing formations that you have mentioned are contained in one common source of supply?

A Yes, sir, that is, I think I have marked it as Exhibit Number Three.

Q Will you go up to Exhibit Number Three and, you may have to speak a little louder, and explain to us the north and south cross sections of these gas producing areas that you have mentioned?

A Starting in the north edge, north of the Monument Oil Pool, Section 19, Township 8, South, Range 37, east.

Q Now, just so that everybody will get a little orienated will you come to Exhibit Number Two and point out where that would be on your contour map?

A Just north of this area right here. This cross section then goes in a southerly direction through the Kelly Number One, Phillips Lambert, Gulf Number Six Mathews, Atlantic K, State, Continental 2-B-18 Meyer, Shell State, Atlantic et al. Selby, and ends in the Continental Number 2-W10 Eaves, in the northwest of the southeast of Section 30, Township 26 South, Range 37 East, just above the Texas-New Mexico line on the very southern edge of my map.

Q That is on Exhibit Number Two.

A I might say this cross section is along the western edge of the structure as it is so mapped on Exhibit Number Two in order to stay comparatively close to the presently designated limit between the Jalco and Langmat gas field.

Q How did you select the particular wells that are delineated there on Exhibit Number Three?

A I did not select any particular wells when I first laid out my cross sections, but I exhibited the position in which I wanted the cross section to be drawn. Then the wells were estimated from information which we had in our own office and from wells on which we had logs and were not meant to take in every well that we had that information on, but merely to show a cross section in a north south direction and get enough wells on there to show approximately the tops of the individual formations and to show the continuity from north to south, as far as our information made it

available.

Q From what source did you obtain the information, with respect to the wells that are shown on Exhibit Number Three?

A These well locations which we secured from the individual well logging service companies.

Q Do you regard that as a reliable source of information?

A Yes, sir.

Q There is nothing unusual about that, it is standard practice in the industry, is it not?

A That is my belief.

Q If the same information was available from the individual company itself, there would be no substantial bearing on that and the information you get from the individual companies, would there?

A That is right.

Q There shouldn't be, at least, should there?

A No, sir.

Q Now, these several wells that you have identified there on Exhibit Number Three, they are not to be taken as the only wells which would reflect the information with respect to the producing formation, are they?

A No, sir, there are a lot of other wells.

Q You could have gotten the same results as is reflected on Exhibit Number Three, there, by the means of using other wells, could you not?

A That is right, it would be. A similar cross section would not have been identical, however.

Q You have used somebody else's wells, it would have been

designed to reflect the same information as reflected by the use of wells shown on Exhibit Number Three, is that it?

A That is right.

Q Tell us what Exhibit Number Three shows.

A That the north end of this trend of oil and gas reservoir, the Yates, Queens, Seven Rivers and San Andres have been penetrated by gas wells, I beg your pardon, partly by gas and partly by oil wells.

Q Yes, sir.

A The Exhibit also shows as you go in a southerly direction wells of approximately the same depth do not penetrate, maybe I better should say wells to approximately the same subsea depths do not penetrate.

Q What is the subsea data you are using there?

A In Exhibit Number Three, the horizontal line at the top of the cross section is at a plus 11 hundred feet above sea level, that line was used to line up all of the individual wells in their relative position.

Q All right, now, go ahead and tell us what it shows.

A It shows that these formations --

Q What formations are you talking about?

A The Yates formation, for one, is continuous from the north edge of the field to the south edge of the field, and has been penetrated by the wells on this cross section. I might say right here that we, in our office, do not pick a Seven Rivers Point, I mean a combination of the Yates-Seven Rivers formation that is named in various publications.

Q You didn't separate it?

A That is correct.

Q O. K.

A The Queen formation is productive of both oil and gas in the north edge of the area as depicted on this cross section and as you approach the area in the southern edge of Township 21, South, Range 36 east, it is getting down below the productive interval of the individual wells.

Q About what point would that be, on Exhibit Number Two?

A Well, that is about the point of Shell State well, which is in the southwest, southwest Section 32, Range 36 east.

Q Will you indicate where that would be here on your contour map, Exhibit Number Two, or go over here on Number One.

A Right here, (indicating).

Q Where is that on Number One, cross over there.

A Right in the south edge of the Eunice field, which is right there.

Q South edge of the Eunice field, with a producing formation.

A I was talking about the Queen formation as is shown on this cross section, however the Queen picks up again in Section 34, Township 23, South, Range 36 East, as is shown on the Grayburg, Number One, Stephens Well. It also picks up again to the east of the position which I have on my cross section. The Grayburg shown on this cross section on the north end of the section is productive of both oil and gas on the Eunice Monument area and disappears from production standpoint approximately in the peak of

the Continental Number Two Meyer Section 28, Range 36 East. The Grayburg is also productive on the East Skelly area.

Q Now, indicate where the Grayburg becomes non-productive on the north and south cross sections here with respect to Exhibits Number One and Two.

A Approximately in this position on Exhibit Number Two, and across here on Exhibit Number One.

Q O. K.

A Simply the San Andres is productive of very little gas, mainly in the oil zone in the Eunice Monument area and disappears from a productive standpoint at about a mile south of the division between the boundaris of the Eunice Monument Pool and the Eunice area, Eunice Monuments. It also is productive further east of the Skaggs Pool, but only in the oil pool, to my knowledge.

Q Now, turning to your east-west cross section, with respect to these formations that you have identified, what do you find there?

A On my east-west cross sections, which are identified as Exhibit Number Four, Five and Six, in this hearing, I show that the individual formations of Yates, Queen, Grayburg and San Andres, are continuous in an east and west direction across this inner trend. However my cross section as I go south, pick up fewer of these individual formations, by reason that the wells did not penetrate them. They are not productive in the south end. However, I do not mean that the formations are not there.

Q Yes. Now, on Exhibit Number Four, there, what wells do you have shown there, Mr. Grimm?

A Exhibit Number Four, there shows on the western end of the cross section numbered in red, in the northwest, northeast Section Three, Township 20, Range 36, East. It goes east to the Anderson Carpenter Number One Bryant and ends with the Tidewater Number One, Northwest, Township 20 South, Range 38, East.

Q Was the source of your information and what is reflected, the same as your source of information regarding the wells on Exhibit Number Three?

A Yes, sir.

Q And what wells are shown on Exhibit Number Five?

A Starts on the western end in the Amerado No. 1-A-WE-State, Section 12, 21 South, Range 35, East, goes easterly through the Continental 2-B-18 Meyer, and Stanolind Number 1-T State and Amerada 1-Warlick and ends with the Gulf 8-C Eubanks, Section 22, Township 21 South, Range 37, East.

Q Now, your source of information with respect to that exhibit is the same as your source of information regarding the other exhibit, is that correct?

A Yes.

Q Now, going to your last east west cross section there, what wells are reflected on that?

A On my Exhibit Six, which is my western end with the Sinclair Number Four Hanagar, which is Northeast, Northeast, Southwest, Township 25 South, Range 36 East, goes in an easterly direction through the Olson Number One Calley, and Anderson-Pritchard Number Four Langlie and ends on the eastern end with the western Natural Number 1-E Eaton in the Southwest of the Southwest of

Section 12, 25 South, 37-E.

Q What formations are reflected on that Exhibit Number Six?

A I have only the Yates and a small portion not seen on the eastern edge of the cross section.

Q And your source of information is the same with regard to this exhibit as the others, is that correct?

A That is correct.

Q Now, have you made a study, or do you have information from any other source, with regard to the studies that you have made here for the purpose of determining whether or not all these areas that you are testifying about are one common source of supply?

A Yes, sir.

Q Will you state what those sources are?

A The sources are all the production records, numerous sample well logs, as well as samples themselves.

Q And when you say samples themselves, what do you mean?

A Samples from the wells that were retained as the wells were drilled, and also a number of core analyses, the individual bottom hole pressure, surveys taken on these individual oil pools as presently designated, and as turned into the Conservation Commission, well head pressure surveys from the same source as well as individual company records which we have accumulated in our own department, that are probably too numerous to mention here.

Q Now, will you tell us what some of your core analyses reflected?

A Core analyses reflected a very wide range of both porosity

and permeability distribution. It would be rather hard to put those into limits, but they probably go from zero to 30 percent porosity and from less than a tenth a millidarcy permeability to several thousand millidarcies with according varied water contents which would vary from zero to a hundred percent.

Q Based on all these studies that you have made, Mr. Grimm, I will ask you to state whether or not in your opinion, the Yates, Seven Rivers, Queen, Grayburg and San Andres is all one common source of supply.

A Within the area of the oil and gas pools which I have mentioned, with the exception, or the possible exception of the Skaggs oil pool, which is in the San Andres, it is my belief they are all one common source of supply. They are limited in both lateral and vertical extent, partly by structure and to a large extent by porosity and permeability limitations.

Q Would you recommend to the Commission that the vertical limit of the Jalco, Eumont, Langmat and Arrow Gas pools, which are presently delineated by the Commission, be abolished?

A Yes, sir.

Q And would you further recommend that the vertical limits be combined as one pool to include all these producing formations that you have mentioned?

A Yes, sir.

MR. FOSTER: I believe that is all.

MR. SPURRIER: Does anyone have a question of Mr. Grimm?

By MR. MONTGOMERY:

Q Would you attempt to correlate?

A Not on these cross sections, no, sir.

Q Do you think you would have a different interpretation if you attempted to correlate those?

A Not in as far as the cross sections are concerned, no, sir.

Q I notice on the Corbett Number One, I can't see too well from here, but is that the proper title for Yates there, that is down in the lower left hand cross section?

A That is our correlation, yes, sir.

Q Well, the next one down?

A That is the Queen.

Q Is that the proper title?

A According to our correlation, yes, sir.

MR. SPURRIER: Anyone else? Mr. Campbell.

By MR. JACK CAMPBELL:

Q Jack Campbell, Texas Pacific Coal and Oil Company. Do I get these figures correct in this entire area which I understood includes something beyond the presently defined geographic limit, there are 2306 wells on the oil allowable schedule?

A Yes, sir.

Q 383 wells as gas wells?

A Yes, sir.

Q Have you made any effort to break that down by the producing formation in which those wells are now producing?

A No, sir.

Q You say you consider this to be one common source of supply. Are you in a position to express an opinion as to whether

you consider it a common source of gas or oil, or both?

A I would say it is a common source of gas supply and a common reservoir for both oil and gas.

Q Now, if there are 2306 oil wells and 383 gas wells, isn't that sort of a case of the tail wagging the dog, to define it as a gas source of supply?

A Not to me, it isn't, it is a source of supply for both oil and gas.

Q That is what I say, why do you call it a gas source of supply then?

A Well, I can break it down into either oil or gas, as far as the source of supply.

Q Could you break it down in a common supply of oil and gas?

A Yes, sir, common reservoir.

MR. SPURRIER: Anyone else? Are you through, Mr. Campbell?

MR. CAMPBELL: Yes, sir.

MR. SPURRIER: Anyone else? Jason Kellahin.

By MR. KELLAHIN:

Q Jason Kellahin for Continental Oil Company. Mr. Grimm, how many core analyses did you have available to you for this survey?

A I am afraid I can't answer that question, I would say, oh, all told, I probably have seen maybe 25.

Q Those 25 though that you examined were all used in connection with these cross sections?

A No, sir.

Q How many did you have for your cross sections?

A I didn't use any in connection with the cross sections. If I gave that impression, I am sorry.

Q Are any of those wells included on your cross section?

A I can't say.

MR. SPURRIER: Anyone else?

By MR. JIM TOWNSEND:

Q Jim Townsend for Stanolind. Did you testify that you had studied the bottom hole pressures and well head pressures surveys on some or all of these wells?

A Yes, sir.

Q Did you note any difference in pressure between the Yates, Seven Rivers and Queen formation in the Langmat and between the Queen and Grayburg formation in the Monument area?

A No, sir, not as such. Of course, ever since any production has been obtained from the areas as a whole, you have had difficulties in pressures both between wells and property between wells which may be in different formations as they are presently delineated. I did not note any difference as between formations as they are presently designated any more so than would be any normal difference in any common reservoirs.

Q If such differences were in existence and were substantial would you attribute any significance to that fact?

A I would if there were substantial difference that you would have a zone of low permeability.

Q Is that all?

A Yes, sir.

Q What about these differences, wide differences, in porosity in permeability that you noted, did you gather that, the fact there was such a difference, was that the conclusion on which you based that fact there was a common source of supply?

A I don't believe, if I get your question correctly, that I based that on the differences.

Q You stated there was wide variation in both.

A Yes, sir, there is wide variation in both porosity and portable water content and the same wide differences are evident in any gas pool which I have studied, of this nature.

Q Were the variations sufficient, in your opinion, to separate the various formations?

A No, sir.

Q At no point that you observed?

A At certain points that may be separated by zones of low permeability, but I don't believe to any great extent.

Q Do you know what those points are?

A No, sir.

Q Would you state the basis for your conclusion or restate it, if you already have, that all these pools are within a common source of supply?

A The main reason is that I could find no bearing of any great extent in addition as so shown on Exhibit Number One, the pools as presently designated, you can go from one well in one pool to one well in the next pool, or from one well in one pool to a well in the same pool, which, from a structural standpoint would

have to be in different formations as designated on the cross sections, and yet they are producing in my opinion from a common source of supply and they have been so designated before this Commission for some 20 years.

MR. TOWNSEND: That is all, thank you.

MR. STANLEY: I would like to ask you a question. Do I understand you correctly when you group Grayburg and San Andres formation as a common source of supply, would you penetrate and expose these formations with one well bore?

A I would penetrate and expose them with one well bore if they were all strictly in the gas zone and I wanted to make a gas well, and if they were all in the oil zone and I want to make an oil well, I would do the same thing, I would not expose them if part were in the oil zone and part in the gas zone.

Q Let's take the Monument zone, for instance, overlying Yates formation, overlying your oil formation and have the Yates producing gas, would you go ahead and expose it?

A Down to the top of the oil zone, yes, sir.

Q Are you familiar with the Monument pool itself?

A Yes, sir.

Q What formations are producing from the Monument pool?

A As a part of Eunice Monument pool, the Grayburg and San Andres.

Q Is it a very active water drive formation?

A That is probably right, yes, sir.

Q That is the usual case throughout the Monument pool, in fact, you are familiar with the fact that every day operators are

hooking on wells in the Monument pool that are unequitable, due to the great production of water?

A That is true, that is also true of the other zones.

Q Then you would expose these formations and allow this water to flow up into the Yates formation?

A I would not ever expose a water producing zone within a well, if I left that impression I didn't mean it. If and when it would come up into the bottom of the well, I would insist on it being plugged back, if it were my say so.

By MR. MACEY:

Q Following along Mr. Stanley's question there, you said you would allow a gas zone down to the top of the oil connection to be exposed in one well bore, is that correct?

A Yes, sir.

Q As you withdraw that gas from the gas zone, the oil is going to move up in the structure, isn't it?

A Yes, sir.

Q Is that good conservation practice?

A No, sir, not if you withdraw the gas at a higher rate than you are withdrawing from the oil pool. I didn't mean to infer that I would proceed only from the gas zone, I would recommend at least a small pressure differential in favor of the oil zone.

Q That would require a constant bottom hole pressure analysis would it not, over the entire area?

A Not necessarily bottom hole, you could do the top hole Ekometer but it would require a periodic check, once a year perhaps.

Q You use the word common source of supply, what do you mean by common source of supply?

A Common source of supply, I mean a reservoir which is not limited in its effective permeability to the hydrocarbon fluids contained therein.

Q All right, now, did you mean by saying this entire area was a common source of supply, did you mean there are not any single barriers at any one of the zones in this area?

A I meant there are no barriers within any of these zones in my opinion, which extend from edge to edge of the reservoir, or which completely shut off the reservoirs in its entirety from any other portion of the reservoirs, with the probable exception, I might say probable exception of the Skaggs, San Andres area which lies in the eastern half of Township 20, Range 37, I guess, and I do not have for, across that particular area to tie in the San Andres Oil pool with the San Andres oil or gas produced to the west of it.

Q Now, with reference to the Yates formation, are you familiar with the difference in pressure in the Yates, from the Arrow, well, for example, down around the town of Jal which is in 25,37 to the town of Monument which is about 19, 26 and 30, 27, how is that pressure differential set?

A Off hand I couldn't say, I can look it up.

Q Well, if a great pressure differential existed, do you still think that is a common source of supply, if there is as much as an eight hundred pound differential?

A I would rather expect you might even find more than that from one area to another, yes, sir. Well, in any producing area of this extent, you can find that much pressure differential in extreme cases of low permeability. I have seen as much as two thousand pounds difference between two offsetting wells, it was in my opinion, was considerably a tighter formation than this one and probably there may be isolated small zones of porosity in the very top of the Yates which might not be in the rest of the reservoir. However, I think that is minor, that no one would want to complete a well alone.

Q Now, are you familiar with the area in 24 South, 37 East where we have created the Falby-Yates pool?

A Yes, sir.

Q It is in 24, 26, I believe and stands partly in 37.

A I was not here on your hearing creating that pool, however.

Q In that area of the Queen zone, bottom hole pressure in evidence shows that Queen bottom hole pressure is, say in the neighborhood of three or four hundred pounds, whether it is a gas well or oil well, and the Yates zone in the neighborhood of nine hundred pounds, whether it is an oil or gas zone, in the Yates do you think it is proper procedure for this Commission to allow a well to be completed with both zones open in the same bore hole, suppose they were both gas wells?

A If they were both gas zones I believe it would be proper proceedure.

Q Wouldn't you get migration?

A Probably the migration would get down there; in my opinion it might have to go quite a ways around.

Q You answered Mr. Campbell about the dog and the tail. Do you compute the number of producing wells which are in the Monument area and the number of gas producing wells in the Eunice Monument area?

A Yes, sir, as a number I would have to count them too, I don't know the exact number.

Q Isn't it a fact there is a large undeveloped gas area presently designated Eumont pool?

A There is a large area which does not have gas wells, as such, completed in them, that is right.

Q It is potentially gas productive, is it?

A Yes, sir.

Q Now, of course the Monument pool at the present time, Eunice Monument pool is chiefly developed on a 40 acre basis?

A Yes, sir.

Q And essentially on a 160 acres?

A Yes, sir.

Q Is that entire, throughout?

A To my knowledge, yes, sir.

Q There may be isolated cases where it isn't, but they are rather limited, isn't that true?

A That is correct.

Q How about the gas through the entire area?

A Throughout the entire area, the gas zone has relatively few completions in it.

Q Now, from an acreage standpoint, taking the entire area, is the area more productive of oil, or is it more productive of gas?

A You are again limiting it to the Eunice Monument, or the whole --

Q The whole thing.

A Gas.

Q Is it from a vertical standpoint of the vertical limit volumetric standpoint, is the porosity, does it have more gas, or more oil in it?

A The porosity available for oil and gas accumulation within the reservoir is filled with gas to a far greater extent than in the reservoir is filled with oil.

Q And that is what you based your answer to the question on, whether you thought it was a gas pool or oil pool, is that correct?

A Well, on that basis, it would be more of a gas pool than oil pool, I didn't understand that I answered that question as such.

Q I may have misquoted it.

A I think I answered to the --

Q I asked whether you thought it was a common source of gas or oil supply and you answered gas.

A Either one or both, I mean to me you could answer that

in two questions and I would answer yes to both of them, or you could ask one and I would answer yes, and I think what I did was answer one question yes, and didn't clarify the other part of the second question.

Q That is all I have.

MR. FOSTER: One other question, on the question of whether there is an oil or gas pool, do you know of any formula by which you can determine whether a particular producing area is an oil or gas pool?

A I do not know of any formula that you can do that, and say it is either one or the other, unless you are producing only one or the other, or if only gas is present in the reservoir. That is, however, true only within my knowledge of a gas pool, I do not know of any oil pools that do not produce some gas.

Q Now, you did obtain the reserves of these figures of these oil areas, did you not, from the reports of the New Mexico Oil Conservation Commission?

A Yes, sir, I have them within the records.

Q What are the reserves figures as compiled by the New Mexico Oil Conservation Commission on oil?

A I will have to read them into the record. As shown by the Oil and Gas Reserves Report, December 1st, 1953, as put out by the New Mexico Oil Conservation Commission, and prepared by the staff of the Commission under Mr. Spurrier and Mr. Macey, the reserves of the fields in question are set out by fields as follows:

Arrow, 26,918,000; Eumont, 508,939,000; Langmat, 982,522,000; and Jalco, 527,479,000.

Q Have you got a total for all those?

A I do not have.

Q All right, now the oil reserves.

A Eaves, 6,200,000; Eunice Monument, 105,800,000; Hardy, 210,000; Langlie-Mattix, 15,430,000; Leonard, 23,600; South Leonard, 426,000; Penrose-Skelly, 4,600,000; Rhodes, 775,000. That is all.

Q With those reserve figures in mind for both oil and gas, did you make a computation as to what the value of the oil is, and what the value of the gas is?

A I made a rough computation that the value of the oil was approximately twice the value of the gas, under the prices as presently in effect on the oil and using a 10 cents per thousand value on the gas for both dry and associated gas.

Q Do you have the figures that you arrived at?

A No, sir.

Q Now, then, as far as the volume of the two substances in the reservoir is concerned, you say the ratio of the volume is about two to one as between the oil and gas?

A That is right.

Q And as to the volume of space that is occupied in the reservoir, what is the ratio?

A I don't have that figure, but it is many times more for the gas than it is for the oil.

Q Well, within limits, how many more times?

A Oh, I would say between three and four times, as a minimum.

Q In other words, the gas occupies, say three to four times as much space in the reservoir as the oil?

A That is correct.

Q Now, without somebody giving you some sort of formula by which you can determine whether the tail is wagging the dog, or the other way around, you don't have any way to tell, do you?

A That is right.

Q Do you know of any formula that you can come up with a sensible answer as to whether it is a gas or oil field?

A I know of no formula in common useage.

Q As a matter of fact, we are not determining this is a gas field or oil field; we are determining whether or not is is one common source of supply, isn't that true?

A That is right.

Q And once that determination is made, or the limits of that determination is defined, we are then concerned with the problem of what equitable basis, or on what equitable basis you can restrict gas production from gas and oil wells, is that the problem as you see it?

A Yes, sir.

Q And bring about, as far as gas restriction from oil wells, the matter of placing some ratio limitation of gas production on the oil wells, would it not?

A Yes, sir.

Q You heard the testimony here yesterday, I believe, by Mr. Adair. He suggested you place a limiting gas-oil ratio of 25,000 to one; you heard that testimony, did you not?

A Yes, sir.

Q Based on your studies of this field, what do you think about that sort of recommendation?

A Based on my studies of the field, it is my opinion that that is too high.

Q Would you say it is way too high, or just a little too high?

A I would say that it is two to three times higher than it should be.

Q Now, it is obvious, isn't it, that some method must be found by which the owners of the gas wells may be permitted to produce their gas without injury to the well reservoir, and some method must be found by which the owners of the oil wells will be permitted to produce their oil wells and the gas necessary in the production without injury to the gas well, isn't that true?

A Yes, sir.

Q Now, are you or are you not prepared to tell the Commission within that limitation those production limitations should be imposed on the gas to the oil level?

A I believe I have an opinion that I would be glad to give.

Q Would you give us that opinion, based on your study of these things.

A In my opinion, the gas demand should be prorated to the reservoir on an acreage basis, with the provision that the gas allowed to the individual gas well be reduced by the amount of gas produced from oil well or wells on the same acreage.

Q Now we haven't touched this year, I have never looked, since this is another year; what in your opinion is the proper drainage area of a gas well in this common source of supply that you have

testified to?

A It is my belief that a gas well can drain at least 640 acres.

Q Maybe more?

A Yes, sir.

Q Would you recommend to the Commission that the proration unit in this area be fixed at 640 acres for gas wells?

A Yes, sir.

Q Now, it is true, isn't it, in this area that we are talking about, you find oil wells that are also completed so as to produce gas?

A Yes, sir.

Q What would be your recommendation with respect to the gas allowable from the gas wells that are located on acreage on which there is also located an oil well, which is producing both oil and gas?

A I think I previously stated that the gas allowable as allocated should be reduced by the amount of gas which is produced from the oil well which has the same common acreage, or wells which have the same common acreage.

MR. SPURRIER: Can you find a break there, so we can recess?

(RECESS).

MR. SPURRIER: We will change the order of the docket a little bit. Now, we want to recess Case 673 until 1:30 and any of you that want to go now, may do so, and we will take the next case, Case 674.

(Whereupon, the hearing in Case 673 was recessed until 1:30 p.m.)

March 18, 1956
1:30 PM
Afternoon Session

MR. SPURRIER: The Meeting will come to order. Off the record.

(Discussion off the record.)

(Whereupon the hearing in Case 673 was resumed as follows:)

MR. SPURRIER: By Judge Foster.

Q Mr. Grimm, you testified in 582 that there was waste occurring in the Jalco and Langmat Gas Pools as presently delineated by the Commission. Do you find evidence of waste in the other two areas, the Eumont and Arrow, the same as you have previously testified to with respect to the other two pools?

A Yes, sir, I think as shown on one of my exhibits in 582 as far as the Eumont and Arrow fields were concerned there are certain gasoline plants that were connected to those also, to those pools also, which were popping gas. In addition there are other gasoline plants in the area whose reports to the Commission on C-114, show a certain amount of gas being wasted.

Q You have also testified in 582 that in your opinion it was necessary to prorate the gas production from these gas wells in order to protect correlative rights. That testimony at that time, I believe, was limited to the Jalco and the Langmat Pools. Are you also of the opinion that it would be necessary to prorate gas from this common reservoir that you have testified to in order to protect correlative rights? A Yes, sir.

Q You testified, I believe, in Case 582 that you found evidence that the pipe line companys were not taking gas ratably as between the Jalco and Langmat Pools as presently delineated. Do you also find that same evidence with respect to the rest of the

area that you have included in the common reservoir?

A Yes, sir.

MR. FOSTER: At this time we would like to offer in evidence Exhibits one through six, if the Commission please, and with the request that we be permitted to withdraw Exhibit Number One. That is the only one we got. That is as far as we got with it and it is just a rough work map and we want to make other copies of it without having to go back to the original source material. Just have some girl or somebody make those copies and then we will send them back just as soon as we can do that.

MR. SPURRIER: Can you bring, I was going to say, can you bring them back later? Is there objection on the offering of these Exhibits and the withdrawal of Exhibit One? Without objection they will be admitted.

MR. FOSTER: That is all.

MR. SPURRIER: Anyone have a question? Mr. Campbell.

By MR. CAMPBELL:

Q Mr. Grimm, you will be present at next month's hearing, will you not?

A I can be if necessary.

MR. SPURRIER: Mr. Campbell, may I interrupt, I have got a little legal statement I want to read about this testimony. This concerns what testimony will be and will not be allowed. This announcement, I hope, will clarify the ruling of the Commission yesterday relative to the introduction and incorporation of the record of Case 582 in Case 673. The incorporation of the record in Case 582 is subject to the following conditions and qualifications: One; Any party who introduced testimony and evidence in Case 582

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may change, qualify or amend it's position previously taken by the introduction of new or additional evidence and testimony in Case 673. Two: Parties who introduced evidence in Case 582 shall at some time during the hearing of Case 673 have present their witnesses who testified in Case 582 so that those witnesses may be cross examined by other interested parties.

MR. CAMPBELL: I was referring particularly to the Exhibits offered here so that the people here will have an opportunity to examine them in connection with their own record and ask questions next month in connection with them.

MR. FOSTER: Mr. Grimm will be available barring any unforseen circumstances that we don't know anything about right now.

MR. CAMPBELL: Mr. Grimm, I don't think I am quite clear on some of the suggestions you made, I assume that the suggestions are the suggestions of Phillips Petroleum Company in connection with the approach to this problem before the Commission, is that correct?

A I believe that is correct.

Q As I understand it, you consider that this entire area of these four presently designated gas pools and some additional acreage, I presume, on the edges of it is all one common reservoir?

A Yes, sir.

Q I was not clear whether you proposed at this time or had any recommendation with reference as to whether it should be classified as a gas pool. May I explain, Mr. Grimm, what I am getting at? Perhaps it will help you in your statement. Under the definitions in New Mexico as they now stand, any well within a common source of gas supply is automatically defined as a gas well. That would not be true with this pool defined as an oil and gas pool.

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That is the reason I am asking you whether it is your recommendation that this be defined as a gas pool or as an oil and gas pool.

A I think it would be much better defined as an oil and gas pool.

Q Then I suppose that if that is your suggestion then you will have to have some method of determining which wells within the pools are oil wells and which are gas wells, is that correct?

A That is correct.

Q Do you have a recommendation as to how that can be done?

A My opinion, any well that makes, that produces liquid from the well head which is also liquid in the reservoir is an oil well.

Q Irrespective of the gas-oil ratio?

A That is correct.

Q Is, does any well producing from the five zones that you have said are all one common reservoir that produces from the well head hydro-carbons which are liquid in the reservoir as an oil well?

A Yes, sir.

Q Anything else then will be a gas well?

A Yes, sir.

Q Do you suggest that the only wells that are prorated under the gas proration schedules shall be the wells that you, under your interpretation, call gas wells? A Yes, sir.

Q How do you propose to handle the production of gas from the other wells, the oil wells?

A On a limiting gas-oil ratio.

Q I understood you to say that you proposed or suggested a 10,000 to 1 limiting gas-oil ratio.

A I don't think I actually said -- I would say some place

between 6 to 10 would be a good limiting ratio.

Q How did you arrive at that? What studies did you make?

A Well, in arriving at that I had available to me studies that were made on the total oil and gas, casinghead gas production for the area in the pools involved and the area as a whole varied somewhere between there, I think that the actual average was a little less than 8,000. I am not sure.

Q You are taking the average of the present gas-oil ratios throughout that entire area? A Yes, sir.

Q You didn't make any study with respect to the most efficient rate at which the wells in any part of this area could or should be produced?

A Well, and also I took into account the top allowable and the fact that a top oil allowable and the fact that an oil well is prorated on 40 acres and that it would not be equitable to give an oil well on 40 acres any appreciable, any more gas than a comparable quarter of a gas well on a 160 acres.

Q Now we are getting to the point I am trying to find here. Is that the basis on which you arrived at this gas-oil ratio suggestion? A Partly, yes.

Q In other words, was it based on an attempt to equalize the withdrawal of gas from gas wells and oil from oil wells or was it based on the most efficient rate at which the oil could be recovered from the reservoir?

A It was based on equalizing the withdrawals.

Q You have made no study with reference to the best way to get this oil then, and get this oil that is in the reservoir out of the ground?

A I have made such a study but I have not so testified here.

Q Isn't it true that as a general engineering proposition that you should recover the oil in a reservoir of this type while you still have an adequate gas pressure to recover it?

A Yes, sir.

Q And that being true, wouldn't it be the best from the point of view of conservation setting aside for the moment the problem of the owners of gas wells, from the point of view of conservation, wouldn't the proper test of gas-oil ratio be the point at which we could recover the greatest amount of oil by initial effort and still not allow an unlimited amount of gas to be withdrawn from the reservoir through an oil well?

A There is a breaking point there where your increase in ratio would be more than, probably would be more than offset by the loss in energy that you would have from your gas production and you would have to put the energy back in the gas for transmission purposes by using part of it to compress the gas back up to transmission pressure.

Q Yes.

A However, that is probably a matter of economics and I don't have any quick way of saying exactly what that is right now.

Q But for the purposes of your suggestion as to a proper gas-oil ratio, those factors that you have just mentioned you didn't consider. You considered how we could reduce the ratio on oil wells so that they wouldn't be getting any more gas than a corresponding gas well on the similar size unit next to it, didn't you?

A That is correct. However, in limiting your ratio you have to also allow the same ratio on all wells and as between wells, if you can force the gas to a low ratio well, you are going to get a

more efficient use of your gas than you are from a high ratio well. For that reason, there should be some optimum point.

Q You have made your study to the effect that to say that what you are suggesting is the optimum point, have you?

A What I am suggesting, I would say this, as between the twenty and twenty-five thousand and ten thousand ratio, I think you should try to get the gas over to the ten thousand ratio well. The twenty-five thousand ratio well will use up the gas much faster and get less oil than if you save it and push it out of the ten thousand ratio well. Of course, that goes on clear on down to less than that.

Q You mentioned this morning in connection with your suggestion that if you had a 160 acre unit with a gas well on it and with an oil well or oil wells on it, that you would reduce the allowable for the gas well by the amount of gas that was produced through the oil well or wells, is that correct?

A Yes, sir.

Q You also stated that this entire area in large part has been developed, or was originally developed, as an oil area?

A Yes, sir.

Q On 40 acre spacing? A That is correct.

Q If what you propose were put into effect, what would be the advantage of anyone drilling gas wells at this stage of the game on 160 acre unit that has an oil well on it?

A There are numerous oil wells which even though limited by gas-oil ratio could not make as much gas as if they had, per acre, as if they had a gas well on them. In that case I think it would be advantageous to the operator as well as to assure him to protect

his correlative rights as if he put a gas well or dually completed his well, oil well, if he were able to get the oil up to the --

Q (Interrupting) That is hardly unlikely under the present limitation. Assuming 400,000 cubic foot take from wells of oh, a 160, the point of view of economics, that wouldn't be very practical, would it, if you were required to produce from that the gas that you produced from a gas well on the same 160 acres?

A Well, I do not think that it would be too practical to drill a new well. However, it is my experience that essentially all of those wells, the oil wells have bradenhead connections right now. They may not be classified as gas wells, but that has been because of the operator's option, but they could be cleaned up and made into gas wells and get the remainder of any allowable that might be coming to them and do so economically, if they can't do it and pay out their investment, then obviously it would be useless for them to do it.

Q What you are actually doing, Mr. Grimm, by your suggestion, is it not by relating the amount of gas you can produce from a gas well to the amount of gas you produce from an oil well is prorating casinghead gas, isn't that right? A No, sir.

Q Well, you are basing your gas-oil ratio not on the engineering aspects, but upon the relationship between the approximate amount of gas that a gas well will get on a gas unit.

A Well, I don't quite follow the question. I was basing it on equal withdrawal.

Q Yes.

A I don't think as such that I was prorating the gas, the casinghead gas.

Q No, you are not calling that.

A I was limiting the gas production by not prorating it.

Q Let me ask you one more question with reference to your suggestion here. You have told us what you would do if you had an oil well or oil wells and a gas well on the same 160 acre unit. Suppose you have four oil wells on 160 acre unit and you have one gas well on the adjoining 160 acre unit. What then would you do with reference to production from the oil well?

A That is assuming that 160 acre is the basic allowable unit?

Q Yes.

A I would allow the oil wells to produce oil to the extent of their allowable providing their gas-oil ratio didn't cut them off.

Q In other words, you would limit the gas that could be used from the unit that had four oil wells on it to the amount of gas from a unit adjoining it with one gas well?

A Well, I don't believe I said that.

Q Well, what did you? That is what you, I understood and I am trying to get it clear.

A But I would not allow them to produce any more than the gas unit. That is correct.

Q So you would be controlling the production of the oil by the allowable for the gas, wouldn't you?

A I think very probably that it might work the other way around.

Q How could it?

A If you set the limit up first, on your gas-oil ratio for your oil and produced that, then the remainder of the market would be divided amongst the gas wells. The gas acreage which would take

the whole acreage, then the gas acreage would be allowed to produce their amount, I will back up one step. The gas acreage would be allowed to produce that much plus what had already been limited, less what the oil wells had produced.

Q These oil wells I am talking about are on an entirely different unit. A That is all right.

Q Five, four oil wells and I am producing under an unlimited gas-oil ratio now and I am selling all my casinghead gas , it is being marketed and it takes an amount of gas in excess from each of those wells, in excess of the allowable on your gas unit to produce that oil, what would you do?

A Well, I still --

Q (Interrupting) Would you cut the oil production back or shut down the wells?

A I would cut the oil production by a limiting ratio, yes, sir.

Q You would base the limiting ratio on the amount of gas that was being allowed to that gas unit?

A No, sir, what is left would determine what would be given to the gas well.

Q I don't want to labor the point, but the ultimate effect of that is that you intend to treat this reservoir as a gas reservoir and control the oil production by the use of gas proration, isn't that the ultimate effect? A No, sir. No, sir.

Q Suppose the gas company purchasing from the 160 acre unit with a gas well upon it does not nominate any gas from that unit. What would you do with your oil wells on the adjoining unit?

A I would let them produce up to their oil allowable providing they didn't go over their limiting gas-oil ratio.

Q In other words, you would let any oil well in this area, once the gas-oil ratio is established, produce up to the amount of oil it could get under that limiting ratio?

A Yes, sir. Insofar as the gas would be used to beneficial uses.

Q Irrespective of how much gas was taken from an adjoining gas unit?

A That is correct.

Q That is what I wanted to find out, your proposal.

MR. CAMPBELL: I think that is all.

MR. SPURRIER: Mr. Woodward.

By: MR. WOODWARD:

Amerada would like to cross examine Mr. Grimm with respect to the vertical and horizontal delineations of these pools, but before it undertakes to do so, to eliminate any misconstruction or wrong inference from it's questioning, we would like to point out that we have for some time been engaged in a study of just this problem and as yet we have not completed that study and are not in a position to state an opinion either way. In other words, until we do know, until we do feel that we have the facts in mind, we are not taking a position that this is one common source rather than several, but we are simply questioning Mr. Grimm to cast an additional light and to clarify our understanding of the basis on which he reached his conclusions. With that qualification in mind, Mr. Grimm.

Q In the area shown on Exhibits One and Two some of the wells, I believe it has been stated, penetrate several pay zones of gas or oil and gas.

A That is correct.

Q These pay zones are separated by several feet and in some cases several hundred feet of impervious section in various wells.

A In some zones, yes, sir.

Q That is true. I believe you testified that there were wide differences in permeability, porosity and pressure within the same formation and between different parts of the field, is that correct?

A Yes, sir.

Q Is there a diversity in the lithology of the individual formations in which these pay zones are found?

A To a certain extent, yes, sir.

Q What do you mean, to a certain extent, could you indicate the extent at all of that diversity?

A Well, there is a diversity in this way that the accumulations are found in both dolomite and sand sections and either one or both may have a considerable amount of different type of material such as anhydrate or shale and to that extent there is a diversity.

Q It is within the same formation you may have a dolomite and some shale and sandstone? A Yes.

Q Which results in different chemical and different physical properties of the formation in various parts of the field?

A Yes, sir.

Q Were there differences, or are there indications of the differences in the geological conditions under which these formations were deposited in your opinion?

A Yes, sir, certain differences.

Q What characteristics do these various pay zones that underlie this area have in common?

A Porosity and permeability.

Q In other words, they have in common the fact that they are all part of the same common source? A Yes, sir.

Q Do they have any other physical or chemical characteristics that you could point to? I believe you said there was wide diversity in porosity and permeability in different parts?

A Naturally they have a certain amount of affinity for contained liquids. They have, all of them have impervious portions of the reservoir, that is the grains of dolomite or sand are impervious within themselves, the shales are made up of a lattice work type of material which may be called both permeable or impermeable, depending upon your lower limits. They all have surface tension properties.

Q Are these characteristics of all the shales by definition or are these common characteristics of shales in the same common source?

A Which those particular characteristics, I believe they are characteristic of the one that I mentioned. I mean the lattice work type material is probably characteristic of a laminated branch of the shales and would be true in wherever you might find that particular type.

Q It is characteristic of that particular type of shale wherever you might find it?

A That is right.

Q Not necessarily the shale of the same common source?

A That is right.

Q You would normally expect different pays in the same common source to have some common characteristics, would you not, or would that necessarily follow?

A I think they should have.

Q They should have?

A Yes, sir.

Q They at least should have some common connection, these pays should they not?

A That is correct. There may be in an area of this kind a rather diverse change from one end to the other, but within contiguous portions the change would be rather slight I would think.

MR. WOODWARD: Off the record for just a moment.

(Discussion off the record.)

Q I am interested here in where the connection is between these pays as when I, which as we stated were separated in some cases by several hundred feet.

A I would say the connection is through varied and diverse tortuous path of the permeability which unfortunately, or fortunately doesn't always go in a vertical direction. It can go out sideways and go straight down and in any direction from the vertical or the horizontal. The zones themselves are laid one on the other without any common impermeable section of any great lateral extent. The dolomites and sands as such which make up by far a greater proportion of the total volume are in no place, to my mind, completely impermeable, they may have certain characteristics which render them impermeable for short distances due to their containing liquids, but as reservoirs themselves, they are not impermeable and for that reason I believe that they are one common source of supply.

Q Can you point out any particular place where these pay zones get together? A Pay zones?

Q Yes.

A Well, I think that you will find as you go from the Eunice Field heading south, or Eunice-Monument Field heading south, starting approximately say the south edge of Section 13, Township 20, Range 35 East, as you go south from there into the southern edge of the present field of south Eunice, you will find you will go location,

by location from one well to the other one, you are producing oil from each location and yet as you go south you step from one zone to another as the zones dip into the water level and out of the oil zone.

Q That, in your opinion, substantiates the intercommunication between different pays? A Yes, sir.

Q What is the oil and oil-water contact in this one big common source?

A It is approximately -- the oil-water?

Q Yes.

A Is, oh, I would say about a minus four hundred plus a minus one hundred fifty feet.

Q Is that a range, or is that approximate?

A That is a range.

Q In other words, is the oil-water contact throughout this area one common level?

A No, sir, in this or no other field that I know of this nature.

Q It is at different levels? A Yes, sir.

Q What did you indicate was the range?

A I said a minus four hundred plus or minus a hundred or fifty.

Q Be about five hundred feet?

A No, I am sorry, a minus four hundred feet below sea level plus or minus one hundred fifty, in other words, from a minus.

Q A hundred fifty to a minus four hundred?

A Yes. No, minus 350 to a minus 550. Minus 250.

Q Between two and three hundred feet variations?

A Yes, sir.

Q That doesn't militate against this being one common source?

A No, sir.

Q What explanation do you give as to why it varies?

A Well, one of the big reasons of course is in the permeability differences that you run into that there are places where you are not even permeable to a liquid that is down in the oil zone and therefore you go maybe from a gas into nothing, that is into an impermeable section and right on down in the first liquid you pick up maybe water, it may be some oil and depending on what is tested or produced into the well bore you would call your contact. In other words, the first contact of water would be the first water you got. It may be down 150 feet in an impermeable section and yet if that same impermeable section were within the gas zone and is of a sufficient height above the oil zone or above the water zone to render the water content low enough, you could have gas production.

Q And this uneven water table in a single common source, I believe you stated, is a fairly common phenomena?

A It is essentially common within a dolomite type of reservoir.

Q What is the gas-oil contact in this source?

A The gas-oil contact is at approximately a minus two hundred feet below sea level and it would also vary probably one hundred fifty.

Q It will vary too? A Yes, sir.

Q For the same reason that the --

A (Interrupting) Yes, sir.

MR. WOODWARD: That concludes our line of questioning on that phase of your testimony. The other question deals with a statement, I believe you made, that one gas well would drain at least 640 acres.

A Yes, sir.

Q Is that assuming that there are no other gas wells on a 640 acre tract, or is that assuming an area that has not already been developed to a density of 160 acres?

A That is assuming that that gas well is the only gas well, or the only well producing gas from the acreage. The fact that others might be completed would have no affect on it other than if they were producing wells also, you would have an interference of drainage areas so that each one, I mean the sum total of the wells would divide up the drainage area.

Q In other words, if you had a gas field that was 640 acres in extent and one well would adequately drain that field, but if the 640 had been completed in it, each one of those wells would not drain 640 acres, would they?

A Would you restate your question?

Q I am assuming certain physical facts. The physical facts are that the field is 640 acres in area. It is a fact further that one well completed in the field will completely drain the gas to its economic limit. Let us suppose it is also a fact that there are 640 wells in that field, will each one of them, if they are all producing, drain 640 acres?

A No, sir. If they are all producing at the same time each one of them would drain their proportionate share.

Q Yes. In other words, your effective drainage area depends not only upon your engineering facts but also such facts as what wells are in existence in a given area, is that not true?

A Yes, sir, that is correct.

MR. WOODWARD: That is all we have.

MR. SPURRIER: Anyone else? Mr. Montgomery.

By MR. MONTGOMERY:

Q Are you familiar with the Phillip's Falby lease, the Phillip's Yates lease in 24 south, 36 east, Section 24?

A Phillip's, what lease?

Q Phillip's Yates Number One, 24 south, 36 east.

A What section?

Q Section 24 southeast and southeast.

A I think very probably you are mistaken. I don't believe -- I think that is an over-ride lease that probably we have.

Q Are you familiar with that general area?

A Yes, sir.

Q I believe that well was producing out of the Yates formation, oil.

A I think that is correct.

Q Has Phillip's condemned all the zones below that zone that horison?

A I would have no way of knowing.

Q Do you think it has future possibilities of production?

A Below that horizon?

Q Yes.

A I imagine it potentially may have.

Q If the Commission adopts your recommendations for putting all the Yates and San Andres horizons in one pool, how will the Commission be able to give that well an additional allowable for each new horizon find of oil?

A That well?

Q Yes, sir. Not that well, but that lease or that area.

A You would have to drill a well to it.

Q Sir?

A You would have to drill a well to it.

Q Your recommendations are that the Commission adopt that

interval from the Yates down through the San Andres as the vertical limits for that pool?

A Only in -- I may have stated that. I meant only insofar as the hydrocarbon accumulation is present and I certainly did not mean down in the south edge where you go into the water long before you hit the San Andres or the Grayburg.

Q Perhaps we should define this pool on some other basis than the formation of names then? A Probably.

MR. MONTGOMERY: Thank you.

By MR. STANLEY:

Q I would like to ask you a question please, Mr. Grimm. I was confused yesterday, today I am beyond that state and I am really fouled up. Let's assume that this Commission writes an order stating that the Yates-Seven Rivers-Queen-Grayburg and San Andres are a common source of supply and in reality are one producing horizon. Do you advocate that this order, can an operator set pipe above the Yates and suppose the Yates-Seven Rivers-Queen-Grayburg and San Andres formation --

A (Interrupting) For what kind of production?

Q (Continuing) -- in one well bore. I want you to tell the Commission how you would write the order.

A Insofar as it was gas production, yes, sir.

Q What if you have gas and oil production?

A I would never advocate opening a gas reservoir or a gas cap directly into a well bore where you have an oil zone underneath and open into the same well.

Q Well, now, how would this Commission write this order so that we could go ahead and enforce that regulation?

A I think that they, well, I will put it this way. If I were writing the order I would make it permissible to open a well bore within the gas zone from the top of the Yates to the bottom of the gas producing horizon, but that if the well penetrated the oil zone then I would say that only within the same casing string could the gas or the oil be open to the reservoir or to the well. I realize that leaves you the possibility of Bradenhead connections, but as far as I am personally concerned, that is the same as two wells.

Q Would you get two allowables out of the one well?

A You would get one acreage allowable for oil and one acreage allowable for gas.

MR. STANLEY: That is all.

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

(Witness excused.)

H. T. WHITE

Having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. FOSTER:

Q Will you state your name to the reporter and the Commission, please?

A H. T. White.

Q Where do you reside, Mr. White?

A Bartlesville, Oklahoma.

Q You are employed by Phillip's Petroleum Company?

A Yes, sir.

Q In what capacity?

A Gas engineer.

Q What educational training or qualifications do you have as a gas engineer, Mr. White?

A Graduated from the University of Texas in 1935 with an

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engineering degree.

Q What experience have you had in the practice of your profession?

A In that year I started with the Railroad Commission of Texas in the panhandle field. Worked with them slightly over a year, then I joined the Phillip's Petroleum Company in 1937 and have been with them in some end of the gas business continuously since that time.

Q Has your experience with Phillip's Petroleum Company been in the matter of the proration of gas generally?

A Yes, sir, it has.

Q Somewhat particularly has it not?

A Yes, sir.

MR. FOSTER: I will submit the witness is qualified to testify if the Commission please.

MR. SPURRIER: I think he is.

Q Mr. White, I just want to ask you on a few questions on one phase of this case. It has been proposed here that the Commission should allocate a minimum allowable of 500,000 cubic feet of gas a day to each gas well in the common source of supply. First I want you to tell me whether you would recommend such a procedure and if you don't, tell me why you don't.

A As I understand the problem of proration as related to the Commission, they have a duty established by law of regulating production for two purposes. One to prevent waste and one to protect correlative rights. An allowable of 500,000 cubic feet per day is not designed to do either one of these things.

Q Are you saying that any minimum allowable would not be related to the prevention of waste?

A No, sir, I am not saying that.

Q You are just saying that a minimum, that there be no reasonable relationship between the prevention of waste and the minimum allowable of 500,000 cubic feet per day?

A I don't believe there is, no, sir.

Q Yes. In some areas in which you have had experience, wells have been assigned a minimum allowable either by an order of the Railroad Commission or under statutory authority, what relationship is there between the prevention of waste and minimum gas well allowables?

A The only connection that I can see is that it would prevent the abandonment of many small wells or prevent a man from plugging his well on account of not being able to produce.

Q What you are saying is that within proper limits, you could have minimum gas well allowables for the purpose of preventing premature abandonment of wells?

A Yes, sir, keep him in business until he could get a connection that was profitable.

Q Can you think of any other reason for assigning a minimum allowable to a well? A No, sir.

Q Premature abandonment of a well would constitute waste, would it not?

A Well, it would be wasteful to the man who owned the well. It wouldn't necessarily waste the gas as such. It might be unprofitable for someone else to drill an additional well, in that sense it would be wasted.

Q What you are saying is that the gas would still be down there if it wasn't produced through one well, it would be produced

through some other well?

A That is correct.

Q Then on that basis the assignment of a minimum allowable to a well might also tend to protect correlative rights, might it not?

A Yes, sir, it would.

Q Now there has been a good deal of testimony here in this case about these minimum take provisions in certain contracts of the producers in these fields here. Do you see any relationship between the minimum take provision in a contract between the purchaser and the producer and market demand?

A Not necessarily, no, sir.

Q If there is any such relationship, it would be purely co-incidental, would it not?

A I think it would.

Q If this Commission would for any of the reasons that you have mentioned, fix a minimum allowable for a gas well, have you any suggestions as to what minimum allowable should be, or let me put it this way first. In these areas that we are talking about, do you see at the present time any necessity for the establishing of a minimum allowable in these gas wells?

A I have not conducted an investigation along that line. However, I haven't heard of anyone who has necessarily about to lose his well on account of non production, but then that doesn't mean there are none.

Q If you were for any of the reasons that you have mentioned, going to allocate a minimum allowable to these gas wells, in what limits would you confine that minimum allowable?

A Oh, to enough gas to keep his operating expenses and lease in operation as far as his royalty owner is concerned.

Q Enough so as to make it a commercial well within the terms

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of the lease? A Yes.

Q So that the lease might not terminate because it was not producing gas in commercial quantities? A Yes.

Q How that amount might under various circumstances, vary from time to time, might it not?

A That is correct. It may depend on how his lease reads. Of course I don't think the Commission could take all of those things into account.

Q I understand that. But they would have to relate to some power that they had in administering the conservation laws of the state such as waste prevention or the protection of correlative rights? A Yes, sir, I think so.

MR. FOSTER: I believe that is all.

MR. SPURRIER: Anyone have a question of this witness?

MR. ADAIR: Will the witness be here next month?

MR. FOSTER: I can't say about that. I wouldn't know whether it would be possible for him to be available or not. We get spread a little thin now and then.

MR. ADAIR: We have no questions at this time.

MR. SPURRIER: If no further questions, the witness may be excused.

(Witness excused.)

MR. FOSTER: That is all we have.

MR. SPURRIER: We will take a short recess. Is there any other testimony or witnesses in this case today? We will take a recess. (Recess.)

MR. SPURRIER: The Meeting will come to order, please. I assume that no one has any further comment in Case 673, is that right, at this time. You understand then that it is continued to

the regular hearing in April, April 15. The next case on the docket is Case 676.

* * * * * * * *

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

WE, Ada Dearnley and Helen Purcell, Court Reporters and Notaries Public, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission in Case 673 on March 17 and 18, 1954, was reported by us and that the same is a true and correct record of the proceedings.

IN WITNESS WHEREOF WE HAVE AFFIXED OUR HANDS AND NOTARIAL SEALS this 27th day of March, 1954, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley

My Commission Expires:
June 19, 1955.

Helen Purcell

My Commission Expires:
December 18, 1957.

Case No.

673

Application, Transcript,
Small Exhibits, Etc.

BEFORE THE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

Santa Fe, New Mexico

* * * * *

TRANSCRIPT OF PROCEEDINGS

CASE NO. 673

Regular Hearing

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
Santa Fe, New Mexico
April 15, 1954

IN THE MATTER OF:

(Continued from March 17 hearing) Application of the Commission upon its own motion for an order amending, revising, or abrogating existing Rules and Regulations of the Oil Conservation Commission, and/or promulgating Additional Rules and Regulations relating to gas pool delineation, gas proration, and other related matters, relating to the Jalco, Langmat, Eumont and Arrow Gas Pools.

Case No. 673

TRANSCRIPT OF PROCEEDINGS

MR. SPURRIER: In this Case, first, let me say that the Commission or I or Mr. Macey or no one else noted the fact that tomorrow was Good Friday. I find a lot of you are quite impatient to go home, as someone says, you want to keep the reservations you have. It appears there is no possible way to finish the testimony in this Case 673 at this time. We also note that on the 19th of May we have a pretty full docket considering, Well, Case 330, the San Juan proration case may take a lot of time. We can't have it the day before the regular hearing because the Commissioner has his land sale on that day. We can't always get this Hall at our convenience. We do find out on the suggestion of some that we can get this Hall on the 6th and 7th of May. We investigated a lot of other dates and that is one of the few dates that we find, That Case alone would be heard; there is one other short Case set for the 7th. On the 6th and 7th, that would be the only case that we

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
Santa Fe, New Mexico
April 15, 1954

IN THE MATTER OF:

(Continued from March 17 hearing) Application of the Commission upon its own motion for an order amending, revising, or abrogating existing Rules and Regulations of the Oil Conservation Commission, and/or promulgating Additional Rules and Regulations relating to gas pool delineation, gas proration, and other related matters, relating to the Jalco, Langmat, Eumont and Arrow Gas Pools.

Case No. 673

TRANSCRIPT OF PROCEEDINGS

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would need to give any attention to. I would like to say right here that we cannot set the dates apparently for a hearing that will satisfy everyone.

MR. MALONE: On behalf of Gulf, who had expected to lead off in 673 -- we are all anxious to get home and there is nothing to be gained by proceeding with this case at the present time. If the Commission would entertain a motion that 673 go over to May 6th, I would make such a suggestion.

MR. SPURRIER: May 6th, nine o'clock in this hall. Is there objections?

MR. DIPPEL: I don't want to object because we certainly feel it is highly desirable to give this Case a special setting. That presents some serious conflicts for us. We were wondering if it would be possible maybe to have it on the 10th and 11th?

MR. SPURRIER: Do you want to ammend Mr. Malone's motion?

MR. DIPPEL: I didn't offer a motion. We will be here any date you will set. If it isn't going to bother anybody else's convenience. I don't care to amend the motion. I don't want to appear to be at all an obstructionist about it.

MR. MALONE: I will accept the amendment which was offered and withdrawn.

MR. SPURRIER: Without too strenuous objections then, we will continue the case to May 10th at nine o'clock in Mabry Hall. We will go on to Case 693.

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

I, Ada Dearnley, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 19th day of April, 1954.

Ada Dearnley
Notary Public, Court Reporter

My Commission Expires:

June 19, 1955

C. MELVIN NEAL
W. D. GIRAND, JR.
KERMIT E. WASH
W. D. GIRAND, SR.
J. W. NEAL

NEAL & GIRAND
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONES:
3-5171 3-5172
P. O. BOX 1926

MAIN OFFICE OCC
1954 SEP 13 AM 8:54

September 9, 1954

Oil Conservation Commission,
Mabry Hall,
Santa Fe, New Mexico

Yost

Attention: Mr. W. B. Macey

Gentlemen:

I am enclosing herewith original and two copies of exceptions to Order No. R-520 entered in Cause No. 673 on behalf of Me-Tex Supply Company.

We do not desire to offer any evidence or argue these exceptions, but direct the Commission's attention to the same and ask that some ruling be made thereon.

Very truly yours,

NEAL & GIRAND

BY: W. D. Girand Jr.

G/cl
Encls.

cc: Me-Tex Supply Company
Hobbs, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
ORDER NO. R-520

THE APPLICATION OF THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION FOR AN ORDER AMENDING, REVISING OR ABROGATING EXISTING RULES AND REGULATIONS OF THE OIL CONSERVATION COMMISSION, AND/OR PROMULGATING RULES AND REGULATIONS, RELATING TO GAS POOL DELINEATION, GAS PRORATION, AND OTHER RELATED MATTERS, AFFECTING OR CONCERNING THE JALCO, LANGMAT, EUMONT, AND ARROW GAS POOLS, LEA COUNTY, NEW MEXICO.

EXCEPTIONS TO ORDER NO. R-520 ENTERED IN CASE NO. 673 ON BEHALF OF ME-TEX SUPPLY COMPANY

COMES NOW Me-Tex Supply Company, a New Mexico corporation, with principal office in Hobbs, Lea County, New Mexico, and files this its exceptions to the order of the Commission entered in Case No. 673 and entitled Order No. R-520 and for cause would respectfully show:

1. That the Me-Tex Supply Company is owner of state oil and gas lease covering Lots 5, 6, 11, 12, 13 and 14, in Section 3, Township 21 South, Range 36 East, N.M.P.M., Lea County, New Mexico, located within the Eumont Gas Pool as delineated in Order No. R-370 and as redefined in Order No. R-520, and is at the present time producing natural gas from two gas wells located on said lease and has commercially produced gas from said wells at all times since, prior to the amendment of the Oil and Gas Conservation Act of the State of New Mexico wherein gas was included under the conservation laws, being Chapter 168 of the Laws of 1949 of New Mexico.

2. That the wells located upon said lease are designated as the Me-Tex-Wallace State No. 2 located on Lot 12 and Me-Tex-Wallace State No. 3 located on Lot 14 in Section 3, Township 21 South, Range 36 East, N.M.P.M., Lea County, New Mexico.

3. That the Me-Tex Supply Company is producing gas from its two wells, as set out above, and has been producing gas at all times since the completion thereof and that at the time of the completion of said wells, the wells were drilled in accordance with the laws of the State of New Mexico and the rules and regulations of the Commission and are in all things legal wells and entitled to produce a full allowable.

4. That Order No. R-520 of the Commission, delineating the Eumont Pool and designating 640 acres as a production unit, is unjust, unlawful and discriminatory and violates the constitutional rights of Me-Tex Supply Company in that such rules and regulations set out in said order deprive the Me-Tex Supply Company of the right to produce a full allowable from each of its wells.

5. That Order No. R-520 is discriminatory in that it authorizes a miltiple allowable to one well bore based on the sole factor of acreage assigned to such well bore, for the reason that it has not been conclusively established that the gas zone described as the Eumont Gas Pool, as delineated by Order No. R-520, is a continuous reservoir wherein gas pressures and deliverability of the existing wells are all equal.

WHEREFORE, applicant prays that the Commission amend its Order No. R-520 granting a full gas allowable to all gas wells completed prior to the order of the Commission entered on February 17, 1953, and assign to each of such wells a full unit allowable irrespective of the acreage assigned to said well, subject, however, to their ability to produce the fixed allowable.

Respectfully submitted

ME-TEX SUPPLY COMPANY

BY _____
President

G/cl

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

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ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 12th. ,day of August, 1954, the Commission, a quorum being present, having considered the records and testimony adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow, and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extended the horizontal limits of the Jalco and Eumont Gas Pools and extended the vertical limits of the Eumont Gas Pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos. R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco,

Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That the Eumont and Arrow Gas Pools are separate gas reservoirs and should be defined vertically and horizontally as set forth in this order; that the Jalco and Langmat Gas Pools are in fact one common gas reservoir, and said reservoir should be designated the "Jalmat Gas Pool" and delineated as set forth in this order.

(5) That the producing capacity of the gas wells in the Jalmat, Eumont and Arrow Gas Pools is greater than the market demand for gas from each of such pools.

(6) That for the prevention of waste it is necessary to allocate and prorate the gas production among the gas wells in the Jalmat, Eumont and Arrow Gas Pools in accordance with provisions of this order.

(7) That the protection and proper recognition of correlative rights as such rights are defined by Section 26 (h) Chapter 168, New Mexico Session Laws of 1949, require that the gas production from the Jalmat, Eumont and Arrow gas pools be prorated in accordance with the terms and provisions of this order.

(8) That the Rules and Regulations hereinafter set forth in this order are in all respects in the interests of conservation and provide for the allocation of the allowable production among the gas wells in the Jalmat, Eumont and Arrow gas pools upon a reasonable basis and give appropriate recognition to correlative rights.

(9) That one gas well in the Jalmat, Eumont and Arrow Gas Pools can efficiently drain 640 acres.

(10) That for the prevention of waste, a limiting gas-oil ratio of 10,000-to-1 should be assigned to the units in the following pools, namely: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool, Jalmat Gas Pool, Arrow Gas Pool and Eumont Gas Pool.

(11) To prevent waste, the vertical limits of the following oil pools namely: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, should be redefined as provided hereinafter in this order so that the vertical limits of the said oil pools will not conflict with the vertical limits of overlying gas pools.

(12) That the horizontal limits of the oil pools named in Finding No. 11 should be defined as hereinafter set forth in this order.

(13) That the Falby-Yates Oil Pool should be abolished.

(14) That in the interests of conservation, the special rules hereinafter set forth governing the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools should be adopted.

(15) That for the prevention of waste and the protection of correlative rights, the special rules contained in this order should be adopted to govern the production of oil from wells completed or recompleted in such a manner that the bore hole of the well is open in both the upper gas pools and the underlying oil pools.

(16) That for the prevention of waste a "no-flare" rule should be adopted to prohibit the flaring, venting, or wasting of casinghead gas or any other type of gas in any of the gas or oil pools referred to and affected by this order.

IT IS THEREFORE ORDERED:

(1) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation, thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Arrow Gas Pool shall be the area as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be the area as described in Exhibit "F" attached hereto and made a part hereof.

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That no gas, either dry gas or casinghead gas, shall be flared or vented in the following pools unless specifically authorized by order of the Commission after notice and hearing:

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool
Arrow Gas Pool
Eumont Gas Pool
Jalmat Gas Pool

This rule shall become effective November 1, 1954. Any operator desiring to obtain exception from the provisions of this rule shall apply for hearing prior to September 15, 1954. All operators shall file Form C-110, in duplicate, designating thereon the disposition of all dry gas or casinghead gas from each well in each pool listed above. Within 15 days after completion of any oil or gas well within the boundaries of the above listed pools, the operator shall file Form C-110 designating the disposition of gas from the well.

Failure to comply with the provisions of this rule within the prescribed time limits will result in the suspension of any further allowable. Extraction plants procecessing any gas from any of the above designated pools shall comply with the "no-flare" provisions of this rule, provided however, that the restriction may be lifted when mechanical difficulties arise or when the gas flared is of no commercial value.

(11) That oil wells producing from the following named pools shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool and Rhodes Oil Pool.

(12) That the Falby-Yates Oil Pool as heretofore created, defined and described shall be abolished and all oil wells presently producing from the Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(13) That that portion of the Rhodes Storage Area lying within the defined limits of the Jalmat Gas Pool shall be exempted from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage Area shall include the following described area:

TOWNSHIP 26 South, RANGE 37 East, NMPM

Sec. 4: W/2 NW/4, SE/4 SE/4, W/2 SE/4, SW/4;
Sec. 5: All
Sec. 6: NE/4 NW/4, NE/4, SE/4 SE/4, N/2 SE/4
Sec. 7: NE/4 NE/4
Sec. 8: N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9: All
Sec. 10: W/2 NW/4, SE/4 NW/4, S/2
Secs. 15 & 16: All
Sec. 17: E/2 NW/4, E/2
Sec. 20: E/2
Secs. 21: and 22: All
Sec. 23: SW/4 NW/4, SW/4
Secs. 26, 27, & 28: All
Sec. 29: E/2 NE/4

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled or recompleted within the Jalmat Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980-foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming

with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and otherrelevant data and shall fix the allowable production of the Jalmat Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears

to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable), together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the

well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico, all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before September 15, 1954. Failure of any operator to submit the required data will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If the operator is not satisfied with the well's assignment he may apply for a hearing on the matter in accordance with Commission Rule 1203.

PROVIDED FURTHER, Gas-Oil Ratio Tests shall be taken in accordance with the provisions of Rule 301 of the Commission's Rules and Regulations.

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule, (Exhibit H). This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas-Oil Ratio test schedule previously adopted is exempted from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil Ratio test schedule as outlined in Exhibit "H" attached hereto and made a part hereof.

PROVIDED FURTHER, That for gas allocation purposes and assignment of allowables the combination of the Jalco and Langmat gas pools to the Jalmat Gas Pool shall be effective September 1, 1954.

It is recognized that a great many wells will be reclassified and reassigned as a result of the provisions of this order and that the time involved in the reclassification may cause certain inequities; therefore, the Proration Manager is hereby directed to take such action as he deems advisable to prevent inequitable withdrawals.

PROVIDED FURTHER, That in filing Form C-101 "Notice of Intention to Drill or Recomplete" all operators shall strictly comply with the provisions of Rule 104, paragraph (c).

PROVIDED FURTHER, That failure to comply with the provisions of this order or the rules contained herein shall result in the cancellation of allowable assigned to the affected well. No further allowable shall be assigned to the affected well until all rules and regulations are complied with. The Proration Manager shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

PROVIDED FURTHER, That special pool rules applicable to the Eumont Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE EUMONT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled or recompleted within the Eumont Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Eumont Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the

absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Eumont Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other relevant data and shall fix the allowable production of the Eumont Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Eumont Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Eumont Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Eumont Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Eumont Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, That special pool rules applicable to the Arrow Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE ARROW GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Arrow Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Arrow Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Arrow Gas Pool.

RULE 2. Each well drilled or recompleted within the Arrow Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Arrow Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Arrow Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Arrow Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres

shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Arrow Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission afternotice and hearing, shall consider the nominations of gas purchasers from the Arrow Gas Pool and other relevant data and shall fix the allowable production of the Arrow Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Arrow Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Arrow Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Arrow Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Arrow Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Arrow Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Arrow Gas Pool any well which it finds it being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month

shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Arrow Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Arrow Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Arrow Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Arrow Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

EXHIBIT "A"

Horizontal limits of the Jalmat Gas Pool

Township 21 South, Range 36 East
All of Section 31
SW/4 of Section 32
All of Secs. 33 and 34

Township 22 South, Range 35 East
E/2 Section 13

Township 22 South, Range 36 East
All of Secs. 3 through 10, inclusive.
W/2 Sec. 11
W/2 Section 14
All of Secs. 15 through 18, inclusive
NE/4 Sec. 19
All of Secs. 20 through 23, inclusive
W/2 Sec. 24
All of Secs. 25 through 29, inclusive
All of Secs. 32 through 36, inclusive

Township 22 South, Range 37 East
SW/4 Sec. 31

Township 23 South, Range 36 East
All of Secs. 1 through 4, inclusive
N/2 and SE/4 Sec. 5
E/2 Sec. 8
All Secs. 9 through 16, inclusive
NE/4 Sec. 17
All Secs. 21 through 27, inclusive
E/2 Sec. 28
E/2 Sec. 33
All Secs. 34, 35 and 36

Township 23 South, Range 37 East
All Secs. 6, 7, S/2 Sec. 8
All Secs. 17 throgh 21, inclusive
All of Secs. 28 through 33, inclusive

Township 24 South, Range 36 East
All of Secs. 1, 2, and 3
E/2 Sec. 4
NE/4 Sec. 9
N/2, SE/4 Sec. 10
All of Secs. 11 through 14, inclusive

Exhibit "A" (Cont'd)

Township 24 South, Range 36 East (cont'd)
E/2 Sec. 15
All Secs. 22 through 26, inclusive
E/2 Sec. 27
E/2 Sec. 34
All Secs. 35 and 36

Township 24 South, Range 37 East
All of Secs. 5, 6, 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All of Secs. 17 through 23, inclusive
All of Secs. 26 through 35, inclusive

Township 25 South, Range 36 East
All of Sec. 1
N/2 Sec. 2
All of Secs. 12, 13, 24 and 25
NE/4 Sec. 36

Township 25 South, Range 37 East
All Sec. 2 through 33, inclusive
W/2 Sec. 34

Township 26 South, Range 37 East
W/2 Sec. 3
All Secs. 4 through 9, inclusive
W/2 Sec. 10
All of Secs. 15 through 22, inclusive
All Secs. 27, 28 and 29
N/2, SE/4 Sec. 30
E/2 Sec. 31
All of Secs. 32, 33 and 34

EXHIBIT "B"

Horizontal limits of the Eumont Gas Pool

Township 19 South, Range 36 East
All of Secs. 12, 13, 14, 23, 24, 25, 26
E/2 Sec. 27
E/2 Sec. 34
All of Secs. 35 and 36

Township 19 South, Range 37 East
W/2 Sec. 4
E/2 Sec. 5
All of Secs. 7, 8, 17, 18, 19, 20
W/2 Sec. 9
W/2 Sec. 21
W/2 Sec. 27
All of Secs. 28, 29, 30, 31, 32, 33 and 34

Township 20 South, Range 36 East
All of Secs. 1, 2
E/2 Sec. 3
E/2 Sec. 10
All of Secs. 11, 12, 13 and 14
NE/4 Sec. 15
N/2 and SE/4 Sec. 23
All of Secs. 24 and 25
E/2 Sec. 26
E/2 Sec. 35
All Sec. 36

Township 20 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 through 10, inclusive
W/2 Sec. 11
All of Secs. 15 through 22, inclusive
S/2 Sec. 23
All of Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 21 South, Range 35 East
All of Sec. 1
SE/4 Sec. 2
NE/4 Sec. 11
All of Sec. 12
All of Secs. 13 and 24

EXHIBIT "B" (cont'd)

Township 21 South, Range 36 East

All of Secs. 1 through 21, inclusive
N/2 and SW/4 Sec. 22
W/2 Sec. 27
All of Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32

Township 21 South, Range 37 East

All of Secs. 7 and 18

EXHIBIT "C"

Township 21 South, Range 36 East
SE/4 Sec. 24
All Sec. 25
E/2 Sec. 26
NE/4 and S/2 Sec. 35
All Sec. 36

Township 22 South, Range 36 East
All of Secs. 1 and 2
NE/4 Sec. 11
All of Sec. 12
N/2 and SE/4 Sec. 13

Township 22 South, Range 37 East
W/2 Sec. 7
All Sec. 18
N/2 Sec. 19

EXHIBIT "D"

Horizontal limits of the Eunice-Monument Oil Pool

Township 19 South, Range 36 East
E/2 Sec. 12
All of Sec. 13
All Secs. 23 through 27, inclusive
All Secs. 34, 35 and 36

Township 19 South, Range 37 East
SW/4 Sec. 3
S/2 Sec. 4
All of Secs. 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All Secs. 17 through 21, inclusive
S/2 Sec. 27
All Secs. 28 through 34, inclusive

Township 20 South, Range 36 East
All Secs. 1, 2 and 3
All Secs. 10 through 14, inclusive
E/2 Sec. 15
All Secs. 23 through 26, inclusive
E/2 Sec. 27
All Secs. 35 and 36

Township 20 South, Range 37 East
All Secs. 3 through 10, inclusive
All Secs. 15 through 21, inclusive
W/2 Sec. 22
All Secs. 29 through 33, inclusive

Township 21 South, Range 35 East
All Secs. 1, 12, 13, 24
E/2 Sec. 25

Township 21 South, Range 36 East
SW/4 Sec. 1
All of Secs. 2 through 11, inclusive
W/2 Sec. 12
W/2 Sec. 13
All Sec. 14 through 22, inclusive
NW/4 Sec. 23
W/2 Sec. 27
All Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32
All Sec. 33
W/2 Sec. 34

EXHIBIT "E"

Horizontal limits of the Cooper-Jal Oil Pool

Township 23 South, Range 36 East
All of Secs. 4, 5, 8, 9, 15, 16, 17, 20, 21, 22, 27, 28, 33 and 34

Township 24 South, Range 36 East
W/2 Sec. 2
All of Secs. 3 and 4
N/2 Sec. 9
All Sec. 10
W/2 Sec. 11
SW/4 Sec. 13
All Secs. 14 and 15
All Secs. 22, 23
NW/4 and W/2 SW/4 Sec. 24
W/2 Sec. 25
All Secs. 26, 27, 34 and 35
W/2 Sec. 36

Township 25 South, Range 36 East
All Secs. 1, 2, 3, 11, 12, 13, 14, 23, 24, 25, 26 and 36

Township 25 South, Range 37 East
SW/4 Sec. 6
W/2 Sec. 7
W/2 Sec. 18
W/2 and W/2 E/2 Sec. 19
W/2 Sec. 30
All Sec. 31
SW/4 Sec. 32

EXHIBIT "F"

Horizontal limits of the Langlie-Mattix Oil Pool

Township 23 South, Range 36 East
All of Secs. 1, 2, 3, 10, 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36

Township 23 South, Range 37 East
W/2 Sec. 6
All of Secs. 7, 18, 19
W/2 W/2 Sec. 26
All Sec. 27
S/2 Sec. 28
All Secs. 29 through 35, inclusive

Township 24 South, Range 36 East
All Sec. 1
E/2 Sec. 2
E/2 Sec. 11
All Sec. 12
N/2 and SE/4 Sec. 13
E/2 and E/2 SW/4 Sec. 24
E/2 Sec. 25
E/2 Sec. 36

Township 24 South, Range 37 East
All of Secs. 2 through 11, inclusive
All of Secs. 14 through 23, inclusive
SW/4 Sec. 25
All Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 25 South, Range 37 East
All of Secs. 2 through 5, inclusive
N/2 and SE/4 Sec. 6
E/2 Sec. 7
All of Secs. 8 through 11, inclusive
W/2 Sec. 13
All Secs. 14 through 17, inclusive
E/2 Sec. 18
E/2 E/2 Sec. 19
All Secs. 20 through 23, inclusive
W/2 Sec. 24
All Sec. 25
All Secs. 26 through 29, inclusive
E/2 Sec. 30
N/2, SE/4 Sec. 32
All Secs. 33, 34 and 35
W/2 Sec. 36

EXHIBIT "F" (Cont'd)

Township 26 South, Range 37 East
NW/4 Sec. 1
NE/4 Sec. 2

EXHIBIT "G"

Horizontal limits of the South Eunice Oil Pool

Township 21 South, Range 35 East
E/2 Sec. 36

Township 21 South, Range 36 East
All Sec. 31
SW/4 Sec. 32

Township 22 South, Range 35 East
E/2 Sec. 1

Township 22 South, Range 36 East
W/2 Sec. 3
All Secs. 4 through 10, inclusive
SW/4 Sec. 11
W/2 Sec. 14
All Secs. 15 through 23, inclusive
All Secs. 25 through 29, inclusive
E/2 Sec. 30
NE/4 Sec. 31
All Secs. 32 through 36, inclusive

EXHIBIT "H"
GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD			DEADLINE FOR FILING FORM C-116
Oil Pools					
Arrowhead	3500	Nov.	Dec.		Jan. 15, 1955
Cooper-Jal	10000	Sept.			October 15, 1954
Eunice	6000	Oct.	Nov.	Dec.	January 15, 1955
Monument	3000	July	Aug.	Sept.	October 15, 1954
South Eunice	10000	Sept.	Oct.		November 15, 1954
Hardy	10000	Sept.	Oct.		November 15, 1954
Langlie-Mattix	10000	Sept.			October 15, 1954
Leonard	10000	Sept.			October 15, 1954
South Leonard	10000	Sept.			October 15, 1954
Penrose-Skelly	10000	Sept.	Oct.	Nov.	December 15, 1954
Rhodes	10000	Sept.	Oct.		November 15, 1954
Gas Pools					
Arrow	10000	Oct.	Nov.		
Eumont	10000	Oct.	Nov.	Dec.	December 15, 1954
Jalmat	10000	Sept.	Oct.	Nov.	January 15, 1955
					December 15, 1954

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

S E AL

W. B. MACEY, Member and Secretary

MAIN OFFICE OCC

PHILLIPS PETROLEUM COMPANY

ECONOMICS DEPARTMENT
K. E. BEALL, VICE PRESIDENT
R. A. HENDRICKS
C. E. TURNER
1954 MAR 29 AM 8:39

BARTLESVILLE, OKLAHOMA

March 25, 1954

New Mexico Oil Conservation Commission
Santa Fe
New Mexico

Attention: Mr. R. R. Spurrier

Dear Sir:

Under separate cover I am sending a copy of Phillips Petroleum Company's Exhibit #1, as entered in Case #673 on March 18, 1954, then withdrawn to allow time for copying. In addition, I have included an additional copy of Phillips' Exhibit #2 with corrected title.

Yours very truly,

R. D. Grimm

RDG:gs

cc: E. H. Foster
H. T. White

DOCKET: REGULAR HEARING MARCH 17, 1954

New Mexico Oil Conservation Commission 9 a. m. Mabry Hall Santa Fe, N. M.

FIRST: Consideration of the oil allowable for the month of April 1954.

Consideration of the allowable production of gas from nine designated pools in Lea County, New Mexico, for the month of April 1954.

CONTINUATIONS

CASE 582: Rehearing in the Jalco Gas Pool case; continued from February 17-18.

CASE 608: Application of Commission on its own motion for an order revising Rule 505, Paragraph 'b', of the Rules and Regulations pertaining to proportional factors used in allocating oil allowables.

CASE 616: 617: 618: These three cases involve Texas Pacific Coal & Oil Company's request for approval of unorthodox gas proration units in the Jalco Gas Pool, and have been successively continued since the December 17, 1953, hearing.

CASE 634: Skelly's application for approval of 80-acre unorthodox gas proration unit in the Langmat Gas Pool: W/2 SE/4 36-23S-36E.

CASE 661: Great Western Producers, Inc., application for approval of unorthodox gas proration unit of 160 acres in Eumont Gas Pool: N/2 NW/4 and SE/4 NW/4 33-19S-37E, and SE/4 SW/4 28-19S-37E.

NEW CASES

CASE 673: In the matter of the application of the Oil Conservation Commission upon its own motion for an order amending, revising, or abrogating existing Rules and Regulations of the Oil Conservation Commission, and/or promulgating additional Rules and Regulations, relating to gas pool delineation, gas proration, and other related matters, affecting or concerning the Jalco, Langmat, Eumont and Arrow Gas Pools, Lea County, New Mexico.

The order contemplated will pertain to gas pool delineation, gas proration, gas well spacing, gas well allowables, gas proration units, and related matters, affecting the following designated gas pools situated in Lea County, New Mexico:

Jalco Gas Pool
Langmat Gas Pool
Eumont Gas Pool
Arrow Gas Pool

In considering the foregoing matters, notice is further given that the contemplated order may affect the following designated oil pools situated in Lea County, New Mexico:

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Falby-Yates Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool

CASE 674: El Paso Natural Gas Company's request for approval of the San Juan 29-7 Unit Agreement embracing all of Township 29 North, Range 7 West, NMPM, Rio Arriba County, New Mexico.

CASE 675: Shell Oil Company's request for approval of the Bluit Unit Area embracing 12,478.41 acres in Roosevelt County, New Mexico (Townships 7 and 8 South, Ranges 37 and 38 East).

CASE 676: Mid-Continent Petroleum Corporation's application for approval of unorthodox gas proration unit in the Tubb Gas Pool: S/2 S/2 16-21S-37E.

CASE 677: Mid-Continent Petroleum Corporation's application for approval of unorthodox gas proration in the Blinebry Gas Pool: S/2 S/2 16-21S-37E.

CASE 678: Sun Oil Company's application for approval of unorthodox gas proration unit in the Eumont Gas Pool: W/2 E/2, SE/4 NE/4, and NE/4 SE/4 35-19S-36E; and for assignment of allowable thereto on basis of 240 acres.

CASE 679: Application of Velma Petroleum Corporation for approval of unorthodox location 1370 feet from north line and 1650 feet from east line of Section 31, Township 18 South, Range 39 East, Lea County, New Mexico.

CASE 680: Application of Grover C. Conrad for approval of unorthodox gas proration unit in the Jalco Gas Pool: W/2 E/2 20-26S-37E.

CASE 681: Application of Grover C. Conrad for approval of unorthodox gas proration unit in the Jalco Gas Pool: N/2 NW/4 21-26S-37E.

CASE 682: Application of Grover C. Conrad for approval of unorthodox gas proration unit in Jalco Gas Pool: S/2 NE/4 and E/2 SE/4 17-26S-37E.

CASE 683: Application of Grover C. Conrad for approval of unorthodox gas proration unit in Jalco Gas Pool: E/2 W/2 17-26S-37E.

CASE 684: Application of the Commission for an order: (1) outlining procedure to be followed in the stage separation of gas and distillate in the Tubb and Blinebry Gas Pools; (2) outlining the gas metering requirements in the Tubb and Blinebry Gas Pools; and (3) clarifying and revising the vertical limits of the Tubb and Blinebry Gas Pools, Lea County, New Mexico.

CASE 685: Application of the Commission for an order establishing Rule 508 pertaining to the running of Recovered Load Oil; for a definition of Recovered Load Oil; and for the adoption of Form C-126, said form pertaining to the running of Recovered Load Oil.

CASE 686: Southeastern New Mexico nomenclature case, providing for the following creations, extensions and deletions in Lea and Chaves Counties:

(a) Creation of the Anderson Ranch-Pennsylvanian Oil Pool (for Pennsylvanian production) to include all Sections 10, 11, 14 and 15 in Township 16S, Range 32E.

(b) Extension of the Crossroads-Pennsylvanian Pool boundary to include all Section 30, Township 9S, Range 36 E.

(c) Extension of the Denton-Wolfcamp Pool boundary to include SW/4 Section 25, Township 14S, Range 37 E.

(d) Extension of the Langlie-Mattix Pool boundary to include NE/4 NW/4 Section 18, Township 25S, Range 37 E.

(e) Deletion from the Cooper-Jal Pool boundary of NE/4 NW/4 Section 18, Township 25S, Range 37E.

(f) Extension of the Lazy 'J' Pool boundary to include E/2 Section 20 and W/2 Section 21, Township 13S, Range 33E.

(g) Extension of the Monument-Paddock Pool boundary to include E/2 Section 7, Township 20S, Range 37E.

(h) Extension of the Drickey-Queen Pool (in Chaves County) to include E/2 Section 10 and W/2 Section 11, Township 14S, Range 31E.

CASE 687: Northwestern New Mexico nomenclature case, providing for the following creations or extensions in San Juan, Rio Arriba and Sandoval Counties:

(a) Creation of the Medio-Entrada Oil Pool (for Entrada production) in Sandoval County, to include:

Township 19 South, Range 3 West
Sections 14 and 15, all;
N/2 Section 22;
N/2 Section 23

(b) Extension of the Blanco-Mesaverde Pool to include:

Township 27 North, Range 4 West
Sections 14 through 23, all;
Sections 29 through 32, all

Township 27 North, Range 5 West
Sections 13 and 14, all;
Sections 23 through 26, all;
Sections 35 and 36, all

Township 30 North, Range 11 West
Sections 23, 26, 35 and 36, all

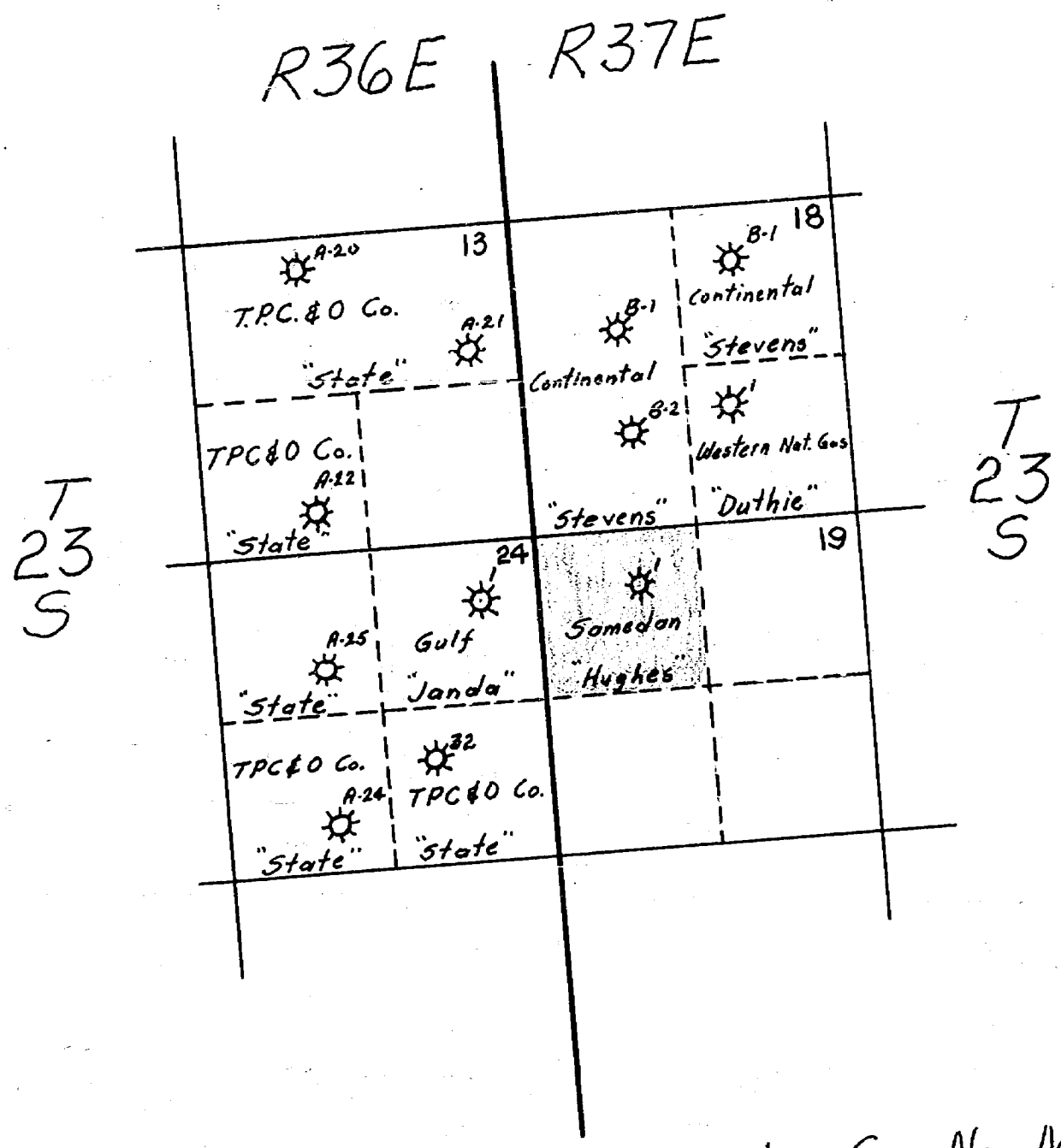
(c) Extension of the West Kutz-Pictured Cliffs Pool to include:

Township 29 North, Range 13 West
S/2 Section 28; all Section 33

Township 28 North, Range 13 West
E/2 of Partial Section 10

CASE 688: Application of Sunray Oil Corporation for approval of an unorthodox gas proration unit in the Eumont Gas Pool: E/2 E/2 12-20S-36E.

CASE 689: Application of Sunray Oil Corporation for approval of an unorthodox gas proration unit in the Eumont Gas Pool: W/2 W/2 7-20S-37E.



Portion Of Langmat Gas Pool, Lea Co., New Mexico
Scale: 1" = 2640'

Somedan Ex 1
Case 673

COMPLETION DATA

	SAMEDAN HUGHES "B" WELL NO. 1	& GULF JANDA "G" WELL NO. 1
Completion Date:	7-25-48	6-2-48
Elevation:	3327'	3355'
Casing:	5½" @ 2755'	5½" @ 2816'
Total Depth	3350'	3352'
Gas Pays	2800-2890 2940-3080 3280-3350	2870-2945 3010-3130 3155-3240 3275-3315

Samedan 2
673

MONTHLY GAS VOLUMES IN MCF
(PB - 15.025 p.s.i.)

		SAMEDAN HUGHES B-1		GULF JANDA "O" 1		CONTINENTAL STEVENS B-18 Well #2	
		Total Gas Produced MCF	Cumulative Gas Production MCF	Total Gas Produced MCF	Cumulative Gas Production MCF	Total Gas Produced MCF	Cumulative Gas Production
			16,256		336,310		666,662
1950	J	11,531		4,155		19,562	
	F	2,095		10,869		19,372	
	M	341		28,916		8,441	
	A	420		1,112		6,255	
	M	2,073		2,274		12,462	
	J	3,231		4,130		17,220	
	J	1,060		11,918		5,192	
	A	903		1,614		12,411	
	S	1,004		4,212		9,498	
	O	2,685		3,386		37,967	
	N	0		21,478		11,624	
	D	0		36,525		4,363	
		25,343	41,599	130,589	466,899	164,367	831,029
1951	J	1,191		72,360		48,978	
	F	70,408		11,336		30,201	
	M	6,569		15,311		25,187	
	A	1,553		35,631		70,033	
	M	4,092		41,938		9,154	
	J	24,388		32,271		25,318	
	J	7,280		18,724		5,299	
	A	962		38,830		40,843	
	S	3,856		39,549		64,643	
	O	2,252		36,245		15,662	
	N	4,296		69,123		18,199	
	D	26,242		78,063		75,232	
		153,089	194,688	489,381	956,280	428,749	1,259,778
1952	J	7,926		94,357		90,162	
	F	10,169		72,066		41,645	
	M	6,827		83,024		1,323	
	A	12,917		60,614		61,046	
	M	32,470		86,143		62,746	
	J	1,386		86,694		31,086	
	J	841		90,121		968	
	A	1,117		85,411		3,294	
	S	3,962		79,111		5,039	
	O	6,320		91,630		440	
	N	14,473		78,917		39,411	
	D	6,469		117,928		30,600	
		104,877	299,565	1,026,236	1,982,516	367,760	1,627,538
1953	J	45,408		116,487		34,264	
	F	22,425		73,367		14,541	
	M	15,311		43,999		37,944	
	A	55,193		57,442		48,337	
	M	7,671		62,315		7,080	
	J	3,095		61,936		8,271	
	J	1,691		66,293		14,330	
	A	17,720		63,237		1,364	
	S	8,327		71,354		4,350	
	O	2,176		92,536		47,039	
	N	53,918		95,870		26,206	
	D	47,488		86,665		53,863	
		280,423	579,988	891,501	2,874,017	297,589	1,925,127

COMPARISON OF STATIC BOTTOM HOLE PRESSURES

(Datum = 355 feet)
(Pressure in p.s.i.)

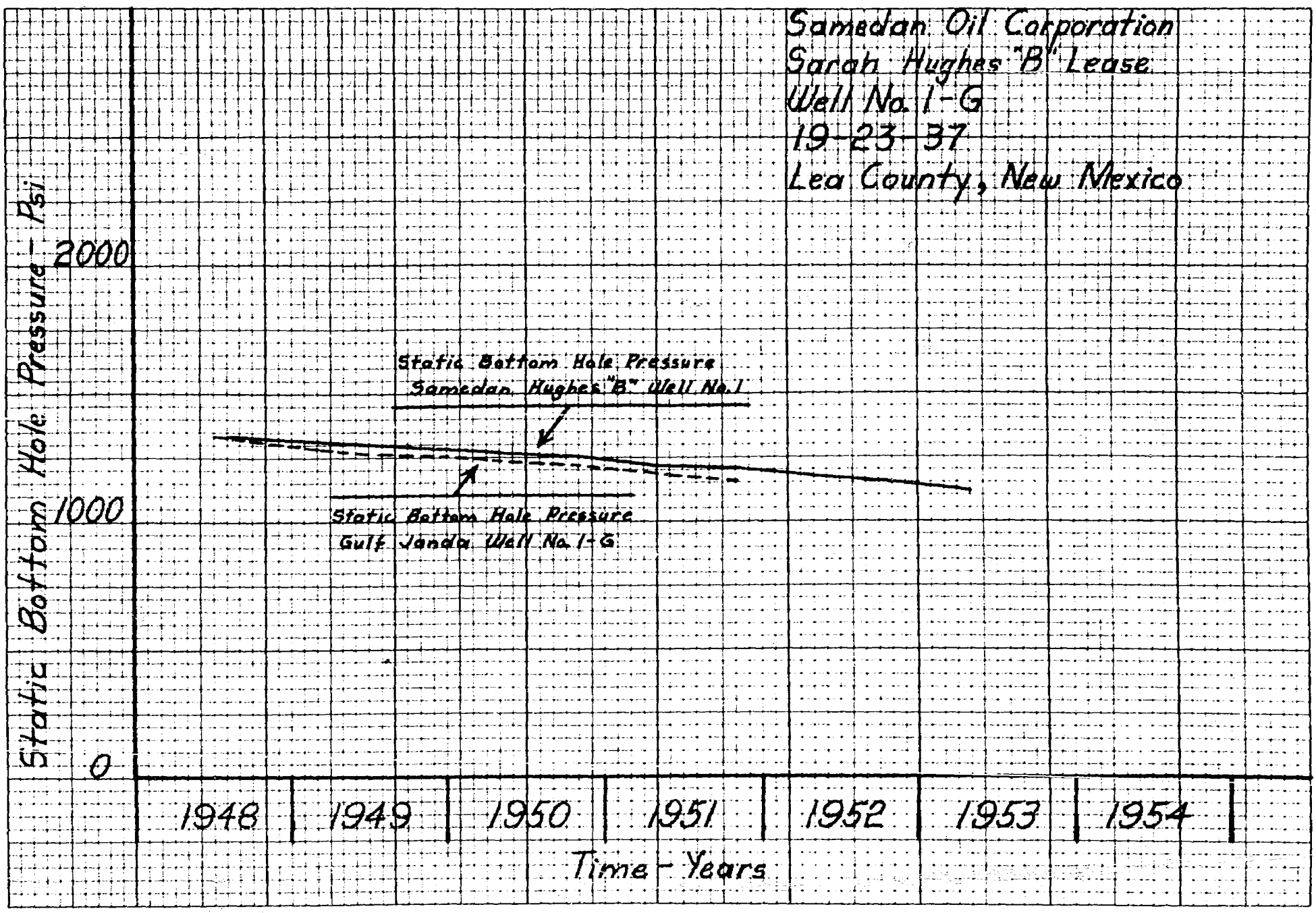
	Samedan Hughes B Well #1	Gulf Janda Well #1-G	Continental Stevens B-18 Well #2
June, 1948	-----	1332	----
July, 1948	1332	----	----
April, 1949	----	1286	1280
October, 1949	----	1260	1271
April, 1950	1265	1254	1256
October, 1950	1252	1247	1248
April, 1951	1223	1222	1208
October, 1951	1206	1189	1156
April, 1951	1171	1152	1150
October, 1952	1151	----	1132
April, 1953	1119	----	----

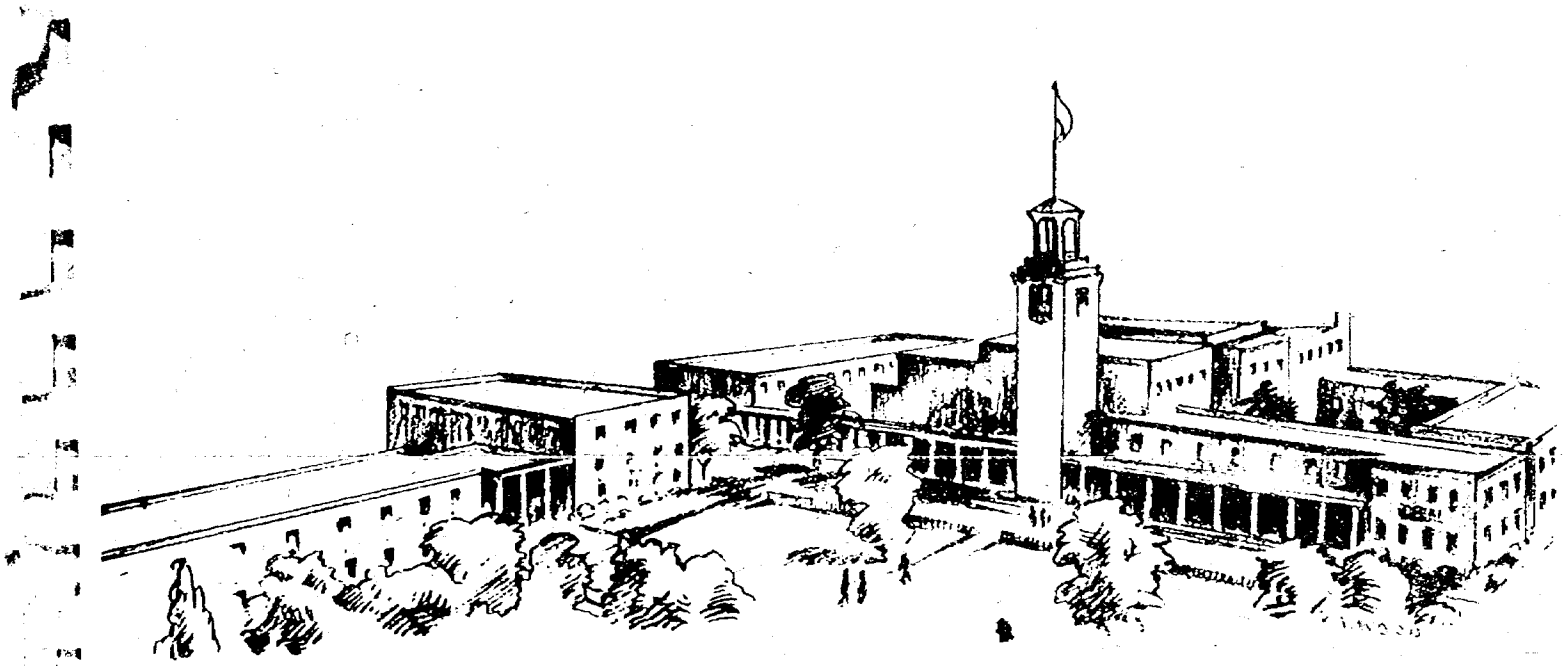
NO. 340R-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U.S.A.

Samedan 5 -673

Samedan Oil Corporation
Sarah Hughes "B" Lease
Well No. 1-G
19-23-37
Lea County, New Mexico





NEW MEXICO

OIL CONSERVATION COMMISSION

OIL AND GAS RESERVES
STATE OF NEW MEXICO

December 1, 1953

R. R. SPURRIER,
Director

R. R. SPURRIER
BOX 784
SANTA FE, NEW MEXICO

STATE OF NEW MEXICO

OIL AND GAS RESERVES

INTRODUCTION

The following Oil and Gas Reserve Report was prepared by the staff of the New Mexico Oil Conservation Commission under the direction of R. R. Spurrier, State Geologist and W. B. Macey, Chief Engineer.

The purpose of the report is to outline the minimum proven oil and gas reserves of the State of New Mexico.

There has been a notable increase in proven gas reserves in northwestern New Mexico since January 1, 1953. This increase has been due mainly to the extension of already existing gas fields in this area. The gas reserves in southeastern New Mexico have long been known to exist but it has only been recently that they have been fully developed. This has been due to the fact that additional pipeline capacity has been installed, taking New Mexico's gas to outside markets.

There has been approximately a 15% increase in proven oil reserves since January 1, 1953. This increase has been due mainly to the discovery of new oil pools in this area. At present the oil outlet from the State is limited to a certain extent due to pipeline capacity but additional capacity could be provided in a minimum amount of time.

The New Mexico Oil Conservation Commission has assembled and prepared its own reserves based upon electric logs, core analyses and reports of its own engineers, geologists and field inspectors.

Information compiled by various oil and gas companies or federal agencies has been considered academically. However, the views and conclusions used are those based on the experience of the New Mexico Oil Conservation Commission staff and used in their own work, regardless of conclusions of the others.

SUMMARY

OIL AND GAS RESERVES

STATE OF NEW MEXICO

DRY GAS	
NORTHWEST NEW MEXICO	11,170,739,000 MCF
SOUTHEAST NEW MEXICO	4,133,557,000 MCF
TOTAL - STATE OF NEW MEXICO	15,304,296,000 MCF
ASSOCIATED GAS	
NORTHWEST NEW MEXICO	3,188,000 MCF
SOUTHEAST NEW MEXICO	549,419,600 MCF
TOTAL - STATE OF NEW MEXICO	552,607,600 MCF
MARKETABLE ASSOCIATED GAS	
TOTAL - STATE OF NEW MEXICO	367,714,200 MCF
TOTAL GAS RESERVE AVAILABLE FOR MARKET	15,672,010,200 MCF
OIL	
NORTHWEST NEW MEXICO	5,133,000 BBLS.
SOUTHEAST NEW MEXICO	726,209,825 BBLS.
TOTAL - STATE OF NEW MEXICO	731,342,825 BBLS.

STATE OF NEW MEXICO

DRY GAS RESERVES

13 NORTHWEST NEW MEXICO

PRODUCING ZONE	PROVEN PRODUCTIVE ACREAGE	ESTIMATED RECOVERABLE RESERVE
Pictured Cliff	284,475	1,544,741,000
Mesaverde		
Cliff House	718,925	
Point Lookout	745,915	8,853,324,000
Dakota	17,440	54,882,000
Pennsylvanian	8,960	717,000,000
Undesignated		792,000
Total Dry Gas Reserves Northwest New Mexico		11,170,739,000

NOTE: All Gas Reserve figures in MCF.

STATE OF NEW MEXICO

DRY GAS RESERVES

SOUTHEAST NEW MEXICO

POOL	PRODUCING ZONE	PROVEN PRODUCTIVE ACREAGE	ESTIMATED RECOVERABLE RESERVE
Arrow	Yates and Seven Rivers	1,280	26,918,000
	Queen	5,760	84,499,000
Blinebry	Blinebry	30,400	793,000,000
Eumont	Yates and Seven Rivers	30,240	508,939,000
	Queen	43,360	636,091,000
Jalco	Yates and Seven Rivers	48,800	527,479,000
	Glorieta	5,120	21,600,000
Justis	Tubb	46,720	982,522,000
Langmat	Yates and Seven Rivers	32,160	552,509,000
Tubb	Tubb		4,133,557,000
Total Dry Gas Reserve Southeast New Mexico			15,304,296,000
Total Dry Gas Reserve - State of New Mexico			

NOTE: All Gas Reserve figures in MCF

STATE OF NEW MEXICO

OIL RESERVES

NORTHWEST NEW MEXICO

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	RECOVERABLE RESERVES ASSOCIATED GAS
(McKinley County)			
Hospah	3240	366,000	**
Red Mountain	160	8,000	**
(Rio Arriba County)			
Lindrith			
South Blanco-Tocito	3360	3,699,000	3,188,000
(San Juan County)			
Hogback-Dakota	280	840,000	**
Rattlesnake - Dakota	680	76,000	**
Table Mesa	280	144,000	**
Total Reserve Northwest New Mexico -		5,133,000	3,188,000

** Associated gas reserve insignificant.

STATE OF NEW MEXICO

OIL RESERVES

SOUTHEAST NEW MEXICO

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	ASSOCIATED GAS
Acme	40	400	**
Anderson Ranch Devonian	1,000	24,925,000	5,530,000
Anderson Ranch Wolfcamp	800	5,995,000	9,670,000
Arrowhead	5,280	1,600,000	768,000 *
Bagley Pennsylvanian	1,840	4,000,000	9,986,000 *
Bagley-Siluro Devonian (80)	1,600	29,000,000	928,000 *
Baish	320	240,000	213,500 *
Blinebry	640	400,000	1,920,000 *
Bluit San Andres	80	16,500	**
Bough	1,360	2,600,000	4,060,000
Bowers	3,960	1,700,000	2,930,000 *
Bronco Siluro-Devonian	320	7,820,000	1,200,000
Brunson	7,080	44,400,000	50,300,000 *
Caprock	6,400	3,600,000	1,300,000
Caprock, East Devonian	920	6,929,000	152,500
Caprock, East Penn.	40	25,000	50,000
Caprock, East Wolfcamp	300	220.000	286,000
Carter San Andres	40	2,000	**
Cary	120	290,000	306,000
Cass	240	2,400,000	470,000 *
Caudill - Penn.	40	2,000	**
Chisum	80	350,000	22,600
Chisum San Andres	120	49,000	72,800
Cooper Jal	12,680	13,500,000	6,470,000 *
Corbin	440	280,000	78,000
Corbin Yates	40	2,600	**
Crossroads	920	6,600,000	185,000
Crossroads Penn.	760	1,782,000	2,830,000
Denton	3,280	54,600,000	61,000,000
Denton Wolfcamp	2,640	7,500,000	2,620,000 *
Dollarhide Devonian	600	1,400,000	1,760,000 *
Dollarhide Drinkard	1,500	5,100,000	6,330,000 *
Dollarhide Ellenburger	500	1,150,000	560,000 *
Dollarhide Fusselman	280	800,000	610,000 *
Dollarhide, Queen	1,040	2,900,000	1,220,000 *
Drinkard	25,760	31,200,000	36,900,000 *
Drinkard, South	120	10,000	15,500 *
Dublin Devonian	40	8,500	**
Eaves	2,000	6,200,000	***

* Marketable gas reserve.

** Associated Gas Reserve insignificant.

*** Gas reserve computed elsewhere.

STATE OF NEW MEXICO

OIL RESERVES

SOUTHEAST NEW MEXICO (Continued)

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES	
		OIL	ASSOCIATED GAS
Echol (Devonian)	240	2,200,000	110,000
Echol (Devonian North)	80	39,000	25,400
Eidson-Penn.	320	1,320,000	1,900,000
Eunice-Monument	41,440	105,800,000	45,600,000 *
Monument Blinebry	1,180	2,300,000	1,690,000 *
Monument Paddock	360	845,000	1,270,000 *
Eunice, South	6,360	6,900,000	3,240,000 *
Fowler (80)	960	3,900,000	3,660,000 *
Garrett	120	21,000	**
Gladiola	440	2,800,000	435,000
Gladiola Wolfcamp	700	2,600,000	2,700,000
Halfway	400	260,000	85,500
Hardy	1,600	210,000	75,500 *
Hare	3,840	21,700,000	46,800,000 *
Hare, South	160	21,000	21,000 *
Hightower	240	330,000	127,000 *
Hightower Permo Penn.	160	277,000	1,245,000 *
Hobbs	10,760	53,000,000	29,200,000 *
Hobbs, Drinkard	40	13,300	17,300 *
Hobbs, East Blinebry	40	20,000	21,000 *
Hobbs, East San Andres	760	6,100,000	2,990,000 *
Hobbs, East Seven Rivers	40	140,600	105,200 *
House	360	740,000	961,000
House San Andres	580	175,000	94,500
King Wolfcamp	40	259,000	185,000
Knowles	600	2,250,000	373,000
Langlie Mattix	28,000	15,430,000	10,350,000 *
Lazy J	360	780,000	1,075,000 *
Leonard	120	23,600	15,300 *
Leonard, South	640	426,000	320,000 *
Lightcap	80	26,000	260,000
Lovington	2,400	3,700,000	1,885,000
Lovington Abo	1,640	5,920,000	2,435,000
Lovington, East (Penn.)	240	650,000	710,000
Lovington, Paddock	1,600	4,500,000	2,235,000
Lovington, West	2,560	4,000,000	2,040,000
Lovington, Wolfcamp	160	600,000	763,000
Lusk	200	26,000	13,000
Lynch	960	2,200,000	220,000
Lynch, North	40	31,000	31,000

*Marketable gas reserve.

** Associated gas reserve insignificant.

STATE OF NEW MEXICO

OIL RESERVES

SOUTHEAST NEW MEXICO (Continued)

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	RECOVERABLE RESERVES ASSOCIATED GAS
Maljamar	11,360	24,400,000	34,500,000 *
Maljamar Repress.			
Maljamar Devonian	40	160,000	8,000
Maljamar, East	40	22,000	22,000
Maljamar, North	200	69,200	69,200
Maljamar, Paddock	120	330,000	429,000 *
Maljamar, South	40	15,000	15,000
McCormack	80	142,000	198,000
Mescalero Devonian	240	3,100,000	155,000
Mescalero Penn.	240	1,100,000	860,000
Moore, Devonian	600	2,500,000	125,000
Moore, Penn.	120	108,000	75,500
Nadine	120	37,000	40,700
Paddock	6,640	10,400,000	9,789,000 *
Pearsall	880	526,000	268,000
Penrose Skelly	16,680	4,600,000	3,450,000 *
Rhodes	2,360	775,000	504,000 *
Roberts	1,920	850,000	466,000
Sandhills	80	6,000	**
San Simon	80	44,000	**
Saunders	2,840	19,600,000	28,800,000 *
Saunders, South	120	76,700	99,000 *
Sawyer	80	32,600	29,400
Skaggs	2,440	4,890,000	5,000,000 *
Teague	480	1,680,000	1,320,000 *
Teague-Devonian	120	388,000	310,000 *
Teague-Ellenburger	480	3,300,000	3,620,000 *
Teas	160	54,000	27,000
Terry Blinebry	360	370,000	815,000 *
Tonto	80	141, 400	31,000
Townsend Wolfcamp	400	319,000	376,000
Tulk Wolfcamp	840	1,920,000	2,205,000 *
Twin Lakes	40	4,000	**
Vacuum	18,240	59,300,000	31,800,000 *
Wantz Abo	600	1,660,000	2,840,000 *
Warren Drinkard	240	117,000	170,000 *
Warren McKee	600	3,940,000	2,380,000 *
Warren McKee, North	800	3,000,000	1,740,000 *

* Marketable gas reserve.

** Associated gas reserve insignificant.

STATE OF NEW MEXICO

OIL RESERVES

SOUTHEAST NEW MEXICO (Continued)

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	RECOVERABLE RESERVES ASSOCIATED GAS
Watkins	320	45,000	33,700
Watkins Grayburg	40	28,800	28,800
Weir	40	31,000	42,500 *
White Ranch Siluro Dev.	80	1,960,000	345,000
Wilson	2,080	4,906,000	1,240,000
Wilson, North	40	23,600	5,900
Wilson, West	400	489,000	171,000
Young	240	405,000	304,000

* Marketable gas reserve.

STATE OF NEW MEXICO

OIL RESERVES

SOUTHEAST NEW MEXICO (Continued)

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	RECOVERABLE RESERVES ASSOCIATED GAS
Aid	240	8,500	**
Anderson	2,000	580,000	453,000
Artesia	9,000	2,830,000	2,550,000
Barber	520	328,000	98,000
Benson	240	328,000	98,000
Black River	160	34,400	13,700
Cedar Hills	240	159,000	23,800
Dark Canyon	40	12,800	**
Daugherity	80	11,400	**
Dayton	800	49,425	29,500
Empire	2,960	181,400	72,500
Forest	760	388,600	271,000
Fren	4,280	2,192,800	1,530,000
Getty	400	452,700	67,900
Glenn-Castile	40	3,000	**
Grayburg-Jackson	15,960	18,381,000	19,100,000 *
Grayburg Keeley	240	149,600	131,000 *
High Lonesome	160	16,200	**
Leo	280	49,200	34,500
Loco Hills	10,080	8,210,000	6,150,000 *
Loco Hills (Queen)	40	6,000	4,800 *
Lusk, West	80	3,900	**
Malaga	880	697,900	279,000
McMillan	360	330,000	33,000
McMillan, Seven Rivers	80	7,600	**
Millman (Grayburg)	40	2,000	**
Nichols	360	135,500	108,000 *
P. C. A.	360	100,000	20,000
Premier	2,560	781,000	625,000 *
Red Lake	4,840	1,640,000	1,150,000
Robinson	1,280	841,000	590,000
Russell	680	482,000	193,000
Santo Nino	120	15,000	**
Shugart	440	521,000	312,000
Shugart, North	1,520	381,000	260,000

* Marketable gas reserve

** Associated gas reserve insignificant

STATE OF NEW MEXICO

OIL RESERVES

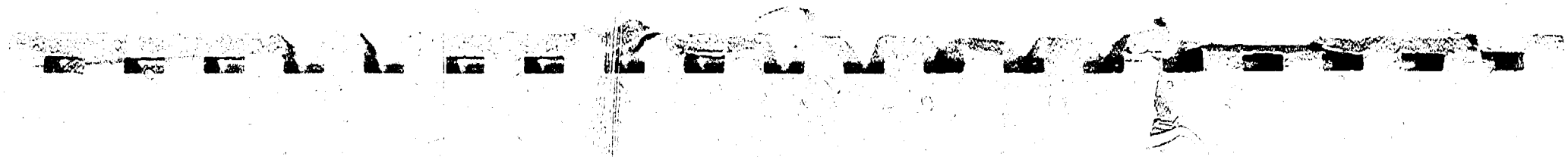
SOUTHEAST NEW MEXICO (Continued)

POOL	PROVEN PRODUCTIVE ACRES	RECOVERABLE RESERVES OIL	RECOVERABLE RESERVES ASSOCIATED GAS
Square Lake	9,680	5,630,000	4,400,000
Turkey Track	640	203,000	61,000
Turkey Track, East	120	44,100	17,600
Turkey Track, Seven Rivers	440	25,000	8,000
Turkey Track, West	120	2,000	**

** Associated gas reserve insignificant

Total Reserve - Southeast New Mexico	726,209,825	549,419,600
Total Reserve - State of New Mexico	731,342,825	552,607,600
Marketable Associated Gas		367,714,200

R. R. SPURRIER
BOX 784
SANTA FE, NEW MEXICO



BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. R-520

THE APPLICATION OF THE OIL
CONSERVATION COMMISSION UPON
ITS OWN MOTION FOR AN ORDER
AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS OF
THE OIL CONSERVATION COMMISSION,
AND/OR PROMULGATING RULES AND
REGULATIONS, RELATING TO GAS POOL
DELINEATION, GAS PRORATION, AND
OTHER RELATED MATTERS, AFFECTING
OR CONCERNING THE JALCO, LANGMAT,
EUMONT, AND ARROW GAS POOLS, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 12th day of August, 1954, the Commission, a quorum being present, having considered the records and testimony adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow, and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extended the horizontal limits of the Jalco and Eumont Gas Pools and extended the vertical limits of the Eumont gas pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos. R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco, Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That the Eumont and Arrow Gas Pools are separate gas reservoirs and should be defined vertically and horizontally as set forth in this order; that the Jalco and Langmat Gas Pools are in fact one common gas reservoir, and said reservoir should be designated the "Jalmat Gas Pool" and delineated as set forth in this order.

(5) That the producing capacity of the gas wells in the Jalmat, Eumont and Arrow Gas Pools is greater than the market demand for gas from each of such pools.

(6) That for the prevention of waste it is necessary to allocate and prorate the gas production among the gas wells in the Jalmat, Eumont and Arrow Gas Pools in accordance with provisions of this order.

(7) That the protection and proper recognition of correlative rights as such rights are defined by Section 26 (h) Chapter 168, New Mexico Session Laws of 1949, require that the gas production from the Jalmat, Eumont and Arrow gas pools be prorated in accordance with the terms and provisions of this order.

(8) That the Rules and Regulations hereinafter set forth in this order are in all respects in the interests of conservation and provide for the allocation of the allowable production among the gas wells in the Jalmat, Eumont and Arrow gas pools upon a reasonable basis and give appropriate recognition to correlative rights.

(9) That one gas well in the Jalmat, Eumont and Arrow Gas Pools can efficiently drain 640 acres.

(10) That for the prevention of waste, a limiting gas-oil ratio of 10,000-to-1 should be assigned to the units in the following pools namely: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool, Jalmat Gas Pool, Arrow Gas Pool and Eumont Gas Pool.

(11) To prevent waste, the vertical limits of the following oil pools, namely: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, should be redefined as provided hereinafter in this order so that the vertical limits of the said oil pools will not conflict with the vertical limits of overlying gas pools.

(12) That the horizontal limits of the oil pools named in Finding No. 11 should be defined as hereinafter set forth in this order.

(13) That the Falby-Yates Oil Pool should be abolished.

(14) That in the interests of conservation, the special rules hereinafter set forth governing the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools should be adopted.

(15) That for the prevention of waste and the protection of correlative rights, the special rules contained in this order should be adopted to govern the production of oil from wells completed or recompleted in such a manner that the bore hole of the well is open in both the upper gas pools and the underlying oil pools.

(16) That for the prevention of waste a "no-flare" rule should be adopted to prohibit the flaring, venting, or wasting of casinghead gas or any other type of gas in any of the gas or oil pools referred to and affected by this order.

IT IS THEREFORE ORDERED:

(1) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation, thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Arrow Gas Pool shall be the area as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be the area as described in Exhibit "F" attached hereto and made a part hereof.

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That no gas, either dry gas or casinghead gas, shall be flared or vented in the following pools unless specifically authorized by order of the Commission after notice and hearing:

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool
Arrow Gas Pool
Eumont Gas Pool
Jalmat Gas Pool

This rule shall become effective November 1, 1954. Any operator desiring to obtain exception from the provisions of this rule shall apply for hearing prior to September 15, 1954. All operators shall file Form C-110, in duplicate, designating thereon the disposition of all dry gas or casinghead gas from each well in each pool listed above. Within 15 days after completion of any oil or gas well within the boundaries of the above listed pools, the operator shall file Form C-110 designating the disposition of gas from the well.

Failure to comply with the provisions of this rule within the prescribed time limits will result in the suspension of any further allowable. Extraction plants processing any gas from any of the above designated pools shall comply with the "no-flare" provisions of this rule, provided however, that the restriction may be lifted when mechanical difficulties arise or when the gas flared is of no commercial value.

(11) That oil wells producing from the following named pools shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool and Rhodes Oil Pool.

(12) That the Falby-Yates Oil Pool as heretofore created, defined and described, shall be abolished and all oil wells presently producing from the Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(13) That that portion of the Rhodes Storage Area lying within the defined limits of the Jalmat Gas Pool shall be exempted from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage Area shall include the following described area:

TOWNSHIP 26 South, RANGE 37 East, NMPM

Sec. 4:	W/2 NW/4, SE/4SE/4, W/2 SE/4, SW/4;
Sec. 5:	All
Sec. 6:	NE/4 NW/4, NE/4, SE/4 SE/4, N/2 SE/4
Sec. 7:	NE/4 NE/4
Sec. 8:	N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9:	All
Sec. 10:	W/2 NW/4, SE/4 NW/4, S/2
Secs. 15 & 16:	All
Sec. 17:	E/2 NW/4, E/2
Sec. 20:	E/2
Secs. 21 and 22:	All
Sec. 23:	SW/4 NW/4, SW/4
Secs. 26, 27 and 28:	All
Sec. 29:	E/2 NE/4

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled or recompleted within the Jalmat Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980-foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and other relevant data and shall fix the allowable production of the Jalmat Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable), together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such

succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance, If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the

20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico, all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before September 15, 1954. Failure of any operator to submit the required data will result in cancellation of Form C-110 and subsequent cancellation of allowables.

20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico, all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before September 15, 1954. Failure of any operator to submit the required data will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If the operator is not satisfied with the well's assignment he may apply for a hearing on the matter in accordance with Commission Rule 1203.

PROVIDED FURTHER, Gas-Oil Ratio Tests shall be taken in accordance with the provisions of Rule 301 of the Commission's Rules and Regulations.

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule, (Exhibit H). This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas-Oil Ratio test schedule previously adopted is exempted from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil Ratio test schedule as outlined in Exhibit "H" attached hereto and made a part hereof.

PROVIDED FURTHER, That for gas allocation purposes and assignment of allowables the combination of the Jalco and Langmat gas pools to the Jalmat Gas Pool shall be effective September 1, 1954.

It is recognized that a great many wells will be reclassified and reassigned as a result of the provisions of this order and that the time involved in the reclassification may cause certain inequities; therefore, the Proration Manager is hereby directed to take such action as he deems advisable to prevent inequitable withdrawals.

PROVIDED FURTHER, That in filing Form C-101 "Notice of Intention to Drill or Recomplete" all operators shall strictly comply with the provisions of Rule 104, paragraph (e).

PROVIDED FURTHER, That failure to comply with the provisions of this order or the rules contained herein shall result in the cancellation of allowable assigned to the affected well. No further allowable shall be assigned to the affected well until all rules and regulations are complied with. The Proration Manager shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

PROVIDED FURTHER, That special pool rules applicable to the Eumont Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE EUMONT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled or recompleted within the Eumont Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Eumont Gas Pool prior to the effective date of this order at a location conforming to the spacing

requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Eumont Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other relevant data and shall fix the allowable production of the Eumont Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Eumont Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Eumont Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior tothe 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market

demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (which ever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance, If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION.

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Eumont Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease

equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Eumont Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, That special pool rules applicable to the Arrow Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE ARROW GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Arrow Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Arrow Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Arrow Gas Pool.

RULE 2. Each well drilled or recompleted within the Arrow Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Arrow Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the

Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Arrow Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Arrow Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purpose of gas proration; provided, however, that any well drilled to and producing from the Arrow Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas

proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of this intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Arrow Gas Pool and other relevant data and shall fix the allowable production of the Arrow Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Arrow Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Arrow Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Arrow Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Arrow Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Arrow gas pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Arrow Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable)

together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Arrow Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Arrow Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Arrow Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Arrow Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

EXHIBIT "A"

Horizontal limits of the Jalmat Gas Pool

Township 21 South, Range 36 East
All of Section 31
SW/4 of Section 32
All of Secs. 33 and 34

Township 22 South, Range 35 East
E/2 Section 13

Township 22 South, Range 36 East
All of Secs. 3 through 10, inclusive,
W/2 Sec. 11
W/2 Section 14
All of Secs. 15 through 18, inclusive
NE/4 of Sec. 19
All of Secs. 20 through 23, inclusive
W/2 Sec. 24
All of Secs. 25 through 29, inclusive
All of Secs. 32 through 36, inclusive

Township 22 South, Range 37 East
SW/4 Sec. 31

Township 23 South, Range 36 East
All of Secs. 1 through 4, inclusive
N/2 and SE/4 Sec. 5
E/2 Sec. 8
All Secs. 9 through 16, inclusive
NE/4 Sec. 17
All Secs. 21 through 27, inclusive
E/2 Sec. 28
E/2 Sec. 33
All Secs. 34, 35 and 36

Township 23 South, Range 37 East
All Secs. 6, 7, S/2 Sec. 8
All Secs. 17 through 21, inclusive
All of Secs. 28 through 33, inclusive

Township 24 South, Range 36 East
All of Secs. 1, 2 and 3
E/2 Sec. 4
NE/4 Sec. 9
N/2, SE/4 Sec. 10
All of Secs. 11 through 14, inclusive
E/2 Sec. 15
All Secs. 22 through 26, inclusive
E/2 Sec. 27
E/2 Sec. 34
All Secs. 35 and 36

Exhibit "A" (Cont'd.)

Township 24 South, Range 37 East
All of Secs. 5, 6, 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All of Secs. 17 through 23, inclusive
All of Secs. 26 through 35, inclusive

Township 25 South, Range 36 East
All of Sec. 1
N/2 Sec. 2
All of Secs. 12, 13, 24 and 25
NE/4 Sec. 36

Township 25 South, Range 37 East
All Sec. 2 through 33, inclusive
W/2 Sec. 34

Township 26 South, Range 37 East
W/2 Sec. 3
All Secs. 4 through 9, inclusive
W/2 Sec. 10
All of Secs. 15 through 22, inclusive
All Secs. 27, 28 and 29
N/2, SE/4 Sec. 30
E/2 Sec. 31
All of Secs. 32, 33 and 34

EXHIBIT "B"

Horizontal limits of the Eumont Gas Pool

Township 19 South, Range 36 East
All of Secs. 12, 13, 14, 23, 24, 25, 26,
E/2 Sec. 27
E/2 Sec. 34
All of Secs. 35 and 36

Township 19 South, Range 37 East
W/2 Sec. 4
E/2 Sec. 5
All of Secs. 7, 8, 17, 18, 19, 20
W/2 Sec. 9
W/2 Sec. 21
W/2 Sec. 27
All of Secs. 28, 29, 30, 31, 32, 33 and 34

Township 20 South, Range 36 East
All of Secs. 1, 2
E/2 Sec. 3
E/2 Sec. 10
All of Secs. 11, 12, 13 and 14
NE/4 Sec. 15
N/2 and SE/4 Sec. 23
All of Secs. 24 and 25
E/2 Sec. 26
E/2 Sec. 35
All of Sec. 36

Township 20 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 through 10 inclusive
W/2 Sec. 11
All of Secs. 15 through 22 inclusive
S/2 Sec. 23
All of Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 21 South, Range 35 East
All of Sec. 1
SE/4 Sec. 2
NE/4 Sec. 11
All of Sec. 12
All of Secs. 13 and 24

Township 21 South, Range 36 East
All of Secs. 1 through 21, inclusive
N/2 and SW/4 Sec. 22
W/2 Sec. 27
All of Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32

Township 21 South, Range 37 East
All of Secs. 7 and 18

EXHIBIT "C"

Township 21 South, Range 36 East
SE/4 Sec. 24
All Sec. 25
E/2 Sec. 26
NE/4 and S/2 Sec. 35
All Sec. 36

Township 22 South, Range 36 East
All of Secs. 1 and 2
NE/4 Sec. 11
All of Sec. 12
N/2 and SE/4 Sec. 13

Township 22 South, Range 37 East
W/2 Sec. 7
All Sec. 18
N/2 Sec. 19

EXHIBIT "D"

Horizontal limits of the Eunice-Monument Oil Pool

Township 19 South, Range 36 East
E/2 Sec. 12
All of Sec. 13
All Secs. 23 through 27, inclusive
All Secs. 34, 35 and 36

Township 19 South, Range 37 East
SW/4 Sec. 3
S/2 Sec. 4
All of Secs. 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All Secs. 17 through 21, inclusive
S/2 Sec. 27
All Secs. 28 through 34, inclusive

Township 20 South, Range 36 East
All Secs. 1, 2 and 3
All Secs. 10 through 14, inclusive
E/2 Sec. 15
All Secs. 23 through 26, inclusive
E/2 Sec. 27
All Secs. 35 and 36

Township 20 South, Range 37 East
All Secs. 3 through 10, inclusive
All Secs. 15 through 21, inclusive
W/2 Sec. 22
All Secs. 29 through 33, inclusive

Township 21 South, Range 35 East
All Secs. 1, 12, 13, 24
E/2 Sec. 25

Township 21 South Range 36 East
SW/4 Sec. 1
All of Secs. 2 through 11, inclusive
W/2 Sec. 12
W/2 Sec. 13
All Sec. 14 through 22, inclusive
NW/4 Sec. 23
W/2 Sec.27
All Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32
All Sec. 33
W/2 Sec. 34

EXHIBIT "E"

Horizontal limits of the Cooper-Jal Oil Pool

Township 23 South, Range 36 East
All of Secs. 4, 5, 8, 9, 15, 16, 17
20, 21, 22, 27, 28, 33 and 34

Township 24 South, Range 36 East
W/2 Sec. 2
All of Secs. 3 and 4
N/2 Sec. 9
All Sec. 10
W/2 Sec. 11
SW/4 Sec. 13
All Secs. 14 and 15
All Secs. 22, 23
NW/4 and W/2 SW/4 Sec. 24
W/2 Sec. 25
All Secs. 26, 27, 34 and 35
W/2 Sec. 36

Township 25 South, Range 36 East
All Secs. 1, 2, 3, 11, 12, 13, 14,
23, 24, 25, 26 and 36

Township 25 South, Range 37 East
SW/4 Sec. 6
W/2 Sec. 7
W/2 Sec. 18
W/2 and W/2 E/2 Sec. 19
W/2 Sec. 30
All Sec. 31
SW/4 Sec. 32

EXHIBIT "F"

Horizontal limits of the Langlie-Mattix Oil Pool

Township 23 South, Range 36 East
All of Secs. 1, 2, 3, 10, 11, 12, 13, 14
23, 24, 25, 26, 35 and 36

Township 23 South, Range 37 East
W/2 Sec. 6
All of Secs. 7, 18, 19
W/2 W/2 Sec. 26
All Sec. 27
S/2 Sec. 28
All Secs. 29 through 35, inclusive

Township 24 South, Range 36 East
All Sec. 1
E/2 Sec. 2
E/2 Sec. 11
All Sec. 12
N/2 and SE/4 Sec. 13
E/2 and E/2 SW/4 Sec. 24
E/2 Sec. 25
E/2 Sec. 36

Township 24 South, Range 37 East
All of Secs. 2 through 11, inclusive
All of Secs. 14 through 23, inclusive
SW/4 Sec. 25
All Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 25 South, Range 37 East
All of Secs. 2 through 5, inclusive
N/2 and SE/4 Sec. 6
E/2 Sec. 7
All of Secs. 8 through 11. inclusive
W/2 Sec. 13
ALL Secs. 14 through 17, inclusive
E/2 Sec. 18
E/2 E/2 Sec. 19
All Secs. 20 through 23, inclusive
W/2 Sec. 24
All Sec. 25
All Secs. 26 through 29, inclusive
E/2 Sec. 30
N/2, SE/4 Sec. 32
All Secs. 33, 34, and 35
W/2 Sec. 36

Township 26 South, Range 37 East
NW/4 Sec. 1
NE/4 Sec. 2

EXHIBIT "G"

Horizontal limits of the South Eunice Oil Pool

Township 21 South, Range 35 East
E/2 Sec. 36

Township 21 South, Range 36 East
All Sec. 31
SW/4 Sec. 32

Township 22 South, Range 35 East
E/2 Sec. 1

Township 22 South, Range 36 East
W/2 Sec. 3
All Secs. 4 through 10, inclusive
SW/4 Sec. 11
W/2 Sec. 14
All Secs. 15 through 23, inclusive
All Secs. 25 through 29, inclusive
E/2 Sec. 30
NE/4 Sec. 31
All Secs. 32 through 36, inclusive

EXHIBIT "H"
GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD			DEADLINE FOR FILING FORM C-116
Oil Pools					
Arrowhead	3500	Nov.	Dec.		January 15, 1955
Cooper-Jal	10000	Sept.			October 15, 1954
Eunice	6000	Oct.	Nov.	Dec.	January 15, 1955
Monument	3000	July	Aug.	Sept.	October 15, 1954
South Eunice	10000	Sept.	Oct.		November 15, 1954
Hardy	10000	Sept.	Oct.		November 15, 1954
Langlie-Mattix	10000	Sept.			October 15, 1954
Leonard	10000	Sept.			October 15, 1954
South Leonard	10000	Sept.			October 15, 1954
Penrose-Skelly	10000	Sept.	Oct.	Nov.	December 15, 1954
Rhodes	10000	Sept.	Oct.		November 15, 1954
Gas Pools					
Arrow	10000	Oct.	Nov.		December 15, 1954
Eumont	10000	Oct.	Nov.	Dec.	January 15, 1955
Jalmat	10000	Sept.	Oct.	Nov.	December 15, 1954

DONE at Santa Fe, New Mexico on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

E L Mechem
EDWIN L. MECHEM, Chairman

E S Walker
E. S. WALKER, Member

W B Macey
W. B. MACEY, Member and Secretary

S E A L

Exhibit 1 is a contour map on the top of the Yates in Township 19 South through Township 26 South and Ranges 35 East through 38 East, inclusive. Starting at the south along the dividing line between Ranges 36 and 37 East, and extending in a northerly direction to Section 6, Township 22 South, Range 36 East is a long, narrow ridge. This general ridge is broken up into a number of small local highs. We believe this ridge to be the approximate eastern limit of Capitan reef development in the area. From south to north, the Saves, Cooper-Jal and the west half of the South Eunice Pool lie on this ridge. Oil production is found chiefly on the west flank of the ridge. Producing formations consist of the Yates and Seven Rivers in the south and Queen, and possibly upper Grayburg, in the north. Porosity and permeability in the lower Yates, Seven Rivers and Queen formations are found mainly in dolomite. The upper Yates, which is in general less productive than the others, contains chiefly gas which appears to be contained in the sands.

Approximately six miles to the east, and roughly paralleling the ridge previously described, there is a second general high running through Townships 23, 24, 25, and 26, South. On the west flank of this high, and extending into the trough area between the reef high in Townships 24 and 25, South, lies the Langlie Mattix oil pool. After crossing the ridge going eastward, the dolomites of the Seven Rivers formation lose their porosity and permeability rapidly. The lithology of the formation likewise changes and numerous sand lenses are found. Oil production in the Langlie Mattix is found in the sands of the Queen and lower Seven Rivers formation. The Yates and upper Seven Rivers contain chiefly gas. In a few places, notably the Falby Yates oil pool as presently designated, oil is found in the middle Yates. The structure map where these accumulations are found indicate low spots.

In Townships 21 and 22 South, Range 37 East, there is a broad general high on which lies the Penrose-Skelly Pool. Production in the Penrose-Skelly Pool is chiefly from Queen sands in the south and sandy dolomites of the Grayburg formation in the north. To the west of this, and connected to it by a saddle, is the Arrowhead Pool. This pool produces oil from the Grayburg formation. Gas has been found in some of the wells in the Yates, Seven Rivers and Queen formations.

In Township 21 South, Range 36 East may be seen the southern end of the Eunice Monument high. It extends into the eastern half of Township 20 South, Range 36 East and the western half of Township 20 South, Range 37 East, and the southeastern portion of Township 19 South, Range 36 East, and southwestern portion of Township 19 South, Range 37 East. Oil production in the southern portion occurs chiefly in the Grayburg formation with a few wells along the south and west flanks producing from the Queen and Seven Rivers formations. In the high portions of the Monument end of the field, oil production is found in the

San Andres with the remainder producing from the Grayburg. In the higher wells the Grayburg contains gas which is gas cap gas. The Queen contains gas over most of the structure. The Yates and Seven Rivers are gas productive in the southwestern portion of Township 21 South, Range 36 East, and in the higher parts of the Monument Pool.

Exhibit No. 2 is a map of Townships 19 through 26 South and Ranges 35 through 38 East. This is a key map for most of the cross sections to be introduced. The east-west sections are labeled with the Township through which they pass.

Exhibit Nos. 3 through 12 are east-west cross sections through each Township from 19 South through 28 South.

Exhibit No. 3 is an east-west cross section through Township 19 South. Exhibit No. 4 is an east-west section through Township 20 South and Exhibit No. 5 is an east-west section through Township 21 South. The top of only the Yates and Queen are shown. The Queen in this area is approximately 250 feet thick. Using this interval, it can be seen that the oil wells, with three exceptions at the west end of the Township 21 South section, are producing from below the top of the Grayburg.

Exhibit No. 6 is an east-west section across the north end of Township 22 South. This section has sample logs and electrical and radioactivity surveys on a few wells. The top of the Yates and the top of the Queen are shown. Using a thickness of 250 feet for the Queen, it indicates Grayburg oil production in the Penrose-Skelly Pool at the east end and in the Arrowhead Pool in the central portion. To the west is the South Eunice Pool producing chiefly from the Queen with the extreme west wells producing from the Seven Rivers.

Exhibit No. 7 is an east-west cross section through the northern portion of Township 23 South and southern portion of Township 22 South. Exhibit No. 7 shows Queen oil production from the southernmost end of the Penrose-Skelly Pool on the east, gas from the Yates-Seven Rivers formations in center, and oil from the Seven Rivers, plus gas in Yates, on the extreme west.

Exhibit No. 8 is a portion of the west end of Exhibit No. 7 with radioactivity logs of the six westernmost wells. It shows the change in the section in going across the reef ridge. The increase in sand in the Seven Rivers between Meyer B-33 No. 1 and No. 2 can be seen as can the difference through the Yates in the three west wells from the three east wells. The lack of permeability in Meyer B-33 No. 2 through the Seven Rivers as compared to Meyer B-33 No. 1 as evidenced by drill stem tests can also be seen. (Meyer B-33 No. 1 tested 2,480 MCF on drill stem test in Seven Rivers and the No. 2 tested dry). The Meyer B-33 No. 2 was finally completed as a Yates oil well after shooting the Yates with 195 quarts of Fikro.

Exhibit No. 9 is an east-west cross section through Township 23 South. On the eastern portion of Exhibit No. 9 are shown Langlie Mattix Pool wells producing from the Queen and lower Seven Rivers. Further west are gas wells producing from the Yates and Seven Rivers. On the west is shown a well, now plugged and abandoned, which produced oil from the Seven Rivers.

Exhibit No. 10 is a section with radioactivity logs of five of the wells on Exhibit No. 9. The exhibit again shows the sandy character of the Seven Rivers to the east of the reef high.

Exhibit No. 11 is an east-west cross section through Township 24 South. On the east it shows Langlie Mattix oil wells producing from the Queen and lower Seven Rivers. The highest well on the east side, the Gulf Bertha Knight No. 1, is a Queen gas well. The Continental Jack A-21 No. 1 is now recompleted as a Yates gas well. There are two gas wells shown close to the center of the section. The Western Gas Company Harrison No. 2 originally completed as a Seven Rivers gas well, and the Continental Jack B-30 No. 1 completed in the Yates and upper Seven Rivers. The section crosses the Falby Yates Pool. These wells produce oil from the Yates. Drill stem tests on the Amerada Falby No. 2 indicates dry gas in the lower Yates or upper Seven Rivers with oil in the middle and upper Yates.

The extreme west portion of the section shows Cooper-Jal oil wells producing mainly from the Seven Rivers. The data on these is original completion data. Many of the wells in this vicinity have been recompleted or plugged. Between the Cooper-Jal oil wells and the Falby Yates Pool is shown a gas well producing from the Yates and Seven Rivers.

Exhibit No. 12 is an east-west cross section through Township 25 South. On the west it shows first a Yates oil well and next a Yates-Seven Rivers oil well that is now plugged. The third well was originally completed as a Seven Rivers oil well. After several recompletions it is now a small gas well in the upper Yates. The fourth well is a Seven Rivers oil well, and the fifth a Yates gas well. The next three wells were originally completed as Yates gas wells. One of these is now producing oil. Continuing east, there are four Yates oil wells, a Yates gas well, three Queen oil wells and a Queen gas well. The last well is a deep dry hole. Oil is found in the low areas.

Exhibit No. 13 is a north-south cross section starting in the south end of the Eunice Pool and running through the South Eunice, Cooper-Jal and Eaves Pools. Oil production at the north end in the Eunice Pool is from the Greyburg, with the southernmost

Eunice Pool wells producing oil from the Queen. The Queen then goes below the water table between the Eunice and South Eunice Pools. The section then shows South Eunice wells producing oil from the Queen. The Queen goes below the water table immediately south of the Continental State B-17 No. 6. Production further south consists of oil and gas from the Yates and Seven Rivers formations.

Exhibit No. 14 is a north-south cross section up the roof ridge and follows the same general trend as Exhibit No. 13. The two exhibits show essentially the same information; however, Exhibit No. 14 has radioactivity or electrical logs of the wells which makes it possible to study the trend in greater detail. The southernmost log is a Continental well in the Henrietta Pool, Winkler County, Texas. The change in the stratigraphy between the South Eunice and Eunice Pools can be seen by comparing the logs of Continental Lockhart B-31 No. 4 and State B-17 No. 6 with the wells to the north. To the south the stratigraphy of the Yates and Seven Rivers remains the same the length of the section.

Referring again to Exhibits Nos. 9 and 10, this long strip of continuity as shown in Exhibit No. 14 should be compared with the discontinuity of the east-west sections. The Seven Rivers and Yates zones can be traced approximately 60 miles north and south, but in one or two locations to the east the lithology of the formations has changed.

Exhibits Nos. 15, 16 and 17 are a three piece north-south cross section from the north end of the Monument Pool to the south end of the Rhodes Pool. The section is approximately midway between the eastern and western limits of the shallow oil production.

Exhibits Nos. 18, 19 and 20 are a three piece north-south cross section from the north end of Monument Pool south to the Leonard Pool. This section runs to the east of one shown on Exhibits 15, 16 and 17.

The San Andres formation is oil productive in the area under consideration in this case only in the center portion of the Monument Pool. In a few of the highest wells, the upper portion is above the gas oil contact.

The Grayburg formation produces oil in the Eunice Pool and in the edges of the Monument Pool. In the higher portions of the Monument Pool, the entire Grayburg formation is above the gas-oil contact and is gas productive. The upper portions of it contain gas throughout most of the Monument Pool. The Grayburg is also oil productive in the Skaggs and Arrowhead and north portion of the Penrose-Skelly Pool.

The Queen formation contains chiefly gas under the Eunice Monument structure except as previously mentioned along the south and west edges of the Eunice Pool. The north end of the South Eunice Pool also produces some oil and some gas in the Queen formation. The southern portion of the Penrose-Skelly and the Langlie Mattix Pools produce oil from the Queen. Also, there are some wells in the Langlie Mattix area which have only gas in the Queen formation.

The Seven Rivers along the reef ridge produces chiefly oil from the west flank with gas in the higher wells. At the extreme north end, the Seven Rivers dolomites contain almost all gas. To the east of the ridge in the lower wells, the bottom portion of the Seven Rivers contains some oil, while the rest of the formation contains gas. Gas is also found in the Seven Rivers in the south and west portions of Township 21 South, Range 38 East. The sands in the Seven Rivers back of the reef area appear to be lenses with the longest dimensions north and south. Most of the sands pinch out as the top of the back reef high is approached. The Seven Rivers also produces gas in the central portion of the Monument Pool.

The Yates formation produces oil in some of the lower wells west of the reef ridge. In the higher wells along the reef ridge, it contains gas. Back of the reef, with the exception of several small lows, it contains gas. Production in the Eunice and Monument Fields from the Yates appears to be limited to the same general area as that which produces from the Seven Rivers. In general, along the reef ridge, the lower Yates is more prolific than the upper Yates.

Studies and work in southeastern Lea County by Continental Oil Company indicate the pay horizons to be either lensed or zoned in most of the producing formations. By this it is meant that the producing formations consist of a series of permeable layers separated by impermeable layers within the formation. These layers in practically all cases follow the structure. Initially, the water-oil contact in all formations varied from approximately -375 feet subsea at the south end to approximately -325 feet at the north end. Likewise, the gas-oil contact in all formations was approximately 100 feet above the water-oil contact. Apparently, over geologic times fluids have reached a state of equilibrium throughout all the shallow formations with the exception of the oil accumulations in low spots in the Yates. During the producing life of the fields, however, these various zones have performed as separate reservoirs.

Initially, bottomhole pressure of the Eunice Pool is believed to have been approximately 1,450 psi. The average bottomhole pressure of 55 Grayburg oil wells taken in August of 1953, was 641 psi. There were a total of 47 gas wells in the Eunice

part of the Dumont gas field carried on the February, 1954 proration schedule. Shut in pressures taken in October, 1953 were obtained on 27 of these wells. The average shut in pressure was 1,039 psi, or a difference of 480 psi above that of the average pressures for the oil wells in the Eunice Pool. Sulfur content on nine Continental gas wells completed in the Yates, Seven Rivers or Queen in the area covered by the Eunice oil pool show an average sulfur content of 69 grains per 100 cubic feet. Sulfur contents of seven oil wells producing from the Grayburg in the Eunice Pool show an average content of 765 grains per 100 cubic feet. We believe these two facts prove a separation between the Grayburg oil and the Yates-Seven Rivers-Queen gas formations in this area.

In the Langlie Mattix Pool, the Continental Oil Company Jack A-21 No. 1 had a shut in bottomhole pressure in the Queen formation of 210 psi in 1943. It has since been recompleted as a dry gas well in the Yates and upper Seven Rivers. The latest pressure, taken during 1953, was 903 psi.

Similarly, in 1943, the Continental Jack A-29 No. 3 had a bottomhole pressure in the Queen and Lower Seven Rivers of 340 psi. It has since been recompleted as a gas well with shut in pressure during the latter part of 1953 showing 881 psi. These pressures were taken from 1939 to 1950. Shut in gas well pressures, most of which were taken in October, 1953, are shown on Exhibit 21. Exhibit 22 is a section drawn through Continental's State J-2 lease in Section 2, Township 22 South, Range 36 East. On it are shown tracings of the radioactivity surveys run in conjunction with workovers on six of the twelve wells on the lease. These wells are all producing from the Grayburg formation. The remedial work was done on these wells to shut off water production. In every case, after the workover, the water production was eliminated or substantially reduced.

State J-2 No. 11, for example, was producing 22 barrels of oil, 254 barrels of water, per day from open hole, with 5½" pipe set at approximately 3,710 at a total depth of 3,852. A packer was set at 3,838 and this interval below the packer was acidized with 1,000 gallons. Following the workover, the well produced from below the packer 122 barrels oil, 8 barrels water per day, flowing through an 11/64" choke.

Well No. 7, prior to the workover, tested 82 barrels oil, 356 barrels water, in 24 hours from open hole, with 5½" casing set at approximately 3,730 and the total depth at 3,781. The well was deepened to 3,828 and a liner cemented on bottom. The liner was perforated from 3,800 to 3,818 and 3,819 to 3,822 and the well acidized with 500 gallons. It was recompleted for an IP of 211 barrels of oil, no water, in 24 hours, flowing through 20/64" choke. Similar experiences were had with the other wells.

This evidence, to our minds, shows that the various permeable zones within the Grayburg formation in that area performed during the course of production like separate reservoirs. It definitely shows that there must be some impermeable barriers within the Grayburg formation in the Arrowhead Pool.

Exhibit 83 is a log of the Continental Ida Hendricks No. 1 in the Hendricks Pool of Winkler County, Texas. The Hendricks Pool is a southern extension of the roof ridge on which lie the Eaves, Cooper-Jal, etc., Pools. The well was originally completed in 1928 at a total depth of 2,830, for an IP of 840 barrels of oil per day from open hole between 6⅝" casing at 2,516 and a total depth of 2,830. In August, 1930, the well tested 30 barrels oil, 1,500 barrels water, per day. During the month it was deepened to 2,975 and 7" casing set at 2,870. After the work, the well tested 300 barrels oil, no water, per day.

Exhibit 84 is a log comparison of six wells in Sections 29 and 32, Township 22 South, Range 36 East, and Section 5, Township 23 South, Range 36 East. These wells indicate reversals of the normal sequence of fluids to be expected in reservoirs. In the Continental Meyer A-29 No. 4 the well was completed through perforations 3638-3648 for an IP of 314 barrels of oil, 35 barrels of water, per day. These perforations are immediately below an interval in which a drill stem test recovered 720 feet sulfur water and 180 feet of mud.

The Continental State A-32 No. 3 was perforated from 3,526 to 3,540, and after being acidized, tested 6,510 MCF gas per day. A retainer was set at 3,510 and the well then perforated from 3,470 to 3,490. After being acidized, it was completed for an IP of 322 barrels of oil per day with a gas-oil ratio of 598.

The data on these six wells, plus the Continental Hendricks, indicates that there must be impermeable barriers within the Yates and Seven Rivers formations. I believe that the formations, Yates, Seven Rivers, Queen, Grayburg and San Andres, were separate reservoirs in their initial conditions, although they were probably one accumulation.

At the April, 1951 hearing of the New Mexico Oil Conservation Commission, Continental Oil Company presented testimony and a recommendation for delineation of four shallow gas pools in southeastern Lea County, New Mexico. Prior to presenting the testimony, engineers for Continental, and for three other companies in partnership with Continental in certain acreage in the area, made a study of the area which continued over a period of some six or eight months. A number of cross sections were made which have been presented in evidence at the present hearing; also, a

structure map of the area which was presented as Exhibit 1 in April of 1951, and again at this hearing, and a map showing slant in pressures and sulfur contents as obtained from the El Paso Natural Gas Company similar to Exhibit 21 in this case were studied.

In studying these various items, it appeared that in crossing the reef ridge there was a major change in stratigraphy in the Seven Rivers formation and that in the Yates formation the individual sand lenses did not appear to be continuous. There was, also, at that time a differential pressure of approximately 200 pounds between wells in what is now designated as the Langmat Pool and wells in what is now designated as the Jalco Pool. There was, in general, a difference in sulfur contents, the wells in Langmat running less than one grain per 100 cubic feet, while wells in the Jalco ran up to 300. The change in pressure, sulfur contents and stratigraphy appeared to follow rather closely the low spot immediately behind the reef ridge and the boundary line between the Langmat and Jalco Pools was placed on the combination of structure, sulfur content and gas well pressures.

The boundary between the Jalco and Eumont Pools, as originally recommended by Continental, was placed approximately at the boundary line between the Eunice and South Eunice Oil Pools. The area where it was drawn was comparatively undeveloped for gas at that time. There appeared to be also a division in the Queen formation in that area. A similar situation existed between the Eumont and Langmat Pools. Included in the Arrow Pool was an area of which little was known so far as gas possibilities was concerned.

In re-studying the area, it was decided that certain requirements were an absolute necessity: (1) that there should not be major pressure differentials between any of the formations included within any one pool; and (2) since the basic proration unit is a governmental quarter section, the boundaries should follow quarter section lines.

At the time of the original study, it was believed necessary, and it is still believed necessary, to segregate the Queen and lower Seven Rivers from the Yates and upper Seven Rivers in the vicinity of the Langlie Mattix oil pool because of the pressure differential previously testified to.

Designating the Langmat Gas Pool as the Yates and all but the lower 100 feet of the Seven Rivers, and the Langlie Mattix Oil Pool as the lower 100 feet of the Seven Rivers and all of the Queen, maintains the necessary segregation between the high pressure gas and the low pressure oil zones. The result is an oil pool with comparatively few gas wells, and a gas pool with a comparatively small oil productive area. From an administrative standpoint, it is believed that it would be easier to set up field rules for these two pools than for one big oil and gas pool.

It was, and still is, believed the gas in the area designated as Jalco is primarily gas cap gas. There are numerous wells producing oil from the Yates, Seven Rivers and Queen formations. At least a portion of these formations has a water drive along the west flank and it is believed the water is coming from the west. A proration system in the pool should not allow gas wells to void more space than oil wells.

The designation as originally made is believed to have recognized the problems peculiar to each area and allows those peculiarities to be recognized in establishing field rules. This should help to prevent waste and permit equitable withdrawals.

Exhibit I is a contour map on the top of the Yates in Township 19 South through Township 26 South and Ranges 35 East through 38 East, inclusive. Starting at the south along the dividing line between Ranges 36 and 37 East, and extending in a northerly direction to Section 6, Township 22 South, Range 36 East is a long, narrow ridge. This general ridge is broken up into a number of small local highs. We believe this ridge to be the approximate eastern limit of Capitan reef development in the area. From south to north, the Eaves, Cooper-Jal and the west half of the South Eunice Pool lie on this ridge. Oil production is found chiefly on the west flank of the ridge. Producing formations consist of the Yates and Seven Rivers in the south and Queen, and possibly upper Grayburg, in the north. Porosity and permeability in the lower Yates, Seven Rivers and Queen formations are found mainly in dolomite. The upper Yates, which is in general less productive than the others, contains chiefly gas which appears to be contained in the sands.

Approximately six miles to the east, and roughly paralelling the ridge previously described, there is a second general high running through Townships 23, 24, 25, and 26, South. On the west flank of this high, and extending into the trough area between the reef high in Townships 24 and 25, South, lies the Langlie Mattix oil pool. After crossing the ridge going eastward, the dolomites of the Seven Rivers formation lose their porosity and permeability rapidly. The lithology of the formation likewise changes and numerous sand lenses are found. Oil production in the Langlie Mattix is found in the sands of the Queen and lower Seven Rivers formation. The Yates and upper Seven Rivers contain chiefly gas. In a few places, notably the Falby Yates oil pool as presently designated, oil is found in the middle Yates. The structure map where these accumulations are found indicate low spots.

In Townships 21 and 22 South, Range 37 East, there is a broad general high on which lies the Penrose-Skelly Pool. Production in the Penrose-Skelly Pool is chiefly from Queen sands in the south and sandy dolomites of the Grayburg formation in the north. To the west of this, and connected to it by a saddle, is the Arrowhead Pool. This pool produces oil from the Grayburg formation. Gas has been found in some of the wells in the Yates, Seven Rivers and Queen formations.

In Township 21 South, Range 36 East may be seen the southern end of the Eunice Monument high. It extends into the eastern half of Township 20 South, Range 36 East and the western half of Township 20 South, Range 37 East, and the southeastern portion of Township 19 South, Range 36 East, and southwestern portion of Township 19 South, Range 37 East. Oil production in the southern portion occurs chiefly in the Grayburg formation with a few wells along the south and west flanks producing from the Queen and Seven Rivers formations. In the high portions of the Monument end of the field, oil production is found in the

San Andres with the remainder producing from the Grayburg. In the higher wells the Grayburg contains gas which is gas cap gas. The Queen contains gas over most of the structure. The Yates and Seven Rivers are gas productive in the southwestern portion of Township 21 South, Range 36 East, and in the higher parts of the Monument Pool.

Exhibit No. 2 is a map of Townships 19 through 26 South and Ranges 35 through 38 East. This is a key map for most of the cross sections to be introduced. The east-west sections are labeled with the Townships through which they pass.

Exhibit Nos. 3 through 12 are east-west cross sections through each Township from 19 South through 29 South.

Exhibit No. 3 is an east-west cross section through Township 19 South. Exhibit No. 4 is an east-west section through Township 20 South and Exhibit No. 5 is an east-west section through Township 21 South. The top of only the Yates and Queen are shown. The Queen in this area is approximately 250 feet thick. Using this interval, it can be seen that the oil wells, with three exceptions at the west end of the Township 21 South section, are producing from below the top of the Grayburg.

Exhibit No. 6 is an east-west section across the north end of Township 22 South. This section has sample logs and electrical and radioactivity surveys on a few wells. The top of the Yates and the top of the Queen are shown. Using a thickness of 250 feet for the Queen, it indicates Grayburg oil production in the Penrose-Skelly Pool at the east end and in the Arrowhead Pool in the central portion. To the west is the South Eunice Pool producing chiefly from the Queen with the extreme west wells producing from the Seven Rivers.

Exhibit No. 7 is an east-west cross section through the northern portion of Township 23 South and southern portion of Township 22 South. Exhibit No. 7 shows Queen oil production from the southernmost end of the Penrose-Skelly Pool on the east, gas from the Yates-Seven Rivers formations in center, and oil from the Seven Rivers, plus gas in Yates, on the extreme west.

Exhibit No. 8 is a portion of the west end of Exhibit No. 7 with radioactivity logs of the six westernmost wells. It shows the change in the section in going across the reef ridge. The increase in sand in the Seven Rivers between Meyer B-33 No. 1 and No. 2 can be seen as can the difference through the Yates in the three west wells from the three east wells. The lack of permeability in Meyer B-33 No. 2 through the Seven Rivers as compared to Meyer B-33 No. 1 as evidenced by drill stem tests can also be seen. (Meyer B-33 No. 1 tested 2,480 MCF on drill stem test in Seven Rivers and the No. 2 tested dry). The Meyer B-33 No. 2 was finally completed as a Yates oil well after shooting the Yates with 195 quarts of Nitro.

Exhibit No. 9 is an east-west cross section through Township 23 South. On the eastern portion of Exhibit No. 9 are shown Langlie Mattix Pool wells producing from the Queen and lower Seven Rivers. Farther west are gas wells producing from the Yates and Seven Rivers. On the west is shown a well, now plugged and abandoned, which produced oil from the Seven Rivers.

Exhibit No. 10 is a section with radioactivity logs of five of the wells on Exhibit No. 9. The exhibit again shows the sandy character of the Seven Rivers to the east of the reef high.

Exhibit No. 11 is an east-west cross section through Township 24 South. On the east it shows Langlie Mattix oil wells producing from the Queen and lower Seven Rivers. The highest well on the east side, the Gulf Bertha Knight No. 1, is a Queen gas well. The Continental Jack A-21 No. 1 is now recompleted as a Yates gas well. There are two gas wells shown close to the center of the section. The Western Gas Company Harrison No. 2 originally completed as a Seven Rivers gas well, and the Continental Jack B-30 No. 1 completed in the Yates and upper Seven Rivers. The section crosses the Falby Yates Pool. These wells produce oil from the Yates. Drill stem tests on the Amerada Falby No. 2 indicates dry gas in the lower Yates or upper Seven Rivers with oil in the middle and upper Yates.

The extreme west portion of the section shows Cooper-Jal oil wells producing mainly from the Seven Rivers. The data on these is original completion data. Many of the wells in this vicinity have been recompleted or plugged. Between the Cooper-Jal oil wells and the Falby Yates Pool is shown a gas well producing from the Yates and Seven Rivers.

Exhibit No. 12 is an east-west cross section through Township 25 South. On the west it shows first a Yates oil well and next a Yates-Seven Rivers oil well that is now plugged. The third well was originally completed as a Seven Rivers oil well. After several recompletions it is now a small gas well in the upper Yates. The fourth well is a Seven Rivers oil well, and the fifth a Yates gas well. The next three wells were originally completed as Yates gas wells. One of them is now producing oil. Continuing east, there are four Yates oil wells, a Yates gas well, three Queen oil wells and a Queen gas well. The last well is a deep dry hole. Oil is found in the low areas.

Exhibit No. 13 is a north-south cross section starting in the south end of the Eunice Pool and running through the South Eunice, Cooper-Jal and Eaves Pools. Oil production at the north end in the Eunice Pool is from the Grayburg, with the southernmost

Eunice Pool wells producing oil from the Queen. The Queen then goes below the water table between the Eunice and South Eunice Pools. The section then shows South Eunice wells producing oil from the Queen. The Queen goes below the water table immediately south of the Continental State E-17 No. 6. Production further south consists of oil and gas from the Yates and Seven Rivers formations.

Exhibit No. 14 is a north-south cross section up the reef ridge and follows the same general trend as Exhibit No. 13. The two exhibits show essentially the same information; however, Exhibit No. 14 has radioactivity or electrical logs of the wells which makes it possible to study the trend in greater detail. The southernmost log is a Continental well in the Henrieks Pool, Winkler County, Texas. The change in the stratigraphy between the South Eunice and Eunice Pools can be seen by comparing the logs of Continental Lockhart B-31 No. 4 and State E-17 No. 5 with the wells to the north. To the south the stratigraphy of the Yates and Seven Rivers remains the same the length of the section.

Referring again to Exhibits Nos. 9 and 10, this long strip of continuity as shown in Exhibit No. 14 should be compared with the discontinuity of the east-west sections. The Seven Rivers and Yates zones can be traced approximately 50 miles north and south, but in one or two locations to the east the lithology of the formations has changed.

Exhibits Nos. 15, 16 and 17 are a three piece north-south cross section from the north end of the Monument Pool to the south end of the Rhodes Pool. The section is approximately midway between the eastern and western limits of the shallow oil production.

Exhibits Nos. 18, 19 and 20 are a three piece north-south cross section from the north end of Monument Pool south to the Leonard Pool. This section runs to the east of one shown on Exhibits 15, 16 and 17.

The San Andres formation is oil productive in the area under consideration in this case only in the center portion of the Monument Pool. In a few of the highest wells, the upper portion is above the gas oil contact.

The Grayburg formation produces oil in the Eunice Pool and in the edges of the Monument Pool. In the higher portions of the Monument Pool, the entire Grayburg formation is above the gas-oil contact and is gas productive. The upper portions of it contain gas throughout most of the Monument Pool. The Grayburg is also oil productive in the Skaggs and Arrowhead and north portion of the Penrose-Skelly Pool.

The Queen formation contains chiefly gas under the Eunice Monument structure except as previously mentioned along the south and west edges of the Eunice Pool. The north end of the South Eunice Pool also produces some oil and some gas in the Queen formation. The southern portion of the Penrose-Skelly and the Langlie Mattix Pools produce oil from the Queen. Also, there are some wells in the Langlie Mattix area which have only gas in the Queen formation.

The Seven Rivers along the reef ridge produces chiefly oil from the west flank with gas in the higher wells. At the extreme north end, the Seven Rivers dolomites contain almost all gas. To the east of the ridge in the lower wells, the bottom portion of the Seven Rivers contains some oil, while the rest of the formation contains gas. Gas is also found in the Seven Rivers in the south and west portions of Township 21 South, Range 36 East. The sands in the Seven Rivers back of the reef area appear to be lenses with the longest dimensions north and south. Most of the sands pinch out as the top of the back reef high is approached. The Seven Rivers also produces gas in the central portion of the Monument Pool.

The Yates formation produces oil in some of the lower wells west of the reef ridge. In the higher wells along the reef ridge, it contains gas. Back of the reef, with the exception of several small lows, it contains gas. Production in the Eunice and Monument Fields from the Yates appears to be limited to the same general area as that which produces from the Seven Rivers. In general, along the reef ridge, the lower Yates is more prolific than the upper Yates.

Studies and work in southeastern Lea County by Continental Oil Company indicate the pay horizons to be either lensed or zoned in most of the producing formations. By this it is meant that the producing formations consist of a series of permeable layers separated by impermeable layers within the formation. These layers in practically all cases follow the structure. Initially, the water-oil contact in all formations varied from approximately -875 feet subsea at the south end to approximately -825 feet at the north end. Likewise, the gas-oil contact in all formations was approximately 100 feet above the water-oil contact. Apparently, over geologic times fluids have reached a state of equilibrium throughout all the shallow formations with the exception of the oil accumulations in low spots in the Yates. During the producing life of the fields, however, these various zones have performed as separate reservoirs.

Initially, bottomhole pressure of the Eunice Pool is believed to have been approximately 1,430 psi. The average bottomhole pressure of 55 Grayburg oil wells taken in August of 1953, was 541 psi. There were a total of 47 gas wells in the Eunice

part of the Eumont gas field carried on the February, 1954 proration schedule. Shut in pressures taken in October, 1953 were obtained on 87 of these wells. The average shut in pressure was 1,039 psi, or a difference of 480 psi above that of the average pressures for the oil wells in the Eunice Pool. Sulfur content on nine Continental gas wells completed in the Yates, Seven Rivers or Queen in the area covered by the Eunice oil pool show an average sulfur content of 69 grains per 100 cubic feet. Sulfur contents of seven oil wells producing from the Grayburg in the Eunice Pool show an average content of 783 grains per 100 cubic feet. We believe these two facts prove a separation between the Grayburg oil and the Yates-Seven Rivers-Queen gas formations in this area.

In the Langlie Mattix Pool, the Continental Oil Company Jack A-21 No. 1 had a shut in bottomhole pressure in the Queen formation of 210 psi in 1943. It has since been recompleted as a dry gas well in the Yates and upper Seven Rivers. The latest pressure, taken during 1953, was 903 psi.

Similarly, in 1943, the Continental Jack A-29 No. 5 had a bottomhole pressure in the Queen and lower Seven Rivers of 340 psi. It has since been recompleted as a gas well with shut in pressure during the latter part of 1953 showing 851 psi. These pressures were taken from 1939 to 1950. Shut in gas well pressures, most of which were taken in October, 1953, are shown on Exhibit 31. Exhibit 22 is a section drawn through Continental's State J-2 lease in Section 2, Township 22 South, Range 36 East. On it are shown tracings of the radioactivity surveys run in conjunction with workovers on six of the twelve wells on the lease. These wells are all producing from the Grayburg formation. The remedial work was done on these wells to shut off water production. In every case, after the workover, the water production was eliminated or substantially reduced.

State J-2 No. 11, for example, was producing 22 barrels of oil, 264 barrels of water, per day from open hole, with 5½" pipe set at approximately 3,710 at a total depth of 3,852. A packer was set at 3,838 and the interval below the packer was acidized with 1,000 gallons. Following the workover, the well produced from below the packer 128 barrels oil, 8 barrels water per day, flowing through an 11/64" choke.

Well No. 7, prior to the workover, tested 32 barrels oil, 356 barrels water, in 24 hours from open hole, with 5½" casing set at approximately 3,720 and the total depth at 3,781. The well was deepened to 3,828 and a liner cemented on bottom. The liner was perforated from 3,808 to 3,812 and 3,819 to 3,822 and the well acidized with 500 gallons. It was recompleted for an IP of 211 barrels of oil, no water, in 24 hours, flowing through 20/64" choke. Similar experiences were had with the other wells.

This evidence, to our minds, shows that the various permeable zones within the Grayburg formation in that area performed during the course of production like separate reservoirs. It definitely shows that there must be some impermeable barriers within the Grayburg formation in the Arrowhead Pool.

Exhibit 23 is a log of the Continental Ida Hendricks No. 1 in the Hendricks Pool of Winkler County, Texas. The Hendricks Pool is a southern extension of the roof ridge on which lie the Eaves, Cooper-Jal, etc., Pools. The well was originally completed in 1928 at a total depth of 2,880, for an IP of 840 barrels of oil per day from open hole between 8¼" casing at 2,316 and a total depth of 2,880. In August, 1930, the well tested 30 barrels oil, 1,500 barrels water, per day. During the month it was deepened to 2,975 and 7" casing set at 2,870. After the work, the well tested 300 barrels oil, no water, per day.

Exhibit 24 is a log comparison of six wells in Sections 29 and 32, Township 22 South, Range 36 East, and Section 5, Township 23 South, Range 36 East. These wells indicate reversals of the normal sequence of fluids to be expected in reservoirs. In the Continental Meyer A-29 No. 4 the well was completed through perforations 3636-3648 for an IP of 314 barrels of oil, 35 barrels of water, per day. These perforations are immediately below an interval in which a drill stem test recovered 720 feet sulfur water and 180 feet of mud.

The Continental State A-32 No. 3 was perforated from 3,526 to 3,540, and after being acidized, tested 6,510 MCF gas per day. A retainer was set at 3,510 and the well then perforated from 3,470 to 3,490. After being acidized, it was completed for an IP of 322 barrels of oil per day with a gas-oil ratio of 598.

The data on these six wells, plus the Continental Hendricks, indicates that there must be impermeable barriers within the Yates and Seven Rivers formations. I believe that the formations, Yates, Seven Rivers, Queen, Grayburg and San Andres, were separate reservoirs in their initial conditions, although they were probably one accumulation.

At the April, 1951 hearing of the New Mexico Oil Conservation Commission, Continental Oil Company presented testimony and a recommendation for delineation of four shallow gas pools in southeastern Lea County, New Mexico. Prior to presenting the testimony, engineers for Continental, and for three other companies in partnership with Continental in certain acreage in the area, made a study of the area which continued over a period of some six or eight months. A number of cross sections were made which have been presented in evidence at the present hearing; also, a

structure map of the area which was presented as Exhibit 1 in April of 1951, and again at this hearing, and a map showing shut in pressures and sulfur contents as obtained from the El Paso Natural Gas Company similar to Exhibit 21 in this case were studied.

In studying these various items, it appeared that in crossing the reef ridge there was a major change in stratigraphy in the Seven Rivers formation and that in the Yates formation the individual sand lenses did not appear to be continuous. There was, also, at that time a differential pressure of approximately 200 pounds between wells in what is now designated as the Langmat Pool and wells in what is now designated as the Jalco Pool. There was, in general, a difference in sulfur contents, the wells in Langmat running less than one grain per 100 cubic feet, while wells in the Jalco ran up to 300. The change in pressure, sulfur contents and stratigraphy appeared to follow rather closely the low spot immediately behind the reef ridge and the boundary line between the Langmat and Jalco Pools was placed on the combination of structure, sulfur content and gas well pressures.

The boundary between the Jalco and Eumont Pools, as originally recommended by Continental, was placed approximately at the boundary line between the Eunice and South Eunice Oil Pools. The area where it was drawn was comparatively undeveloped for gas at that time. There appeared to be also a division in the Queen formation in that area. A similar situation existed between the Eumont and Langmat Pools. Included in the Arrow Pool was an area of which little was known so far as gas possibilities was concerned.

In re-studying the area, it was decided that certain requirements were an absolute necessity: (1) that there should not be major pressure differentials between any of the formations included within any one pool; and (2) since the basic proration unit is a governmental quarter section, the boundaries should follow quarter section lines.

At the time of the original study, it was believed necessary, and it is still believed necessary, to segregate the Queen and lower Seven Rivers from the Yates and upper Seven Rivers in the vicinity of the Langlie Mattix oil pool because of the pressure differential previously testified to.

Designating the Langmat Gas Pool as the Yates and all but the lower 100 feet of the Seven Rivers, and the Langlie Mattix Oil Pool as the lower 100 feet of the Seven Rivers and all of the Queen, maintains the necessary segregation between the high pressure gas and the low pressure oil zones. The result is an oil pool with comparatively few gas wells, and a gas pool with a comparatively small oil productive area. From an administrative standpoint, it is believed that it would be easier to set up field rules for these two pools than for one big oil and gas pool.

It was, and still is, believed the gas in the area designated as Jalco is primarily gas cap gas. There are numerous wells producing oil from the Yates, Seven Rivers and Queen formations. At least a portion of these formations has a water drive along the west flank and it is believed the water is coming from the west. A proration system in the pool should not allow gas wells to void more space than oil wells.

The designation as originally made is believed to have recognized the problems peculiar to each area and allows these peculiarities to be recognized in establishing field rules. This should help to prevent waste and permit equitable withdrawals.

Case 673

SOUTHERN CALIFORNIA PETROLEUM CORPORATION

905 McCLINTIC BLDG. . . . . MIDLAND, TEXAS

PHONE 4-8044

May 20, 1954

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

Re: CASE NO 673. Written statement filed in lieu of oral statement at hearing on May 10 and 11, 1954, due to insufficient time after introduction of prepared evidence and testimony

Gentlemen:

Southern California Petroleum Corporation would like to state that we consider the Yates-Seven Rivers and Queen as distinct and separate reservoirs in the Langlie-Mattix, Cooper-Jal and Falby-Yates Fields. It is our opinion that the practice of producing all these zones from the same bore hole without separation is inefficient and will result in reduced recoveries from these reservoirs, thereby causing waste of our oil and gas resources. Our operations in southeastern New Mexico are confined chiefly to this area, and we are particularly concerned with the Falby-Yates Field, which was set apart only a few months ago by the New Mexico Oil Conservation Commission after hearing strong evidence substantiating the Yates-Seven Rivers and the Queen as separate reservoirs.

Subsequent drilling by Southern California Petroleum Corporation within the area of the Falby-Yates Field further emphasizes the desirability of separating Yates and Queen reservoirs. The bottom-hole pressure of the Queen in our Thomas No. 5 well was 978 p.s.i. compared to 1260 p.s.i. taken in the Yates on a drill stem test in the same bore hole. This was the first of three Queen producers completed on our 160-acre Thomas lease in Section 24, Township 24 South, Range 36 East, which has four old Yates oil producers completed between September 1949 and April 1950. This high residual Yates pressure is interesting, since the pressures on the four-year old Yates wells, only 825 feet and 990 feet away from Thomas No. 5, were only 338 p.s.i. and 476 p.s.i., respectively, on September 29, 1953.

Bottom-hole pressures at a datum of -250 feet below sea level on new Queen producers in the Falby-Yates area completed to date are as follows:

WELL	DATE	BHP, p.s.i.
Thomas No. 5	3/5/54	978
" " 6	4/8/54	946
" " 7	5/19/54	917
Phillips No. 3	"	866
" " 4	"	867
Dunn No. 4		934

These Queen wells potential for 137 to 480 barrels per day, flowing with 200 to 500 p.s.i. surface pressures. This type of production indicates that the few old wells in the area which are producing from the Queen zone with bottom-hole pressures as low as 240 p.s.i. certainly have not drained off much of the original Queen reservoir pressure.

A significant difference in gravity of the oil produced on our Thomas lease is noted: Yates, 34-36° API, Queen, 36-38° API.

Our experience indicates that producing gas-oil ratios of Yates wells in this area are characteristically high - of the order of 8500-35,000 cubic feet per barrel, with some much higher, while the Queen wells are generally much lower - approximately 2000-6000 cubic feet per barrel.

We have found no evidence of open fractures which would allow communication between the Yates-Seven Rivers and Queen reservoirs in this area. The Seven Rivers dolomite was cored in the above-mentioned Thomas No. 5 well, and core analysis showed an average porosity of 2.5% and effective permeability of less than 0.01 md. The Queen was also cored in this well and showed an average porosity of 17.0% and an average permeability of 18.6 md. This analysis contrasts with cores analyzed from the Yates section in our Thomas No. 6 well, which showed an average porosity of 21.1% and an average permeability of 37.0 md.

We are proceeding with the development of Queen production in the Falby-Yates area in good faith as a result of the formation of the Falby-Yates Field last January, with the expectation of receiving separate allowables for Yates-Seven Rivers wells and Queen wells on the same 40-acre tracts. We are also continuing remedial work to separate, where practicable, Yates-Seven Rivers production from Queen production in wells previously completed with all three zones open.

Respectfully submitted,

SOUTHERN CALIFORNIA PETROLEUM CORP.

J. A. Warren
Division Engineer

SOUTHERN CALIFORNIA PETROLEUM CORPORATION
905 McCLINTIC BLDG. . . . . MIDLAND, TEXAS
PHONE 4-8044

May 20, 1954

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

Re: CASE NO . 673. Written statement filed in lieu of oral statement at hearing on May 10 and 11, 1954, due to insufficient time after introduction of prepared evidence and testimony

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Gentlemen:

Southern California Petroleum Corporation would like to state that we consider the Yates-Seven Rivers and Queen as distinct and separate reservoirs in the Langlie-Mattix, Cooper-Jal and Falby-Yates Fields. It is our opinion that the practice of producing all these zones from the same bore hole without separation is inefficient and will result in reduced recoveries from these reservoirs, thereby causing waste of our oil and gas resources. Our operations in southeastern New Mexico are confined chiefly to this area, and we are particularly concerned with the Falby-Yates Field, which was set apart only a few months ago by the New Mexico Oil Conservation Commission after hearing strong evidence substantiating the Yates-Seven Rivers and the Queen as separate reservoirs.

Subsequent drilling by Southern California Petroleum Corporation within the area of the Falby-Yates Field further emphasizes the desirability of separating Yates and Queen reservoirs. The bottom-hole pressure of the Queen in our Thomas No. 5 well was 978 p.s.i. compared to 1260 p.s.i. taken in the Yates on a drill stem test in the same bore hole. This was the first of three Queen producers completed on our 160-acre Thomas lease in Section 24, Township 24 South, Range 36 East, which has four old Yates oil producers completed between September 1949 and April 1950. This high residual Yates pressure is interesting, since the pressures on the four-year old Yates wells, only 825 feet and 990 feet away from Thomas No. 5, were only 338 p.s.i. and 476 p.s.i., respectively, on September 29, 1953.

Bottom-hole pressures at a datum of -250 feet below sea level on new Queen producers in the Falby-Yates area completed to date are as follows:

WELL	DATE	BHP, p.s.i.
Thomas No. 5	3/5/54	978
" " 6	4/8/54	946
" " 7	5/19/54	917
Phillips No. 3	"	866
" " 4	"	867
Dunn No. 4		934

These Queen wells potential for 137 to 480 barrels per day, flowing with 200 to 500 p.s.i. surface pressures. This type of production indicates that the few old wells in the area which are producing from the Queen zone with bottom-hole pressures as low as 240 p.s.i. certainly have not drained off much of the original Queen reservoir pressure.

A significant difference in gravity of the oil produced on our Thomas lease is noted: Yates, 34-36° API, Queen, 36-38° API.

Our experience indicates that producing gas-oil ratios of Yates wells in this area are characteristically high - of the order of 8500-35,000 cubic feet per barrel, with some much higher, while the Queen wells are generally much lower - approximately 2000-6000 cubic feet per barrel.

We have found no evidence of open fractures which would allow communication between the Yates-Seven Rivers and Queen reservoirs in this area. The Seven Rivers dolomite was cored in the above-mentioned Thomas No. 5 well, and core analysis showed an average porosity of 2.5% and effective permeability of less than 0.01 md. The Queen was also cored in this well and showed an average porosity of 17.0% and an average permeability of 18.6 md. This analysis contrasts with cores analyzed from the Yates section in our Thomas No. 6 well, which showed an average porosity of 21.1% and an average permeability of 37.0 md.

We are proceeding with the development of Queen production in the Falby-Yates area in good faith as a result of the formation of the Falby-Yates Field last January, with the expectation of receiving separate allowables for Yates-Seven Rivers wells and Queen wells on the same 40-acre tracts. We are also continuing remedial work to separate, where practicable, Yates-Seven Rivers production from Queen production in wells previously completed with all three zones open.

Respectfully submitted,

SOUTHERN CALIFORNIA PETROLEUM CORP.

J. A. Warren
Division Engineer

GULF OIL CORPORATION

SUGGESTED REVISION OF GAS PRORATION RULES
AS SET FORTH IN ORDERS NO. R-368-A TO R-376-A, INCLUSIVE

(Underlining indicates changes in the present Rules)
May 10, 1954

SPECIAL RULES AND REGULATIONS
FOR THE _____ GAS POOL
LEA COUNTY, NEW MEXICO

WELL SPACING AND ACREAGE REQUIREMENTS

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the _____ Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the _____ Gas Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations in effect in said Pool.

RULE 2. Each well drilled or recompleted within the _____ Gas Pool shall be located on a standard or non-standard proration unit as herein defined.

RULE 3. Each well drilled within the _____ Gas Pool shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary, nor closer than 1320 feet to a well drilling to or capable of producing from the same pool.

RULE 4. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 3 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a written stipulation that all operators within such radius have been properly notified. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 5. The provision of Statewide Rule 104 Paragraph (k) shall not apply to the _____ Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 6. (a) The Commission, after notice and hearing, shall consider the nominations of gas purchasers from the _____ Gas Pool and other relevant data and shall fix the allowable production of said pool, and shall allocate production among the gas wells in said pool upon a reasonable basis with due regard to correlative rights.

(b) Gas allowable shall be allocated on the basis of 100 per cent acreage.

PRORATION UNITS

RULE 7. (a) For the purpose of gas allocation in the _____ Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Lands Surveys, provided, however, that a gas proration unit of less than 158 acres or more than 162 acres may be formed after notice and hearing by the Commission or as outlined in Paragraph (d) of this rule. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of computing allowables.

(b) Any proration unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased in the proportion that the standard proration unit allowable bears to the number of acres contained therein.

(c) Non-standard units shall meet the following requirements:

1. Shall contain not more than 640 acres, the overall length or width of which shall not exceed 5,280 feet, except in instances where the formation of a unit comprising four quarter sections results in a total acreage in excess of 640 acres; and in such event, the unit will be considered to be only 640 acres for proration purposes.

2. All acreage assigned a non-standard unit shall be adjacent or contiguous to the acreage on which the well on said unit is located.

3. All acreage included shall reasonably be presumed to be productive of gas.

(d) The Secretary of the Commission shall grant exceptions to Rule 7 (a) without notice and hearing where the following facts exist and the following provisions are complied with:

1. Application for non-standard unit has been filed in due form with the Secretary of the Commission.

2. Applicant has submitted satisfactory evidence that all operators of offset acreage have been furnished with a copy of the application for the unit.

3. There is no objection, in writing, to the formation of the non-standard unit received by the Secretary of the Commission from any offset operator within twenty (20) days after date of receipt of application by the Secretary of the Commission.

GAS ALLOCATION

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 9. Each month, the Commission shall cause to be submitted by each gas purchaser its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration month from the _____ Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top allowable units shall be reduced proportionately, and in the event the allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 10. Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 11. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 12. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 13. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 14. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission on Form C-115 so as to reach the Commission on or before

the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

MISCELLANEOUS PROVISIONS

RULE 15. In the event an operator has a producing well on a non-standard proration unit as defined under Rule 7 (b), pending the approval of such unit by the Commission, the Proration Manager shall assign to the well an allowable based only on that acreage attributable to the operator's lease or leases lying within the quarter section upon which the well is located. If, on approval of the non-standard unit, additional acreage is attributed to the well, then the allowable assigned the well shall be adjusted retroactive to the first day of the proration period, or the first day on which the well produced into a gas transportation facility if subsequent to January 1, 1954.

DEFINITIONS

RULE 16. A gas well shall mean (a) a well which produces gas not associated with crude petroleum oil in the reservoir, or (b) a well which produces more than one hundred thousand (100,000) cubic feet of gas to each barrel of crude petroleum oil from the same producing horizon.

RULE 17. The term "gas purchaser" as used in these rules shall mean any "taker" of gas either at the well head or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. (~~Previous Rule 12.~~) No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. (~~Previous Rule 13.~~) Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. (~~Previous Rule 14~~) The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be ~~submitted~~ reported on Form C-115 to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made

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Rule 13: ~~Each purchaser or taker of gas shall forthwith submit to the Commission on either Form C-111 or Form C-114 a list of the purchases made by~~

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 ~~depending upon the~~ (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111, C-114 and ~~C-115 shall be submitted on~~ referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, the ~~duplicate~~ other copy being sent to Box 2045, Hobbs, N.M.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission Rules and Regulations.

of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. ~~(Previous Rule 15) A gas well shall mean a well producing gas or natural gas from a common source of gas supply from a gas pool determined by the Commission.~~ A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 6,000, provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PETROLEUM AND ITS PRODUCTS

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GULF OIL CORPORATION

P. O. DRAWER 2290 · FORT WORTH 1, TEXAS

H. M. BAYER
VICE-PRESIDENT

June 21, 1954

FORT WORTH
PRODUCTION DIVISION

The Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Attention - Mr. R. R. Spurrier
Secretary

Re - Case No. 673 Before the
Oil Conservation Commission

Gentlemen:

Enclosed herewith are seven (7) copies of a proposed Order to be entered in Case No. 673.

The proposed Order which is being submitted for your consideration has been prepared without any particular gas pool being designated, and we recommend that the same Order be entered for the Eumont, Arrow, and the combined Jalco and Langmat Gas Pools in Lea County, New Mexico.

Your consideration of this proposed Order will be greatly appreciated.

Yours very truly,

H. M. BAYER

cc: Ross Malone
Atwood & Malone
Roswell, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. _____

THE APPLICATION OF THE OIL CONSERVATION
COMMISSION UPON ITS OWN MOTION FOR AN
ORDER AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS, AND/OR
PROMULGATING NEW REGULATIONS RELATING TO
GAS POOL DELINEATION, GAS PRORATION, ETC.,
FOR THE _____ GAS POOL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9 o'clock a.m., on May 10 and 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of _____, 1954, the Commission, a quorum being present, having considered the testimony adduced, the exhibits received, the statements of interested parties, the official records of this Commission and other pertinent data, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given, the Commission has jurisdiction of this cause.

(2) That prior to the allocation of production of natural gas in the area embraced in the _____ Gas Pool, heretofore established and defined, both underground and surface waste of natural gas was occurring, correlative rights of owners and operators in said area were being violated and the potential production of natural gas from said pool is in excess of the reasonable market demand therefor.

(3) That the Commission for the purpose of preventing waste and drainage and for the protection of correlative rights heretofore by Order R-356 promulgated certain general or "standby" rules and regulations relating to the proration of gas well gas, proration units, well spacing and other related matters in the gas pools of Eddy, Lea, Chaves and Roosevelt Counties, New Mexico and thereafter by Order R-_____ - A promulgated Special Rules and Regulations governing the _____ Gas Pool heretofore established, said orders having been entered on notice and after hearing afforded to all interested parties.

(4) Effective the ___ day of July, 1954, the Special Rules and Regulations heretofore promulgated governing the _____ Gas Pool should be superseded by the Special Rules and Regulations applicable to said pool which are promulgated by this order.

(5) That in order for the Commission to evaluate and delineate the actual productive limits of the _____ Gas Pool all operators of oil and gas wells within the defined limits of the _____ Gas Pool should supply certain Geological and Reservoir data to the Commission.

(6)That pending further study and orders, the allocation of gas in the _____Gas Pool should be calculated on the basis of 100 per cent acreage, based upon the standard 160 acres proration unit, which unit is limited to a regular quarter section subdivision of the U. S. Public Land Surveys and consisting of not less than 158 nor more than 162 acres, substantially in the form of a square, with provision for deviation therefrom.

IT IS THEREFORE ORDERED:

Special pool rules applicable to the _____ Gas Pool are hereby promulgated to be effective from and after the ___ day of July, 1954 and are as follows:

SPECIAL RULES AND REGULATIONS
FOR THE _____ GAS POOL
LEA COUNTY, NEW MEXICO

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the _____ Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the _____ Gas Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations in effect in said Pool.

RULE 2. Each well drilled or recompleted within the _____ Gas Pool shall be located on a standard or non-standard proration unit as herein defined.

RULE 3. Each well drilled within the _____Gas Pool shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary, nor closer than 1320 feet to a well drilling to or capable of producing from the same pool.

RULE 4. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 3 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a written stipulation that all operators within such radius have been properly notified. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 5. The provision of Statewide Rule 104 Paragraph (k) shall not apply to the _____ Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 6. (a) The Commission, after notice and hearing, shall consider the nominations of gas purchasers from the _____ Gas Pool and other relevant data and shall fix the allowable production of said pool, and shall allocate production among the gas wells in said pool upon a reasonable basis with due regard to correlative rights.

(b) Gas allowable shall be allocated on the basis of 100 per cent acreage.

PRORATION UNITS

RULE 7. (a) For the purpose of gas allocation in the _____ Gas Pool, a standard proration unit shall consist of between 158

and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Lands Surveys, provided, however, that a gas proration unit of less than 158 acres or more than 162 acres may be formed after notice and hearing by the Commission or as outlined in Paragraph (d) of this rule. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of computing allowables.

(b) Any proration unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased in the proportion that the standard proration unit allowable bears to the number of acres contained therein.

(c) Non-standard units shall meet the following requirements:

1. Shall contain not more than 640 acres, the over-all length or width of which shall not exceed 5,280 feet, except in instances where the formation of a unit comprising four quarter sections results in a total acreage in excess of 640 acres; and in such event, the unit will be considered to be only 640 acres for proration purposes.

2. All acreage assigned a non-standard unit shall be adjacent or contiguous to the acreage on which the well on said unit is located.

3. All acreage included shall reasonably be presumed to be productive of gas.

(d) The Secretary of the Commission shall grant exceptions to Rule 7 (a) without notice and hearing where the following facts exist and the following provisions are complied with:

1. Application for non-standard unit has been filed in due form with the Secretary of the Commission.

2. Applicant has submitted satisfactory evidence that all operators of offset acreage have been furnished with a copy of the application for the unit.

3. There is no objection, in writing, to the formation of the non-standard unit received by the Secretary of the Commission from any offset operator within twenty (20) days after date of receipt of application by the Secretary of the Commission.

GAS ALLOCATION

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 9. Each month, the Commission shall cause to be submitted by each gas purchaser its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration month from the _____ Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top allowable units shall be reduced proportionately, and in the event the allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in

the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 10. Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 11. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 12. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 13. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 14. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission on Form C-115 so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced. The full production of gas from each wellshall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

MISCELLANEOUS PROVISIONS

RULE 15. In the event an operator has a producing well on a non-standard proration unit as defined under Rule 7 (b), pending the approval of such unit by the Commission, the Proration Manager shall assign to the well an allowable based only on that acreage attributable to the operator's lease or leases lying within the quarter section upon which the well is located. If, on approval of the non-standard unit, additional acreage is attributed to the well, then the allowable assigned the well shall be adjusted retroactive to the first day of the proration period, or the first day on which the well produced into a gas transportation facility if subsequent to January 1, 1954.

DEFINITIONS

RULE 16. A gas well shallmean (a)a well which produces gas not associated with crude petroleum oil in the reservoir, or (b) a well which produces more than one hundred thousand (100,000) cubic feet of gas to each barrel or crude petroleum oil from the same producing horizon.

RULE 17. Those wells located within the defined limits of the _____ Gas Pool and not classified as gas wells under Rule 16 shall be classified as oil wells and receive an oil allowable on the oil proration schedule for the applicable oil pool in the area and shall be subject to all rules and regulations for such oil pool.

RULE 18. The term "gas purchaser" as used in these rules shall mean any "taker" of gas either at the well head or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

PROVIDED FURTHER that an operator of any well hereinafter completed or recompleted within the defined limits of the _____ Gas Pool shall submit, if available, either an electric log or sample log on each well together with a detailed report showing well location, total depth, plug back depth, depth of production string, interval of perforations and open hole.

PROVIDED FURTHER that copies of Form C-115, Monthly Production Report, submitted in compliance with Rule 14 shall be distributed by the operator as follows: Original to Oil Conservation Commission, Box 871, Santa Fe; two copies to Oil Conservation Commission, Box 2045, Hobbs, New Mexico.

IT IS FURTHER ORDERED that nothing in this Order, or Orders Nos. R-_____-A, heretofore issued by the Commission, shall be construed as re-classifying any well now prorated on the oil proration schedule as a gas well, and any such reclassification hereafter made shall only be made after due notice and hearing.

DONE At Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem, Chairman

E. S. Walker, Member

R. R. Spurrier, Secretary and Member

CONTINENTAL OIL COMPANY

PROPOSED CHANGES IN GAS POOL RULES AND REGULATIONS

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations in effect in the _____ Gas Pool.

~~RULE 2. Each well drilled or recompleted within the Jalco Gas Pool shall be located on a tract consisting of not less than a quarter section of approximately 160 surface contiguous acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys.~~

RULE 2. (Previous Rule 3) Each well drilled within the _____ Gas Pool after the effective date of this order shall ~~not~~ be drilled not closer than 660 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary nor closer than 1,320 feet to a well drilling to or capable of producing from the same pool. Any well drilled to and producing from the _____ Gas Pool prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. (Previous Rule 4) The Secretary of the Commission shall have authority to grant exception to the requirments of Rule 3 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a ~~written stipulation that all operators within such radius have been properly notified.~~ a list of names and addresses of all operators within such radius together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least ~~10~~ 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. (Previous Rule 5) The provision of Statewide Rule 104 Paragraph (k), shall not apply to the _____ Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (Previous Rule 7) (a) The acreage allocated to a gas well for proration purposes shall be known as the gas

proration unit for that well. For the purpose of gas allocation in the _____ Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; provided, however, that a non-standard gas proration unit ~~other than a legal quarter section~~ may be formed after notice and hearing by the Commission, ~~except as outlined in Paragraph (b)~~ or under the provision of Paragraph (b) of this Rule. ~~Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.~~

Any non-standard gas proration unit containing less than 158 or more than 162 acres shall receive an allowable decreased or increased to that proportion of the allowable of a standard gas proration unit which the number of acres contained in said non-standard gas proration unit bears to 160. Any gas proration unit containing between 158 and 162 acres shall be considered to contain 160 acres for the purpose of computing allowables.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard unit consists of less acreage than a standard proration unit.

2. The acreage assigned to the non-standard unit lies wholly within a legal quarter section and contains a well capable of producing gas into a gas transportation facility on the date of this order.

3. The operator receives written consent in the form of waivers from all operators in the adjoining 160 acre proration units.

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (1) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (2) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were

notified of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the _____ Gas Pool and other relevant data and shall fix the allowable production of the _____ Gas Pool, and shall allocate production among the gas wells in the _____ Gas Pool upon a reasonable basis with due regard to correlative rights.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the _____ Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the _____ Gas Pool.

RULE 7. (Previous Rule 8) At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. The Commission shall consider the

"Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. (Previous Rule 9) ~~Each month, the Commission shall cause to be submitted by each gas purchaser its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration month from the _____ Gas Pool.~~ In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the _____ Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top

allowable units shall be reduced proportionately, and in the event that allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 9. (Previous Rule 10) Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration

period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 10. (Previous Rule 11) Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such over production and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. (Previous Rule 12) No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. (Previous Rule 13) Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. (Previous Rule 14) The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be ~~submitted~~ reported to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made

of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. (Previous Rule 15) ~~A gas well shall mean a well producing gas or natural gas from a common source of gas supply from a gas pool determined by the Commission.~~ A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the _____ Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the _____ Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the _____ Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 6,000, provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

Exhibit 1 - Case 673
Permian Basin Pipeline Co.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. ~~584~~ 587 - 589
Orders No. R-368A to R-376A, Inclusive

(* RULE 2. EACH WELL DRILLED OR RECOMPLETED WITHIN THE ~~ARKOW~~ GAS POOL SHALL BE LOCATED ON A TRACT CONSISTING OF NOT LESS THAN A QUARTER SECTION OF APPROXIMATELY 160 SURFACE CONTIGUOUS ACRES SUBSTANTIALLY IN THE FORM OF A SQUARE WHICH SHALL BE A LEGAL SUBDIVISION (QUARTER SECTION) OF THE U. S. PUBLIC LAND SURVEYS.)

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 7. (a) For the purpose of gas allocation in the ~~Arrow~~ Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; **EXCEPT THAT IN THE CORRECTION SECTIONS LOCATED IN TOWNSHIPS 21S-35E, 21S-36E, 21S-37E and 21S-38E, THE PROVISION THAT SUCH STANDARD PRORATION UNIT BE A LEGAL SUBDIVISION (QUARTER SECTION) OF THE U. S. PUBLIC LAND SURVEYS SHALL BE WAIVED;** provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing by the Commission, or as outlined in Paragraph (b). Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.

(b) The Secretary of the Commission shall (*HAVE AUTHORITY TO) grant an exception to Rule 7 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with:

(* 1. THE NON-STANDARD UNIT CONSISTS OF LESS ACREAGE THAN STANDARD PRORATION UNIT.

2. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT LIES WHOLLY WITHIN A LEGAL QUARTER SECTION AND CONTAINS A WELL CAPABLE OF PRODUCING GAS INTO A GAS TRANSPORTATION FACILITY ON THE DATE OF THIS ORDER.

3. THE OPERATOR RECEIVES WRITTEN CONSENT IN THE FORM OF WAIVERS FROM ALL OPERATORS IN THE ADJOINING 160 ACRE PRORATION UNITS.)

** 1. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT LIES WHOLLY WITHIN A LEGAL SECTION.

2. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT IS ADJACENT TO OR CONTIGUOUS WITH THE ACREAGE CONTAINING SAID WELL, OR IS ADJACENT TO OR CONTIGUOUS WITH ACREAGE WHICH IS ADJACENT TO OR CONTIGUOUS WITH THE ACREAGE CONTAINING SAID WELL.

3. THE OPERATOR SO MAKING SUCH APPLICATION FOR SUCH AN EXCEPTION TO RULE 7 (a) RECEIVES WRITTEN CONSENT IN THE FORM OF WAIVERS FROM ALL OPERATORS IN ALL ACREAGE IMMEDIATELY ADJACENT TO OR CONTIGUOUS WITH ALL ACREAGE TO BE INCLUDED IN SUCH NON-STANDARD UNIT.

4. IN THE EVENT THERE IS MORE THAN 160 ACRES INVOLVED, THE ACREAGE INVOLVED CONTAINS A WELL CAPABLE OF PRODUCING ITS ESTIMATED ALLOWABLE FOR THE FIRST TWELVE (12) MONTHS THE WELL WILL BE PRODUCING GAS.

(c) THE SECRETARY OF THE COMMISSION SHALL HAVE AUTHORITY TO GRANT AN EXCEPTION TO RULE 7 (a), AFTER NOTICE AND HEARING, WHEN THE OPERATOR IS UNABLE TO COMPLY WITH THE PROVISIONS OF RULE 7 (b).**

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its (*PRELIMINARY) Nominations of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. (*THE COMMISSION SHALL CONSIDER THE PRELIMINARY NOMINATIONS OF PURCHASERS, ACTUAL PRODUCTION, AND SUCH OTHER FACTORS AS MAY BE DEEMED APPLICABLE IN DETERMINING THE AMOUNT OF GAS THAT MAY BE PRODUCED WITHOUT WASTE WITHIN THE ENSUING PRORATION PERIOD. PRELIMINARY NOMINATIONS SHALL BE SUBMITTED ON A FORM PRESCRIBED BY THE COMMISSION.)

WHEN A PURCHASER OF GAS, AFTER FILING ITS NOMINATIONS FOR A PRORATION PERIOD, SHALL FIND THAT ITS REQUIREMENTS FOR GAS HAVE INCREASED OR DECREASED FROM THE AMOUNTS NOMINATED FOR ANY MONTH DURING THE PRORATION PERIOD, SUCH PURCHASER SHALL FILE, NOT LATER THAN THE 10TH OF THE PRECEDING MONTH, SUPPLEMENTAL NOMINATIONS INDICATING ITS REVISED ESTIMATED REQUIREMENTS DURING SUCH MONTH.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 9. (*EACH MONTH, THE COMMISSION SHALL CAUSE TO BE SUBMITTED BY EACH GAS PURCHASER ITS "SUPPLEMENTAL NOMINATIONS" OF THE AMOUNT OF GAS WHICH EACH IN GOOD FAITH ACTUALLY DESIRES TO PURCHASE WITHIN THE ENSUING PRORATION MONTH FROM THE _____ GAS POOL.) The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month (*TOGETHER WITH AN ADJUSTED ALLOWABLE COMPUTATION FOR THE SECOND PRECEDING MONTH. SAID ADJUSTED ALLOWABLE SHALL BE COMPUTED BY COMPARING THE ACTUAL ALLOWABLE ASSIGNED WITH THE ACTUAL PRODUCTION. IN THE EVENT THE ALLOWABLE ASSIGNED IS GREATER THAN THE ACTUAL PRODUCTION, THE ALLOWABLES ASSIGNED THE TOP ALLOWABLE UNITS SHALL BE REDUCED PROPORTIONATELY, AND IN THE EVENT THE ALLOWABLE ASSIGNED IS LESS THAN THE PRODUCTION THEN THE ALLOWABLES ASSIGNED THE TOP ALLOWABLE UNITS SHALL BE INCREASED PROPORTIONATELY. "SUPPLEMENTAL NOMINATIONS" SHALL BE SUBMITTED ON A FORM PRESCRIBED BY THE COMMISSION.)

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 10. Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. (*IF AT THE END OF THE FIRST SUCCEEDING PRORATION PERIOD, A GREATER AMOUNT OF ALLOWABLE REMAINS UNPRODUCED THAN WAS CARRIED FORWARD AS UNDERPRODUCTION, THE AMOUNT CARRIED FORWARD TO THE SECOND SUCCEEDING PERIOD SHALL BE THE TOTAL UNDERPRODUCTION LESS THE AMOUNT CARRIED FORWARD TO THE FIRST SUCCEEDING PERIOD.)

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 11. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, **AND HAS NOT BEEN IN BALANCE SINCE THE END OF THE PRECEDING PRORATION PERIOD, THEN** it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 14. The monthly gas production from each gas well shall be metered (* SEPARATELY) and the gas production therefrom shall be submitted to the Commission **BY THE GAS PURCHASER** on Form ____ so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The (* OPERATOR) **GAS PURCHASER** shall show on such report what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

Copies of Form ____, Monthly Production Report, shall be distributed by the (* OPERATOR) **GAS PURCHASER** as follows: Original to Oil Conservation Commission, Box 871, Santa Fe; two copies to Oil Conservation Commission, Box 2045, Hobbs, New Mexico.

JACK M. CAMPBELL
ATTORNEY AT LAW
224 J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

MAIN OFFICE OCC
1954 MAY 19 AM 10:33

PHONE 4975

May 14, 1954

Cas. 673

Oil Conservation Commission of New Mexico
Santa Fe, New Mexico

Re: Gas Prorationing

Gentlemen:

At the close of the special hearings in Santa Fe, held on May 10th and 11th, the Commission advised that it would receive comments and proposed rules in connection with gas prorationing. The comments contained herein, and the suggested Order attached hereto, are submitted on behalf of Texas Pacific Coal and Oil Company.

The essential elements of the proposed order are as follows:

1. The Jalco and Langmat Pools are combined into a single gas pool for which the name "Jalmat" is suggested. The areal limits as proposed by Exhibit "A" are taken from Order No. 264 of the Commission, dated February 17, 1953, and it may be that there have been additions or deletions since that time. If the Commission decides to combine these pools then these areal limits should be checked. The vertical limits of the Jalmat Pool are shown as a point 100 feet above the base of the Seven Rivers formation, although we have no particular objection to the vertical limits based upon sea level datum as suggested by the Commission geologist. In order to establish some certainty as to the classification of wells, we are suggesting that all wells completed solely above this point be classified as gas wells, all wells completed solely below this point be classified as oil wells, and that all wells completed both above and below this point be classified according to a definition of gas wells which we suggest to be those producing at a gas/oil ratio in excess of 100,000 to 1. We recognize that there will be localized areas in the gas pool which will be producing oil, and of course we feel that the Commission should consider these at special hearings in order to make certain that as much of the oil is recovered as is possible before pressure declines in the reservoir cause migration and loss of ultimate recovery.

2. With regard to the gas/oil ratio limit of oil wells in this area, we are suggesting a limit of 10,000 to 1, based upon the current top unit allowable for oil proration units. Both our own situation and the testimony offered by the operators of gasoline plants taking casinghead gas from this area, indicate that this is the lowest limit which can be established without seriously disrupting the economic picture in the area, including royalties and taxes to the State of New Mexico.

3. The proposed Order contains a provision making it unlawful to allow the escape into the open air of gas from oil wells. We concur with the recommendation of the Commission staff in this regard, believing that the gas/oil ratio limitation cannot be properly enforced without such an order. Our proposed order does not provide for any particular exceptions, and it may be that the Commission will desire to authorize the venting of gas for a temporary period after the completion of a new well. We feel that the right to seek an exception for economic reasons is implicit in any order of the Commission, and have not, therefore, included any provision for the venting of gas where a market is not available.

4. With reference to the creation of unorthodox proration units, our proposed order continues 160 acres as the basic proration unit, but provides for an increase up to 640 acres upon application to the Commission where the acreage assigned is adjacent to the well, and where the applicant has furnished the Commission with evidence that a copy of the application has been mailed to offset operators. If there is no objection in writing by any offset operator within 10 days, then the non-standard unit is approved and the allowable is increased or decreased in the proportion that the standard unit allowable bears to the number of acres in a non-standard unit. We feel that due to the history of development in the area on a 160-acre spacing, and due to the fact that a number of people have entered into communitization agreements on a 160-acre basis, that it would be more practical to grant multiples of 160 rather than change the basic unit to 640 acres and grant fractional allowables. We would, however, raise no particular objection to 640-acre basis proration units.

5. We have made no changes in the present rule with reference to gas allocation inasmuch as this is essentially an administrative problem. For whatever it may be worth, it is our thought that perhaps the procedure followed by the State of Kansas in the basic proration order for the Hugoton gas field might offer a more simplified procedure. Under this plan the proration schedule is set up for the next six months after the hearing, and if the purchasers are unable to limit their "takes" of gas to the quantities fixed in the six months proration schedule, then the director of the Commission has authority to permit production to be increased ratably from all wells in the field to meet the emergency increased demand, and the facts concerning this are presented at or before the next six months hearing for such action as may be necessary. Adjustments are made for overages and underages at the end of each six months period and any overage not made up during the succeeding period results in the shutting-in of the well. Whenever the overage is three times the amount of the current month's allowable, the well must be shut-in until the

overage is fully absorbed. Underages in excess of three times the allowable for the current month result in cancellation of the accumulated excess. If the Commission wants to know what is taking place each month, there is nothing to prevent their requiring purchasers to submit reports to the Commission on each unit each month, which would be available to any interested producer. As we indicated at the hearing, we have, for the time being, withdrawn our request for minimum allowables in view of the letter from the President of El Paso Natural Gas Company. This letter, which is in evidence, states that El Paso Natural Gas Company will honor the "take or pay" provisions of their contracts, despite the allowable, if their failure to take up to the minimum in any year is due to their own nominations. We have some serious concern about the future of the dry gas market in Lea County, and of course retain the right to reconsider the matter if and when the actual allowables assigned during any six months period fall below the "minimum take" provisions of our contracts.

The Order which is enclosed covers only the Jalco and Langmat areas, but of course additional orders could be issued covering the Arrow and Eumont Pools, or it could all be embraced in one order. Our principal concern is with pool delineation, and we therefore confined our proposed order to the Jalco and Langmat areas.

As the Commission knows, Case No. 582, which is the rehearing on the Jalco Gas Pool, is closed and is awaiting the Order of the Commission. We do not, of course, know what Order the Commission may ultimately enter in Case No. 673, but we would appreciate it if we could be advised as soon as the Order is entered, in order that we may make a decision with reference to the procedure to be followed relative to Case No. 582.

Respectfully,

Jack M. Campbell

Jack M. Campbell

JMC:le
Enc.

May 20, 1957

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

With reference to revision of gas proration rules as set forth in orders previously issued by the Commission, I respectfully suggest to the Commission that consideration be given to the following:

1. Define a gas well in terms of gas-oil ration. By definition would be, a gas well shall mean a well that produces more than one hundred thousand cubic feet of gas to each barrel of crude oil from the same producing formation.

2. Prorate each zone of the same general structure as a separate pool, either as an oil pool or as a gas pool, granting an allowable to each zone. I believe the Commission is directed to so allocate production in this manner under the basic Oil and Gas Conservation Act of 1949 and as amended. This act states that the Commission shall prohibit waste on "a pool" basis and "pool" is defined "as an underground reservoir containing a common accumulation of oil or gas or both. Each zone of a general structure, which zone is completely separated from any other zone in the structure, is covered by the word "pool" as used herein. Therefore the Commission is directed to prorate as separate units oil and or gas areas within each producing zone. (Yates, Queen, Grayburg, San Andres zones, in the same general structure.)

3. Issue a "no-flare order" for each prorated oil or gas field.

4. Place a limiting gas-oil ratio on all prorated oil pools. Said ratio to be not less than 10,000 to 1 in the sand area of South Lea County, but should be adjusted upward as reservoir conditions dictate.

5. Consider correlative rights and/or equal economic return to an operator for invested capital; if the Commission imposes gas-oil ratio control on oil fields to balance volumetic withdrawals from the gas fields, I request the Commission to consider and balance the economic return an operator receives from high pressure dry gas as compared to low pressure casinghead gas.

6. Issue a six months proration schedule for gas pools and supplement this schedule as demand increases toward the end of the six month period.

7. Grant each completed gas well an allowable based on its share of market demand on the day that Forms C-104 and C-110 are filed with the Commission. It is unfair for an operator to wait for an allowable until such time as a purchaser decides to grant him a connection.

8. Allocate gas to carbon black or other non-industrial pipe line use only if the price paid the producer is equal that paid by interstate pipeline transporters taking similar gas.

Respectfully submitted

John M. Kelly

AUG

THE OHIO OIL COMPANY
CITY NATIONAL BANK BUILDING
P. O. BOX 3128
HOUSTON 1, TEXAS

W. H. EVERETT
JOHN L. CAMP
J. O. TERRELL COUCH
ATTORNEYS

MAIN OFFICE OCC
1954 MAY 24 AM 9:45

May 21, 1954

STATEMENT OF THE OHIO OIL COMPANY
RE: CASE NO. 673

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

The following observations are made on behalf of The Ohio Oil Company regarding this case:

1. The great preponderance of the testimony and evidence has established that the formations in question do not constitute a single pool or reservoir throughout the entire expanse of the large area involved. Certainly the Grayburg and San Andres formations have been shown to be separate and disconnected from all other formations in question.

2. It has not been established that any of the presently designated pools should be combined, with the possible exception of the Jalco and Langmat gas pools.

3. The use of subsea datum lines as vertical limitations of the oil and gas pools is not supported geologically and would introduce a serious question as to the legality of any order based thereon.

4. It has not been established whether any of the proposed combinations of any of the pools in question would protect or injure the correlative rights of the parties affected.

5. Contractual rights and obligations have been created and capital investments have been made on the basis of the present designations of these pools. No action should be taken which will subject these established economic rights to readjustment except such action as is necessary from the standpoint of conservation, for the protection of correlative rights, and for the orderly development of and production from the reservoirs in question in accordance with laws of this State.

6. The facts now available now dictate that certain changes should be made at this time in the present field rules of each of the four gas pools in order to promote and encourage development of and protection from such pools in a manner which will promote conservation and protect correlative rights.

7. Certain inequities exist which could and should be corrected by this Commission after separate hearings dealing with the respective problems.

Based upon the foregoing analysis of the record in this case, The Ohio makes the following recommendations:

1. The twelve oil pools and four gas pools involved in this hearing should remain as presently delineated; however, The Ohio has no objection to the combination of the Jalco and Langmat gas pools. The question of eliminating the overlap in vertical delineation of certain gas pools and oil pools should be dealt with on a pool to pool basis at separate hearings dealing with the respective areas.

2. Any well having an actual producing ratio of more than 100,000 cubic feet of gaseous hydrocarbons to each barrel of crude petroleum oil and completed in a designated gas pool should be defined by the field rules as a gas well, and any other well completed in a designated gas pool should be defined by the field rules as an oil well and should be prorated as such.

3. A limiting gas-oil ratio should be applied to all oil wells. The statewide limiting gas-oil ratio should be applied to each well which is not now subject to a limiting gas-oil ratio until such time as a higher ratio is shown to be necessary for such wells from the standpoint of conservation.

4. The allocation of the gas allowable among the gas wells in each gas pool should be on the basis of a formula giving due weight to the factor of deliverability. Such formula should be adopted for each of the respective gas pools only after notice and hearing at a time when the results of the current deliverability tests have been completed. In the interim The Ohio does not oppose the allocation of gas allowable in each of the pools on the basis of acreage alone.

5. Liberal provisions should be made for obtaining unorthodox proration units for gas wells in the gas pools, based on the proposition that a gas well can efficiently drain 640 acres. The boundaries of such unorthodox units should not be arbitrarily limited by section lines or subdivision lines.

Respectfully submitted,

THE OHIO OIL COMPANY

By T. Darrell Couch

TC:MK

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

COPY

November 10, 1954

Neal & Girand
Neal Building
Hobbs, New Mexico

Attention: Mr. W. D. Girand, Jr.

Re: Exceptions to Order No. R-520
Entered in Case No. 673 on
Behalf of Me-Tex Supply Company

Gentlemen:

After considering your application for proposed exceptions in the above matter, it is the opinion of this Commission that such exceptions should not be considered without notice and hearing before the Commission.

Please advise if you desire the proposed exceptions to Order No. R-520, set for hearing.

Very truly yours,

W. B. MACEY,
Secretary and Director

WBM/ir

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

PROPOSED ORDER OF THE OIL CONSERVATION COMMISSION
IN REGARD TO CASE NO. 584 AND COMPANION CASES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 o'clock A.M. on October 28, 1953 at Santa Fe, New Mexico and from month to month thereafter until final hearing on May 10, 1954, 9:30 A.M. at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereafter referred to as the "Commission".

NOW, on this the _____ day of _____, 1954, the Commission, a quorum being present, having considered the testimony adduced, the exhibits received, statements of interested parties, the official records of this Commission and other pertinent data, and being fully advised in the premises, finds:

(1) That due public notice having been given, the Commission has jurisdiction of this cause.

(2) That the Commission, for the purpose of preventing waste and drainage and for the protection of correlative rights, entered Order R-356, establishing certain general or stand-by rules and regulations relating to the proration of gas wells, proration units, well spacing, and other related matters in the gas pools of Eddy, Lea, Chaves and Roosevelt Counties, New Mexico, applicable in all cases only after special rules for each gas pool shall have been promulgated.

(3) That thereafter, after due notice and hearing, Order R-370 was duly entered by the Commission. Order R-370 adopted the general or stand-by rules promulgated by Order R-356 as the special rules and regulations of the Eumont Gas Pool, heretofore established. Order R-370 was entered pending a further order in the premises, said order to be entered only after all interested parties were afforded an opportunity to be heard in the matter.

(4) That thereafter the Commission continued to take testimony and hear statements of all interested parties through the 11th day of May, 1954, and as a result of such hearings and after consideration of the testimony adduced, determined that special pool rules should be promulgated for the Eumont Gas Pool, heretofore established, described and classified as a gas pool.

(5) That pending further study and orders the allocation of gas in the Eumont Gas Pool should be calculated on the basis of 100% acreage, based upon 160 acre proration units, which unit is limited to 160 acres within any section of the U. S. Public Land Surveys and such unit to consist of not less than 158 nor more than 162 acres substantially in the form of a square insofar as the creation of units for the production of gas from existing gas wells. And further, requiring the creation of standard 160 acre proration units limited to a regular quarter section subdivision of the U. S. Public Land Surveys and consisting of not less than 158 nor more than 162 acres on all units established for the drilling of gas wells from and after the effective date of this Order and provided further, that provision for deviation therefrom, particularly in cases of

wells heretofore completed, where the impracticability of unitization is apparent.

(6) That an adequate gas well testing procedure should be adopted as soon as possible so that operators, purchasers and the Commission can determine the fairness and feasibility of an allocation factor for the pool which employs the factors of deliverability, pressure, or any other factor relating to gas well productivity.

IT IS THEREFORE ORDERED:

That Special Pool Rules applicable to the Eumont Gas Pool be and the same are hereby promulgated and are as follows:

SPECIAL RULES AND REGULATIONS
FOR THE EUMONT GAS POOL
LEA COUNTY, NEW MEXICO

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the rules and regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled within the Eumont Gas Pool after the effective date of this Order shall be drilled not closer than 660 feet to any boundary line of the proration unit, nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary within said unit, nor closer than 1,320 feet to a well drilling to or capable of producing from the same pool. Any well drilled to and producing from the Eumont Gas Pool, as defined, prior to the

effective date of this Order at a location conforming with the spacing requirements effective at the time said well was drilled, shall be considered to be located in conformance with this rule and such well or wells shall be entitled to a full unit allowable irrespective of the available acreage assignable to said well; provided, however, the operator shall assign contiguous acreage within the legal section to such existing well or wells as is owned and controlled by said operator to the extent required for a standard proration unit where possible.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by recompletion of a well previously drilled to another horizon.

Applicant shall furnish all operators within a 1,320 foot radius of the proposed well a copy of the application to the Commission. The application shall include a list of names and addresses of all operators within such radius together with proof that notice has been given said operators at the addresses given. The Secretary of the Commission shall approve such unorthodox location at the expiration of ten days from the receipt of said application, providing no objections to the granting of said application have been received from operators owning off-set property within a 1,320 foot radius; however, in the event objections in writing have been received by the Commission from an operator owning off-set property within a 1,320 foot radius to the granting of the

unorthodox location, then the Commission shall assign the application a case number and after due notice and hearing, consider the application.

RULE 4. The provisions of state-wide Rule 104 Paragraph (k) shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION RULE

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. In the Eumont Gas Pool a standard proration unit shall consist of between 158 and 162 contiguous surface acres, substantially in the form of a square, and located within a single designated section of the U. S. Public Land Surveys, provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined, prior to the effective date of this order at a location conforming with the spacing requirements in effect at the time said well was drilled, shall be entitled to a full unit allowable irrespective of the available acreage assignable to said well; provided further, however, the operator shall assign all acreage owned to such existing well or wells as is owned and controlled by said operator within the regular section of the U. S. Public Land Surveys to the extent of the acreage required to form a standard proration unit.

A non-standard gas proration unit may be formed after notice and hearing by the Commission or under the provisions of Paragraph (b) of this rule.

Any gas proration unit containing between 158 and 162 acres shall be considered to contain 160 acres for the purpose of computing allowables.

Not more than one allowable shall be assigned to any well bore irrespective of the number of acres assigned by the operator to the unit.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without notice or hearing where application has been filed in due form and where the following facts are found by the Secretary to exist and the applicant has complied with the following provisions:

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections or lots lying wholly within a designated section of U. S. Public Land Surveys.

2. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

3. The length or width of the non-standard gas proration unit does not exceed 5,280 feet.

4. The applicant presents written consents in form of waivers from (1) all operators owning interests in the section in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit; and (2) all operators owning interest within 1,500 feet of the wellsite at which said gas proration unit is proposed to be allocated or applicant may furnish proof of notice to all operators owning interest in the section as well as operators owning interest within 1,500 feet of the wellsite of applicant's intent

to form such non-standard gas proration unit. In such case the Secretary of the Commission shall defer action on said application until the expiration of ten days from the date of the receipt of said application and in the event no formal protest in writing giving the reasons therefor have been filed with the Commission, the Secretary may approve the application without notice or hearing.

RULE 6. (a) The Commission, after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other gas pools as well as other relative data and shall fix the allowable production of the Eumont Gas Pool and shall allocate the allowable production among the gas wells in the Eumont Gas Pool upon a reasonable basis with due regard to the total nominations for gas and with due regard to correlative rights.

(b) The maximum allowable assigned to any well shall be fixed by first deducting allowables assigned to marginal wells and the remainder of the gas allowable within the Eumont Pool to be allocated to the remaining gas wells in proportion that the number of acres contained in the gas proration unit for the particular well bears to the allowable fixed per 160 acre unit, except as to those designated gas wells being operated and produced by operators on the 1st day of January, 1952 as gas wells, such wells to receive full unit allowable regardless of the number of acres attributable to the proration unit assigned to said well.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount

of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top allowable units shall be reduced proportionately, and in the event that allowable assigned is less than the production, then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental

Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal gas proration units as established by the Commission.

RULE 9. Underproduction: The dates 7:00 A.M., January 1st and 7:00 A.M., July 1st, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as under-production, the

amount carried forward to the second succeeding period shall be the total under-production less the amount carried forward to the first succeeding period.

If it appears that such continued under-production has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING ALLOWABLES

RULE 11. No gas well completed and producing on January 1, 1954, shall be given an allowable until Form C-104 and Form C-110

have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date the operator has furnished the Commission with all of the gas well testing data now required or hereafter required by the Commission in order to establish the productivity of the well or on the date of the filing of Form C-104 and Form C-110 together with plat described in Rule 11, however, should the operator of a newly completed gas well or wells fail to procure a connection to a gas transportation facility within the second proration period after the date of completion of the well, then and in that event the allowable attributable to such newly completed gas well or wells shall be cancelled as to the first proration period allowable and in no event shall any newly completed gas well be allowed a gas allowable covering a greater proration period than the period in which a connection with a gas transportation facility is obtained and the proration period immediately preceding the date of connection, providing the well was completed within said period.

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The flow production of gas from each gas well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters and combustion engines for pumping equipment, shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 10,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Pool and not classified as a gas well, as defined in Rule 14, shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

GENERAL PROVISION

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Pool shall be flared or vented unless specifically authorized by order of the Commission after due notice and hearing.

RULE 18. Oil wells producing from the Eumont Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
UPON THE APPLICATION OF THE OIL
CONSERVATION COMMISSION ON ITS
OWN MOTION FOR AN ORDER AMENDING,
REVISING OR ABROGATING EXISTING
RULES AND REGULATIONS AND/OR PRO-
MULGATING NEW REGULATIONS RELATING
TO GAS POOL DELINEATION, GAS PRORA-
TION, ETC., FOR THE JALCO, LANGMAT,
EUMONT AND ARROW GAS POOLS, LEA
COUNTY, NEW MEXICO.

CASE No. 573

STATEMENT OF HUMBLE OIL & REFINING COMPANY
TO BE FILED AS A PART OF THE RECORD
IN THE ABOVE STYLED CASE

The Humble Oil & Refining Company desires to commend the Commission upon its action in conducting the series of hearings which have been held in connection with the above case and feels that they have had a salutary result in that they have eliminated any shadow of doubt as to the need for gas proration in the Jalco, Langmat, Eumont and Arrow gas pools. The Humble believes that these hearings have shown that the Conservation Commission was fully justified in taking the course which it did with respect to gas proration.

With reference to the action to be taken by the Commission as a result of these hearings, the Humble respectfully submits the following recommendations:

1. Section 13(b) of the Conservation Act as amended by Chapter 76 of the 1953 Session Laws provides that the Commission may establish a proration unit for each pool "such being the area that can be efficiently and economically drained and developed by one well....." The uncontradicted evidence in this case shows that in the Jalco, Langmat, Eumont and Arrow gas pools, one well will effectively, efficiently and economically drain as much as 640 acres. In fact, there has been no evidence introduced in the case which would warrant consideration by the Commission of any size unit other than a 640-acre standard unit. We, therefore, urge the Commission to adopt 640 acres as the standard proration unit for the proration of gas in these pools.

2. We recommend that the Commission retain the present provisions of its orders hereto entered providing for the allocation of gas on the basis of 100% acreage in the Jalco, Langmat, Eumont and Arrow Gas pools.

3. Humble recommends that the principle of volumetric withdrawals should be the basis of proration as between oil and gas wells in any designated oil and gas pool.

4. In the interest of conservation and the prevention of further waste, Humble recommends that the orders promulgated in connection with gas proration in the Jalco, Langmat, Eumont and Arrow gas pools provide that no gas shall be flared.

5. In connection with any rules that may be adopted, Humble would urge the Commission to make a continued study to determine whether the relative rate of withdrawals permitted under the rules adopted by the Commission are causing waste, so that appropriate steps may be taken to prevent the same.

Respectfully submitted,

HUMBLE OIL & REFINING COMPANY

By _____
Attorney

KS

SHELL OIL COMPANY

MIDLAND AREA

MAIL OFFICE OCC

MAILING ADDRESS
P. O. BOX 1509
MIDLAND, TEXAS

GENERAL OFFICES
PETROLEUM BUILDING
MIDLAND, TEXAS

1954 MAY 21 AM 11:44

May 18, 1954

Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier

Gentlemen:

With respect to Case No. 673 Shell Oil Company proposes as follows:

1) That the line dividing the Langmat and Jalco gas pools be eliminated
2) That the vertical limits, as defined, be retained in the Arrow, Eumont, Jalco, and Langmat gas pools, except that these limits extend to include the Tansill lime section
3) That a non-flare rule as recommended by the Commission be adopted
4) That a gas-oil ratio limit of 6000:1 be adopted for those fields now exempt from a gas-oil ratio limit
5) That a gas well be defined as a well which produces gas not associated with crude petroleum oil in the reservoir, or a well which produces more than 100,000 cubic feet of gas to each barrel of crude petroleum from the same producing horizon
6) That the 100% acreage allocation factor for gas proration be retained.

Shell Oil Company is otherwise in general accord with the gas pool orders as written.

Yours very truly,

M. A. Sherwood

M. A. Sherwood
General Superintendent

CAH:GM

Case 673

THE ATLANTIC REFINING COMPANY

PETROLEUM PRODUCTS

McCLINTIC BUILDING
MIDLAND, TEXAS

MAIN OFFICE OCC

May 21, 1954 RECEIVED MAY 24 AM 9:43

MAILING ADDRESS
P. O. BOX 871
MIDLAND, TEXAS

Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

ATTENTION: Mr. R. R. Spurrier

Gentlemen:

With reference to Case 673, concerning the re-hearing on the rules for the Eumont, Arrow, Langmat and Jalco Gas Pools, The Atlantic Refining Company requests that the following statement be made a part of the record in this case:

> The Atlantic Refining Company recommends that the present vertical and areal limits of the Eumont, Arrow, Langmat and Jalco gas pools be retained; however, there is no objection to the combination of the Langmat and Jalco pools for proration purposes, if the Oil Conservation Commission desires to effect this change. Insofar as the pool rules for the four pools under consideration are concerned, Atlantic recommends the following changes to the existing rules: (1) A standard gas proration unit of 640 acres confined to a legal section with provision for formation of non-standard units containing less than 640 acres either (a) after notice and hearing or (b) subsequent to notification to offset operators and to a twenty-day waiting period from the date that application was filed with the Commission, provided no objections have been expressed in writing to the Commission by any offsetting operator. (2) For proration purposes, any well producing from a designated gas pool or any well producing with a gas-oil ratio in excess of 100,000 cubic feet per barrel from any pool other than a designated gas pool should be classified as a gas well. (3) A trial gas-oil ratio limit of 10,000 cubic feet per barrel for those oil pools underlying the four gas pools under discussion and not presently limited.

With respect to allocation, The Atlantic Refining Company is of the opinion that allocation on a 100% acreage basis represents the most feasible and equitable plan for proration of gas in the Eumont, Arrow, Langmat and Jalco pools. It is recommended that allocation on this basis be retained by the Oil Conservation Commission.

Yours very truly

THE ATLANTIC REFINING COMPANY

R. E. Howard

R. E. Howard
Regional Petroleum Engineer

JHV/ms

Case 673

JOHN M. KELLY
Box 5671
Roswell, New Mexico

May 20, 1954

MAIN OFFICE OCC
1954 MAY 21 AM 11:26

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

With reference to revision of gas proration rules as set forth in orders previously issued by the Commission, I respectfully suggest to the Commission that consideration be given to the following:

1. Define a gas well in terms of gas-oil ratios. My definition would be, "A gas well shall mean a well that produces more than one hundred thousand cubic feet of gas to each barrel of crude oil from the same producing formation.

2. Prorate each zone of the same general structure as a separate pool, either as an oil pool or as a gas pool, granting an allowable to each zone. I believe the Commission is directed to so allocate production in this manner under the basic Oil and Gas Conservation Act of 1949 and as amended. This act states that the Commission shall prohibit waste on "a pool" basis and "Pool" is defined "as an underground reservoir containing a common accumulation of oil or gas or both. Each zone of a general structure, which zone is completely separated from any other zone in the structure, is covered by the word "pool" as used herein. Therefore the Commission is directed to prorate as separate units oil and or gas areas within each producing zone. (Yates, Queen, Grayburg, San Andres zones, in the same general structure.)

3. Issue a "no-flare order" for each prorated oil or gas field.

4. Place a limiting gas-oil ratio on all prorated oil pools. Said ratio to be not less than 10,000 to 1 in the sand area of South Lea County, but should be adjusted upward as reservoir conditions dictate.

5. Consider correlative rights and/or equal economic return to an operator for invested capital; if the Commission imposes gas-oil ratio control on oil fields to balance volumetic withdrawals from the gas fields, I request the Commission to consider and balance the economic return an operator receives from high pressure dry gas as compared to low pressure casinghead gas.

6. Issue a six months proration schedule for gas pools and supplement this schedule as demand increases toward the end of the six month period.

7. Grant each completed gas well an allowable based on its share of market demand on the day that Forms C-104 and C-110 are filed with the Commission. It is unfair for an operator to wait for an allowable until such time as a purchaser desires to grant him a connection.

8. Allocate gas to carbon black or other non-industrial pipe line use only if the price paid the producer is equal that paid by interstate pipeline transporters taking similar gas.

Respectfully submitted

John M. Kelly

Case 673

Santa Fe, New Mexico

OIL CONSERVATION COMMISSION OF NEW MEXICO
Santa Fe, New Mexico

Gentlemen:

The following is a brief of El Paso Natural Gas Company's recommendations to the Oil Conservation Commission of New Mexico in Case 673 held May 10-11, 1954 upon the Commission's own motion for an order amending, revising, or abbrogating existing rules and regulations and/or promulgating new regulations relating to gas pool delineation, gas proration, etc., for the Jalco, Langmat, Eumont and Arrow gas pools, Lea County, New Mexico.

It is considered by El Paso Natural Gas Company that the present orders of the Commission setting out gas pool delineations and prorating gas within such pools are reasonable and workable in their present form, except for the manner in which gas demand is allocated to the wells within the individual pools. This problem will be discussed later in this brief.

During the hearing of Case 673 certain refinements and revisions in the rules for the above mentioned pools were recommended to the Commission which are believed to provide more clarity and ease of administration than the present rules and may remove inequities and prevent hardships in some instances. Should the Commission desire to revise their present rules, El Paso Natural Gas Company recommends the rewording and revising of some of the present rules as follows:

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WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS

RULE 4. The Secretary of the Commission shall have authority to grant exception to the requirements of Rules 2 and 3 where application has been filed in due form and such exception is required because of conditions resulting from previously drilled wells in the area or, in the case of Rule 3, the necessity of exception is based on topographic conditions.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a written stipulation that all operators within such radius have been properly notified. The Secretary of the Commission shall wait at least 20 days before approving any such exception and shall approve such exception only in the absence of objection of any offset operators. In the event an operator objects to the exception the Commission shall consider the matter only after proper notice and hearing.

PRORATION UNITS

RULE 7. (a) For the purpose of gas allocation in the _____ _____ Gas Pool a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; except that in the correction Sections located in Township 21 South, Ranges 35 through 38 East, the provision that such standard proration unit be a legal subdivision (quarter section) of the U. S. Public Land Surveys shall be waived; provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing by the Commission, or as

outlined in paragraph (b). Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 7 (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with:

1. The acreage assigned the non-standard unit lies wholly within a legal section.

2. The acreage assigned the non-standard unit is adjacent to or contiguous with the acreage containing said well.

3. The operator making application for such exception to Rule 7 (a) includes with such application:

(aa) waivers from (1) all operators owning interests in the quarter section in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit; and (2) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated; or

(bb) a list of names and addresses of all operators outlined in paragraph (aa), together with a stipulation that proper notice has been given said operators at the addresses given and no objection is received by the Commission from such operators within 20 days after the Commission receives such application.

4. The entire non-standard proration unit may reasonably be presumed to be productive of gas.

5. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

(c) The Secretary of the Commission shall have authority to grant an exception to Rule 7 (a) after notice and hearing, when the operator is unable to comply with the provisions of Rule 7 (b).

GAS ALLOCATION

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its nominations of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool.

When a purchaser of gas, after filing its nominations for the proration period shall find that its requirements for gas have increased or decreased from the amount nominated for any month during the proration period, such purchaser shall indicate its revised estimated requirements during such month by filing supplemental nominations with the Commission at least three days prior to the regular hearing of the Commission for the month preceding such changed requirements.

All nominations shall be filed on a form prescribed by the Commission.

RULE 9. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly

proration schedule shall be a tabulation of allowable and production for the second preceding month, together with an adjusted allowable computation for the second preceding month, said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowable assigned the top allowable units shall be reduced proportionately; and in the event the allowable assigned is less than the production, then the allowable assigned the top allowable units shall be increased proportionately.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the nominations together with any adjustment which the Commission deems advisable. */ The allocation to the pool remaining after subtracting the capacities of marginal units shall be divided and allocated among the non-marginal units in the following manner: fifty percent (50%) of such remaining allocation shall be divided among the non-marginal wells in the proportion that the individual well's calculated deliverability is to the sum of the calculated deliverabilities of all the non-marginal wells. The other fifty percent (50%) of such remaining allocation shall be divided among the non-marginal wells in the proportion that the acreage assigned the

proration unit of ~~said~~ each well is to the sum of the acreage assigned the proration units of all non-marginal wells. The calculated deliverability mentioned above shall be that deliverability as determined by a test taken in accordance with the directive of the New Mexico Oil Conservation Commission dated March 15, 1954, to "Operators of Gas Wells in Prorated Gas Pools - Lea County"[*]

BALANCING OF PRODUCTION

RULE 10. Underproduction: The dates 7:00 A.M., January 1, and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the first succeeding proration period in addition to the normal gas allowable for such succeeding period. That portion of such cumulative underproduction carried forward into the first succeeding proration period, which is not made up during said period shall be deducted from the total underproduction at the end of the period, resulting in only that volume of underproduction accrued during said period being carried forward as cumulative underproduction into the next succeeding proration period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

*The wording recommended in brackets[ ] should be substituted for the presently existing wording at such time as the deliverability data presently being accrued by the Commission required tests is available to the Commission.

RULE 11. Overproduction: An operator of a well from which was produced a greater amount of gas than was allowed during a given proration period shall underproduce such well's allowable for the first succeeding proration period by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If the overproduction is in excess of the well's expected total of monthly allowables as determined from the nominations of purchasers for the first succeeding proration period, the well must be shut in at the beginning of said period until the resultant underproduction accumulated has equaled the cumulative overproduction accredited thereto. If at the end of the first succeeding proration period, the well is still overproduced and has not been in balance since the beginning of said proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut-in upon a showing at public hearing after due notice that complete shut-in of the well would result in material damage to the well.

REPORTING OF PRODUCTION

RULE 14. The monthly gas production from each gas proration unit shall be metered separately and the gas production therefrom shall be reported to the Commission by the operator so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been

made of the gas; provided, however, that gas used on the lease for consumption in lease houses, heaters, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

Copies of Form C-115, Monthly Production Report, submitted in compliance with Rule 14, shall be distributed by the operator as follows: Original to Oil Conservation Commission, Box 871, Santa Fe; two copies of Oil Conservation Commission, Box 2045, Hobbs, New Mexico.

The following comments are made concerning recommendations of witnesses at the May 10-11, 1954 hearing on Case 673:

1. Combining the Jalco and Langmat Pools should not cause additional administrative difficulties, and will remove present inequities existing because of offsetting wells having different allowables due to different demands for gas from the two pools.

2. Proration of the gas and oil pools as they were found when proration was initiated is thought to be proper and is reasonably accomplished by the rules and administrative procedure presently in effect whereby wells producing from a gas pool are prorated as gas wells and wells producing from an oil pool are prorated as oil wells without restriction of either because of the occurrence of both types of production on the same lease.

3. Underlying the areal extent of the Jalco and Langmat Pools, the Yates formation and all of the Seven Rivers formation, except the bottom 100 feet, should continue to be considered as primarily a gas reservoir and prorated as a common source of gas supply. The lower 100 feet of the Seven Rivers formation and the Queen formation underlying such areal extent, as well as that portion outside that area, should continue to be considered as primarily an oil reservoir and prorated as a common source of oil supply.

4. Underlying the areal extent of the Eumont Pool, the Yates, Seven Rivers, and Queen formations should continue to be considered as primarily a gas reservoir and prorated as a common source of gas supply. The Grayburg and San Andres formations should continue to be considered as primarily an oil reservoir and prorated as a common source of oil supply.

5. The Arrow Gas Pool's vertical delineation should be amended to provide the same division as exists in the Eumont Pool.

6. Completion of new wells and recompletion of existing wells should be permitted either in (a) a common source of gas supply, or (b) a common source of oil supply, but production from the two sources should not be permitted, except in properly authorized dually completed wells.

7. A gas/oil ratio limit for those pools with no limit, coupled with a no-flare order, will put a stop to the wastive flaring of casinghead gas and should be instituted. A 10,000/1 ratio is recommended. From studies made by El Paso Natural Gas Company, it was determined that such a ratio limit would stop the flaring of gas from all wells to which El Paso is connected, and, in addition thereto, would decrease the gas available to El Paso plants by 18 million cubic feet per day, which should be more than ample to provide capacity for that gas produced from unconnected wells which will be commercially feasible to connect. No apparent additional waste preventive measures would be accomplished by establishment of a lower gas/oil ratio limit, but would result in excessive and unnecessary restriction of the casinghead gas available to plants serving the ~~fileds~~ fields which presently have no gas/oil ratio restriction.

8. The rule defining a gas well as a well which produces with a gas/oil ratio of or in excess of 100,000 cubic feet of gas per barrel of oil produced is unnecessary in the four gas pools under consideration and would result in more problems than it would solve. The basis for such a rule is to prevent the wasteful flaring of gas theretofore permitted while the gas/oil ratio remained below 100,000/1, and the well was produced as an oil well. All gas, regardless of definition as dry gas or casinghead gas, will be conserved with application of a no-flare order, thereby making a gas well definition other than the present statewide definition unnecessary.

9. A proration schedule should continue to be issued monthly. The procedure outlined in the present rules for preparation of such a schedule is believed to be the most workable with the fluctuating conditions of demand apparent in these pools.

In order for the correlative rights of owners of gas within the four gas pools under discussion to be protected, the Commission must consider the relationship between the producable reserves underlying one tract as compared to such reserves underlying another tract. Actual determination of reserves in old pools such as these under consideration is difficult, if not impossible, to accomplish. In an area where all the acreage assigned to a well is productive, the reserves underlying one tract will vary from the reserves underlying another tract because of differences in pressure, porosity, thickness and interstital water content. These same factors influence the deliverability calculated for a well. The deliverability test presently

being required by the Commission for gas wells in the designated gas pools of southeast Lea County, New Mexico, is a calculated deliverability which reflects the formation's ability to deliver gas into the well bore. The use of such deliverability in an allocation formula is recommended to the Commission because it is a reflection of the reserves available to each well. The pressure variation between the extremities of these pools and the variation in thickness between different portions of these pools reflect differences in reserves available to wells in different areas of the same pool, which makes it imperative that consideration be given to variations in reserves if correlative rights are to be protected.

Respectfully Submitted,

EL PASO NATURAL GAS COMPANY

By F. Norman Woodruff
5/19/54

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OFFICE OF THE GOVERNOR
SANTA FE, N. M.
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CAPTION

Case No. 673
Order No._____

ORDER OF THE COMMISSION

This cause came on for hearing at 9:00 A.M. on _____ and _____ at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

Now, on this _____, the Commission, a quorum being present, having considered testimony and evidence adduced at said hearings, together with the statements of interested persons and being fully advised in the premises,

FINDS:

1. That due public notice has been given and the Commission has jurisdiction over the cause.

2. That under date of September 28, 1953 the Commission issued its Orders No. R-368, R-369, R-370, and R-371 and under date of November 10, 1953 the Commission issued its Orders No. R-368-A, R-369-A, R-370-A and R-371-A, providing for the prorating of gas in the Jalco, Langmat, Eumont and Arrow Gas Pools; and by subsequent orders the Commission allocated production of gas in said pools under said orders commencing January 1, 1954.

3. That there is a need for amendment and revision of gas prorationing in the area encompassing the Jalco and Langmat Gas Pools as defined in Commission Order No. R-264.

4. That the evidence requires a revision in the definition of the Pool limits of the Jalco and Langmat Gas Pools as defined in Order No. R-264 and the establishment of the Jalmat Gas Pool in lieu thereof.

5. That the full production of gas from gas wells within the Jalmat Gas Pool is in excess of the market demand and of the transportation and marketing facilities.

6. That the allocation of gas allowable in the Jalmat Gas Pool should be calculated on the basis of 100% acreage.

7. That the evidence establishes the need for an order prohibiting the escape into the open air of gas from oil wells as defined herein or residue gas originating therefrom.

8. That the evidence establishes the need for the imposition of a limiting gas/oil ratio for the oil wells as defined herein.

IT IS THEREFORE ORDERED:

1. (a) The Jalmat Gas Pool is hereby established consisting of all formations from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation in the area described in Exhibit "A" attached hereto. All wells in the said area and within the said vertical limits producing only within said vertical limits shall be gas wells, and shall be drilled, completed, produced and prorated as gas wells. It is the intention of this order to combine the pools now designated as the Jalco Gas Pool and the Langmat Gas Pool and to make the vertical limits of said pools coincide at a point 100 feet above the base of the Seven Rivers formation.

(b) All wells within the areal limits described in Exhibit "A" producing only from an interval from below a point 100 feet above the base of the Seven Rivers formation to the base of the Queens formation shall be considered to be oil wells within the oil pools heretofore designated by the Commission and shall be drilled, completed, produced, and prorated as oil wells subject to the limiting gas/oil ratio imposed herein.

(c) Any wells within the areal limits described in Exhibit "A" which are producing from both the Jalmat Gas Pool and the oil pool described in 1(b) above shall be classified as gas wells and prorated as such if the producing gas/oil ratio is in excess of 100,000 cu. ft. of gas to each barrel of oil. If the gas/oil ratio is less than 100,000 to 1 then such wells shall be prorated as oil wells subject to the limiting gas/oil ratio imposed herein.

2. In order to prevent waste, the escape into the open air of any gas from oil wells as defined herein or residue gas originating therefrom is prohibited.

3. There is hereby imposed a limiting gas/oil ratio of 10,000 cu. ft. of gas to one barrel of oil, based upon a standard 40 acre oil proration unit allowable, such limit to apply to all oil wells defined in 1(b) or 1(c) above.

4. That Special Pool Rules applicable to the Jalmat Gas Pool be, and the same hereby are, promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE JALMAT GAS POOL
LEA COUNTY, NEW MEXICO

RULE 1. Any well drilled a distance of one mile or more from the outer boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile from the outer boundary of the Jalmat Gas Pool or within the limits of the said Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations.

RULE 2. Each gas well drilled within the Jalmat Gas Pool shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to the quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to a well drilling to or capable of producing from the same pool.

RULE 3. The Secretary of the Commission shall have authority to grant exceptions to the requirements of Rule 2 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a written stipulation that all operators within such radius have been properly notified. The Secretary of the Commission shall wait at least 10 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104 Paragraph (k), shall not apply to the Jalmat Pool located in Lea County, New Mexico; provided, however, that all locations valid under orders prior to this order shall be considered orthodox locations.

RULE 5. The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and other relevant data and shall fix the allowable production of the Jalmat Gas Pool, and shall allocate production among the gas wells in the Jalmat Gas Pool upon a reasonable basis with due regard to correlative rights.

PRORATION UNITS

RULE 6 (a). For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys, except that in correction sections the requirement shall be waived; provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing or as provided in paragraph 6(b) herein.

(b) The Secretary of the Commission shall grant an exception to Rule 6(a) without notice and hearing where the following facts exist and the following provisions are complied with:

1. Application to form a non-standard unit has been filed with the Commission.

2. The acreage assigned a non-standard unit is adjacent to or contiguous with the acreage which is adjacent to or contiguous with the acreage containing the well.

3. Applicant furnishes the Commission with evidence that a copy of the application has been mailed to offset operators.

4. There is no objection in writing from any offset operator within 10 days after receipt of the application by the Commission.

(c) The allowable for any non-standard unit shall be increased or decreased in the proportion that the standard proration unit allowable bears to the number of acres in the non-standard unit.

(d) All acreage included in a non-standard unit shall be presumed to be productive of gas.

(e) No non-standard unit shall contain more than 640 acres, except where any portion of the unit is in the correction sections referred to in Rule 6(a) then such additional acreage may be added to the full 640 acres and the unit allowable increased accordingly, provided that for allocation purposes such unit shall not exceed 700 acres.

GAS ALLOCATION

RULE 7. The allocation of gas shall be upon a 100% acreage basis.

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser, upon forms prescribed by the Commission, its "preliminary nominations" of the amount of gas which each in good faith desires to purchase under its gas purchase contracts within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period and shall issue its "Preliminary Allowable Schedule" for such period.

RULE 9. Each month, the Commission shall cause to be submitted by each gas purchaser, upon forms prescribed by the Commission, its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase under its gas purchase contracts within the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month,

and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month, taking into consideration the proviso in Rule 8 herein. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top allowable units shall be reduced proportionately, and in the event the allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 10. Underproduction: the dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 11. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equalling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 12. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 13. Allowables for newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 14. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission on Form C-115 so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced. The full production of gas from each well shall be

charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 15. The term "gas purchaser" as used in these rules, shall mean a "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

5. This order shall supersede Orders R-368, R-368-A, R-369, and R-369-A except that such orders shall be deemed to have been in full force and effect from their effective dates to the effective date of this order. This order supersedes all previous orders defining limits of oil or gas pools not consistent herewith.

EXHIBIT "A"

Areal Limits of Jalmat Gas Pool

The producing formation for the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation.

Township 21 South, Range 35 East, N.M.P.M.
E/2 Sec. 12; E/2 Sec. 13; E/2 Sec. 24.

Township 21 South, Range 36 East, NMPM
W/2 Sec. 7; W/2 Sec. 18; W/2 and SE/4 Sec. 19; SW/4 Sec. 20; All Secs. 29 thru 32 incl.

Township 22 South, Range 36 East, NMPM
All Secs. 5 thru 8 incl.; All Sec. 17; N/2 and SE/4 Sec. 18; NE/4 Sec. 19; All Sec. 20; NW/4 Sec. 28; All Sec. 29 and 32; SW/4 Sec. 33.

Township 23 South, Range 36 East, NMPM
All Sec. 4; N/2 and SE/4 Sec. 5; E/2 Sec. 8; All Sec. 9; All Sec. 16; NE/4 Sec. 17; All Sec. 21; W/2 Sec. 27; E/2 Sec. 28; E/2 Sec. 33; W/2 and SE/4 Sec. 34.

Township 24 South, Range 36 East, NMPM
All Sec. 3; E/2 Sec. 4; NE/4 Sec. 9; N/2 and SE/4 Sec. 10; W/2 Sec. 11; All Sec. 14; E/2 Sec. 15; All Secs. 22 and 23; S/2 Sec. 25; All Sec. 26; E/2 Sec. 27; E/2 Sec. 34; All Secs. 35 and 36.

Township 24 South, Range 37 East, NMPM
S/2 Sec. 31

Township 25 South, Range 36 East, NMPM
All Sec. 1; N/2 Sec. 2; All Secs. 12, 13, 24 and 25; NE/4 Sec. 36.

Township 25 South, Range 37 East, NMPM
All Secs. 6 and 7; SW/4 Sec. 8; S/2 and NW/4 Sec. 16; All Secs. 17 thru 21 incl.; All Secs. 28 thru 33 incl.; W/2 Sec. 34

Township 26 South, Range 37 East, NMPM
W/2 Sec. 3; All Secs. 4 thru 9 incl.; W/2
Sec. 10; All Secs. 18 and 19; W/2 Sec. 29;
E/2 and NW/4 Sec. 30; NE/4 Sec. 31; NW/4
Sec. 32

Township 21 South, Range 36 East, NMPM
W/2 Sec. 28; All Secs. 33 and 34.

Township 22 South, Range 36 East, NMPM
All Secs. 3, 4, 9 and 10; SW/4 Sec. 11;
W/2 Sec. 14; All Secs. 15 and 16; All Secs. 21,
22 and 23; All Secs. 25, 26, 27; S/2 and NE/4
Sec. 28; N/2 and SE/4 Sec. 33; All Secs. 34,
35 and 36.

Township 22 South, Range 37 East, NMPM
SW/4 Sec. 31.

Township 23 South, Range 36 East, NMPM
All Secs. 1, 2 and 3; All Secs. 10 thru 15 incl.;
All Secs. 22 thru 26 incl.; E/2 Sec. 27; NE/4
Sec. 34; All Secs. 35 and 36.

Township 23 South, Range 37 East, NMPM
All Secs. 6, 7, 18 and 19; W/2 Sec. 29;
All Secs. 30 and 31; W/2 Sec. 32.

Township 24 South, Range 36 East, NMPM
All Secs. 1 and 2; E/2 Sec. 11; All Secs. 12,
13, 24; N/2 Sec. 25.

Township 24 South, Range 37 East, NMPM
All Secs. 4 thru 9 incl.; W/2 Sec. 9; W/2
Sec. 16; All Sec. 17 thru 21 incl.; All Secs.
28, 29 and 30; N/2 Sec. 31; All Secs. 32 and
33; SW/4 Sec. 34.

Township 25 South, Range 37 East, NMPM
W/2 Sec. 3; All Secs. 4 and 5; N/2 and SE/4
Sec. 8; All Sec. 9; W/2 and SE/4 Sec. 10;
All Sec. 15; NE/4 Sec. 16; All Sec. 22; N/2
Sec. 27.

C. MELVIN NEAL
W. D. GIRAND, JR.
KERMIT E. NASH
W. D. GIRAND, SR.
J. W. NEAL

NEAL & GIRAND
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONES:
3-5171 3-5172
P. O. BOX 1326

May 20, 1954

MAIN OFFICE OCC
1954 MAY 24 AM 9:44

Oil Conservation Commission,
Santa Fe, New Mexico.

Attention: Mr. R. R. Spurrier

In re: Case No. 854, Gas Proration Order

Gentlemen:

It was announced at the close of the hearings on May 10th and May 11th that the Commission would receive proposed and suggested orders covering the four gas pools as heretofore delineated in Lea County, New Mexico, and in compliance with the Commission's request I am enclosing, in quadruplicate, a proposed order covering rules and regulations insofar as they pertain to the Eumont Gas Pool.

By way of explanation, I may state that the enclosed rules are patterned to a great extent from the existing rules and from the proposed rules submitted by Gulf Oil Corporation and Continental Oil Company with this principal exception: The rules submitted by the writer make provision for the production of gas from existing gas wells being completed and producing as gas wells prior to January 1, 1952 as a full production unit, irrespective of the acreage assigned to said wellbore; providing, however, that all acreage available within the designated section controlled by the operator must be assigned to the well or wells so that an operator will not gain by having available acreage undeveloped by being able to create an additional proration unit by not assigning acreage to existing wellbores in excess of the forty acre unit upon which the well was originally drilled.

The submitted rules further differ from the rules submitted by Gulf Oil Corporation and Continental Oil Company in that the oil-gas ratio used to define a gas well is brought forward into the volume of gas allowed to be produced from a designated oil well rather than the differential as set forth in the two companies' proposals.

We feel that the rules as prepared will more equitably protect the correlative rights of all operators and will preserve the existing rights of those operators who have heretofore, in good faith, under legal order, drilled for and developed a well for the production of natural gas.

Respectfully submitted,

NEAL & GIRAND,

BY: W. D. Girand, Jr.

G/cl
Encls.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

PROPOSED ORDER OF THE OIL CONSERVATION COMMISSION
IN REGARD TO CASE NO. 584 AND COMPANION CASES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 o'clock A.M. on October 28, 1953 at Santa Fe, New Mexico and from month to month thereafter until final hearing on May 10, 1954, 9:30 A.M. at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereafter referred to as the "Commission".

NOW, on this the _____ day of _____, 1954. the Commission, a quorum being present, having considered the testimony adduced, the exhibits received, statements of interested parties, the official records of this Commission and other pertinent data, and being fully advised in the premises, finds:

(1) That due public notice having been given, the Commission has jurisdiction of this cause.

(2) That the Commission, for the purpose of preventing waste and drainage and for the protection of correlative rights, entered Order R-356, establishing certain general or stand-by rules and regulations relating to the proration of gas wells, proration units, well spacing, and other related matters in the gas pools of Eddy, Lea, Chaves and Roosevelt Counties, New Mexico, applicable in all cases only after special rules for each gas pool shall have been promulgated.

(3) That thereafter, after due notice and hearing, Order R-370 was duly entered by the Commission. Order R-370 adopted the general or stand-by rules promulgated by Order R-356 as the special rules and regulations of the Eumont Gas Pool, heretofore established. Order R-370 was entered pending a further order in the premises, said order to be entered only after all interested parties were afforded an opportunity to be heard in the matter.

(4) That thereafter the Commission continued to take testimony and hear statements of all interested parties through the 11th day of May, 1954, and as a result of such hearings and after consideration of the testimony adduced, determined that special pool rules should be promulgated for the Eumont Gas Pool, heretofore established, described and classified as a gas pool.

(5) That pending further study and orders the allocation of gas in the Eumont Gas Pool should be calculated on the basis of 100% acreage, based upon 160 acre proration units, which unit is limited to 160 acres within any section of the U. S. Public Land Surveys and such unit to consist of not less than 158 nor more than 162 acres substantially in the form of a square insofar as the creation of units for the production of gas from existing gas wells. And further, requiring the creation of standard 160 acre proration units limited to a regular quarter section subdivision of the U. S. Public Land Surveys and consisting of not less than 158 nor more than 162 acres on all units established for the drilling of gas wells from and after the effective date of this Order and provided further, that provision for deviation therefrom, particularly in cases of

wells heretofore completed, where the impracticability of unitization is apparent.

(6) That an adequate gas well testing procedure should be adopted as soon as possible so that operators, purchasers and the Commission can determine the fairness and feasibility of an allocation factor for the pool which employs the factors of deliverability, pressure, or any other factor relating to gas well productivity.

IT IS THEREFORE ORDERED:

That Special Pool Rules applicable to the Eumont Gas Pool be and the same are hereby promulgated and are as follows:

SPECIAL RULES AND REGULATIONS
FOR THE EUMONT GAS POOL
LEA COUNTY, NEW MEXICO

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the rules and regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled within the Eumont Gas Pool after the effective date of this Order shall be drilled not closer than 660 feet to any boundary line of the proration unit, nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary within said unit, nor closer than 1,320 feet to a well drilling to or capable of producing from the same pool. Any well drilled to and producing from the Eumont Gas Pool, as defined, prior to the

effective date of this Order at a location conforming with the spacing requirements effective at the time said well was drilled, shall be considered to be located in conformance with this rule and such well or wells shall be entitled to a full unit allowable irrespective of the available acreage assignable to said well; provided, however, the operator shall assign contiguous acreage within the legal section to such existing well or wells as is owned and controlled by said operator to the extent required for a standard proration unit where possible.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by recompletion of a well previously drilled to another horizon.

Applicant shall furnish all operators within a 1,320 foot radius of the proposed well a copy of the application to the Commission. The application shall include a list of names and addresses of all operators within such radius together with proof that notice has been given said operators at the addresses given. The Secretary of the Commission shall approve such unorthodox location at the expiration of ten days from the receipt of said application, providing no objections to the granting of said application have been received from operators owning off-set property within a 1,320 foot radius; however, in the event objections in writing have been received by the Commission from an operator owning off-set property within a 1,320 foot radius to the granting of the

unorthodox location, then the Commission shall assign the application a case number and after due notice and hearing, consider the application.

RULE 4. The provisions of state-wide Rule 104 Paragraph (k) shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION RULE

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. In the Eumont Gas Pool a standard proration unit shall consist of between 158 and 162 contiguous surface acres, substantially in the form of a square, and located within a single designated section of the U. S. Public Land Surveys, provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined, prior to the effective date of this order at a location conforming with the spacing requirements in effect at the time said well was drilled, shall be entitled to a full unit allowable irrespective of the available acreage assignable to said well; provided further, however, the operator shall assign all acreage owned to such existing well or wells as is owned and controlled by said operator within the regular section of the U. S. Public Land Surveys to the extent of the acreage required to form a standard proration unit.

A non-standard gas proration unit may be formed after notice and hearing by the Commission or under the provisions of Paragraph (b) of this rule.

Any gas proration unit containing between 158 and 162 acres shall be considered to contain 160 acres for the purpose of computing allowables.

Not more than one allowable shall be assigned to any well bore irrespective of the number of acres assigned by the operator to the unit.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without notice or hearing where application has been filed in due form and where the following facts are found by the Secretary to exist and the applicant has complied with the following provisions:

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections or lots lying wholly within a designated section of U. S. Public Land Surveys.

2. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

3. The length or width of the non-standard gas proration unit does not exceed 5,280 feet.

4. The applicant presents written consents in form of waivers from (1) all operators owning interests in the section in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit; and (2) all operators owning interest within 1,500 feet of the wellsite at which said gas proration unit is proposed to be allocated or applicant may furnish proof of notice to all operators owning interest in the section as well as operators owning interest within 1,500 feet of the wellsite of applicant's intent

to form such non-standard gas proration unit. In such case the Secretary of the Commission shall defer action on said application until the expiration of ten days from the date of the receipt of said application and in the event no formal protest in writing giving the reasons therefor have been filed with the Commission, the Secretary may approve the application without notice or hearing.

RULE 6. (a) The Commission, after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other gas pools as well as other relative data and shall fix the allowable production of the Eumont Gas Pool and shall allocate the allowable production among the gas wells in the Eumont Gas Pool upon a reasonable basis with due regard to the total nominations for gas and with due regard to correlative rights.

(b) The maximum allowable assigned to any well shall be fixed by first deducting allowables assigned to marginal wells and the remainder of the gas allowable within the Eumont Pool to be allocated to the remaining gas wells in proportion that the number of acres contained in the gas proration unit for the particular well bears to the allowable fixed per 160 acre unit, except as to those designated gas wells being operated and produced by operators on the 1st day of January, 1952 as gas wells, such wells to receive full unit allowable regardless of the number of acres attributable to the proration unit assigned to said well.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount

of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top allowable units shall be reduced proportionately, and in the event that allowable assigned is less than the production, then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental

Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal gas proration units as established by the Commission.

RULE 9. Underproduction: The dates 7:00 A.M., January 1st and 7:00 A.M., July 1st, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as under-production, the

amount carried forward to the second succeeding period shall be the total under-production less the amount carried forward to the first succeeding period.

If it appears that such continued under-production has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING ALLOWABLES

RULE 11. No gas well completed and producing on January 1, 1954, shall be given an allowable until Form C-104 and Form C-110

have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date the operator has furnished the Commission with all of the gas well testing data now required or hereafter required by the Commission in order to establish the productivity of the well or on the date of the filing of Form C-104 and Form C-110 together with plat described in Rule 11, however, should the operator of a newly completed gas well or wells fail to procure a connection to a gas transportation facility within the second proration period after the date of completion of the well, then and in that event the allowable attributable to such newly completed gas well or wells shall be cancelled as to the first proration period allowable and in no event shall any newly completed gas well be allowed a gas allowable covering a greater proration period than the period in which a connection with a gas transportation facility is obtained and the proration period immediately preceding the date of connection, providing the well was completed within said period.

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The flow production of gas from each gas well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters and combustion engines for pumping equipment, shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 10,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Pool and not classified as a gas well, as defined in Rule 14, shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

GENERAL PROVISION

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Pool shall be flared or vented unless specifically authorized by order of the Commission after due notice and hearing.

RULE 18. Oil wells producing from the Eumont Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

El Paso Natural Gas Company

TENTH FLOOR BASSETT TOWER

El Paso, Texas

Exhibit #
Case 673

PAUL KAYSER
PRESIDENT

April 9, 1954

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
El Paso EXHIBIT No. 1
CASE 673

Mr. Ben R. Howell
710 Bassett Tower
El Paso, Texas

Dear Mr. Howell:

In order that you may be acquainted with our plans in respect to nominations for gas from Lea County for our market in compliance with proration orders, we wish to state to you that we expect to make nominations each month for the gas that we will require from the so-called "dry gas" wells in Lea County, New Mexico, the nominations to be made for the entire area.

These nominations will be made, as far as possible, so that the average quantity that is taken throughout the year will be at least as much as the minimum quantities that we are required to take under all of our contracts covering dry gas from Lea County, New Mexico. Under our contracts we have the right to make up deficiencies over certain periods of time. In the event we are unable to make nominations in any year for the full minimum requirements of all of our contracts, we would expect to preserve the right to make up such deficiencies and in the event we are unable to make up such deficiencies within the period of time covered by the contracts we will expect to pay the producers in accordance with the terms of the contracts.

Yours very truly,

Paul Kayser

President

PK:m

Case 673

Warren Petroleum Corporation

MAIN OFFICE OCC
1954 MAY 17 AM 10 05

P. O. Box 1589
Tulsa 2, Oklahoma

May 13, 1954

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier

Gentlemen:

Warren Petroleum Corporation wishes to commend the New Mexico Oil Conservation Commission for their perseverance in investigating gas proration, and are grateful for the exhaustive work presented by various companies and the Commission.

We urge the Commission to adopt the rules recommended by Gulf Oil Corporation.

Yours very truly,

WARREN PETROLEUM CORPORATION,
OIL DIVISION

E. S. Calvert

RCS:dw

Case 673

Suggestions of EPNG Co

p 3 - Finding (12) Substitute - "That information presently available to the Commission is not adequate to permit allocation of gas allowables on any basis other than acreage.

p 4 Rule 5. Does this rule affect Statewide Rule 104 (d)? Is a well drilled on 160 a such a "non-standard" proration unit as to require hearing?

p 18 Rule 9. There is no provision for reallocating underproduction.

p 21 Rule 17. Flaring is prohibited only in Jalmat Pool. Should this not include the oil pools within the lateral boundaries of the Jalmat Gas Pool?

Check on dump away with Cones on Rhodes

MAIN OFFICE OCC

PHILLIPS PETROLEUM COMPANY

1954 JUL 6

Amarillo, Texas
July 1, 1954

Mr. W. B. Macey
Chief Engineer
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Re: Proposed Gas Proration Order,
Lea County, New Mexico

Dear Sir:

Transmitted herewith is the proposed Lea County Gas Proration Order which you were kind enough to lend me.

In connection with this order I have a few suggestions which I believe would make the order more complete with respect to administration. I have made no suggestions with respect to pool delineations, since such delineations are subject to the interpretation of the testimony presented.

On page 15 under Rule 5 (a) in the first paragraph, I would suggest that the paragraph be changed to read as follows:

> "RULE 5.(a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys, with a well located at least 1980 feet from the nearest property line; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule."

I believe that this additional language with respect to well location will prevent any attempt to assign 640 acres to a well located only 660 feet from the nearest property lines.

On page 15 under Rule 5 (a) I would suggest that the second paragraph be changed to read as follows:

> "The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a full unit shall be in the ratio of the area of such non-standard proration unit to 640 acres."

I believe that this change will make the application of the rule clearer without regard to the type of allocation formula adopted, so long as such allocation formula contains acreage in each term of the proration formula.

With respect to this same Rule 5 (a) I would suggest an additional paragraph which would read as follows:

> "In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 Acres
660' - 1980'	320 Acres."

I believe that such a rule is necessary to prevent inequities from developing due to the location of wells previously drilled to other horizons which may be re-completed in the particular gas field.

On page 20 under Rule 13, the last paragraph appears to exempt from consideration any gas used on the lease, regardless of the purpose for which it is used. I would therefore recommend that this paragraph be changed to read as follows:

> "The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used for the purposes of producing the particular well in question shall not be charged against the well's allowable."

I believe that this will more clearly comply with the intent that gas used for compression or used in cleaning the wells shall not be charged against the well's allowable, since such use is often necessary in the production of gas wells.

I appreciate your consideration in giving me this opportunity to comment on the proposed order and feel that generally the order is a very good solution to the complicated problem of placing old gas fields on proration. If there is any way that I may be of assistance in regard to matters other than those I have mentioned, I would appreciate hearing from you.

Very truly yours,

M. H. Cullender

Enc.
MHC:fe

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
ORDER NO. R-

THE APPLICATION OF THE OIL
CONSERVATION COMMISSION UPON
ITS OWN MOTION FOR AN ORDER
AMENDING, REVISING OR ABRO-
GATING EXISTING RULES AND REGU-
LATIONS OF THE OIL CONSERVATION
COMMISSION, AND/OR PROMULGATING
ADDITIONAL RULES AND REGULATIONS,
RELATING TO GAS POOL DELINEATION,
GAS PRORATION, AND OTHER RELATED
MATTERS, AFFECTING OR CONCERNING
THE JALCO, LANGMAT, EUMONT, AND
ARROW GAS POOLS, LEA COUNTY, NEW
MEXICO.

THE ORDER CONTEMPLATED WILL
PERTAIN TO GAS POOL DELINEATION,
GAS PRORATION, GAS WELL SPACING,
GAS WELL ALLOWABLES, GAS PRORATION
UNITS AND RELATED MATTERS, AFFECTING THE
FOLLOWING DESIGNATED GAS POOLS, SITUATED
IN LEA COUNTY, NEW MEXICO: JALCO GAS POOL,
LANGMAT GAS POOL, EUMONT GAS POOL, ARROW
GAS POOL. IN CONSIDERING THE FOREGOING
MATTERS, NOTICE IS FURTHER GIVEN THAT
THE CONTEMPLATED ORDER MAY AFFECT THE
FOLLOWING DESIGNATED OIL POOLS SITUATED
IN LEA COUNTY, NEW MEXICO: EUNICE-MONUMENT
OIL POOL, SOUTH EUNICE OIL POOL, HARDY OIL
POOL, PENROSE-SKELLY OIL POOL, COOPER-JAL
OIL POOL, ARROWHEAD OIL POOL, LANGLIE-
MATTIX OIL POOL, FALBY-YATES OIL POOL,
RHODES OIL POOL, LEONARD OIL POOL, SOUTH
LEONARD OIL POOL, AND EAVES OIL POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a. m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this day of , 1954, the Commission, a quorum being present, having considered the records and testimony adduced, and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extended the horizontal limits of the Jalco and Eumont gas pools and extended the vertical limits of the Eumont gas pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos. R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco, Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That there is substantial evidence in the record in this case that waste is being committed in the Jalco, Eumont, Langmat and Arrow gas pools and that in order to prevent waste and protect correlative rights it is necessary to prorate gas production in the Jalco, Langmat, Eumont and Arrow gas pools in accordance with the Rules prescribed herein.

(5) That there is need for consolidation of the Jalco and Langmat pools into one gas pool to be designated the Jalmat gas pool.

(6) That there is need for a re-definition of the vertical limits of the following oil pools so that the vertical limits of the overlying gas pools will be distinct and separate from the vertical limits of the underlying oil pools: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool.

(7) That there is need for the adoption of special rules to govern the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools.

(8) That there is need for the adoption of special rules to govern the production of oil from wells completed in such a manner that the bore hole of the well is open in both the upper gas pools and the lower oil pool.

(9) That there is need for the adoption of a Gas-Oil Ratio limit of 10,000 in the following oil pools in which no limiting ratio is presently in effect: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool.

(10) That a "No Flare" rule should be adopted to prohibit the flareing, venting or wasting of casinghead gas or any other type of gas in any of the oil or gas pools covered by this order.

(11) That there is substantial evidence that one well will efficiently and economically drain 640 acres in the Jalmat, Eumont and Arrow gas pools.

(12) That the allocation of gas allowables to wells in the Jalmat, Eumont and Arrow gas pools should be calculated on a 100% acreage basis.

IT IS THEREFORE ORDERED:

(1) (a) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Tansill formation to the base of the Queen formation thereby including all of the Yates and Seven Rivers formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Tansill formation to the base of the Queen formation thereby including all of the Yates and Seven Rivers formations. The horizontal limits of the Arrow Gas Pool shall be the area as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool
Eaves Oil Pool
Rhodes Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be as the area described in Exhibit "F" attached hereto and made a part hereof.

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That the horizontal limits of the following oil pools heretofore described by various Commission orders shall remain unchanged:

Eaves Oil Pool
Rhodes Oil Pool

(11) That the Falby-Yates Oil Pool heretofore created, defined and described shall be abolished and all oil wells presently producing from the

Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(12) That that portion of the Rhodes Storage area lying within the defined limits of the Jalmat Gas Pool shall be exempt from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage area shall include the following described area:

Township 26 South, Range 37 East, NMPM.

Sec. 4: W/2 NW/4, SE/4 SE/4, W/2SE/4, SW/4;
Sec. 5: All
Sec. 6: NE/4 NW/4, NE/4, SE/4 SE/4N/2 SE/4
Sec. 7: NE/4 NE/4
Sec. 8: N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9: All
Sec. 10: W/2 NW/4, SE/4 NW/4, S/2
Secs. 15 and 16: All
Sec. 17: E/2 NW/4, E/2
Sec. 20: E/2
Secs. 21 and 22: All
Sec. 23: SW/4 NW/4, SW/4
Secs. 26, 27 and 28: All
Sec. 29: E/2 NE/4

EXHIBIT "A"

Horizontal limits of the Jalmat Gas Pool

Township 21 South, Range 36 East
All of Section 31,
SW/4 of Section 32,
All of Secs. 33 and 34.

Township 22 South, Range 35 East
E/2 Section 13.

Township 22 South, Range 36 East
All of Secs. 3 through 10, inclusive,
W/2 Sec. 11,
W/2 Sec. 14,
All of Secs. 15 through 18, inclusive,
NE/4 Sec. 19,
All of Secs. 20 through 23, inclusive,
W/2 Sec. 24,
All of Secs. 25 through 29, inclusive,
All of Secs. 32 through 36, inclusive.

Township 22 South, Range 37 East
SW/4 Sec. 31.

Township 23 South, Range 36 East
All of Secs. 1 through 4, inclusive,
N/2 and SE/4 Sec. 5,
E/2 Sec. 8,
All Secs. 9 through 16, inclusive,
NE/4 Sec. 17,
All Secs. 21 through 27, inclusive,
E/2 Sec. 28,
E/2 Sec. 33
All Secs. 34, 35 and 36.

Township 23 South, Range 37 East
All Secs. 6, 7, S/2 Sec. 8,
All Secs. 17 through 21, inclusive,
All of Secs. 28 through 33, inclusive.

Township 24 South, Range 36 East
All of Secs. 1, 2 and 3,
E/2 Sec. 4,
NE/4 Sec. 9,
N/2, SE/4 Sec. 10,
All of Secs. 11 through 14, inclusive,
E/2 Sec. 15,
All Secs. 22 through 26, inclusive,
E/2 Sec. 27,
E/2 Sec. 34,
All Secs. 35 and 36

Exhibit "A" (Cont'd)

Township 24 South, Range 37 East
All of Secs. 5, 6, 7 and 8,
W/2 Sec. 9,
W/2 Sec. 16,
All of Secs. 17 through 23, inclusive,
All of Secs. 26 through 35, inclusive,

Township 25 South, Range 36 East
All of Sec. 1,
N/2 Sec. 2,
All of Secs. 12, 13, 24 and 25,
NE/4 Sec. 36,

Township 25 South, Range 37 East
All Secs. 2 through 33, inclusive
W/2 Sec. 34

Township 26 South, Range 37 East
W/2 Sec. 3,
All Secs. 4 through 9, inclusive,
W/2 Sec. 10,
All of Secs. 15 through 22, inclusive,
All Secs. 27, 28 and 29,
N/2, SE/4 Sec. 30,
E/2 Sec. 31,
All of Secs. 32, 33 and 34.

EXHIBIT "B"

Horizontal limits of the Eumont Gas Pool

Township 19 South, Range 36 East
All of Secs. 12, 13, 14, 23, 24, 25, 26,
E/2 Sec. 27,
E/2 Sec. 34,
All of Secs. 35 and 36.

Township 19 South, Range 37 East
All of Secs. 7, 8, 17, 18, 19, 20,
W/2 Sec. 21
W/2 Sec. 27
All of Secs. 28, 29, 30, 31, 32, 33 and 34

Township 20 South, Range 36 East
All of Secs. 1, 2
E/2 Sec. 3
E/2 Sec. 10
All of Secs. 11, 12, 13 and 14,
NE/4 Sec. 15,
N/2 and SE/4 Sec. 23,
All of Secs. 24 and 25
E/2 Sec. 26
E/2 Sec. 35
All Sec. 36

Township 20 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 through 10, inclusive
W/2 Sec. 11
All of Secs. 15 through 22, inclusive
S/2 Sec. 23
All of Secs. 26 through 35, inclusive

Township 21 South, Range 35 East
All of Sec. 1
NE/4 Sec. 11
All of Sec. 12
All of Secs. 13 and 24

Township 21 South, Range 36 East
All of Secs. 1 through 21, inclusive,
N/2 and SW/4 Sec. 22
W/2 Sec. 27
All of Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32

Township 21 South, Range 37 East
All of Secs. 7 and 18

EXHIBIT "C"

Horizontal limits of the Arrow Gas Pool

Township 21 South, Range 36 East
SE/4 Sec. 24
All Sec. 25
E/2 Sec. 26
NE/4 and S/2 Sec. 35
All Sec. 36

Township 22 South, Range 36 East
All of Secs. 1 and 2
NE/4 Sec. 11
All of Sec. 12
N/2 and SE/4 Sec. 13

Township 22 South, Range 37 East
W/2 Sec. 7
All Sec. 18
N/2 Sec. 19

EXHIBIT "D"

Horizontal limits of the Eunice-Monument Oil Pool

Township 19 South, Range 36 East
E/2 Sec. 12
All of Sec. 13
All Secs. 23 through 27, inclusive
All Secs. 34, 35 and 36

Township 19 South, Range 37 East
SW/4 Sec. 3
S/2 Sec. 4
All of Secs. 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All Secs. 17 through 21, inclusive
S/2 Sec. 27
All Secs. 28 through 34, inclusive.

Township 20 South, Range 36 East
All Secs. 1, 2 and 3,
All Secs. 10 through 14, inclusive
E/2 Sec. 15
All Secs. 23 through 26, E/2 Sec. 27,
All Secs. 35 and 36

Township 20 South, Range 37 East
All Secs. 3 through 10, inclusive
All Secs. 15 through 21, inclusive
W/2 Sec. 22
All Secs. 29 through 33, inclusive

Township 21 South, Range 35 East
All Secs. 1, 12, 13, 24
E/2 Sec. 25

Township 21 South, Range 36 East
SW/4 Sec. 1
All of Secs. 2 through 11, inclusive
W/2 Sec. 12
W/2 Sec. 13
All Sec. 14 through 22, inclusive
NW/4 Sec. 23
W/2 Sec. 27
All Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32
All Sec. 33
W/2 Sec. 34

EXHIBIT "E"

Horizontal limits of the Cooper-Jal Oil Pool

Township 23 South, Range 36 East
All of Secs. 4, 5, 8, 9, 15, 16, 17, 20, 21, 22, 27, 28, 33 and 34

Township 24 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 and 4
N/2 Sec. 9
All Sec. 10
W/2 Sec. 11
SW/4 Sec. 13
All Secs. 14 and 15
All Secs. 22, 23,
NW/4 and W/2 SW/4 Sec. 24
W/2 Sec. 25
All Secs. 26, 27, 34 and 35
W/2 Sec. 36

Township 25 South, Range 36 East
All Secs. 1, 2, 3, 11, 12, 13, 14, 23, 24, 25, 26 and 36

Township 25 South, Range 37 East
SW/4 Sec. 6
W/2 Sec. 7
W/2 Sec. 18
W/2 and W/2 E/2 Sec. 19
W/2 Sec. 30
All Sec. 31
SW/4 Sec. 32

EXHIBIT "F"

Horizontal limits of the Langlie-Mattix Oil Pool

Township 23 South, Range 36 East
All of Secs. 1, 2, 3, 10, 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36

Township 23 South, Range 37 East
W/2 Sec. 6,
All of Secs. 7, 18, 19
W/2 W/2 Sec. 26
All Sec. 27
S/2 Sec. 28
All Secs. 29 through 35, inclusive

Township 24 South, Range 36 East
All Sec. 1,
E/2 Sec. 2
E/2 Sec. 11
All Sec. 12
N/2 and SE/4 Sec. 13
E/2 and E/2 SW/4 Sec. 24
E/2 Sec. 25
E/2 Sec. 36

Township 24 South, Range 37 East
All of Secs. 2 through 11, inclusive
All of Secs. 14 through 23, inclusive
SW/4 Sec. 25,
All Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 25 South, Range 37 East
All of Secs. 2 through 5, inclusive
N/2 and SE/4 Sec. 6
E/2 Sec. 7
All of Secs. 8 through 11, inclusive
W/2 Sec. 13
All Secs. 14 through 17, inclusive
E/2 Sec. 18
E/2 E/2 Sec. 19
All Secs. 20 through 23, inclusive
W/2 Sec. 24
W/2 Sec. 24
W/2 Sec. 25
All Secs. 26 through 29, inclusive
E/2 Sec. 30
N/2, SE/4 Sec. 32
All Secs. 33, 34, and 35
W/2 Sec. 36

Township 25 South, Range 37 East
NW/4 Sec. 1
NE/4 Sec. 2

EXHIBIT "G"

Horizontal limits of the South Eunice Oil Pool

Township 21 South, Range 35 East
E/2 Sec. 36

Township 21 South, Range 36 East
All Sec. 31
SW/4 Sec. 32

Township 22 South, Range 35 East
E/2 Sec. 1

Township 22 South, Range 36 East
W/2 Sec. 3
All Secs. 4 through 10, inclusive
SW/4 Sec. 11
W/2 Sec. 14
All Secs. 15 through 23, inclusive
All Secs. 25 through 29, inclusive
E/2 Sec. 30
NE/4 Sec. 31
All Secs. 32 through 36, inclusive

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled within the Jalmat Gas Pool after the effective date of this rule shall be drilled not closer than 660 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line nor closer than 1320 feet to a well drilling to or capable of producing from the Jalmat Gas Pool. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this Order at a location conforming with the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection

of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

Any non-standard gas proration unit containing less than 632 acres shall receive an allowable decreased to that proportion of the allowable of a standard gas proration unit which the number of acres contained in said non-standard gas proration unit bears to 640. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2/ The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may

reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and other relevant data and shall fix the allowable production of the Jalmat Gas Pool, and shall allocate production among the gas wells in the Jalmat Gas Pool upon a reasonable basis with due regard to correlative rights.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith

actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a Proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

'Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 A. M., January 1 and 7:00 A. M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its

allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be re-classified as a non-marginal well the reclassification shall be effective on the first day of the proration month preceding the date of recompletion.

The Proration Manager may reclassify a well at any time if production data on deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico..

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000, provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER

After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is ope open to both the overlying gas zone and the underlying oil zone shall be classified by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before July 15, 1954. Failure of any operator to submit the required date will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If after the well has been classified the operator is not satisfied with the well's classification, he may apply for a hearing on the matter in

accordance with Commission Rule 1203.

PROVIDED FURTHER

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule. This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas Oil Ratio test schedule previously adopted is exempt from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil Ratio test schedule as outlined on Exhibit "H" attached hereto and made a part hereof.

DONE at Santa Fe, New Mexico on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

R. R. SPURRIER, Member and Secretary

SEAL

Case 673

MAIN OFFICE OCC

MAY 21 AM 8:35

CONTINENTAL OIL COMPANY

FAIR BUILDING
FORT WORTH 2, TEXAS

H. L. JOHNSTON
REGIONAL MANAGER OF PRODUCTION
SOUTHWESTERN REGION

May 21, 1954

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention of Mr. R. R. Spurrier

Gentlemen:

Re: Case 673 - New Mexico Oil Conservation Commission Docket

It will be recalled that because of the extreme shortage of time the Commission was compelled to close the hearing in the subject case on May 11, 1954, without all operators having explained their respective positions as fully and completely as they may have desired, and that in recognition of such fact the Commission extended an invitation to all operators who might desire to do so, to file a brief or letter more fully setting out the position of such operator filing the same. Continental Oil Company desires to hereby avail itself of this privilege.

During the latter part of the year 1950 Continental Oil Company and the other companies who are members of the New Mexico Federal Unit made a study of the geological and engineering features of the occurrence of shallow gas production in Southeast New Mexico. At the conclusion of this study the results thereof and the plats and cross sections prepared in connection therewith were exhibited to, and discussed with, the members of the then Lea County Operators Committee. Thereafter, at the April 1951 hearing of the New Mexico Oil Conservation Commission, Continental Oil Company, as operator of the New Mexico Federal Unit, presented to the Commission in Case No. 245 testimony and documentary evidence representing the results of the aforesaid study. The record of the hearing in Case No. 245 will reflect the fact that no operator offered any serious objections to any of the recommendations made by Continental Oil Company at said hearing.

Thereafter, on February 17, 1953, the Commission issued Order No. R-264, in Case No. 245, delineating, among others, the Jalco, Langmat, Arrow and Eumont pools, substantially as recommended by Continental Oil Company with some minor changes requested by other operators and to which changes Continental made no objections.

In Case No. 582 another operator attempted to prove to the Commission that the line separating the Jalco and Langmat Pools was not fully supported by geological or engineering information. Because of testimony presented in that hearing the Commission called the present hearing for the purpose of determining the proper pool boundaries and the proper rules with which to regulate the shallow gas production in the southeast Lea County area.

Continental engineers reviewed the data which had been prepared in 1950 and 1951, in addition to other information which had been made available since that time. On the basis of that study our engineers were unable to find any reason to change the pool boundaries as established by Order No. R-264.

Some comments were made, perhaps in jest, that there was some significance to the fact that until the hearing just completed the operator who had recommended the present pool delineation had not spoken in support of the present pool boundaries. Actually there was no significance to that fact other than that Continental felt it had discharged its duty by recommending the present pool delineations and was satisfied therewith. Considerable comment was made in Case No. 582 that the testimony upon which the present pool delineations is based was meager and was supported by only three exhibits. True though this charge may be, it must be remembered that all operators had the opportunity to examine our exhibits and our findings and that in Case No. 245 the operators were substantially in agreement with the pool boundaries as recommended by Continental.

In recognition of the fact that the testimony supporting the present pool delineations in Case No. 245 was not as complete as might be desired, Continental decided that it owed an obligation to the Commission to present sufficient testimony and exhibits upon which to base a sound order which would not be subject to attack in the courts. We believe we have done this.

Continental Oil Company does not desire to take a position of dogmatically defending the present pool delineations. We believe they are correct. We agree that the exact definition

of the pool boundaries is not capable of definite proof. We do believe, however, that a separation between Jalco and Langmat probably does exist and that it is in the general vicinity of the line as currently drawn.

Each witness who testified as to the geology in this particular area recognized the rapid change in stratigraphy at the crest of the reef. These witnesses virtually admitted that some separation may exist in this vicinity. It is our opinion that any communication across the reef occurs through the fact that lenses from either side of the reef have been penetrated by well bores and thus joined.

Our Mr. Dailey's testimony showed that there were practical considerations which directed the separation of Jalco and Langmat. The sulphur content of the gas between the two areas is considerably different. There has been and perhaps still is some pressure differential between the two areas, although this appears to be lessening.

Furthermore, the large number of oil producing wells as compared to the gas producing wells almost dictates that special rules and special consideration should be given to the Jalco area which need not be applied to the Langmat area.

As we indicated in our statements during the hearing just concluded, Continental will have no objection if the Commission sees fit to remove the line between Jalco and Langmat. However, we do believe that sufficient evidence is in this record upon which the Commission can issue an order preserving the present delineation of the two pools. This evidence was presented by Continental because we felt that our company owed an obligation to the Commission to provide the evidence upon which the Commission could preserve the "status quo" if it saw fit to do so.

Inasmuch as the call of the hearing included a consideration of field rules, Continental Oil Company prepared some proposed changes in field rules which we feel will facilitate gas proration in Lea County. We were prepared to present these changes by sworn testimony but were prevented from doing so by shortage of time.

The changes in field rules which we are recommending are not of major consequence and are explained as follows:

RULE 1: Substitute the words "outside the boundary" for the words "from the outer boundary". This change was made for clarification.

RULE 2: The old Rule 2 was deleted inasmuch as it is felt to be unnecessary.

RULE 2: This is the previous Rule 3 and was changed to obtain automatic approval of well locations for those wells which were drilled prior to the existing field rules in conformance with rules then in existence.

RULE 3: This is the previous Rule 4 and provides that operators requesting exception for unorthodox locations shall include in their application a list of names and addresses of all operators within a radius of 1,320 feet from applicant's well, together with a stipulation that such operators have been given notice. The waiting period before approval by the Commission has been extended from ten days to twenty days.

RULE 5: This is the previous Rule 7 and has been changed for the purpose of attempting to clarify the classification of proration units as standard or non-standard, thereby eliminating the term "unorthodox proration unit".

Paragraph (b) of this rule provides for gas proration units up to 640 acres in size which is accomplished by a requirement that the length or width of the proration unit shall not exceed 5,280 feet. The rule also provides for the consideration of lots and quarter quarter sections. The necessity of obtaining waivers from offset operators has been diminished in requirement (5) of Rule 5 (b). It is believed that this requirement adequately protects all operators who could be damaged by formation of an unorthodox gas proration unit. Requirement (6) of Rule 5 (b) provides that an operator may have a non-standard proration unit approved without waiver provided that offset operators are notified and do not object within a period of thirty (30) days. This provision is felt to be important in view of the fact that there is sometimes considerable difficulty in obtaining waivers from offset operators.

RULE 6: Paragraph (b) has been added to spell out in detail that the allocation formula is based 100% on acreage.

RULE 8: This is the previous Rule 9, and has been changed to provide that gas purchasers may file supplemental nominations, but shall not be required to do so provided that no change in their market situation has developed since the filing of the "Preliminary Nomination".

RULE 10: This is the previous Rule 11, and has been changed to provide that a well which is over produced for two

consecutive proration periods shall not be shutin if it has been brought into balance within the two such proration periods.

RULE 14: This is the previous Rule 15 which has been changed to provide that the definition of a gas well shall be any well producing with a gas-oil ratio in excess of 100,000 cubic feet per barrel of oil.

RULE 15: This rule has been added and provides that any well not classified as a gas well shall be classified as an oil well.

RULE 17: This has been added and provides that no gas shall be flared from the particular gas pool covered by this order.

RULE 18: This has been added and provides a limiting gas-oil ratio of 6,000 cubic feet of gas per barrel of oil and that no oil well producing from this pool shall be allowed to produce oil in excess of the normal unit allowable provided for in Rule 505. The gas-oil ratio mentioned is not particularly the recommendation of Continental Oil Company, but we feel that the proper gas-oil ratio limitation should be in the range of 6,000 to 10,000 to 1.

We should like to take this opportunity to express our appreciation to the Commission for the courtesy and consideration shown to us and the other operators during the period of time this matter has been in issue.

We should like to suggest to the Commission that an order be issued promptly, setting out the changes in pool delineations and field rules, if any such changes are to be made. Continental Oil Company is not particularly in disagreement with present pool delineations or the present field rules, however, we are anxious to get our operations working smoothly and the status of the orders and rules governing these pools must be clarified before that can be accomplished. It is respectfully requested that this statement be incorporated in the record of Case 673 and that the Commission give it proper consideration in determining the course of action which the Commission shall take.

Yours very truly,

HLJ-FD

Carbon copies to:
Oil Conservation Commission (2)
Mr. Jason Kellahin
Santa Fe, New Mexico

EXHIBIT "H"

GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD		DEADLINE FOR FILING FORM C-116
Oil Pools				
Arrowhead	3500	Nov.	Dec.	Jan. 15, 1955
Cooper-Jal	10000	July		Aug. 15
Eunice	6000	Oct.	Nov. Dec.	Jan. 15, 1955
Monument	3000	July	Aug Sept.	Oct. 15
South Eunice	10000	July	Aug	Sept. 15
Hardy	10000	Aug	Sept	Oct. 15
Langlie-Mattix	10000	July		Aug 15
Leonard	10000	July		Aug. 15
South Leonard	10000	July		Aug. 15
Penrose-Skelly	10000	July	Aug. Sept.	Oct. 15
Rhodes	10000	July	Aug.	Sept. 15
Gas Pools				
Arrow		Oct.	Nov.	Dec. 15
Eumont		Oct.	Nov. Dec.	Jan. 15, 1955
Jalmat		Sept.	Oct. Nov.	Dec. 15

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. R-520-A

THE APPLICATION OF THE OIL CONSERVATION
COMMISSION UPON ITS OWN MOTION FOR AN
ORDER AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS OF THE
OIL CONSERVATION COMMISSION, AND/OR
PROMULGATING RULES AND REGULATIONS,
RELATING TO GAS POOL DELINEATION, GAS
PRORATION, AND OTHER RELATED MATTERS,
AFFECTING OR CONCERNING THE JALCO,
LANGMAT, EUMONT, AND ARROW GAS POOLS,
LEA COUNTY, NEW MEXICO.

NUNC PRO TUNC
ORDER OF THE COMMISSION

BY THE COMMISSION:

It appearing to the Commission that Order No. R-520, dated August 12, 1954, and heretofore entered in the records of the Commission on August 16, 1954, does not correctly and accurately state the order of the Commission in certain particulars due to inadvertence and clerical error,

IT IS THEREFORE ORDERED:

1. That order No. R-520, as the same appears in the records of the Commission, and the original of said Order, be amended in the following respects and particulars:

(a) At page 4, (10), paragraph 2, line 3 of the order entered in the Commissions's records on August 16, 1954, and at page 4, line 4 of the original signed ordr, the word "duplicate" is ordered stricken and the word "quadruplicate" is substituted therefor.

(b) At pages 7, 14, and 19 in GAS PRORATION, RULE 5 (b), # 5 of the order entered on August 16, 1954, and at pages 6, 12, and 16 of the original signed order, pertaining to the Jalmat, Eumont and Arrow Gas Pools, respectively, the words "quarter sections" are ordered stricken, and the word "section" is substituted therefor.

(c) At page 28 of the order entered August 16, 1954, and at page 23 of the original signed order, the following words, namely, "Horizontal limits of the Arrow Gas Pool" are ordered inserted beneath the words 'Exhibit "C"'.

IT IS FURTHER ORDERED: That the corrections and changes set forth in this order be entered nunc pro tunc in the original order as of August 12, 1954, and in the records of the Commission as of August 16, 1954, the date of entry of said original order.

DONE at Santa Fe, New Mexico, on this 31st day of August, 1954.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

W. B. MACEY, Member and Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. R-520

THE APPLICATION OF THE OIL
CONSERVATION COMMISSION UPON
ITS OWN MOTION FOR AN ORDER
AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS OF
THE OIL CONSERVATION COMMISSION,
AND/OR PROMULGATING RULES AND
REGULATIONS, RELATING TO GAS POOL
DELINEATION, GAS PRORATION, AND
OTHER RELATED MATTERS, AFFECTING
OR CONCERNING THE JALCO, LANGMAT,
EUMONT, AND ARROW GAS POOLS, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 12th day of August, 1954, the Commission, a quorum being present, having considered the records and testimony adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow, and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extended the horizontal limits of the Jalco and Eumont Gas Pools and extended the vertical limits of the Eumont gas pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos. R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco, Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That the Eumont and Arrow Gas Pools are separate gas reservoirs and should be defined vertically and horizontally as set forth in this order; that the Jalco and Langmat Gas Pools are in fact one common gas reservoir, and said reservoir should be designated the "Jalmat Gas Pool" and delineated as set forth in this order.

(5) That the producing capacity of the gas wells in the Jalmat, Eumont and Arrow Gas Pools is greater than the market demand for gas from each of such pools.

(6) That for the prevention of waste it is necessary to allocate and prorate the gas production among the gas wells in the Jalmat, Eumont and Arrow Gas Pools in accordance with provisions of this order.

(7) That the protection and proper recognition of correlative rights as such rights are defined by Section 26 (h) Chapter 168, New Mexico Session Laws of 1949, require that the gas production from the Jalmat, Eumont and Arrow gas pools be prorated in accordance with the terms and provisions of this order.

(8) That the Rules and Regulations hereinafter set forth in this order are in all respects in the interests of conservation and provide for the allocation of the allowable production among the gas wells in the Jalmat, Eumont and Arrow gas pools upon a reasonable basis and give appropriate recognition to correlative rights.

(9) That one gas well in the Jalmat, Eumont and Arrow Gas Pools can efficiently drain 640 acres.

(10) That for the prevention of waste, a limiting gas-oil ratio of 10,000-to-1 should be assigned to the units in the following pools namely: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool, Jalmat Gas Pool, Arrow Gas Pool and Eumont Gas Pool.

(11) To prevent waste, the vertical limits of the following oil pools, namely: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, should be redefined as provided hereinafter in this order so that the vertical limits of the said oil pools will not conflict with the vertical limits of overlying gas pools.

(12) That the horizontal limits of the oil pools named in Finding No. 11 should be defined as hereinafter set forth in this order.

(13) That the Falby-Yates Oil Pool should be abolished.

(14) That in the interests of conservation, the special rules hereinafter set forth governing the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools should be adopted.

(15) That for the prevention of waste and the protection of correlative rights, the special rules contained in this order should be adopted to govern the production of oil from wells completed or recompleted in such a manner that the bore hole of the well is open in both the upper gas pools and the underlying oil pools.

(16) That for the prevention of waste a "no-flare" rule should be adopted to prohibit the flaring, venting, or wasting of casinghead gas or any other type of gas in any of the gas or oil pools referred to and affected by this order.

IT IS THEREFORE ORDERED:

(1) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation, thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Arrow Gas Pool shall be the area s as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be the area as described in Exhibit "F" attached hereto and made a part hereof.

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That no gas, either dry gas or casinghead gas, shall be flared or vented in the following pools unless specifically authorized by order of the Commission after notice and hearing:

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool
Arrow Gas Pool
Eumont Gas Pool
Jalmat Gas Pool

This rule shall become effective November 1, 1954. Any operator desiring to obtain exception from the provisions of this rule shall apply for hearing prior to September 15, 1954. All operators shall file Form C-110, in duplicate, designating thereon the disposition of all dry gas or casinghead gas from each well in each pool listed above. Within 15 days after completion of any oil or gas well within the boundaries of the above listed pools, the operator shall file Form C-110 designating the disposition of gas from the well.

Failure to comply with the provisions of this rule within the prescribed time limits will result in the suspension of any further allowable. Extraction plants processing any gas from any of the above designated pools shall comply with the "no-flare" provisions of this rule, provided however, that the restriction may be lifted when mechanical difficulties arise or when the gas flared is of no commercial value.

(11) That oil wells producing from the following named pools shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool and Rhodes Oil Pool.

(12) That the Falby-Yates Oil Pool as heretofore created, defined and described, shall be abolished and all oil wells presently producing from the Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(13) That that portion of the Rhodes Storage Area lying within the defined limits of the Jalmat Gas Pool shall be exempted from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage Area shall include the following described area:

TOWNSHIP 26 South, RANGE 37 East, NMPM	
Sec. 4:	W/2 NW/4, SE/4SE/4, W/2 SE/4, SW/4;
Sec. 5:	All
Sec. 6:	NE/4 NW/4, NE/4, SE/4 SE/4, N/2 SE/4
Sec. 7:	NE/4 NE/4
Sec. 8:	N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9:	All
Sec. 10:	W/2 NW/4, SE/4 NW/4, S/2
Secs. 15 & 16:	All
Sec. 17:	E/2 NW/4, E/2
Sec. 20:	E/2
Secs. 21 and 22:	All
Sec. 23:	SW/4 NW/4, SW/4
Secs. 26, 27 and 28:	All
Sec. 29:	E/2 NE/4

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled or recompleted within the Jalmat Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980-foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and other relevant data and shall fix the allowable production of the Jalmat Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable), together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such

succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance, If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the

20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico, all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before September 15, 1954. Failure of any operator to submit the required data will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If the operator is not satisfied with the well's assignment he may apply for a hearing on the matter in accordance with Commission Rule 1203.

PROVIDED FURTHER, Gas-Oil Ratio Tests shall be taken in accordance with the provisions of Rule 301 of the Commission's Rules and Regulations.

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule, (Exhibit H). This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas-Oil Ratio test schedule previously adopted is exempted from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil Ratio test schedule as outlined in Exhibit "H" attached hereto and made a part hereof.

PROVIDED FURTHER, That for gas allocation purposes and assignment of allowables the combination of the Jalco and Langmat gas pools to the Jalmat Gas Pool shall be effective September 1, 1954.

It is recognized that a great many wells will be reclassified and reassigned as a result of the provisions of this order and that the time involved in the reclassification may cause certain inequities; therefore, the Proration Manager is hereby directed to take such action as he deems advisable to prevent inequitable withdrawals.

PROVIDED FURTHER, That in filing Form C-101 "Notice of Intention to Drill or Recomplete" all operators shall strictly comply with the provisions of Rule 104, paragraph (e).

PROVIDED FURTHER, That failure to comply with the provisions of this order or the rules contained herein shall result in the cancellation of allowable assigned to the affected well. No further allowable shall be assigned to the affected well until all rules and regulations are complied with. The Proration Manager shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

PROVIDED FURTHER, That special pool rules applicable to the Eumont Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE EUMONT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled or recompleted within the Eumont Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Eumont Gas Pool prior to the effective date of this order at a location conforming to the spacing

requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Eumont Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other relevant data and shall fix the allowable production of the Eumont Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Eumont Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Eumont Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior tothe 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market

demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (which ever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance, If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION.

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Eumont Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease

equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Eumont Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, That special pool rules applicable to the Arrow Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE ARROW GAS POOL

Well spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Arrow Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Arrow Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Arrow Gas Pool.

RULE 2. Each well drilled or recompleted within the Arrow Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Arrow Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the

2. We recommend that the Commission retain the present provisions of its orders hereto entered providing for the allocation of gas on the basis of 100% acreage, in the Jalco, Langmat, Eumont and Arrow Gas pools.

3. Humble recommends that the principle of volumetric withdrawals should be the basis of proration as between oil and gas wells in any designated oil and gas pool.

4. In the interest of conservation and the prevention of further waste, Humble recommends that the orders promulgated in connection with gas proration in the Jalco, Langmat, Eumont and Arrow gas pools provide that no gas shall be flared.

5. In connection with any rules that may be adopted, Humble would urge the Commission to make a continued study to determine whether the relative rate of withdrawals permitted under the rules adopted by the Commission are causing waste, so that appropriate steps may be taken to prevent the same.

Respectfully submitted,

HUMBLE OIL & REFINING COMPANY

By _____
Attorney

Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k) shall not apply to the Arrow Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Arrow Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purpose of gas proration; provided, however, that any well drilled to and producing from the Arrow Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with:

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas

proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of this intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Arrow Gas Pool and other relevant data and shall fix the allowable production of the Arrow Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Arrow Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Arrow Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Arrow Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Arrow Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Arrow gas pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Arrow Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable)

together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

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If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

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REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Arrow Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Arrow Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Arrow Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Arrow Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

EXHIBIT "A"

Horizontal limits of the Jalmat Gas Pool

Township 21 South, Range 36 East
All of Section 31
SW/4 of Section 32
All of Secs. 33 and 34

Township 22 South, Range 35 East
E/2 Section 13

Township 22 South, Range 36 East
All of Secs. 3 through 10, inclusive,
W/2 Sec. 11
W/2 Section 14
All of Secs. 15 through 18, inclusive
NE/4 of Sec. 19
All of Secs. 20 through 23, inclusive
W/2 Sec. 24
All of Secs. 25 through 29, inclusive
All of Secs. 32 through 36, inclusive

Township 22 South, Range 37 East
SW/4 Sec. 31

Township 23 South, Range 36 East
All of Secs. 1 through 4, inclusive
N/2 and SE/4 Sec. 5
E/2 Sec. 8
All Secs. 9 through 16, inclusive
NE/4 Sec. 17
All Secs. 21 through 27, inclusive
E/2 Sec. 28
E/2 Sec. 33
All Secs. 34 35 and 36

Township 23 South, Range 37 East
All Secs. 6, 7, S/2 Sec. 8
All Secs. 17 through 21, inclusive
All of Secs. 28 through 33, inclusive

Township 24 South, Range 36 East
All of Secs. 1, 2 and 3
E/2 Sec. 4
NE/4 Sec. 9
N/2, SE/4 Sec. 10
All of Secs. 11 through 14, inclusive
E/2 Sec. 15
All Secs. 22 through 26, inclusive
E/2 Sec. 27
E/2 Sec. 34
All Secs. 35 and 36

Exhibit "A" (Cont'd.)

Township 24 South, Range 37 East
All of Secs. 5, 6, 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All of Secs. 17 through 23, inclusive
All of Secs. 26 through 35, inclusive

Township 25 South, Range 36 East
All of Sec. 1
N/2 Sec. 2
All of Secs. 12, 13, 24 and 25
NE/4 Sec. 36

Township 25 South, Range 37 East
All Sec. 2 through 33, inclusive
W/2 Sec. 34

Township 26 South, Range 37 East
W/2 Sec. 3
All Secs. 4 through 9, inclusive
W/2 Sec. 10
All of Secs. 15 through 22, inclusive
All Secs. 27, 28 and 29
N/2, SE/4 Sec. 30
E/2 Sec. 31
All of Secs. 32, 33 and 34

EXHIBIT "B"

Horizontal limits of the Eumont Gas Pool

Township 19 South. Range 36 East
All of Secs. 12, 13, 14, 23, 24, 25, 26,
E/2 Sec. 27
E/2 Sec. 34
All of Secs. 35 and 36

Township 19 South, Runge 37 East
W/2 Sec. 4
E/2 Sec. 5
All of Secs. 7, 8, 17, 18, 19, 20
W/2 Sec. 9
W/2 Sec. 21
W/2 Sec. 27
All of Secs. 28, 29, 30, 31, 32, 33 and 34

Township 20 South, Range 36 East
All of Secs. 1, 2
E/2 Sec. 3
E/2 Sec. 10
All of Secs. 11, 12, 13 and 14
NE/4 Sec. 15
N/2 and SE/4 Sec. 23
All of Secs. 24 and 25
E/2 Sec. 26
E/2 Sec. 35
All of Sec. 36

Township 20 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 through 10 inclusive
W/2 Sec. 11
All of Secs. 15 through 22 inclusive
S/2 Sec. 23
All of Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 21 South, Range 35 East
All of Sec. 1
SE/4 Sec. 2
NE/4 Sec. 11
All of Sec. 12
All of Secs. 13 and 24

Township 21 South, Range 36 East
All of Secs. 1 through 21, inclusive
N/2 and SW/4 Sec. 22
W/2 Sec. 27
All of Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32

Township 21 South, Range 37 East
All of Secs. 7 and 18

EXHIBIT "C"

Township 21 South Range 36 East
SE/4 Sec. 24
All Sec. 25
E/2 Sec. 26
NE/4 and S/2 Sec. 35
All Sec. 36

Township 22 South, Range 36 East
All of Secs. 1 and 2
NE/4 Sec. 11
All of Sec. 12
N/2 and SE/4 Sec. 13

Township 22 South, Range 37 East
W/2 Sec. 7
All Sec. 18
N/2 Sec. 19

EXHIBIT "D"

Horizontal limits of the Eunice-Monument Oil Pool

Township 19 South, Range 36 East
E/2 Sec. 12
All of Sec. 13
All Secs. 23 through 27, inclusive
All Secs. 34, 35 and 36

Township 19 South, Range 37 East
SW/4 Sec. 3
S/2 Sec. 4
All of Secs. 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All Secs. 17 through 21, inclusive
S/2 Sec. 27
All Secs. 28 through 34, inclusive

Township 20 South, Range 36 East
All Secs. 1, 2 and 3
All Secs. 10 through 14, inclusive
E/2 Sec. 15
All Secs. 23 through 26, inclusive
E/2 Sec. 27
All Secs. 35 and 36

Township 20 South, Range 37 East
All Secs. 3 through 10, inclusive
All Secs. 15 through 21, inclusive
W/2 Sec. 22
All Secs. 29 through 33, inclusive

Township 21 South, Range 35 East
All Secs. 1, 12, 13, 24
E/2 Sec. 25

Township 21 South Range 36 East
SW/4 Sec. 1
All of Secs. 2 through 11, inclusive
W/2 Sec. 12
W/2 Sec. 13
All Sec. 14 through 22, inclusive
NW/4 Sec. 23
W/2 Sec.27
All Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32
All Sec. 33
W/2 Sec. 34

EXHIBIT "E"

Horizontal limits of the Cooper-Jal Oil Pool

Township 23 South, Range 36 East
All of Secs. 4, 5, 8, 9, 15, 16, 17
20, 21, 22, 27, 28, 33 and 34

Township 24 South, Range 36 East
W/2 Sec. 2
All of Secs. 3 and 4
N/2 Sec. 9
All Sec. 10
W/2 Sec. 11
SW/4 Sec. 13
All Secs. 14 and 15
All Secs. 22, 23
NW/4 and W/2 SW/4 Sec. 24
W/2 Sec. 25
All Secs. 26, 27, 34 and 35
W/2 Sec. 36

Township 25 South, Range 36 East
All Secs. 1, 2, 3, 11, 12, 13, 14,
23, 24, 25, 26 and 36

Township 25 South, Range 37 East
SW/4 Sec. 6
W/2 Sec. 7
W/2 Sec. 18
W/2 and W/2 E/2 Sec. 19
W/2 Sec. 30
All Sec. 31
SW/4 Sec. 32

EXHIBIT "F"

Horizontal limits of the Langlie-Mattix Oil Pool

Township 23 South, Range 36 East
All of Secs. 1, 2, 3, 10, 11, 12, 13, 14
23, 24, 25, 26, 35 and 36

Township 23 South, Range 37 East
W/2 Sec. 6
All of Secs. 7, 18, 19
W/2 W/2 Sec. 26
All Sec. 27
S/2 Sec. 28
All Secs. 29 through 35, inclusive

Township 24 South, Range 36 East
All Sec. 1
E/2 Sec. 2
E/2 Sec. 11
All Sec. 12
N/2 and SE/4 Sec. 13
E/2 and E/2 SW/4 Sec. 24
E/2 Sec. 25
E/2 Sec. 36

Township 24 South, Range 37 East
All of Secs. 2 through 11, inclusive
All of Secs. 14 through 23, inclusive
SW/4 Sec. 25
All Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 25 South, Range 37 East
All of Secs. 2 through 5, inclusive
N/2 and SE/4 Sec. 6
E/2 Sec. 7
All of Secs. 8 through 11 inclusive
W/2 Sec. 13
ALL Secs. 14 through 17. inclusive
E/2 Sec. 18
E/2 E/2 Sec. 19
All Secs. 20 through 23, inclusive
W/2 Sec. 24
All Sec. 25
All Secs. 26 through 29, inclusive
E/2 Sec. 30
N/2, SE/4 Sec. 32
All Secs. 33, 34, and 35
W/2 Sec. 36

Township 26 South, Range 37 East
NW/4 Sec. 1
NE/4 Sec. 2

EXHIBIT "G"

Horizontal limits of the South Eunice Oil Pool

Township 21 South, Range 35 East
E/2 Sec. 36

Township 21 South, Range 36 East
All Sec. 31
SW/4 Sec. 32

Township 22 South, Range 35 East
E/2 Sec. 1

Township 22 South, Range 36 East
W/2 Sec. 3
All Secs. 4 through 10, inclusive
SW/4 Sec. 11
W/2 Sec. 14
All Secs. 15 through 23, inclusive
All Secs. 25 through 29, inclusive
E/2 Sec. 30
NE/4 Sec. 31
All Secs. 32 through 36, inclusive

EXHIBIT "H"
GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD			DEADLINE FOR FILING FORM C-116
Oil Pools					
Arrowhead	3500	Nov.	Dec.		January 15, 1955
Cooper-Jal	10000	Sept.			October 15, 1954
Eunice	6000	Oct.	Nov.	Dec.	January 15, 1955
Monument	3000	July	Aug.	Sept.	October 15, 1954
South Eunice	10000	Sept.	Oct.		November 15, 1954
Hardy	10000	Sept.	Oct.		November 15, 1954
Langlie-Mattix	10000	Sept.			October 15, 1954
Leonard	10000	Sept.			October 15, 1954
South Leonard	10000	Sept.			October 15, 1954
Penrose-Skelly	10000	Sept.	Oct.	Nov.	December 15, 1954
Rhodes	10000	Sept.	Oct.		November 15, 1954
Gas Pools					
Arrow	10000	Oct.	Nov.		December 15, 1954
Eumont	10000	Oct.	Nov.	Dec.	January 15, 1955
Jalmat	10000	Sept.	Oct.	Nov.	December 15, 1954

DONE at Santa Fe, New Mexico on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

W. B. MACEY, Member and Secretary

SEAL

For Case 673

MAIN OFFICE OCC
1954 JUL 25 AM 9:41
file

CONTINENTAL OIL COMPANY

FAIR BUILDING
FORT WORTH 2, TEXAS

H. L. JOHNSTON
REGIONAL MANAGER OF PRODUCTION
SOUTHWESTERN REGION

July 20, 1954

Mr. W. B. Macey
Secretary and Director
New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Dear Bill:

As you requested last week, I have reviewed in detail the proposed order in Case 673. I regret that I was unable to check back with you before leaving Santa Fe, but the additional time has given me an increased opportunity to study the rules. The following changes are suggested for clarification and perhaps some improvement.

In the caption the last line appears to be repetitious inasmuch as the Arrow, Eumont, Jalco, and Langmat Gas Pools are enumerated in the first part of the second paragraph.

On page 2, paragraph 2 of the findings, the date of Order No. R-264 is given as February 17, 1954, and the year should be 1953. The same error occurs in paragraph 3 of the findings and the date should be September 28, 1953.

On page 3, paragraph 10, the "no flare gas" provision need not include the Falby-Yates Oil Pool, inasmuch as that

pool is abolished on page 4, paragraph 11. The necessity of the Arrow, Eumont, and Jalmat Gas Pools being included in this list is doubtful, inasmuch as they are covered by Rule 404. I fail to see, however, how this repetition can be harmful.

It is noted on page 13 that the special rules are applicable only to the Jalmat Gas Pool. It appears that the Eumont and Arrow Pools also should be included in this order, inasmuch as they were a part of the same case.

Rule 2 has only one paragraph, and, therefore, the designation (a) is unnecessary. Also, the last sentence of Rule 2 appears to be excessively liberal in view of the change to a standard unit of 640 acres rather than the 160 acres contemplated at the writing of the original rules. I would suggest similar wording at a more appropriate place in Rule 5(a).

In the second paragraph of Rule 3, it is suggested that all operators within a radius of 1,980 feet of the well be notified in order to be consistent with the spacing requirements in Rule 2.

It is suggested that the second paragraph of Rule 5(a) read as follows: "The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom, if such tract were a standard ~~full~~ unit, shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres."

It is also suggested that the following proviso be added at the end of the first sentence of paragraph 3 of Rule

5(a), following the words "gas proration." "Provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines."

It is suggested that paragraph 5 of Rule 8 be deleted and that appropriate wording approximately as follows be added to Rule 11: "An operator desiring to increase the size of a gas proration unit shall file amended plats and forms. The proration manager shall increase the allowable of said well, effective the first day of the month following approval of said plats and forms."

In my opinion, all of the wording following the word "cancelled" in line 8 of Rule 9 should be deleted. It seems improper that allowable cancelled from under-produced wells should be distributed among the remaining wells. It is preferable that this allowable merely be cancelled entirely.

In paragraph 4 of Rule 9, the word "succeeding" should be substituted for the word "preceding" on line 4. This appears to correspond more with your intent according to my interpretations. If it is your intent to commence the allowable prior to the date of recompletion, I would suggest the wording to be

"effective on the first day of the proration month in which such recompletion was performed."

The rules as presented to me are quite comprehensive and, on the whole, satisfactory. However, I believe that some of the changes suggested, if not all of them, would bring about some improvement. I appreciate the opportunity which you have afforded me to make comments on your proposed rules.

I should like to say, also, that you and the Commission have done a very fine job in the work to date on gas proration. We all expect some difficulties and problems to arise, but with the leadership which you have shown to this time, these instances should be kept at a minimum. I am confident that the system will go into effect with a minimum of difficulty.

Yours very truly,

V. T. Lyon
Regional Proration Engineer
Southwestern Region

VTL-IG

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING UPON THE APPLICATION OF THE OIL CONSERVATION COMMISSION ON ITS OWN MOTION FOR AN ORDER AMENDING, REVISING OR ABROGATING EXISTING RULES AND REGULATIONS AND/OR PROMULGATING NEW REGULATIONS RELATING TO GAS POOL DELINEATION, GAS PRORATION, ETC., FOR THE JALCO, LANGMAT, EUMONT AND ARROW GAS POOLS, LEA COUNTY, NEW MEXICO.

CASE No. 673

STATEMENT OF HUMBLE OIL & REFINING COMPANY
TO BE FILED AS A PART OF THE RECORD
IN THE ABOVE STYLED CASE

The Humble Oil & Refining Company desires to commend the Commission upon its action in conducting the series of hearings which have been held in connection with the above case and feels that they have had a salutary result in that they have eliminated any shadow of doubt as to the need for gas proration in the Jalco, Langmat, Eumont and Arrow gas pools. The Humble believes that these hearings have shown that the Conservation Commission was fully justified in taking the course which it did with respect to gas proration.

With reference to the action to be taken by the Commission as a result of these hearings, the Humble respectfully submits the following recommendations:

1. Section 13(b) of the Conservation Act as amended by Chapter 76 of the 1953 Session Laws provides that the Commission may establish a proration unit for each pool "such being the area that can be efficiently and economically drained and developed by one well....." The uncontradicted evidence in this case shows that in the Jalco, Langmat, Eumont and Arrow gas pools, one well will effectively, efficiently and economically drain as much as 640 acres. In fact, there has been no evidence introduced in the case which would warrant consideration by the Commission of any size unit other than a 640-acre standard unit. We, therefore, urge the Commission to adopt 640 acres as the standard proration unit for the proration of gas in these pools.

MAIN OFFICE OCC

PHILLIPS PETROLEUM COMPANY

1954 AUG 23 AM 8:42

AMARILLO, TEXAS

LEGAL DEPARTMENT
RAYBURN L. FOSTER
VICE PRESIDENT
AND GENERAL COUNSEL
HARRY D. TURNER
GENERAL ATTORNEY

AMARILLO DIVISION
E. H. FOSTER
CHIEF ATTORNEY
R. S. SUTTON
CLIFFORD J. ROBERTS
C. REX BOYD
JACK RITCHIE
THOMAS M. BLUME
JOE V. PEACOCK
WILLIAM M. COTTON
STAFF ATTORNEYS

August 20, 1954

Re: Case No. 673, Order No. R-520
Jalco, Langmat, Eumont, and
Arrow Gas Pools, Lea County,
New Mexico

Mr. W. B. Macey
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Mr. Macey:

In connection with the order of the Commission of August 12, 1954 - Case No. 673, Order No. R-520 - I would like to suggest that the definition of a gas well as contained in Rule 14 which reads as follows:

> "A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil,"

be changed to read as follows:

> "The term 'gas well' is any well (a) which produces natural gas not associated or blended with crude petroleum oil at the time of production, and produced from a common source of gas supply defined by the Commission as a gas pool, or (b) which produces more than one hundred thousand (100,000) cubic feet of natural gas to each barrel of crude petroleum oil from the same producing horizon."

Very truly yours,

E. H. Foster

EHF:fe

cc: Messrs: Harry D. Turner
L. E. Fitzjarrald
M. H. Cullender

O.C.C. - CASE 673 AND 582

Amerada Ex #10
Case 673

GAS PRODUCTION

Cumulative to March 1, 1954

Blinebry Pool

Blinebry Pool "A" -
13,143,535 MCF Gas
182,568 Bbls. Condensate

Blinebry Pool "B" -
4,650,867 MCF Gas
88,016 Bbls. Condensate

Blinebry Pool Totals -
17,794,402 MCF Gas
270,584 Bbls. Condensate

Eumont Pool

Eumont Pool "A" -
44,667,115 MCF Gas
7,032 Bbls. Condensate

Eumont Pool "B" -
50,236,642 MCF Gas
0 Bbls. Condensate

Eumont Pool Totals -
94,903,757 MCF Gas
7,032 Bbls. Condensate

Jalco Pool

Jalco Pool "A" -
337,256,506 MCF Gas
4,297 Bbls. Condensate
67,124 Bbls. Water

Jalco Pool "B" -
1,296,444 MCF Gas
0 Bbls. Condensate
0 Bbls. Water

Jalco Pool Totals
338,552,950 MCF Gas
4,297 Bbls. Condensate
67,124 Bbls. Water

Langlie-Mattix Pool

*Langlie-Mattix "A" -	56,362,672	MCF Gas
	1,917	Bbls. Condensate
*Langlie-Mattix "B" -	27,052	MCF Gas
	0	Bbls. Condensate
*Langlie-Mattix Totals	56,389,724	MCF Gas
	1,917	Bbls. Condensate

Langmat Pool

Langmat Pool "A" -	238,589,845	MCF Gas
	5,931	Bbls. Condensate
Langmat Pool "B" -	9,788,606	MCF Gas
	0	Bbls. Condensate
Langmat Pool Totals	248,378,451	MCF Gas
	5,931	Bbls. Condensate

Tubb Pool

Tubb Pool "A" -	4,331,928	MCF Gas
	75,745	Bbls. Condensate
Tubb Pool "B" -	4,911,502	MCF Gas
	85,955	Bbls. Condensate
Tubb Pool Reports	9,243,430	MCF Gas
	161,700	Bbls. Condensate

"A" - From straight gas wells
"B" - From Bradenhead & Dual Gas wells
* - From wells not classified in Langmat gas pool.

GAS PRODUCTION

Cumulative to March 1, 1954

Blinebry Pool

Blinebry Pool "A" - 13,143,535 MCF Gas
182,568 Bbls. Condensate

Blinebry Pool "B" - 4,650,867 MCF Gas
88,016 Bbls. Condensate

Blinebry Pool Totals - 17,794,402 MCF Gas
270,584 Bbls. Condensate

Eumont Pool

Eumont Pool "A" - 44,667,115 MCF Gas
7,032 Bbls. Condensate

Eumont Pool "B" - 50,236,642 MCF Gas
0 Bbls. Condensate

Eumont Pool Totals - 94,903,757 MCF Gas
7,032 Bbls. Condensate

Jalco Pool

Jalco Pool "A" - 337,256,506 MCF Gas
4,297 Bbls. Condensate
67,124 Bbls. Water

Jalco Pool "B" - 1,296,444 MCF Gas
0 Bbls. Condensate
0 Bbls. Water

Jalco Pool Totals 338,552,950 MCF Gas
4,297 Bbls. Condensate
67,124 Bbls. Water

Langlie-Mattix Pool

*Langlie-Mattix "A" -

56,362,672 MCF Gas
1,917 Bbls. Condensate

*Langlie-Mattix "B" -

27,052 MCF Gas
0 Bbls. Condensate

*Langlie-Mattix Totals

56,389,724 MCF Gas
1,917 Bbls. Condensate

Langmat Pool

Langmat Pool "A" -

238,589,845 MCF Gas
5,931 Bbls. Condensate

Langmat Pool "B" -

9,788,606 MCF Gas
0 Bbls. Condensate

Langmat Pool Totals

248,378,451 MCF Gas
5,931 Bbls. Condensate

Tubb Pool

Tubb Pool "A" -

4,331,928 MCF Gas
75,745 Bbls. Condensate

Tubb Pool "B" -

4,911,502 MCF Gas
85,955 Bbls. Condensate

Tubb Pool Reports

9,243,430 MCF Gas
161,700 Bbls. Condensate

"A" - From straight gas wells
"B" - From Bradenhead & Dual Gas wells
* - From wells not classified in Langmat gas pool.

MAIN OFFICE OCC
1954 JUN 1 AM 9:20

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION
BEACON BUILDING
P. O. BOX 2040
TULSA 2, OKLA.

May 27, 1954

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. W. B. Macey

Gentlemen:

Transmitted herewith are photostatic copies of Amerada Exhibits Nos. 7, 8 and 9, submitted in Case No. 673 held on May 10 and 11, 1954.

Permission was granted to furnish these in lieu of the originals.

Thank you for this courtesy.

Yours very truly,

R. S. Christie

R. S. Christie

RSC:mt
enclosures

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION FOR AN ORDER AMENDING, REVISING, OR ABROGATING EXISTING RULES AND REGULATIONS OF THE OIL CONSERVATION COMMISSION AND/OR PROMULGATING ADDITIONAL RULES AND REGULATIONS, RELATING TO GAS POOL DELINEATION, GAS PRORATION, AND OTHER RELATED MATTERS, AFFECTING OR CONCERNING THE JALCO, LANGMAT, EUMONT AND ARROW GAS POOLS, LEA COUNTY, NEW MEXICO.	)	Case No. 673

BRIEF OF AMERADA PETROLEUM CORPORATION

Harry D. Page

John A. Woodward

Attorneys

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION FOR AN ORDER AMENDING, REVISING, OR ABROGATING EXISTING RULES AND REGULATIONS OF THE OIL CONSERVATION COMMISSION AND/OR PROMULGATING ADDITIONAL RULES AND REGULATIONS, RELATING TO GAS POOL DELINEATION, GAS PRORATION, AND OTHER RELATED MATTERS, AFFECTING OR CONCERNING THE JALCO, LANGMAT, EUMONT AND ARROW GAS POOLS, LEA COUNTY, NEW MEXICO.	Case No. 673

BRIEF OF AMERADA PETROLEUM CORPORATION

Harry D. Page

John A. Woodward

Attorneys

PRELIMINARY STATEMENT

Amerada Petroleum Corporation is interested in Case 673 as a producer of gas and oil from the Eumont, Jalco and Langmat gas pools and from the Monument, Eunice, Falby-Yates, and Langlie-Mattix oil pools in Lea County, New Mexico, as presently delineated by the Commission.

It is Amerada's contention that the production of natural gas from the gas wells and from the gas pools included within the call of this hearing is in excess of the reasonable market demand for the types of gas produced from such wells and pools, that such production is defined as waste by Section 2(e), Chap. 168, Laws of New Mexico 1949, and that gas proration orders are necessary to prevent such waste. It is also contended that the unrestrained dissipation of reservoir gas energy from oil wells and oil pools constitutes waste as defined by Section 2(a) of said Chapter and that a limiting gas/oil ratio should be placed on production from oil wells and oil pools for the prevention of such waste. It is further contended that the flaring or blowing into the air of natural gas without beneficial use constitutes waste as defined by Sec. 2(b) of said Chapter and that a "no flare" order is necessary to prevent such waste.

At this time Amerada is offering testimony with respect to the delineation of separate common sources of supply of oil and gas within the area covered by the call of this hearing and some rules it deems necessary for prevention of waste in this area.

It should be understood that we are not undertaking a definitive listing of separate common sources. Our testimony should in no way negative

the existence of geologic separations in addition to those we will seek to establish. It should also be understood that some of our recommendations are designed to cover the various fact situations the Commission may find existing in this area and should not be construed as a contention that all such situations do, in fact, exist.

POOL DELINEATION

Amerada's first witness is Mr. John A. Veeder, a geologist who is qualified to testify as an expert witness in this matter. The substance of his testimony is:

1. The top of the Penrose Sand is a clearly identifiable geological marker, continuous throughout the area covered by the Eumont Gas Pool, which has been used in picking the tops of the Whitehorse formations and in correlating them from well to well as shown on Exhibits 2 through 5.

2. An impervious zone below the base of the Penrose separates the gas production in the Whitehorse Sands from the oil production in the Grayburg and San Andres formations.

3. These pools should be delineated vertically by reference to the impervious zone below the base of the Penrose and not by some arbitrary reference to sea level.

4. The lateral limits of production below the base of the Penrose to the south is the point at which the Grayburg dips below the water/oil contact.

5. Above the base of the Penrose, the Queens formation is the only Whitehorse sand having continuous porosity and permeability within the outlines of the Eumont Gas Pool.

6. Six dry holes drilled to the Queens in the saddle between the Eunice and South Eunice Fields indicate lateral separation in the Whitehorse formations north and south of the saddle.

7. There are indications of at least three separate common sources of supply in the area covered by Case 673: The Grayburg oil pool below the base of the Penrose and north of the water/oil contact; the gas pool above the base of the Penrose and north of the saddle; and the Whitehorse production south of the saddle.

The next witness for Amerada is Mr. R.S. Christie, who is a petroleum engineer and is qualified as an expert witness with respect to the subject matter of Case 673. The substance of his testimony is:

1. Bottom hole pressures above the base of the Penrose are uniform down to the saddle between the Eunice and South Eunice Fields and are generally higher than the pressures below the base of the Penrose which are erratic.

2. The overall difference in pressure above and below the base of the Penrose and the different curve that is plotted for these pressures confirms the vertical separation by reason of an impervious zone below the base of the Penrose noted by Mr. Veeder in his testimony above.

3. The cumulative withdrawals of gas from the Whitehorse formations above the base of the Penrose from the area south of the saddle between the Eunice and South Eunice Fields is substantially greater than the production north of the saddle.

4. Yet pressure curves for these formations plotted across the saddle show an abrupt increase and an immediate leveling off upon entering the Eumont Pool.

5. The dry holes in the saddle were drilled to water or tested dry in the Queens, although they made some gas in the Yates and Seven Rivers.

6. Assuming geological evidence that the Queens is the only formation of continuous porosity and permeability underlying the Eumont Pool, that the Queens is not productive in the saddle, and that decided pressure differentials exist on either side of the saddle notwithstanding disproportionate withdrawals, it is unlikely that drainage or communication of gas across the saddle has occurred in substantial quantities, if at all, during the last 25 years.

WASTE AND CORRELATIVE RIGHTS

For substantial evidence of waste in the record of Case 673, and Case 582 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at page 126 et seq., with respect to the relationship between the allowable for residue gas in Texas and the market for dry gas in the Jal area of New Mexico indicating, at least seasonally, the capacity of wells in the Jalco area to produce in excess of Market demand.

2. Stanley J. Stanley, the January hearing in Case 582 at page 136 et seq., with respect to the possibility of underground waste of oil in the Cooper-Jal area resulting from excessive production of gas cap gas.

3. R.D. Grimm, the February hearing in Case 582 at page 13 et seq., with respect to the underground waste of gas resulting from disproportionate withdrawals from different portions of the same gas reservoir.

4. R.D. Grimm, the February hearing in Case 582 at page 29 from Phillips' Exhibit 4 showing the volume of natural gas vented from New Mexico gasoline plants which process casinghead and gas well gas in 1953.

5. R.D. Grimm, the February hearing in Case 582 at page 29 to the effect that productive capacity in the area covered by Case 673 is 7-10 times greater than the capacity of present gas transportation facilities.

6. R.D. Grimm, the February hearing in Case 582 at page 38 in connection with the surface waste of gas by venting and flaring it in the field.

7. G.E. Trimble, the March hearing in Case 673 at page 57 in connection with the venting of gas from a gas trnasmission facility in the Langmat Pool.

For substantial evidence of prejudice to correlative rights in the record of Case 673, and Case 582 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at page 138, et seq., with respect to disproportionate withdrawals of gas from adjacent leases in the Langmat Pool.

2. R.D. Grimm, the February hearing in Case 582 at page 16 et seq., with respect to the adjustment in disproportionate withdrawals in the Jalco, Arrow, Langmat, and Eumont Pools during 1953 that would result from gas prorationing.

3. R.D. Grimm, the February hearing in Case 582 at page 20 et seq., with respect to disproportionate withdrawals in the Jalco Pool.

4. R.D. Grimm, the February hearing in Case 582 at page 22 et seq., with respect to the number of wells that have secured pipe line connections as the result of gas prorationing.

5. G.E. Trimble, the March hearing in Case 673 at page 54 et seq., with respect to disproportionate withdrawals and drainage from and to adjacent leases in the Langmat Pool.

RECOMMENDATIONS

For the prevention of waste and protection of correlative rights in pools coming within the call of Case 673, it is recommended that:

1. Orders substantially in the form of R-368 to R-371 be adopted for the Eumont, Arrow, Langmat and Jalco Pools, but with some provision made for proration units up to 640 acres and for the establishment of unorthodox units upon waivers by offset operators.

2. A limiting GOR of approximately 6000 to 1 be placed on production of oil from all oil pools as designated by the Commission.

3. Production from oil wells located in a gas pool as designated by the Commission be covered by a State-wide rule providing that:

> "The unit allowable for gas shall be increased 2000 cu. ft. per barrel of oil produced from oil wells located on the unit and completed in the gas pool for which such unit is established, and such oil wells shall be permitted to produce the entire unit allowable for gas, provided their production of oil does not exceed the top unit oil allowable for such well as determined by Rule 505."

4. The Commission adopt a "no flare" order applicable to the production of dry gas, casinghead gas, and gas cap gas from the pools within the call of Case 673.

5. A gas well be defined in the State-wide rules as a well producing 100,000 cubic feet of gas or more to each barrel of oil produced.

Amerada Exhibit # 11

BOTTOM HOLE PRESSURES

EUMONT-E JALCO-J LANGMAT-L YATES-Y SEVEN RIVERS-7R QUEEN-Q * Designates wells on March Gas Proration Schedule

$$BHP = P_{si} + \frac{P_{si}\,(G)(L)}{53.26\,(T_f)}$$

COMPANY LEASE		WELL UNIT	S.T.R.	POOL	S.R. PRESS.	S.I. TIME	S.I.PRESS. DATE	GAS FORMATIONS	GAS PERFORATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF.
AMERADA												
Andrews	*	1 D	12-20-36	E	935	24	10-15-53	7R-Q	3100-3496	3288	1019	3576
Lambert	*	1 B	6-20-37	E	1035	6mon.	9-29-53	7R-Q	3080-3350	3215	1128	3569
Laughlin		1 D	9-20-37	E	1050		2-10-54	7R-Q	3344-3468	3406	1159	3562
Phillips	*	8 G	1-20-36	E	1005		12-11-53	7R-Q	3050-3390	3220	1126	3582
Phillips A	*	1 G	31-19-37	E	1012	24	10-16-53	7R-Q	2916-3500	3208	1132	3583
State D	*	3 F	1-20-36	E	1015		12-11-53	7R-Q	3070-3415	3245	1136	3582
" F	*	1 M	36-19-36	E	1016	48	11-3-53	7R	3078-3259	3168	1106	3594
" G	*	1 M	18-19-37	E	1006		11-9-53	Q	3510-3655	3582	1137	3706
" O	*	1 B	30-19-37	E	1097		3-4-54	7R-Q	3260-3560	3410	1239	3646
" P	*	2 M	29-19-37	E	1097		12-2-53	7R	3430-3600	3515	1172	3610
" Q	*	3 O	16-20-37	E	1081	6mon	9-30-53	Y-7R-Q	3660-3570	3115	1174	3540
" T	*	3 F	25-19-36	E	1065	24	10-17-53	7R-Q	3413-3675	3544	1191	3676
" W	*	1 E	32-19-37	E	1041		2-6-54	7R-Q	3322-3559	3436	1178	3592
" V	*	3 H	36-19-36	E	1052		12-30-53	7R-Q	3165-3460	3312	1181	3600
" W		2 G	30-20-37	E	1108	3-1-54	3-1-54	Q460-3530	3460-3530	3495	1228	3538
" WEA		2 C	12-21-35	J	1062		3-2-54	7R	3416-3600	3508	1208	3593
Weir	*	4 F	35-19-36	E	923	3 mon.	10-3-53	Y-7R	2890-3630	3260	1005	3627
Weir B		1 G	26-19-36	E	993		2-24-54	Q	3565-3775	3670	1107	3675
ATLANTIC REFINING CO.												
Coleman	*	1 C	17-21-36	E	1085	24	10-2-53	y-7R	3000-3295	3148	1177	3633
Crutchfield	*	1 I	32-19-37	E	1073		9-17-53	Q	3438-3596	3517	1160	3574
State H	*	1 O	5-21-36	E	1158		12-1-53	Y-Q	2800-3586	3194	1243	3597
" O	*	1 E	32-20-37	E	933	26	10-2-53	Q	3320-3355	3338	1018	3545
" O	*	2 D	32-20-37	E	935	24	10-2-53	Q	3345-3375	3360	1021	3539
AZTEC OIL & GAS CO.												
Burke	*	1 P	28-19-37	E	913	24	10-10-53	Grayburg	3697-4014	3885	1009	3594
Burke	*	2 H	28-19-37	E	922	24	10-10-53	Q	3603-3728	3665	1014	3592
MaxwellSt.	*	1 K	27-19-37	E	1033	24	10-11-53	Q	3600-3790	3695	1135	3612

COMPANY LEASE		WELL UNIT	S.T.R.	POOL	S.I. PRESS.	S.I. TIME	S.I.PRESS. DATE	GAS FORMATIONS	GAS PENETRATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF.
CITIES SERVICE OIL CO.												
Chosson A	*	1 J	6-22-36	J	562		10-53	7R	3524-3640	3582	595	3568
"		4 P	6-22-36	J	595		10-53	Q	3630-3660	3645	649	3607
"		8 A	6-22-36	J	586		10-53	Q	3491-3513	3502	633	3617
"	*	1 A	18-22-36	J	590		10-53	7R	3405-3447	3426	636	3588
"	*	3 I	18-22-36	J	588		10-53	Y-7R	3410-3460	3435	634	3598
" B	*	6 E	20-20-36	J	305	1	10-53	Y-7R	3450-3476	3460	329	3578
Laughlin		5 O	5-20-37	E	1050	24	10-20-53	Q	3207-3355	3281	1143	3566
State D		3 A	32-21-36	J	948	24	4-53	Q	3810-3900	3855	1032	3615
" F		2 I	30-20-37	E	932		11-11-53	Q	3363-3505	3449	1006	3536
CLARK, E. B.												
Cooper	*	2 B	3-20-37	E	882	24	10-8-53	Q	3522-3558	3540	968	3563
CONTINENTAL OIL CO.												
Britt A-6	*	4 L	6-20-37	E	1035-	12	10-22-53	7R-Q	Bradenhead	-	-	3574
" B-8	*	1 C	8-20-37	E	1042	288	10-1-53	Y-7R	2900-2962	2931	1112	3566
" B-10	*	1 M	10-20-37	E	976	120	10-7-53	Q	3510-3594	3552	1070	3565
" B-15	*	3 L	15-20-37	E	1050-	12	10-31-53	Q	3390-3435	3412	1146	3552
" B-18	*	3 J	18-20-37	E	1010	14	10-23-53	Q	3371-3421	3396	1103	3546
" B-18	*	6 F	18-20-37	E	850	14	10-23-53	7R	3320-3410	3365	930	3545
Lockhart A-18	*	1 P	18-21-36	E	965	12	10-27-53	Y-7R-Q	Bradenhead	-	-	3633
" A-18	*	3 K	18-21-36	J	972	24	10-11-53	Y	3168-3269	3218	1058	3636
" A-30	*	1 H	30-21-36	J	1319		11-23-53	Y	3306-3358	3332	1420	3635
" A-30	*	5 K	30-21-36	J	880	12	10-27-53	Y	3267-3440	3367	962	3628
" B-28	*	3 L	28-21-36	L	923		10-53	Y-7R	Bradenhead	-	-	3631
" B-31		6 F	31-21-36	J	583		2-2-54	7R	3803-3780	3692	633	3643
Meyer A-29	*	1 O	29-22-36	J	688		10-53	Y-7R	3100-3390	3245	739	3519
" A-29	*	5 A	29-22-36	J	582		10-53	Y	3089-3410	3250	625	3538
" B-4	*	6 N	4-21-36	E	960	12	10-27-53	Y-7R	Bradenhead	-	0	3577
" B-8	*	4 D	8-21-36	E	1104		8-2-53	Y-7R-Q	2965-3490	3228	1186	3589
" B-18	*	2 C	18-21-36	J	972	12	10-27-53	Y-7R	3180-3656	3418	1062	3654
" B-22	*	1 I	22-22-36	L	950		10-53	Y-7R	3088-3450	3269	1022	3512
" B-23	*	1 C	23-22-36	L	1025		10-53	Y	3139-3463	3301	1103	3528
" B-23	*	2 O	23-22-36	L	1019		10-53	Y	3079-3378	3228	1095	3501
" B-26	*	1 L	26-20-37	E	1122		9-5-53	Q	3527-3861	3694	1222	3508
" B-28		1 E	28-22-36	L	855		10-53	Y-7R	3051-3772	3412	922	3508
" B-33	*	1 M	33-22-36	L	691		10-53	Y	3220-3368	3294	742	3475
Sanderson A-11	*	1 I	11-20-36	E	677	12	10-22-53	Y-7R-Q	Bradenhead	-	-	3573
State A-19	*	1 L	19-19-37	E	1092	12	10-22-53	Y-7R-Q	Bradenhead	-	-	3683
" A-32	*	3 P	32-22-36	J	811		10-53	Y	3210-3377	3298	872	3472
" C-20	*	5 M	20-21-36	J	905	12	10-27-53	Y-7R	3210-3690	3450	991	3673

COMPANY LEASE	WELL UNIT	S.T.R.	POOL	S.I. PRESS.	S.I. TIME	S.I.PRESS. DATE	GAS FORMATIONS	GAS PERFORATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF.
CONTINENTAL OIL CONT'D											
St. D-11	* 1 L	11-21-36	E	954	24	10-12-53	Y-7R-Q	Bradenhead	-	-	3601
" E-17	* 4 E	17-22-36	J	601		10-53	Y-7R	3332-3474	3403	648	3590
" E-17	* 5 L	17-22-36	J	600		10-53	7R	3380-3470	3425	647	3579
" F-1	* 1 M	1-21-36	E	1110	480	10-19-53	Q	3476-3546	3511	1214	3522
DALPORT OIL CORP.											
Christmas	* 1 O	25-22-36	L	1019		10-53	Y-7R	3105-3320	3212	1094	3435
" B	* 1 J	21-22-36	L	890		10-53	Y	3140-3473	3306	958	3535
Jones,O.L.	* 1 P	34-22-36	L	997		10-53	Y-7R	3001-3512	3256	1072	3512
King	* 1 M	31-22-37	L	1015		10-53	Y-7R	2878-3500	3189	1090	3416
Lunt	* 1 P	20-22-37	J	512		10-53	Y	3143-3800	3472	553	3538
EL PASO NATURAL GAS CO.											
Shell St.	* 1 A	3-20-37	E	981	120	10-12-53	Q	3550-3580	3565	1075	3583
FIELDS, BERT											
Turner-HudsonSt.	*2 C	32-20-37	E	942	24	10-3-53	Y	2890-2900	2895	1019	3538
GREAT WESTERN PRODUCERS INC.											
Bordages	* 1 D	33-19-37	E	981	24	10-11-53	Q	3530-3580	3555	1075	3599
GULF OIL CORP.											
Cambell	* 2 K	7-21-36	J	953		5-20-53	Y-7R	3050-3405	3228	1010	3597
Christmas	* 1 P	27-22-36	L	1006	24	10-53	Y-7R	3209-3625	3417	1085	3521
"	* 2 H	27-22-36	L	1002	24	10-53	Y-7R	3174-3600	3387	1080	3512
Janda B	* 1 J	32-21-36	J	993		10-26-53	Y	3230-3560	3395	1057	3604
Leonard A	* 3 B	22-21-36	E	831	48	10-15-53	Y-7R-Q	3495-3695	3595	914	3597
Mattern	X 1 O	24-21-36	Arrow	940		5-21-53	Q-Gr.	3030-3848	3439	1014	3520
Orcutt B	* 1 G	5-21-36	E	999	48	10-15-53	Q	3335-3550	3443	1065	3568
Ramsey	1 M	34-21-36	L	1035		8-17-53	Y-7R	3068-3856	3462	1117	3562
" B	* 1 M	29-20-37	E	943	48	10-16-53	E-7R-Q	3350-3540	3445	1032	3534
" B	2 E	25-21-36	Arrow	1005		5-21-53	Y-7R	3530-3720	3635	1089	3555
Shipp	1 F	21-19-37	E	995	48	10-16-53	Y-7R-Q	3621-3975	3798	1096	3640
HUMBLE OIL & RFG. CO.											
Adkins	* 1 L	10-21-36	E	1090	24	10-11-53	7R	3375-3475	3425	1190	3579
Fed.Fopeano	* 6 A	35-20-36	E	972	48	10-31-53	Q	3575-3713	3643	1068	3566
Fopeano	* 1 N	25-20-36	E	995	12da.	10-1-53	Q	3410-3600	3505	1087	3553
St. Aggies	* 7 B	31-20-37	E	1110	103 da.	11-3-53	Q	3305-3430	3367	1196	3539
State B	* 1 E	29-21-36	J	1016	8 da.	10-6-53	Y	3300-3655	3478	1111	3648
" B	* 7 I	29-21-36	J	1079	14 da.	10-1-53	Q	3730-3775	3752	1186	3637

COMPANY LEASE	WELL UNIT	S.T.R.	POOL	S.I. PRESS.	S.I. TIME	SI.PRESS. DATE	GAS FORMATIONS	GAS PERFORATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF
HUMBLE OIL & RFG. CONT'D											
St. E F *	1 K	17-20-37	E	1065	48	10-31-53	Q	3340-3495	3417	1173	3546
KELLY, JOHN M.											
Houston Ut.*	1 P	8-19-37	E	1122	5 da.	10-7-53	Q	3706-3740	3748	1233	3688
PhillipsSt.*	1 P	12-19-36	E	1117	5 da.	10-7-53	Q	3490-3848	3669	1225	3733
LATE OIL CO.											
Rector,J.K.*	1 G	31-21-36	J	599		10-53	Y	3190-3731	3460	647	3542
NOLAN & LANE											
Sinclair Williams*	1 O	34-19-37	E	873	24	10-9-53	Q	3522-3578	3550 958 ——→	3548 ——→	
OHIO OIL CO.											
Barber *	11 D	5-20-37	E	1072	72	10-13-53	Q	3364-3506	3445	1172	3735
OLSEN, R. PERSONAL											
Christmas B*	1 L	28-22-36	L	925		10-53	Y	3136-3383	3260	994	3510
OLSEN OIL CO.											
MattieJames *	1 G	10-22-36	L	1035		10-53	Y	3128-3495	3312	1114	No. Elev.
PHILLIPS PET. CO.											
Bern A *	1 D	14-19-36	E	1030		6-10-53	Q	3740-3970	3855	1121	3744
Monument *	1 H	12-19-36	E	1086		10-11-53	Q	3740-3885	3817	1195	3733
SHELL OIL CO.											
Christmas A*	1 M	23-22-36	L	1003		10-53	Y	3111-3600	3356	1081	3518
" B *	1 L	25-22-36	L	1029		10-53	Y	3005-3500	3252	1106	3449
Dev.Christ.*	2 B	21-22-36	L	980		10-53	Y	3120-3370	3245	1053	3528
State A *	1 P	35-19-36	E	977	48	10-29-53	Q	3330-3495	3412	1068	3594
" A *	2 A	12-21-35	J	832	48	10-29-53	Y	3075-3555	3315	895	3591
" B *	1 E	36-19-36	E	934	48	10-29-53	7R-Q	2968-3544	3256	1018	3599
" H *	2 A	13-21-35	J	1042	48	10-29-53	Y	3320-3542	3431	1138	3622
" M *	4 D	1-21-35	E	1092	48	10-29-53	Y	2920-3460	3190	1186	3565
SINCLAIR OIL & GAS CO.											
Adkins E	9 O	9-21-36	E	1120		1-5-54	Q	3448-3648	3548	1222	3601
Barber *	7 E	8-20-37	E	1012	13da.	10-13-53	SanAndres	3208-3875	3542	1109	3562
Brownlee *	4 N	25-21-36	Arrow	1222		5-8-53	Q	3420-3440	3430	1318	3512

COMPANY LEASE		WELL UNIT	S.T.R.	POOL	S.I. PRESS.	S.I. TIME	S.I.PRESS. DATE	GAS FORMATIONS	GAS PERFORATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF.
SINCLAIR OIL & GAS CO.												
Byrd		7 C	11-20-36	E	860		4-6-54	Q	3234-3582	3408	927	3568
Jones	*	1 D	35-22-36	L	1000		10-53	Y	3003-3404	3204	1074	3526
Phillips A	*	6 L	31-19-37	E	990		3-11-54	Q	3268-3432	3350	1066	3588
State 176		3-J	19-21-36	J	1000		6-5-53	Q	3800-3820	3810	1088	3663
Williams		3 N	34-19-37	E	840		3-11-54	Q	3534-3648	3591	909	3576
SKELLY OIL CO.												
Christmas	*	1 M	25-19-36	E	998	48	10-29-53	Q	3430-3512	3471	1092	3621
Monstate	*	2 I	13-19-36	E	1097	48	10-29-53	Q	3570-3680	3625	1203	3719
State B	*	7 E	16-21-36	E	1117	24	10-3-53	Y-7R	2995-3480	3237	1214	3618
" D		1 H	32-20-37	E	960	24	10-4-53	Q	3410-3523	3466	1037	3539
" G	*	1 J	30-20-37	E	1049	24	10-4-53	Q	3360-3525	3442	1146	3531
Van Etten	*	9 L	9-20-37	E	961	24	10-6-53	7R	3220-3240	3230	1046	3550
"	*	10 O	9-20-37	E	1037	24	10-7-53	Q	3400-3781	3590	1137	3553
SOUTHERN UNION GAS CO.												
Williams	*	1 B	33-19-37	E	874	24	10-9-53	Q	3498-3647	3572	960	3584
"	*	2 I	33-19-37	E	962	24	10-9-53	Q	3463-3610	3537	1054	3574
STANOLIND OIL & GAS CO.												
GillullyA	*	4 B	24-20-36	E	1052		12-2-53	Y-7R-Q	2626-3470	3048	1126	3553
St. C Tr.11	*	1 X	2-21-36	E	994		2-12-54	Y-7R-Q	2650-3598	3124	1066	3527
SUN OIL CO.												
Akens	*	1 L	3-21-36	E	1000	48	3-21-53	Y-7R	2910-3206	3058	1084	3574
"	*	6 I	3-21-36	E	1034	48	3-21-53	Y-7R	2920-3415	3168	1123	3545
Maveeety		5 G	35-19-36	E	936		1-26-54	7R	3386-3550-	3468	1011	No Elev.
SUNRAY OIL CORP.												
Cooper	*	4 H	12-20-36	E	1026	24	10-13-53	Y	2960-3390	3175	1115	3665
THE TEXAS CO.												
Phillips	*	1 D	10-20-37	E	1073		4-30-53	Q	3529-3633	3581	1161	3544
Rector	*	2 P	30-21-36	J	672	24	10-16-53	7R	3500-3673	3586	741	3604
"	*	3 J	30-21-36	J	765	14 da.	10-15-53	7R	3500-3555	3528	824	3625
"	*	4 O	30-21-36	J	600	14 da.	10-15-53	7R	3450-3665	3508	662	3620
Riddel	*	1 N	12-21-36	E	1082		4-30-53	Q	3510-3625	3567	1171	3542

COMPANY / LEASE	W	WELL UNIT	S.T.R.	POOL	S.I. PRESS.	S.I. TIME	S.I.PRESS DATE	GAS FORMATIONS	GAS PERFORATIONS	B.H.P. DEPTH	CALC. B.H.P.	ELEV. DF.
TEXAS PACIFIC COAL & OIL CO.												
St. A Ac/2	*	12 I	7-22-36	J	856		10-53	Y	3177-3377	3277	921	3627
"	*	36 M	11-22-36	L	1054		10-53	Y-7R	3112-3490	3301	1134	3539
"	*	40 A	9-22-36	L	1051		10-53	y-7R	2978-3459	3218	1129	3570
TIDE WATER ASSOC. OIL CO.												
Christmas	*	1 F	26-22-36	L	1008		10-53	Y-7R	3107-3600	3354	1086	3508
Coleman	*	3 A	17-21-36	E	1168	12 da.	10-1-53	Y-7R	3125-3238	3161	1267	3607
Marshall D	*	1 H	13-21-36	E	990		12-21-53	Q	3600-3800	3700	1074	3535
State A	*	4 A	8-21-36	E	1009	6 da.	10-6-53	Y-7R	2913-3532	3223	1098	3584
" E	*	2 D	16-21-36	E	1123		9-11-53	Y-7R	3180-3305	3262	1107	3618
" J	*	3 F	17-19-37	E	1104		9-11-53	Q	3588-3642	3615	1250	3714
" K	*	1 K	13-20-36	E	1024	12 da.	10-1-53	Q	3240-3440	3340	1117	3554
WESTERN NATURAL GAS CO.												
Hale	*	1 E	34-22-36	L	998		10-53	Y	3132-3594	3363	1075	3490
Tarrington	*	1 D	10-22-36	L	1043		10-53	Y-7R	3091-3441	3266	1121	3555
Jones	*	1 A	34-22-36	L	995		10-53	Y-7R	3157-3583	3370	1072	3518
Ownes	*	1 M	26-22-36	L	997		10-53	Y-7R	3085-3580	3332	1073	3504
Record	*	1 P	10-22-36	L	1035		10-53	Y	3174-3496	3335	1114	3553
St.McDonald	*	1 L	14-22-36	L	1022		10-53	Y-7R	3090-3860	3475	1104	3532
"	*	3 P	36-22-36	L	1032		10-53	Y-7R	2844-3486	3165	1107	3411
"	*	4 M	36-22-36	L	1017		10-53	Y-7R	2947-3525	3236	1093	3449
"	*	5 D	36-22-36	L	1045		10-53	Y-7R	2960-3525	3242	1123	3452
"	*	6 B	36-22-36	L	1022		10-53	Y-7R	2930-3503	3216	1098	3428
"	*	7 A	35-22-36	L	801		10-53	Y-7R	2978-3550	3264	861	3475
"	*	8 P	26-22-36	L	1010		10-53	Y-7R	2982-3543	3262	1086	3474
"	*	9 G	26-22-36	L	1027		10-53	Y-7R	3013-3550	3282	1104	3474
"	*	11 D	14-22-36	L	1061		10-53	Y-7R	3158-3525	3342	1143	3539
"	*	12 M	24-22-36	L	1105		10-53	Y-7R	2950-3439	3194	1186	3467
"	*	13 P	15-22-36	L	1013		10-53	Y-7R	3158-3616	3387	1092	3551
"	*	14 G	15-22-36	L	1027		10-53	Y-7R	3147-3625	3386	1107	3580

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. R-520

THE APPLICATION OF THE OIL CONSERVATION
COMMISSION UPON ITS OWN MOTION FOR AN
ORDER AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS OF THE
OIL CONSERVATION COMMISSION, AND/OR
PROMULGATING RULES AND REGULATIONS,
RELATING TO GAS POOL DELINEATION, GAS
PRORATION, AND OTHER RELATED MATTERS,
AFFECTING OR CONCERNING THE JALCO,
LANGMAT, EUMONT, AND ARROW GAS POOLS,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 12th. ,day of August, 1954, the Commission, a quorum being present, having considered the records and testimony adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow, and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extended the horizontal limits of the Jalco and Eumont Gas Pools and extended the vertical limits of the Eumont Gas Pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos. R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco,

Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That the Eumont and Arrow Gas Pools are separate gas reservoirs and should be defined vertically and horizontally as set forth in this order; that the Jalco and Langmat Gas Pools are in fact one common gas reservoir, and said reservoir should be designated the "Jalmat Gas Pool" and delineated as set forth in this order.

(5) That the producing capacity of the gas wells in the Jalmat, Eumont and Arrow Gas Pools is greater than the market demand for gas from each of such pools.

(6) That for the prevention of waste it is necessary to allocate and prorate the gas production among the gas wells in the Jalmat, Eumont and Arrow Gas Pools in accordance with provisions of this order.

(7) That the protection and proper recognition of correlative rights as such rights are defined by Section 26 (h) Chapter 168, New Mexico Session Laws of 1949, require that the gas production from the Jalmat, Eumont and Arrow gas pools be prorated in accordance with the terms and provisions of this order.

(8) That the Rules and Regulations hereinafter set forth in this order are in all respects in the interests of conservation and provide for the allocation of the allowable production among the gas wells in the Jalmat, Eumont and Arrow gas pools upon a reasonable basis and give appropriate recognition to correlative rights.

(9) That one gas well in the Jalmat, Eumont and Arrow Gas Pools can efficiently drain 640 acres.

(10) That for the prevention of waste, a limiting gas-oil ratio of 10,000-to-1 should be assigned to the units in the following pools, namely: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool, Jalmat Gas Pool, Arrow Gas Pool and Eumont Gas Pool.

(11) To prevent waste, the vertical limits of the following oil pools namely: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, should be redefined as provided hereinafter in this order so that the vertical limits of the said oil pools will not conflict with the vertical limits of overlying gas pools.

(12) That the horizontal limits of the oil pools named in Finding No. 11 should be defined as hereinafter set forth in this order.

(13) That the Falby-Yates Oil Pool should be abolished.

(14) That in the interests of conservation, the special rules hereinafter set forth governing the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools should be adopted.

(15) That for the prevention of waste and the protection of correlative rights, the special rules contained in this order should be adopted to govern the production of oil from wells completed or recompleted in such a manner that the bore hole of the well is open in both the upper gas pools and the underlying oil pools.

(16) That for the prevention of waste a "no-flare" rule should be adopted to prohibit the flaring, venting, or wasting of casinghead gas or any other type of gas in any of the gas or oil pools referred to and affected by this order.

IT IS THEREFORE ORDERED:

(1) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers formation, thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Yates formation to the base of the Queen formation, thereby including all of the Yates, Seven Rivers and Queen formations. The horizontal limits of the Arrow Gas Pool shall be the area as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be the area as described in Exhibit "F" attached hereto and made a part hereof.

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That no gas, either dry gas or casinghead gas, shall be flared or vented in the following pools unless specifically authorized by order of the Commission after notice and hearing:

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool
Arrow Gas Pool
Eumont Gas Pool
Jalmat Gas Pool

This rule shall become effective November 1, 1954. Any operator desiring to obtain exception from the provisions of this rule shall apply for hearing prior to September 15, 1954. All operators shall file Form C-110, in duplicate, designating thereon the disposition of all dry gas or casinghead gas from each well in each pool listed above. Within 15 days after completion of any oil or gas well within the boundaries of the above listed pools, the operator shall file Form C-110 designating the disposition of gas from the well.

Failure to comply with the provisions of this rule within the prescribed time limits will result in the suspension of any further allowable. Extraction plants procecessing any gas from any of the above designated pools shall comply with the "no-flare" provisions of this rule, provided however, that the restriction may be lifted when mechanical difficulties arise or when the gas flared is of no commercial value.

(11) That oil wells producing from the following named pools shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505: Cooper-Jal Oil Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool and Rhodes Oil Pool.

(12) That the Falby-Yates Oil Pool as heretofore created, defined and described shall be abolished and all oil wells presently producing from the Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(13) That that portion of the Rhodes Storage Area lying within the defined limits of the Jalmat Gas Pool shall be exempted from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage Area shall include the following described area:

TOWNSHIP 26 South, RANGE 37 East, NMPM

Sec. 4:	W/2 NW/4, SE/4 SE/4, W/2 SE/4, SW/4;
Sec. 5:	All
Sec. 6:	NE/4 NW/4, NE/4, SE/4 SE/4, N/2 SE/4
Sec. 7:	NE/4 NE/4
Sec. 8:	N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9:	All
Sec. 10:	W/2 NW/4, SE/4 NW/4, S/2
Secs. 15 & 16:	All
Sec. 17:	E/2 NW/4, E/2
Sec. 20:	E/2
Secs. 21: and 22:	All
Sec. 23:	SW/4 NW/4, SW/4
Secs. 26, 27, & 28:	All
Sec. 29:	E/2 NE/4

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled or recompleted within the Jalmat Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980-foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming

with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and otherrelevant data and shall fix the allowable production of the Jalmat Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears

to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable), together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the

well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Jalmat Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico, all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before September 15, 1954. Failure of any operator to submit the required data will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If the operator is not satisfied with the well's assignment he may apply for a hearing on the matter in accordance with Commission Rule 1203.

PROVIDED FURTHER, Gas-Oil Ratio Tests shall be taken in accordance with the provisions of Rule 301 of the Commission's Rules and Regulations.

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule, (Exhibit H) This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas-Oil Ratio test schedule previously adopted is exempted from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil Ratio test schedule as outlined in Exhibit "H" attached hereto and made a part hereof.

PROVIDED FURTHER, That for gas allocation purposes and assignment of allowables the combination of the Jalco and Langmat gas pools to the Jalmat Gas Pool shall be effective September 1, 1954.

It is recognized that a great many wells will be reclassified and reassigned as a result of the provisions of this order and that the time involved in the reclassification may cause certain inequities; therefore, the Proration Manager is hereby directed to take such action as he deems advisable to prevent inequitable withdrawals.

PROVIDED FURTHER, That in filing Form C-101 "Notice of Intention to Drill or Recomplete" all operators shall strictly comply with the provisions of Rule 104, paragraph (e).

PROVIDED FURTHER, That failure to comply with the provisions of this order or the rules contained herein shall result in the cancellation of allowable assigned to the affected well. No further allowable shall be assigned to the affected well until all rules and regulations are complied with. The Proration Manager shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

PROVIDED FURTHER, That special pool rules applicable to the Eumont Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR THE EUMONT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Eumont Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Eumont Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Eumont Gas Pool.

RULE 2. Each well drilled or recompleted within the Eumont Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Eumont Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the

absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Eumont Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Eumont Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Eumont Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Eumont Gas Pool and other relevant data and shall fix the allowable production of the Eumont Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Eumont Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Eumont Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Eumont Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Eumont Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Eumont Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Eumont Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Eumont Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Eumont Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Eumont Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, That special pool rules applicable to the Arrow Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE ARROW GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Arrow Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Arrow Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Arrow Gas Pool.

RULE 2. Each well drilled or recompleted within the Arrow Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Arrow Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Arrow Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Arrow Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Eumont Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

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RULE 18. Oil wells producing from the Eumont Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, That special pool rules applicable to the Arrow Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE ARROW GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Arrow Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Arrow Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Arrow Gas Pool.

RULE 2. Each well drilled or recompleted within the Arrow Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Arrow Gas Pool prior to the effective date of this order at a location conforming to the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provisions of Statewide Rule 104, Paragraph (k), shall not apply to the Arrow Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Arrow Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest property lines; provided, however, that a non-standard proration unit may be formed after notice and hearing by the Commission, or under the provisions of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom if such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres

shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration; provided, however, that any well drilled to and producing from the Arrow Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if, after a period of 30 days following the mailing of said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission afternotice and hearing, shall consider the nominations of gas purchasers from the Arrow Gas Pool and other relevant data and shall fix the allowable production of the Arrow Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Arrow Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Arrow Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months from the Arrow Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a "supplemental" nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Arrow Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Arrow Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Arrow Gas Pool any well which it finds it being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month

shall be equal to the sum of the preliminary or supplemental nominations (whichever is applicable) together with any adjustment which the Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase. The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 a.m., January 1, and 7:00 a.m., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be reclassified as a non-marginal well, the reclassification shall be effective on the first day of the proration month following the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104, and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Arrow Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the 20th day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule.

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Arrow Gas Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Arrow Gas Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the Arrow Gas Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000; provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

EXHIBIT "A"

Horizontal limits of the Jalmat Gas Pool

Township 21 South, Range 36 East
All of Section 31
SW/4 of Section 32
All of Secs. 33 and 34

Township 22 South, Range 35 East
E/2 Section 13

Township 22 South, Range 36 East
All of Secs. 3 through 10, inclusive.
W/2 Sec. 11
W/2 Section 14
All of Secs. 15 through 18, inclusive
NE/4 Sec. 19
All of Secs. 20 through 23, inclusive
W/2 Sec. 24
All of Secs. 25 through 29, inclusive
All of Secs. 32 through 36, inclusive

Township 22 South, Range 37 East
SW/4 Sec. 31

Township 23 South, Range 36 East
All of Secs. 1 through 4, inclusive
N/2 and SE/4 Sec. 5
E/2 Sec. 8
All Secs. 9 through 16, inclusive
NE/4 Sec. 17
All Secs. 21 through 27, inclusive
E/2 Sec. 28
E/2 Sec. 33
All Secs. 34, 35 and 36

Township 23 South, Range 37 East
All Secs. 6, 7, S/2 Sec. 8
All Secs. 17 throgh 21, inclusive
All of Secs. 28 through 33, inclusive

Township 24 South, Range 36 East
All of Secs. 1, 2, and 3
E/2 Sec. 4
NE/4 Sec. 9
N/2, SE/4 Sec. 10
All of Secs. 11 through 14, inclusive

Exhibit "A" (Cont'd)

Township 24 South, Range 36 East (cont'd)
E/2 Sec. 15
All Secs. 22 through 26, inclusive
E/2 Sec. 27
E/2 Sec. 34
All Secs. 35 and 36

Township 24 South, Range 37 East
All of Secs. 5, 6, 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All of Secs. 17 through 23, inclusive
All of Secs. 26 through 35, inclusive

Township 25 South, Range 36 East
All of Sec. 1
N/2 Sec. 2
All of Secs. 12, 13, 24 and 25
NE/4 Sec. 36

Township 25 South, Range 37 East
All Sec. 2 through 33, inclusive
W/2 Sec. 34

Township 26 South, Range 37 East
W/2 Sec. 3
All Secs. 4 through 9, inclusive
W/2 Sec. 10
All of Secs. 15 through 22, inclusive
All Secs. 27, 28 and 29
N/2, SE/4 Sec. 30
E/2 Sec. 31
All of Secs. 32, 33 and 34

EXHIBIT "B"

Horizontal limits of the Eumont Gas Pool

Township 19 South, Range 36 East
All of Secs. 12, 13, 14, 23, 24, 25, 26
E/2 Sec. 27
E/2 Sec. 34
All of Secs. 35 and 36

Township 19 South, Range 37 East
W/2 Sec. 4
E/2 Sec. 5
All of Secs. 7, 8, 17, 18, 19, 20
W/2 Sec. 9
W/2 Sec. 21
W/2 Sec. 27
All of Secs. 28, 29, 30, 31, 32, 33 and 34

Township 20 South, Range 36 East
All of Secs. 1, 2
E/2 Sec. 3
E/2 Sec. 10
All of Secs. 11, 12, 13 and 14
NE/4 Sec. 15
N/2 and SE/4 Sec. 23
All of Secs. 24 and 25
E/2 Sec. 26
E/2 Sec. 35
All Sec. 36

Township 20 South, Range 37 East
W/2 Sec. 2
All of Secs. 3 through 10, inclusive
W/2 Sec. 11
All of Secs. 15 through 22, inclusive
S/2 Sec. 23
All of Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 21 South, Range 35 East
All of Sec. 1
SE/4 Sec. 2
NE/4 Sec. 11
All of Sec. 12
All of Secs. 13 and 24

EXHIBIT "B" (cont'd)

Township 21 South, Range 36 East
All of Secs. 1 through 21, inclusive
N/2 and SW/4 Sec. 22
W/2 Sec. 27
All of Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32

Township 21 South, Range 37 East
All of Secs. 7 and 18

EXHIBIT "C"

Township 21 South, Range 36 East
SE/4 Sec. 24
All Sec. 25
E/2 Sec. 26
NE/4 and S/2 Sec. 35
All Sec. 36

Township 22 South, Range 36 East
All of Secs. 1 and 2
NE/4 Sec. 11
All of Sec. 12
N/2 and SE/4 Sec. 13

Township 22 South, Range 37 East
W/2 Sec. 7
All Sec. 18
N/2 Sec. 19

EXHIBIT "D"

Horizontal limits of the Eunice-Monument Oil Pool

Township 19 South, Range 36 East
E/2 Sec. 12
All of Sec. 13
All Secs. 23 through 27, inclusive
All Secs. 34, 35 and 36

Township 19 South, Range 37 East
SW/4 Sec. 3
S/2 Sec. 4
All of Secs. 7 and 8
W/2 Sec. 9
W/2 Sec. 16
All Secs. 17 through 21, inclusive
S/2 Sec. 27
All Secs. 28 through 34, inclusive

Township 20 South, Range 36 East
All Secs. 1, 2 and 3
All Secs. 10 through 14, inclusive
E/2 Sec. 15
All Secs. 23 through 26, inclusive
E/2 Sec. 27
All Secs. 35 and 36

Township 20 South, Range 37 East
All Secs. 3 through 10, inclusive
All Secs. 15 through 21, inclusive
W/2 Sec. 22
All Secs. 29 through 33, inclusive

Township 21 South, Range 35 East
All Secs. 1, 12, 13, 24
E/2 Sec. 25

Township 21 South, Range 36 East
SW/4 Sec. 1
All of Secs. 2 through 11, inclusive
W/2 Sec. 12
W/2 Sec. 13
All Sec. 14 through 22, inclusive
NW/4 Sec. 23
W/2 Sec. 27
All Secs. 28, 29 and 30
N/2 and SE/4 Sec. 32
All Sec. 33
W/2 Sec. 34

EXHIBIT "E"

Horizontal limits of the Cooper-Jal Oil Pool

Township 23 South, Range 36 East
All of Secs. 4, 5, 8, 9, 15, 16, 17, 20, 21, 22, 27, 28, 33 and 34

Township 24 South, Range 36 East
W/2 Sec. 2
All of Secs. 3 and 4
N/2 Sec. 9
All Sec. 10
W/2 Sec. 11
SW/4 Sec. 13
All Secs. 14 and 15
All Secs. 22, 23
NW/4 and W/2 SW/4 Sec. 24
W/2 Sec. 25
All Secs. 26, 27, 34 and 35
W/2 Sec. 36

Township 25 South, Range 36 East
All Secs. 1, 2, 3, 11, 12, 13, 14, 23, 24, 25, 26 and 36

Township 25 South, Range 37 East
SW/4 Sec. 6
W/2 Sec. 7
W/2 Sec. 18
W/2 and W/2 E/2 Sec. 19
W/2 Sec. 30
All Sec. 31
SW/4 Sec. 32

EXHIBIT "F"

Horizontal limits of the Langlie-Mattix Oil Pool

Township 23 South, Range 36 East
All of Secs. 1, 2, 3, 10, 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36

Township 23 South, Range 37 East
W/2 Sec. 6
All of Secs. 7, 18, 19
W/2 W/2 Sec. 26
All Sec. 27
S/2 Sec. 28
All Secs. 29 through 35, inclusive

Township 24 South, Range 36 East
All Sec. 1
E/2 Sec. 2
E/2 Sec. 11
All Sec. 12
N/2 and SE/4 Sec. 13
E/2 and E/2 SW/4 Sec. 24
E/2 Sec. 25
E/2 Sec. 36

Township 24 South, Range 37 East
All of Secs. 2 through 11, inclusive
All of Secs. 14 through 23, inclusive
SW/4 Sec. 25
All Secs. 26 through 35, inclusive
W/2 Sec. 36

Township 25 South, Range 37 East
All of Secs. 2 through 5, inclusive
N/2 and SE/4 Sec. 6
E/2 Sec. 7
All of Secs. 8 through 11, inclusive
W/2 Sec. 13
All Secs. 14 through 17, inclusive
E/2 Sec. 18
E/2 E/2 Sec. 19
All Secs. 20 through 23, inclusive
W/2 Sec. 24
All Sec. 25
All Secs. 26 through 29, inclusive
E/2 Sec. 30
N/2, SE/4 Sec. 32
All Secs. 33, 34 and 35
W/2 Sec. 36

EXHIBIT "F" (Cont'd)

Township 26 South, Range 37 East
NW/4 Sec. 1
NE/4 Sec. 2

EXHIBIT "G"

Horizontal limits of the South Eunice Oil Pool

Township 21 South, Range 35 East
E/2 Sec. 36

Township 21 South, Range 36 East
All Sec. 31
SW/4 Sec. 32

Township 22 South, Range 35 East
E/2 Sec. 1

Township 22 South, Range 36 East
W/2 Sec. 3
All Secs. 4 through 10, inclusive
SW/4 Sec. 11
W/2 Sec. 14
All Secs. 15 through 23, inclusive
All Secs. 25 through 29, inclusive
E/2 Sec. 30
NE/4 Sec. 31
All Secs. 32 through 36, inclusive

EXHIBIT "H"
GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD			DEADLINE FOR FILING FORM C-116
Oil Pools					
Arrowhead	3500	Nov.	Dec.		Jan. 15, 1955
Cooper-Jal	10000	Sept.			October 15, 1954
Eunice	6000	Oct.	Nov.	Dec.	January 15, 1955
Monument	3000	July	Aug.	Sept.	October 15, 1954
South Eunice	10000	Sept.	Oct.		November 15, 1954
Hardy	10000	Sept.	Oct.		November 15, 1954
Langlie-Mattix	10000	Sept.			October 15, 1954
Leonard	10000	Sept.			October 15, 1954
South Leonard	10000	Sept.	Oct.	Nov.	October 15, 1954
Penrose-Skelly	10000	Sept.	Oct.		December 15, 1954
Rhodes	10000	Sept.			November 15, 1954
Gas Pools					
Arrow	10000	Oct.	Nov.		
Eumont	10000	Oct.	Nov.	Dec.	December 15, 1954
Jalmat	10000	Sept.	Oct.	Nov.	January 15, 1955
					December 15, 1954

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

S E AL

W. B. MACEY, Member and Secretary

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 673
Order No. R

THE APPLICATION OF THE OIL CONSERVATION
COMMISSION UPON ITS OWN MOTION FOR AN
ORDER AMENDING, REVISING OR ABROGATING
EXISTING RULES AND REGULATIONS OF THE
OIL CONSERVATION COMMISSION, AND/OR
PROMULGATING RULES AND REGULATIONS,
RELATING TO GAS POOL DELINEATION, GAS
PRORATION, AND OTHER RELATED MATTERS,
AFFECTING OR CONCERNING THE JALCO,
LANGMAT, EUMONT, AND ARROW GAS POOLS,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on March 17, 1954, April 15, 1954, May 10, 1954, and May 11, 1954, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this day of August, 1954, the Commission, a quorum being present, having considered the records and testimony adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That under date of February 17, 1953, the Commission issued its Order No. R-264 creating the Jalco, Langmat, Arrow, and Eumont Gas Pools. That Order R-264 defined the vertical and horizontal limits of the Langmat, Jalco, Eumont and Arrow gas pools and that by subsequent orders the Commission extendéd the horizontal limits of the Jalco and Eumont Gas Pools and extended the vertical limits of the Eumont gas pool.

(3) That under date of September 28, 1953, the Commission issued its Orders Nos R-368, R-369, R-370 and R-371 and under date of November 10, 1953, the Commission issued its Orders Nos. R-368-A, R-369-A, R-370-A and R-371-A, providing rules, definitions and procedures to be followed in prorating gas in the Jalco, Langmat, Eumont and Arrow gas pools; and by subsequent orders issued after due notice and hearing, the Commission allocated production of gas in said pools commencing January 1, 1954.

(4) That the Eumont and Arrow Gas Pools are separate gas reservoirs and should be defined vertically and horizontally as set forth in this order; that the Jalco and Langmat Gas Pools are in fact one common gas reservoir, and said reservoir should be designated the "Jalmat Gas Pool" and delineated as set forth in this order.

(5) That the producing capacity of the gas wells in the Jalmat, Eumont and Arrow Gas Pools is greater than the market demand for gas from each of such pools.

6. That for the prevention of waste it is necessary to allocate and prorate the gas production among the gas wells in the Jalmat, Eumont and Arrow Gas Pools in accordance with provisions of this order.

7. That the protection and proper recognition of correlative rights as such rights are defined by Section 26 (b) Chapter 168, New Mexico Session Laws of 1949, require that the gas production from the Jalmat, Eumont and Arrow gas pools be prorated in accordance with the terms and provisions of this order.

8. That the Rules and Regulations hereinafter set forth in this order are in all respects in the interests of conservation and provide for the allocation of the allowable production among the gas wells in the Jalmat, Eumont and Arrow gas pools upon a reasonable basis and give appropriate recognition to correlative rights.

9. That one gas well in the Jalmat, Eumont and Arrow Gas Pools can efficiently drain 640 acres.

10. That for the prevention of waste, a limiting gas-oil ratio of 10,000 to one should be assigned to the units in the following pools, namely: Cooper-Jal Pool, Langlie-Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool, Rhodes Oil Pool, Jalmat Gas Pool, Arrow Gas Pool and Eumont Gas Pool.

11. To prevent waste, the vertical limits of the following oil pools, namely: Eunice-Monument Oil Pool, Arrowhead Oil Pool, South Eunice Oil Pool, Langlie-Mattix Oil Pool, Cooper-Jal Oil Pool, Rhodes Oil Pool, Eaves Oil Pool, Hardy Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, should be redefined as provided hereinafter in this order so that the vertical limits of the said oil pools will not conflict with the vertical limits of overlying gas pools.

12. That the horizontal limits of the oil pools named in Finding No. 11 should be defined as hereinafter set forth in this order.

13. That the Falby-Yates Oil Pool should be abolished.

14. That in the interests of conservation, the special rules hereinafter set forth governing the production of oil from wells completed within the vertical and horizontal limits of the Jalmat, Eumont and Arrow gas pools should be adopted

15. That for the prevention of and the protection of correlative rights, the special rules ~~governing~~ the production of oil from wells completed or recompleted in such a manner that the bore hole of the well is open in both the upper gas pools and the underlying oil pools, ~~should be adopted~~ d.

16 That for the prevention of waste a "no flare" rule should be adopted to prohibit the flaring, venting, or wasting of casinghead gas or any other type of gas in any of the gas or oil pools referred to and affected by this order.

IT IS THEREFORE ORDERED:

(1) That the Jalmat Gas Pool be and the same hereby is created. The vertical limits of the Jalmat Gas Pool shall extend from the top of the Tansill formation to a point 100 feet above the base of the Seven Rivers

formation thereby including all of the Yates formation. The horizontal limits of the Jalmat Gas Pool shall be the area as described in Exhibit "A" attached hereto and made a part hereof.

(2) That the vertical limits of the Eumont Gas Pool, heretofore created, shall extend from the top of the Tansill formation to the base of the Queen formation thereby including all of the Yates and Seven Rivers formations. The horizontal limits of the Eumont Gas Pool shall be the area as described in Exhibit "B" attached hereto and made a part hereof.

(3) That the vertical limits of the Arrow Gas Pool, heretofore created, shall extend from the top of the Tansill formation to the base of the Queen formation thereby including all of the Yates and Seven Rivers formations. The horizontal limits of the Arrow Gas Pool shall be the area as described in Exhibit "C" attached hereto and made a part hereof.

(4) That the vertical limits of the Eunice-Monument Oil Pool, heretofore created, shall include all of the Grayburg and San Andres formations. The horizontal limits of the Eunice-Monument Oil Pool shall be the area as described in Exhibit "D" attached hereto and made a part hereof.

(5) That the vertical limits of the Arrowhead Oil Pool shall include all of the Grayburg formation.

(6) That the vertical limits of the following oil pools, heretofore created, defined and described shall extend from a point 100 feet above the base of the Seven Rivers formation to the base of the Queen formation.

Cooper-Jal Oil Pool
South Eunice Oil Pool
Langlie-Mattix Oil Pool

(7) That the horizontal limits of the Cooper-Jal Oil Pool shall be the area as described in Exhibit "E" attached hereto and made a part hereof.

(8) That the horizontal limits of the Langlie-Mattix Oil Pool shall be the area as described in Exhibit "F" attached hereto and made a part hereof

(9) That the horizontal limits of the South Eunice Oil Pool shall be the area as described in Exhibit "G" attached hereto and made a part hereof.

(10) That no gas, either dry gas or casinghead gas shall be flared or vented in the following pools unless specifically authorized by order of the Commission after notice and hearing

Eunice-Monument Oil Pool
South Eunice Oil Pool
Hardy Oil Pool
Penrose-Skelly Oil Pool
Cooper-Jal Oil Pool
Arrowhead Oil Pool
Langlie-Mattix Oil Pool
Rhodes Oil Pool
Leonard Oil Pool
South Leonard Oil Pool
Eaves Oil Pool
Arrow Gas Pool
Eumont Gas Pool
Jalmat Gas Pool

This rule shall become effective November 1, 1954. Any operator desiring to obtain exception from the provisions of this rule shall apply for hearing prior to September 15, 1954. All operators shall file Form C-110, in duplicate designating thereon the disposition of all dry gas or casinghead gas from each well in each pool listed above. Within 15 days after completion of any oil or gas well within the boundaries of the above listed pools, the operator shall file Form C-110 designating the disposition of gas from the well.

Failure to comply with the provisions of this rule within the prescribed time limits will result in the suspension of any further allowable. Extraction plants processing any gas from any of the above designated pools shall comply with the "no flare" provisions of this rule, provided however, that the restriction may be lifted when mechanical difficulties arise or when the gas flared is of no commercial value.

(11) That oil wells producing from the following named pools shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000, provided however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505: Cooper Jal Oil Pool, Langlie Mattix Oil Pool, South Eunice Oil Pool, Penrose-Skelly Oil Pool, Leonard Oil Pool, South Leonard Oil Pool, Hardy Oil Pool and Rhodes Oil Pool.

(12) That the Falby-Yates Oil Pool heretofore created, defined and described shall be abolished and all oil wells presently producing from the Falby-Yates Oil Pool shall be governed by the applicable rules of the Jalmat Gas Pool.

(13) That that portion of the Rhodes Storage Area lying within the defined limits of the Jalmat Gas Pool shall bo exempt from the applicable provisions of the Jalmat Gas Pool Rules. The Rhodes Storage Area shall include the following described area:

TOWNSHIP 26 South, RANGE 37 East, NMPM
Sec 4: W/2 NW/4, SE/4 SE/4, W/2 SE/4, SW/4;
Sec. 5: All
Sec. 6: NE/4 NW/4, NE/4, SE/4 SE/4, N/2 SE/4
Sec. 7: NE/4 NE/4
Sec. 8: N/2, N/2 S/2, SE/4 SW/4, S/2 SE/4
Sec. 9: All
Sec. 10: W/2 NW/4, SE/4 NW/4, S/2
Secs. 15
& 16: All
Sec. 17: E/2 NW/4, E/2
Sec. 20: E/2
Secs. 21 and 22: All
Sec. 23: SW/4 NW/4, SW/4
Secs. 26, 27, & 28: All
Sec. 29: E/2 NE/4

That special pool rules applicable to the Jalmat Gas Pool be, and the same hereby are promulgated as follows:

SPECIAL RULES AND REGULATIONS FOR
THE JALMAT GAS POOL

Well Spacing and Acreage Requirements for Drilling Tracts.

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Jalmat Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Jalmat Gas Pool shall be spaced, drilled, operated and prorated in accordance with the regulations in effect in the Jalmat Gas Pool.

RULE 2. Each well drilled or recompleted within the Jalmat Gas Pool on a standard proration unit after the effective date of this rule shall be drilled not closer than 1980 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary line nor closer than 1320 feet to a well drilling to or capable of producing from the Jalmat Gas Pool. Any well drilled to and producing from the Jalmat Gas Pool prior to the effective date of this Order at a location conforming with the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

Rule 3. The Secretary of the Commission shall have authority to grant exception to the requirements of Rule 2 without notice and hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1980 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius together with a stipulation that proper notice has been given said operators at the addresses given The Secretary of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. The provision of Statewide Rule 104, Paragraph (k), shall not apply to the Jalmat Gas Pool located in Lea County, New Mexico

GAS PRORATION

RULE 5. (a) The acreage allocated to a gas well for proration purposes shall be known as the gas proration unit for that well. For the purpose of gas allocation in the Jalmat Gas Pool, a standard proration unit shall consist of between 632 and 648 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (section) of the U. S. Public Land Surveys with a well located at least 1980 feet from the nearest properly lines; provided, however, that a non-standard gas proration unit may be formed after notice and hearing by the Commission, or under the provision of Paragraph (b) of this Rule.

The allowable production from any non-standard gas proration unit as compared with the allowable production therefrom is such tract were a standard unit shall be in the ratio of the area of such non-standard proration unit expressed in acres to 640 acres. Any gas proration unit containing between 632 and 648 acres shall be considered to contain 640 acres for the purpose of computing allowables.

In establishing a non-standard gas proration unit the location of the well with respect to the two nearest boundary lines thereof shall govern the maximum amount of acreage that may be assigned to the well for the purposes of gas proration, provided, however, that any well drilled to and producing from the Jalmat Gas Pool, as defined herein, prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be granted a tolerance not exceeding 330 feet with respect to the required distances from the boundary lines. The maximum acreage which shall be assigned with respect to the well's location shall be as follows:

Location	Maximum Acreage
660' - 660'	160 acres
660' - 1980'	320 acres

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 5 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with:

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3 The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (a) all operators owning interests in the quarter sections

in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (b) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6 In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were notified of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the Jalmat Gas Pool and other relevant data and shall fix the allowable production of the Jalmat Gas Pool.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the Jalmat Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the Jalmat Gas Pool.

RULE 7. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the Jalmat Gas Pool. The Commission shall consider the "Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the Jalmat Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the month proration schedule shall be a tabulation of allowable and production for the second preceding month.

Included in the monthly proration schedule shall be (a) a summary of the total pool allocation for that month showing nominations, and adjustments made for underage or overage applied from a previous month, (b) a tabulation of the net allowable, and production for the second preceding month together with a cumulative overage or underage computation, (c) a tabulation of the current and net allowables for the preceding month, (d) a tabulation of current monthly allowables for the ensuing proration month, and (e) a tabulation of the acreage assigned each well together with a tabulation of the acreage factor assigned each well. For the purpose of allocation a Proration unit of 640 acres shall be assigned an acreage factor of 4.00; a proration unit of 160 acres a factor of 1.00, etc.

"Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the Jalmat Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the Jalmat Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the

Commission deems advisable.

If during a proration month the acreage assigned a well is increased the operator shall notify the Proration Manager in writing (Box 2045, Hobbs, New Mexico) of such increase The increased allowable assigned the gas proration unit for the well shall be effective on the first day of the month following receipt of the notification by the Proration Manager.

BALANCING OF PRODUCTION

RULE 9. Underproduction: The dates 7:00 A.M., January 1, and 7:00A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled.

If it appears that such continued underproduction has resulted from inability of the well tp produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

If at the end of a proration period a marginal well has produced more than the total allowable assigned a non-marginal unit of corresponding size, the marginal well shall be reclassified as a non-marginal well and its allowable adjusted accordingly.

If during a proration period a marginal well is reworked or recompleted in such a manner that its productive capacity is increased to the extent that it should be re-classified as a non-marginal well the reclassification shall be effective on the first day of the proration month succeeding the date of recompletion.

The Proration Manager may reclassify a well at any time if production data or deliverability tests reflect the need for such a reclassification.

RULE 10. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES.

RULE 11. No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. The monthly gas production from each well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the gas produced.

Each purchaser or taker of gas in the Jalmat Gas Pool shall submit a report to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was purchased or taken.

Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the proration schedule

Forms C-111 and C-114 referred to herein shall be submitted in duplicate, the original being sent to the Commission at Box 871, Santa Fe, New Mexico, the other copy being sent to Box 2045, Hobbs, New Mexico.

Form C-115 shall be submitted in accordance with Rule 1114 of the Commission's Rules and Regulations.

The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, compressors, combustion engines and other similar lease equipment shall not be charged against the well's allowable

DEFINITIONS

RULE 14. A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the Jalmat Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the Jalmat Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil Wells producing from the Jalmat Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 10,000, provided, however, that such well

shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

PROVIDED FURTHER, After the effective date of this order no well shall be completed or recompleted in such a manner that the producing zone of the overlying gas pool and the producing zone of the underlying oil pool are both open in the same well bore unless specifically authorized by order of the Commission after notice and hearing. Dual completions may be effected in accordance with the provisions of Rule 112-A of the Commission's Rules and Regulations.

Any well presently completed in such a manner that the well bore is open to both the overlying gas pool and the underlying oil pool shall be assigned to either the gas pool or the oil pool by the Commission staff. Any operator of any well completed in such a manner shall submit to the Commission office at Hobbs, New Mexico all pertinent well completion data on Form C-105, together with electric logs, sample logs, drill stem test records, etc. All data shall be submitted in duplicate on or before July 15, 1954. Failure of any operator to submit the required date will result in cancellation of Form C-110 and subsequent cancellation of allowables.

If the operator is not satisfied with the well's assignment he may apply for a hearing on the matter in accordance with Commission Rule 1203.

PROVIDED FURTHER, Gas-Oil Ratio Tests shall be taken in accordance with the provisions of Rule 301 of the Commission's Rules and Regulations.

Gas-Oil Ratio Tests shall be taken in all oil or gas pools in accordance with the attached schedule. This schedule supersedes the annual Gas-Oil Ratio test schedule previously issued only where applicable.

The operator of any oil or gas well who has submitted Form C-116 to the Commission during 1954 in compliance with the 1954 Annual Gas-Oil Ratio test schedule previously adopted is exempt from the requirement of taking another Gas-Oil Ratio test during 1954. If the test previously submitted is not complete the Proration Manager shall so advise the operator and the operator shall submit the required test in conformance with the Gas-Oil

Ratio test schedule as outlined in Exhibit "H" attached hereto and made a part hereof.

PROVIDED FURTHER, That for gas allocation purposes and assignment of allowables the combination of the Jalco and Langmat gas pools to the Jalmat Gas Pool shall be effective September 1, 1954.

It is recognized that a great many wells will be reclassified and reassigned as a result of the provisions of this order and that the time involved in the reclassification may cause certain inequities, therefore, the Proration Manager is hereby directed to take such action as he deems advisable to prevent inequitable withdrawals.

PROVIDED FURTHER, That in filing Form C-101 "Notice of Intention to Drill or Recomplete" all operators shall strictly comply with the provisions of Rule 104, paragraph (e).

DONE at Santa Fe, New Mexico on the day and h

EXHIBIT "H"
GAS-OIL RATIO TEST SCHEDULE

NAME OF POOL	GOR LIMIT	TEST PERIOD			DEADLINE FOR FILING FORM C-116
Oil Pools					
Arrowhead	3500	Nov.	Dec.		Jan. 15, 1955
Cooper-Jal	10000	July			August 15
Eunice	6000	Oct.	Nov.	Dec.	Jan. 15, 1955
Monument	3000	July	Aug.	Sept.	October 15
South Eunice	10000	Sept.	Oct.		November 15
Hardy	10000	Aug.	Sept.		October 15
Langlie-Mattix	10000	July			August 15
Leonard	10000	July			August 15
South Leonard	10000	July			August 15
Penrose-Skelly	10000	July	Aug.	Sept.	October 15
Rhodes	10000	July	Aug.		September 15
Gas Pools					
Arrow	10000	Oct.	Nov.		December 15
Eumont	10000	Oct.	Nov.	Dec.	January 15, 1955
Jalmat	10000	Sept.	Oct.	Nov.	December 15

7,549 ac.
7079.176

Case 673 - Stanley

Exhibits 1, 2, and 3

Case 673 - Stanley

Waste Ex. 1 and 2

Waste on board scale of Receipt

Waste on T-P

B.H.P.

Ex. 4, 5, 6, 7, 8, 9, 10

Ex. 10,

Ex. 11,

Ex. 12.

Definition of gas well - oil well

~~Montgomery~~ ~~Dallas~~

Ex. 3

Ex. 13A

Did you prepare
Charge
Colors

13-E — Sulphur Well-head pressure
Gas field

Gas can communicate —
Water Current

100 b. s. l.
450 b. s. l.

Top of Tansill
to point 75 ft.
below sea level

13-E — Burnett

13-H E-end — Not within limits of any designated pool

14-A — Present limits of gas pool

B.H.P.

Talby Yates
John M. Kelly - Jack #5 (?) - 240 lbs. } Same 400
Jack #3 4 - 625

Oil Wells

Sec 10-25-37 - Gulf Stuart
#7 - 385 —
#1 - 313 —
5 323 —
2 - 276 —
1 - 349 —
3 - 340 —

Standard
Langlie B-2 - 15-25-37 - One section South
Press - Apr 487 - 24
Oct 595 - 21 days

Western Nat. Gas
Stuart A #1 - Gas well in 14-25-37
- April 5 - 424 - 48 hrs.
Oct 397 - 24 hrs.
Southern Calif Liberty #3
8-25-37 =
Oct 53 - 725 bbs - 8 day

CONTINENTAL OIL COMPANY

PROPOSED CHANGES IN GAS POOL RULES AND REGULATIONS

WELL SPACING AND ACREAGE REQUIREMENTS FOR DRILLING TRACTS.

RULE 1. Any well drilled a distance of one mile or more outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary ~~from the outer boundary~~ of the _____ Gas Pool shall be spaced, drilled, operated and prorated in accordance with the Regulations in effect in the _____ Gas Pool.

~~RULE 2. Each well drilled or recompleted within the Jalco Gas Pool shall be located on a tract consisting of not less than a quarter section of approximately 160 surface contiguous acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys.~~

RULE 2. (Previous Rule 3) Each well drilled within the _____ Gas Pool after the effective date of this order shall not be drilled not closer than 660 feet to any boundary line of the tract nor closer than 330 feet to a quarter-quarter section or subdivision inner boundary nor closer than 1,320 feet to a well drilling to or capable of producing from the same pool. Any well drilled to and producing from the _____ Gas Pool prior to the effective date of this order at a location conforming with the spacing requirements effective at the time said well was drilled shall be considered to be located in conformance with this rule.

RULE 3. (Previous Rule 4) The Secretary of the Commission shall have authority to grant exception to the requirments of Rule 3 without Notice and Hearing where application has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 1320 foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a ~~written stipulation that all operators within such radius have been properly notified.~~ a list of names and addresses of all operators within such radius together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary of the Commission shall wait at least ~~10~~ 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection of any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. (Previous Rule 5) The provision of Statewide Rule 104 Paragraph (k), shall not apply to the _____ Gas Pool located in Lea County, New Mexico.

GAS PRORATION

RULE 5. (Previous Rule 7) (a) The acreage allocated to a gas well for proration purposes shall be known as the gas

proration unit for that well. For the purpose of gas allocation in the _____ Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; provided, however, that a non-standard gas proration unit ~~other than a legal quarter section~~ may be formed after notice and hearing by the Commission, ~~except as outlined in Paragraph (b)~~ or under the provision of Paragraph (b) of this Rule. ~~Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.~~

Any non-standard gas proration unit containing less than 158 or more than 162 acres shall receive an allowable decreased or increased to that proportion of the allowable of a standard gas proration unit which the number of acres contained in said non-standard gas proration unit bears to 160. Any gas proration unit containing between 158 and 162 acres shall be considered to contain 160 acres for the purpose of computing allowables.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 7 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with;

1. ~~The non-standard unit consists of less acreage than a standard proration unit.~~

2. ~~The acreage assigned to the non-standard unit lies wholly within a legal quarter section and contains a well capable of producing gas into a gas transportation facility on the date of this order.~~

3. ~~The operator receives written consent in the form of waivers from all operators in the adjoining 160 acre proration units.~~

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections and/or lots.

2. The non-standard gas proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. The applicant presents written consent in the form of waivers from (1) all operators owning interests in the quarter sections in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit, and (2) all operators owning interests within 1500 feet of the well to which such gas proration unit is proposed to be allocated.

6. In lieu of paragraph 5 of this rule, the applicant may furnish proof of the fact that said offset operators were

notified of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application if after a period of 30 days following said notice, no operator has made objection to formation of such non-standard gas proration unit.

RULE 6. (a) The Commission after notice and hearing, shall consider the nominations of gas purchasers from the _____ Gas Pool and other relevant data and shall fix the allowable production of the _____ Gas Pool, and shall allocate production among the gas wells in the _____ Gas Pool upon a reasonable basis with due regard to correlative rights.

(b) The allowable assigned to any well capable of producing its normal gas allowable in the _____ Gas Pool shall be the same proportion of the total remaining allowable allocated to said pool after deducting allowables of marginal wells that the number of acres contained in the gas proration unit for that well bears to the acreage contained in all gas proration units assigned to non-marginal wells in the _____ Gas Pool.

RULE 7. (Previous Rule 8) At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its "Preliminary Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. The Commission shall consider the

"Preliminary Nominations" of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period. "Preliminary Nominations" shall be submitted on a form prescribed by the Commission.

RULE 8. (Previous Rule 9) ~~Each month, the Commission shall cause to be submitted by each gas purchaser its "Supplemental Nominations" of the amount of gas which each in good faith actually desires to purchase within the ensuing proration month from the _____ Gas Pool.~~ In the event a gas purchaser's market shall have increased or decreased, he may file with the Commission prior to the 10th day of the month a supplemental nomination, showing the amount of gas he actually in good faith desires to purchase during the ensuing proration month from the _____ Gas Pool. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month together with an adjusted allowable computation for the second preceding month. Said adjusted allowable shall be computed by comparing the actual allowable assigned with the actual production. In the event the allowable assigned is greater than the actual production, the allowables assigned the top

allowable units shall be reduced proportionately, and in the event that allowable assigned is less than the production then the allowables assigned the top allowable units shall be increased proportionately. "Supplemental Nominations" shall be submitted on a form prescribed by the Commission.

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

BALANCING OF PRODUCTION

RULE 9. (Previous Rule 10) Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration

period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period, a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

RULE 10. (Previous Rule 11) Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such over production and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, and has not been in balance since the end of the preceding proration period, then it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

GRANTING OF ALLOWABLES

RULE 11. (Previous Rule 12) No gas well shall be given an allowable until Form C-104 and Form C-110 have been filed together with a plat showing acreage attributed to said well and the locations of all wells on the lease.

RULE 12. (Previous Rule 13) Allowables to newly completed gas wells shall commence on the date of connection to a gas transportation facility, as determined from an affidavit furnished to the Commission (Box 2045, Hobbs, New Mexico) by the purchaser, or the date of filing of Form C-104 and Form C-110 and the plat described above, whichever date is the later.

REPORTING OF PRODUCTION

RULE 13. (Previous Rule 14) The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be ~~submitted~~ reported to the Commission so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made

of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however, that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

DEFINITIONS

RULE 14. (Previous Rule 15) ~~A gas well shall mean a well producing gas or natural gas from a common source of gas supply from a gas pool determined by the Commission.~~ A gas well shall mean a well producing with a gas-oil ratio in excess of 100,000 cubic feet of gas per barrel of oil.

RULE 15. A well producing from the _____ Pool and not classified as a gas well as defined in Rule 14 shall be classified as an oil well.

RULE 16. The term "gas purchaser" as used in these rules, shall mean any "taker" of gas either at the wellhead or at any point on the lease where connection is made for gas transportation or utilization. It shall be the responsibility of said "taker" to submit a nomination.

RULE 17. No gas, either dry gas or casinghead gas, produced from the _____ Pool shall be flared or vented unless specifically authorized by order of the Commission after notice and hearing.

RULE 18. Oil wells producing from the _____ Pool shall be allowed to produce a volume of gas each day not exceeding the daily normal unit oil allowable multiplied by 6,000, provided, however, that such well shall not be allowed to produce oil in excess of the normal unit allowable as ordered by the Commission under the provisions of Rule 505.

Q. State your name and position for the record please.

A. Stanley J. Stanley, Engineer, for the New Mexico Oil Conservation Commission.

Q. Have you testified before this Commission?

A. I have.

Q. (To Spurrier) Are his qualifications accepted?

A. They are.

Stanley - May I read into the record my position with respect to gas proration and an outline of my recommendations.

INTRODUCTION

If it will please the Commission - it is my desire to first of all clarify my position with respect to Gas Proration. I am absolutely neutral in this controversy. My testimony will undoubtedly hurt a few Operators which is to be expected in a contraversial matter but I do feel that it will benefit the majority of the Producers. I believe that over a long period of time more gas and oil will be recovered from certain pools in question. I believe that the State of New Mexico will benefit by my recommendations - the Operators will benefit and especially those Operators that believe in Conservation - the prevention of waste - and the insurance of ratable-take. Last but not least I firmly believe that in the final analysis the gas purchaser will realize a greater ultimate recovery of gas to be purchased and processed in the future.

My primary and fundemental study has been based on the Langlie Mattix and Cooper Jal Oil Pools, which underly two gas pools - namely the Jalco and Langmat, and by virtue of past completion practices the gas produced from oil and gas reservoirs affect the gas pools.

I feel that the Blinebry - Tubb - Justis - Byers Queen - and even the Eumont are unique in that the producing horizons are fairly well defined and do not present an associated casinghead gas problem at this time. Therefore I feel that the Langmat and Jalco are the problems of our gas proration system

and these problems should be resolved. I firmly believe that in order to prevent waste and protect correlative rights certain rules should be enacted pertaining to the oil pools underlying the Jalco and Langmat and essentially I recommend that this Commission enact:

1. A no flare order.
2. A Gas-Oil Ratio Limitation in those oil pools that have an unlimited ratio at the present time
3. That this Commission will proceed with caution in combining the horizontal limits of certain gas pools - namely the Eumont - Arrow with the Jalco and Langmat. That this Commission should have more time of experience in gas proration before naming one common source of supply for the four named pools.

Committee of gas proration

Q. Would you explain to this Commission your interpretation of waste,

A. I believe that waste is aptly defined by the Statutes of the State of New New Mexico as appearing in Section 2 of the first page of the Act and labelled as Page 81 in the Rules and Regulations of the New Mexico Oil Conservation Commission.

Q. Mr. Stanley - waste as defined by the Statutes may be grouped as underground waste or surface waste. Is that correct?

A. That is correct.

Q. Can you prove that surface waste is occuring in the area of question?

A. I believe I can and will.

Q. Do you have an exhibit showing surface waste as herein defined?

A. I have what are marked as Exhibit one and Exhibit #2 showing surface waste.

Q. What is Exhibit #1?

A. Exhibit #1 is a cross-section showing the completion of four wells offsetting each other.

Q. In what pool are these wells located?

A. Well No. 5 and No. 6 are located in the Langlie-Mattix Oil Pool and Well No. 1 and No. 2 are located in the Jalco Gas Pool.

Q. What are the vertical limits of the Langlie-Mattix Oil Pool?

A. Yates - Seven Rivers and Queen.

Q. What are the vertical limits of the Jalco Gas Pool?

A. Yates - and a 100 foot above the base of the Seven Rivers.

Q. In other words Mr. Stanley by virtue of the present vertical definition of the Jalco Gas Pool and Langlie Mattix Oil Pool they do overlap?

A. Yes Sir - the Langlie-Mattix Pool actually includes all of the vertical limits of the Jalco Gas Pool plus the bottom 100 feet of the Seven Rivers and all of the Queen.

Q. Is this relationship true of any other oil and gas pool?

A. Yes Sir.

Q. Would you name these pools?

A. The Langmat Gas Pool has the same vertical limits as the Jalco Gas Pool, whereas the Cooper Jal Oil Pool includes the Yates and all of the Seven Rivers.

Q. Why isn't the Queen formation incorporated in the Cooper Jal Oil Pool?

A. Usually the Queen formation is absent from the Cooper Jal Oil Pool. It was only recently that Humble Oil and Refining Company had developed oil production in the Queen formation within the present horizontal limits of the Cooper Jal Pool.

Q. Do you have an exhibit showing the geographical position and boundaries of the two named oil pools and the two named gas pools?

A. Mr. Montgomery may I borrow your exhibit showing the various pool boundaries herein named?

Q. Mark that Exhibit #3 please.
Basically the Jalco Gas Pool overlies the Cooper Jal Oil Pool and the Langmat Gas Pool overlies the Langlie-Mattix Oil Pool?

A. That is generally true except that the Jalco Gas Pool extends over the Langlie-Mattix Oil Pool in the Southern boundaries of the areal limits of the two pools. This is exactly what Exhibit #1 reflects. Wells #5 and #6 penetrate and expose in the same well bore, the Yates Seven Rivers and Queen formations and are classified as Langlie-Mattix oil producers. Wells #1 and #2 are completed in the Yates formation and the wells are classified in the Jalco Gas Pools.

Q. Do you have an exhibit showing the relative position of the wells with respect to Section lines?

A. Yes sir - Exhibit #2 shows the position of the wells with respect to Section lines and the acreage contributed.

Q. In other words Mr. Stanley - wells Nos. 5 and 6 are oil wells located on 40 acre spacing and wells no. 1 and No. 2 are gas wells with a ~~contributed~~ allowable acreage of 160 acres.

A. Yes sir.

Q. Do the oil wells appear on the current oil proration schedule?

A. Yes sir.

Q. Do the gas wells appear on the current gas proration schedule with an attributed gas proration unit of 160 acres a piece.?

A. Yes sir - they do.

Q. Do you know how much oil #5 and #6 produced during the months of January, February and March 1954?

A. Since the two oil wells produce into a common tank battery I will give you the total oil production on a monthly basis.

In January of 1954 the oil produced was 1,567 bbls.

In February of 1954 the oil produced was 1,417 bbls.

In March of 1954 the oil produced was 1,338.

Q. What is the daily average oil production of these two oil wells combined?

A. January 1954 - 50.54 /avg./day.

February 1954 - 50.60

March 1954 - 43.16

Q. Do you know how much casinghead gas was sold during these three months based on a 15.025 pressure base?

A. During January, 1954 - 88,290 MCF casinghead

February 1954 - 25,863 " "

March 1954 - 47,228 "

How do you account for wide difference

Q. Is this all the gas that the wells produced during the months of January, February and March of 1954?

A. No Sir - part of the total gas produced was flared.

Q. Did you personally inspect these wells Mr. Stanley?

A. Yes sir I did - on February 25, 1954. At 12 noon MST I inspected the meter run observed oil flowing in a certain number tank. No. 5 well was flowing on a 1" choke with a flowing tubing pressure of 280 lbs. No. 6 well was set on a 39/64" choke flowing with a tubing pressure of 365 lbs.

Q. Are the well connected to a casing-head gas line and metered.

A. Yes sir - the 6" meter loop was equipped with a 3 1/2" orifice plate and metered.

Q. Was all the gas passing through the meter [illegible]

A. No sir - I understand that due to the excessive amounts of gas produced the gas purchaser was unable to process all the gas produced through a 16 lb. pressure casinghead line. Therefore the plug valve on the casing-head gas line was in approximately in a 60 degree closed position.

Q. How much gas was passing thfough the casing-head gas line at that time?

A. Approximately 263,000 cubic feet/day.

Q. How much was being flared?

A. I can answer that question only as an estimate by observation of tubing pressures and later comparing production by actual measurement, of the casinghead gas.

Q. Would you explain - please.

A. On March 31, 1954 at 12:45 P.M. MST, I actually had metered all the gas that the wells were capable of producing at a certain choke setting and a stabilized flowing tubing pressure.

Q. Would you explian the actual measurement of gas on that particular day?

A. On March 31, 1954 at 12:45 P.M. the No. 5 well was flowing on 38/64" choke. Flowing tubing pressure was 420 lbs. The No. 6 well was set on a 27/64" choke with a flowing tubing pressure of 500 lbs. At this particular time all of the gas was passed through the meter for a period of approximately 15 minutes. Readings were stable both on differential and static pen recorders and the calculation of the chart showed that 3,905,000 cu. ft. of gas/day was being produced. Of this amount

440,000 cu. ft. was sold and approximately 3 1/2 millions flared. Based on my experience of actual study of stabilized flowing conditions of gas wells in this area and of oil wells with high gas oil ratios I would certainly state that more gas was being produced during the month of February 25, 1954, inspection due to larger choke settings and lower flowing tubing pressures, and consequently more gas was being flared on that day.

Q. Now let me elaborate further. Did you say this was casing-head gas?

A. Yes sir - I do not wish to totally infer that the gas purchaser nor the producer were flaring high pressure gas. In reality the gas flared was produced from the Langlie-Mattix Oil Pool as defined by the Commission.

Q. However, isn't it possible that part of this gas was being produced from the Jalco Gas Pool?

A. A drill stem test as reflected by Commission records from 2880 to 2900 on well #5 showed that gas surfaced immediately, recovering dry gas during a 12 hr. flow period. The initial flowing pressure was 325 lbs. Final flowing pressure was 1075 lbs. The amount of gas was not recorded on Commission forms. Our geologists had correlated the drill stem test interval as being approximately in Yates - Seven Rivers interval or perhaps in the upper part of the Seven Rivers. When you refer to this diagrammatic cross - section marked Exhibit #1, you will note that the casing seat in both of the oil wells is actually landed and set in the Tansil formation above the Yates formation.

Q. In other words Mr. Stanley based on a dry gas allowable of 1,000,000 cu. ft/day for Well No. 1 or Well No. 2 and with each well located on a 160 acre tract would you say that the so called oil wells were producing considerable more gas than the gas wells?

A. Based on my observation of (1) the completion program of the oil wells versus the gas wells and (2) on actual field measurements I have calculated that the 2 oil wells were producing nearly 4 times as much gas as anyone of the gas wells with an allowable of 1,000,000 cu. ft./day. When you consider that the oil wells are each located on a 40 acre tract or a total of 80 acres then to transfer this acreage to a 160 acre pattern I would

say that the oil wells are producing 8 times as much gas based on a comparable 160 acre unit and a 1,000,000 cu. ft. of allowable/day.

Q. When the allowable is ~~produced~~reduced to 500,000 cu. ft/day during summer months as experienced at this time how much more gas are the oil wells producing?

A. Approximately 16times on an equivalent 160 acre basis comparison.

Q. In that particular area which zone has the higher shut-in pressure, the Jalco gas pool or the Langlie-Mattix Oil Pool?

A. The Jalco Gas Pool - based on a comparison over a large area.

In other words the operator must reduce the bottom-hole pressure in the gas zone by withdrawing large volumes of gas before reaching a critically low pressure to allow the oil to enter the well bore?

A. That is correct.

Now if he produces excessively large amounts of gas and the operators volumetric withdrawals are greater in the gas zone than in the oil zone won't the bottom hole pressures of the two zones equalize?

It is logical to assume that in due time equalization of pressures will result.

And if the practice continues over a longer period of time it would be possible to have a lower pressure in the gas zone than in the oil zone?

It is logical to assume that that would occur since gas will pass thru a zone of equal permeability at a faster rate than a liquid - oil or water.

Q. In that particular case the oil would flow in to the gas zone?

A. That is correct.

Q. And if this occured less oil would be recovered?

A. That is correct - at any time that you have expanded an oil into a dry gas zone you certainly have lessened your recovery of oil ahd have contributed to underground waste.

Q. Is this 4 million cu. ft. of gas that is flared put to beneficial use?

A. No sir - that is certainly surface waste.

Q. Are these the only two wells completed in this manner in the Langlie-Mattix anD Cooper Jal Oil Pools?

A. No sir - we have a number of wells completed in this manner and a number of wells flaring gas in a similar fashion. To save time and shorten my testimony I would like to present this data in a generalized manner.

Q. Mr. Stanley - for the sake of the record I wish you would relate one more example of flare gas in the Yates formation.

A. I understand from idle conversation with some idle company pumpers in the Jal area that this well, that I will discuss, caused some confusion during the recent Continental Bell Lake Unit Fire. Certain strangers in the area who in the manner of curiosity to see a real oil well fire were occasionally guided to this flare by the town's practical jokers.

This well is classified as an oil well in the Cooper Jal Pool. The Commission records show that the top of the Yates is 2,910 feet. The oil and gas pay is from 3045 to 3079 feet. The oil string is set @ 3019 feet with a total depth of 3079 feet plug back. Our geological interpretation is that the well is producing from the Yates formation and this is confirmed by the operator as evidenced by his forms. It is also interesting to note that this well file shows that in 1950 on May 22, the operator had filed a 24 hour shut-in pressure of 906 lbs. On December 5, 1950 the operator reported a shut-in pressure of 963.3 lbs. (dead weight gauge). In other words at that time it appeared that the well was classified as a gas well.

A. Yes sir.

Q. When was the well completed?

A. It was completed August 25, 1947.

Q. When was the plug-back operation conducted?

A. Our records indicate that the plug back operation and a 5,000 gal treatment of acid were conducted during the initial completion of the well.

Q. What was the oil potential of the well?

A. 1 bbl/day natural increasing to 110 bbls/day following a 5000 gal treatment.

Q. What was the gas potential of the well?

A. None was reported.

Q. Does the Form C-105 reflect that a gas pay was exposed to the well bore ?

A. The operator on Form C-105 shows a interval from 2865 which is behind the pipe. (The casing was set @ 3019. Below the casing shoe and in open hole the operator shows a gas zone from 3045 to 3050 and from 3072 to 3077. The operator also shows that an oil zone occurs from 3045 to 3079.

Q. In reality the operator shows that he has both a gas zone and an oil zone in practically the same interval.

A. That is correct.

Q. What day did you make this inspection?

A. March 3 @ 6: 10 P.M. MST.

Q. Was the well flowing?

A. Yes sir.

Q. What disposition was made of the gas?

A. It was flared at the well site.

Q. Did you observe the flowing tubing pressure?

A. Yes sir - I did. It was 330 lbs. on a full opening 1" choke.

Q. Was the well tied in to a casing-head gas ~~gh~~ line or a high pressure gas line?

A. Yes sir it was. tied into a high-pressure gas line However the well was by-passed to the flare. The reason being that since the gas line in that area was a high pressure line the well was not capable of "bucking" the line pressure.

Q. What was the line pressure:

A. 560 lbs.

Q. And the flowing tubing pressure was 300 lbs. ?

A. That is correct.

Q. Did you observe the chart on the meter ?

A. I did - The chart was for an 8 day period and it showed that the production for the first three days of the chart was zero gas sold.

Q. Is the gas purchaser forced to take that gas?

A. No sir - since the gas produced is classified as casing-head as appearing on the oil proration schedules.

Q. Is the operator required to sell his gas?

A. Not under the present rules.

Q. How much gas is the operator flaring?

A. I did not measure the gas but would estimate that the wel was flaring 3 to 4 million cu. ft./day.

Q. This well is unique that it occurs on the western side of the reef front.

A. I may be able to better explain this from a cross-section prepared by our geologists. May I have a cross-section not specifically this well but portraying the general underground condition of the area.

Q. The names of operators appearing on this cross-section are not involved in this particular well but the underground position of the reservoirs are approximately the same as the underground conditions of the wells in question?

A. That is correct.

Q. The formations i. e., the Yates - Seven Rivers and Queen have an upward dip to the East?

A. They do.

Q. Explain the general characteristics of the reservoir problem in this area.

A. Originally and I believe that this is reflected in the records of this particular well, gas occurs updip - followed by an oil gas contact down structure. Whenever the gas is withdrawan the oil will move up structure followed generally by one oil water contact. In 1950 I would assume that the operator encountered considerable quantities of gas and produced this

gas as the records reflected. At a later time more oil production was encountered due to the movement of fluid - oil and water upstructure.

Q. In other words from your knowledge of reservoir mechanics wouldn't it be logical to assume that good pressure maintenance by the restriction of gas flow would result in a greater ~~a~~ ultimate recovery of oil?

A. Whenever the oil appeared I certainly would recommend not flaring large quantities of gas in the gas-oil contact to prevent the premature encroachment of water and the insurance of greater recoveries of oil.

Q. Is the gas that is being flared put to beneficial use?

A. No sir - I would classify this as surface waste and underground waste.

Q. Do you have any other exhibits? #4

A. Yes sir - I do - I have what is marked as Exhibit #4.

Q. What does this exhibit reflect?

A. This exhibit shows that in the Langlie-Mattix oil pool for the year 1953, 25,251,867 cu. ft. of casing-head was sold to El Paso Natural Gas Co., and some gas was reported flared by the operator on Commission Form---.

Q. Where was this information obtained?

A. From Commission forms submitted by the operators and gas purchasers and from the files of the gas purchasers.

Q. What is the vertical scale?

A. The vertical scale is a percent ordinate showing the relative amount of casing-head gas produced for the various gas-oil ratio intervals based on the 25,251,867 cu. ft. of gas produced.

Q. What is the horizontal scale?

A. The gas-oil ratio's are classified into various groups. For instance 10% of the total amount of gas was produced from wells having a G.O.R. in the O to 6000 interval. 5.9% in the 6000-10,000 interval, 6.6% in the 10,000 to 15,000 interval 18.3% in the 15,000 to 25,000 interval, 20.5% in the 25,000 to 50,000 interval, 17.8% in the 50,000 to 100,000 interval, and 20.8% in the 100,000 and over category.

Q. In other words over 50% of the gas sold had a higher ratio than 25,000 to 1?

A. That is correct.

Q. This barograph that you have prepared does not include all of the flare gas?

A. No sir.

Q. Don't you believe that if it were possible that flared casing-head gas was considered in this study that the percentage of the high gas oil ratio volume would increase.

A. I feel certain that it would.

Q. Would you explian to the Commission your Exhibit #5?

A. Exhibit #5 is presented in conjunction with Exhibit #4. The barographs reflect the same gas-oil ratio's as previously defined, however, instead of using casing-head gas as the basic reference I have used the total number of oil wells in the pool - namely 497.

Q. Would you explain your findings?

A. 29.4% of the wells are in G.O.R. interval of 0 to 6,000

9.1% " " " " " " 6,000 to 10,000

12.3% " " " " " 10,000 - 15,000

19.3% 15,000 - 25,000

12.3 25,000 -50,000

11.3 50,000 - 100,000

6.4 100,000 -& over.

Q. In other words when you compare Exhibit #4 and Exhibit #5 -32 oil wells constituting 6% of the total No. of wells in the pool produce in effect 21% of the casing-head gas of the pool and this 21% has a G.OR. ratio in excess of 100,000 to 1?

A. That is correct.

Q. And if it were possible to include all of the flare gas the % of very high gas oil ratio would increase?

A. I believe that is correct.

Q. Have you conducted a similiar study of the Cooper Jal Field?

A. Yes sir - I have.

Q. Would you please present these exhibits?

A. I have what is marked here as Exhibit #6 and Exhibit #7.

Q. What does Exhibit #6 show?

A. This exhibit shows that the Cooper Jal Pobl has produced 7,337,427 MCF based on plant take and some flare gas that was reported. I would like to read into the record the percentage of the casing-head gas for each gas-oil ratio interval.

From A G.O.R. interval of 0-6,000 -	20.04%
6,000 - 10,000-	4.84%
10,000 - 15,000-	20.36%
15,000- 25,000-	4.55%
25,000- 50,000-	28.89%
50,000-100,000-	18.87%

Q. What does Exhibit #7 reflect?

A. Exhibit #7 is a break down of the % the G.O.R. intervals based on the total number of oil wells.

Q. Please read into the record what Exhibit #7 shows:

A. Based on 156 oil wells in the Cooper Jal Pool the

0-6,000 G.O.R. interval is	60.26%
6,000-10,000 " " "	7.69
10,000-15,000 " " "	12.82
15,000 -25,000	3.21
25,000-50,000	10.90%
50,000-100,000	0.64
100,000 - plus	449

Q. Again with those wells, over 100,000: to 1 ratio produce 19% of the total casing gas and only constitute 4 1/2% of the total number of wells in the pool?

A. That is correct.

Q. Do you feel that if all the gas flared was reported this ratio would be higher in the 100,000 plus G.O.R. interval?

A. Yes sir - I believe it would.

Q. What is Exhibit #8 and #9.

A. A study of the gas-oil ratio interval based on combining the Langlie-Mattix and Cooper Jal Pool.

Q. Why are you combining the study?

A. At the present time I am not convinced that the Langmat and Jalco Gas Pool boundary is justified. Further from my study of the two pools I cannot find reasons for its existance. Unless evidence is presented to the contrary I feel that this Commission should combine the Jalco and Langmat Oil Pool.

Q. Proceed with your exhibits.

A. The total casing-head gas sold was 32,589,294 MCF.

Again for the information shown in Exhibit #8-

0-6,000 G.O.R. interval 12.32% of the gas was produced.

6,000 -	10,000	GOR interval	5.69% of the gas was produced.
10,000 -	15,000	"	9.73
15,000 -	25,000	"	15.20
25,000 -	50,000	"	23.38
50,000 -	100,000	"	14.32
100,000 and over		"	20.38

Q. Would you explain Exhibit #9?

A. Exhibit #9 is a summary percentage study of the various G.O.R. intervals based on the total No. of oil wells in the two named pools. It shows that 36.75% of the wells occur in the 0-6000 G.O.R. intervals.

8.73	" " " "	6,000 - 10,000 "
12.40		10,000 - 15,000
15.47		15,000 - 25,000
11.94		25,000 - 50,000
8.73		50,000 - 100,000
5.97		100,000 plus.

Q. In other words 5.97% of the total number of wells produce in excess of 20% of the gas?

A. That is correct.

Q. Would you please explain Exhibit #10 ?

A. Exhibit #10 shows a geographical distribution of various G.O.R. intervals in the Langlie-Mattix and Cooper Jal Pools. The color values commence with a light color value for low ratio leases and successively darker values for higher G.O.R. values. For instance the yellow-color represents the

G.O.R. - 0.2,000.
Orange - 6,000 - 10,000
Orange- 2,000 - 6,000
Red 6,000 -10,000
Blue 10, 000 -50,000
Purple 50,000 - and over

There is no sequence of regularity of geographical occurrence. High G.O.R. wells and excessive gas production from oil wells is only dependent on the way on which the well is completed.

Q. Would you explain Exhibit #11?

A. Exhibit #11 is a production summary of the Cooper Jal and Langlie-Mattix Oil Pools from 1938 to 1953.

Q. What does it show?

A. The various graphs are incorporated from 1938 through 1953.

1. The blue line indicates the increase in the number of wells of the two pools.
2. The red line indicates the total gas plant take which is the casinghead and the dry gas.
3. The green line indicates the total dry gas plus the casing-head gas as obtained from Commission forms.

Q. Shouldn't the green line i.e. total gas reported exceed the red line which is the total gas plant take?

A. Yes sir - it should. There is a certain percentage of gas that is being flared and if this were added to plant take the green line should be above the red line at all times.

Q. Isn't there something wrong?

A. There is - it may be that some of the forms are completed with a dry sense of humor.

Q. Continue with your testimony.

A. The orange and black curves reflect casing-head gas and dry gas production. Now with respect to Exhibit #11 I would like to present Exhibit #12. Exhibit 12 has three curves.

1. The number of wells in the pool similiar to Exhibit #11.

However Exhibit #12 shows the relationship of oil production versus reported gas production - economically it is evident from the upward trend of the gas curve that more gas will be produced in the future and perhaps a continuing decline of oil production.

Based on the production of 71,992,960 MCF of dry gas produced @ an average price of 9.5¢ per thousand plus 29,868,704 MCF casing-head @ 3.5¢/thousand the total value of gas equals $7,884,735.

Based on the total oil production of the Cooper Jal and Langlie-Mattix Oil Pool for 1953 of 2,722,760 bbls @ $2.60/bbl. the value of the oil is $7,079,176.

Therefore economically the gas is of more value in dollars and cents than the oil.

Q. Would you summarize the significance of this G.O.R. study and your other d data?

A. Due to the absence of controlled production of casing-head gas as presently defined and due to the manner by which the wells have been completed in the past.

1. Casing-head gas is partly dry gas production.
2. Since the vertical limits of the Langlie-Mattix and Cooper Jal Oil Pools coincide with the vertical limits of the Jalco and Langmat gas pools the withdrawals of gas and fluid from each and every pool have a direct bearing on each other.

Supplement to top of Page 2.

In paragraph (b) of the Statutes.

Surface waste as those words are generally understood in the oil and gas business and in any event to embrace the unnecessary or excessive surface loss or destruction without beneficial use, however caused, of natural gas of any type or in any form or crude petroleum oil, etc. - unquote.

3. That there is now non-ratable take of gas between the oil pools as compared to the prorated gas of the dry gas pools.

4. (a) For the protection of correlative rights and (b) the insurance of a greatly ultimate recovery of oil and (c) the prevention of rapid decline in pressures in certain areas to ensure the recovery of gas at higher pressures and (d) utilizing the full extent of the present reservoir energy, I feel that a No Flare Order and a Gas-Oil Ratio Limitation are long overdue and are essentially needed for a successful program of gas proration. (e) that from my calculations the average G.O.R. for the Langlie-Mattix Oil Pool is 17600:1 and for the Cooper Jal the average G.O.R. is 7,400:1. (f) that a recommended operating G.O.R. for a trial period during our first step in gas proration I recommend a G.O.R. limit for oil pools that no limits exist be 10,000 to 1.

Q. Do you have evidence of a well producing from a dry gas pool and an oil pool together?

A. This particular well has an oil string set @ 2880 ft. and a total depth of 3260, producing from the Yates and Seven Rivers. It was completed in March of 1949 with an initial gas potential of 58,500 MCF. It was produced as a dry gas well to August of 1951 and recompleted in September of 1951 by deepening to a total depth of 3670. The well produced 55 bbls. oil for a 24 hour period and was given an oil well. In the meantime on September 22, 1951 the well was potentiated by a gas purchaser for 20,300 MCF/day.

During January of this year the dry gas sales were 40,651 MCF, February, 1951 the producer sold 13,670 MCF. It is presently carried on the oil proration schedule for 17 bbls day.

Q. Mr. Stanley - do you have an exhibit showing Bottom-hole pressure data?

A. Exhibit is a plotted map of bottom hole pressure data. I would like to present all of the evidence in the creations of the Falby-Yates Pool. Furthermore I wish to call the Commission's attention to the difference of pressure between the Falby-Yates pool and the underlying Langlie-Mattix, Cooper Jal oil pools. Two wells were completed on the same 40 acre unit. One well was completed in the Falby Yates pool with a pressure of 625 lbs. and 240 lbs in a well completed in the lower Queen oil formation or a differential of 385 lbs. This differential of pressure between the Yates formation and the Queen formation is characteristic between the Yates formation and the Lower oil producing Queen formation throughout the Langlie-Mattix - Cooper Jal boundaries and perhaps other pools to the South. Other Yates synclinal oil traps occur to the south with Yates pressures of a higher order than Queen pressures. I recite two oil wells drilled on the same 40 acre tract. In #1 well the oil string is set at 3112 - total depth of 3372. The well is classified as Yates - Seven Rivers producer of oil with a B.H.D. of 776 lbs. and showing an oil gradient for approximately 300 feet.

The other well situated on the same tract has a different completion. Oil string is set @ 2700 feet. TD is 3569, the well files showing that the Queen formation was penetrated. The pressure bottom was run to the same datum as the previous well (-/- 214 S.S.) The bottom hole pressure was 443 lbs. or a differential of 333 lbs. What is important in this study is the fact the Queen well had a gas gradient in its entire length. I interpret this as actually a flow of gas from the higher pressure formation well to the lower pressure formation and this well will not have a stabilized pressure due to migration ~~xxxxx~~ when the well is shut-in. Is interpret this as underground waste.

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Q. Your name and position.

A.

Q. Have you made a study of this problem?

A. Yes sir I have. I have studied over 550 wells in this area. At the present time 2,668 wells appear on the oil and gas proration schedule for the shallow oil pools and shallow gas pools in southern Lea County. Percentagewise this study covered roughly 20% of the wells in this area.

Q. Did you arrive at any conclusion or have any recommendations to make?

A. Yes sir I have arrived a certain conclusion and have recommendation to make.

Q. What are these recommendations?

A. 1. That the Eumont, Jalco, Langmat, and Arrow gas pools be consolidated into one gas pool. (pointing out pools on base map)

2. That the Eunice-Monument, South Eunice, Cooper-Jal, Langlie-Mattix, Arrowhead, Rhodes, Eaves, Skaggs, Hardy, Penrose-Skelly, Leonard and South Leonard Oil Pools be consolidated into one oil pool. (pointing out pools on base map).

3. That the vertical limits of the gas pool be from the top of the Tansil formation to a point 75 feet below sea level.

4. That the vertical limits of the oil pool be from a minus 100 feet below sea level to a point 450 feet below sea level.

5. That the occurence of oil in areas such as the Falby-Yates be defined and named as separate oil pools and that the vertical limits be distinct from the above suggested oil pool.

6. That the occurence of oil along the western side which occurs, in the main, in a Seven Rivers reservoir be determined and made a separate and distinct pool.

Q. Do you have evidence to support these recommendations?

A. Yes sir I have in the form of cross-sections from east to west and north to south throughout the area as mentioned above and as indicated on the base map, and other information.

Q. Would you explain your exhibits to the Commission?

A. Yes sir, I will start on the north end of the area and work southward with my west to east cross sections and then start from the north and work southward with my south to north cross sections.

Q. Were these cross-sections prepared by you?

A. The cross sections are those which the committee used to set up the presently defined gas pools, but the interpretation is mine as are the penciled and inked notes which are additions to their work, due to work-overs and additional information which was available to me.

Q. Did you check the work that is shown on these cross-sections?

A. Yes sir I did, and I would like to compliment that committee on the amazing accuracy and almost complete lack of error, also on the great amount of work.

(start showing the cross-sections and explain in detail the information that is shown on the X-sections).

Cross-section T-19

The red color indicates oil, and the green indicates gas. I have only illustrated gas and oil where production has or is being produced from.

Please note that the gas is from the Queen in this area, and that the oil lies below sea level at a rather constant interval from 150 to 240' below sea level,

T-20

and occurs in the Grayburg. / This cross-section also shows oil lying below sea level at a rather constant interval 230 to 250' below sea level and note that the accumulation of oil is in no way affected by structure. The oil occurs in the San Andres, Grayburg and Queen, as the structure becomes lower.

Note that the gas is produced from the Seven Rivers, Queen and Grayburg but never is below 100' below sea level. This violates the vertical limits of the presently defined Eumont Gas Pool, it is defined as Yates, Seven Rivers Queen.

Cross-Section T-21
(Be sure and eheck Grayburg top)

Note again that the occurance of oil lies below sea level at 170 to 300', and structure has no effect upon the accumulation of oil, and occurs in the Grayburg Queen and Seven Rivers.

Note the Shell State #4 has perforated the Tansil for gas which is in violation of the presently defined vertical limits of the Eumont Gas Pool.

Note the horizontal limits of the Jalco Gas Pool and the Eumont Gas pool. The Eunice Monument and Penrose Skelly Oil Pools. The same accumulation of oil occurs in both.

Cross Section T-22

This cross-section cosses the South Eunice, Eunice-Monument, Arrowhead and Penrose Skelly Oil Pools, and the Jalco, Langmat and Arrow gas pools.

Again please note the occurance of oil which occurs from a 150 to 210' below sea level with complete disregard to structure and the pay zone being in the Grayburg, Queen, Seven Rivers and Yates within a distance of one mile.

Note that the Seven Rivers is productive on the west side of the area.

The Arrowhead oil pool and the Penrose Skelly oil pool have a commbn boundary and the occurance of oil is the same.

The South Eunice Pool is defined vertically as Seven Rivers but note on the cross-section, Queen, Seven Rivers and Yates production.

Of some 37 wells checked in the South Eunice oil pool 9 produced from the Seven Rivers, 7 from Yates and 21 from Queen.

Q.....Is.

Cross-Section T-22A

Q. I notice that on this cross-section that you have oil indicated as lying higher in relation to sea l[illegible]el than your previous cross-sections.

A. Yes sir, this cross-section shows 1st on the west limb an accumulation of oil which is controlled partly by structure, whereas structure had no affect upon the accumulation in the previous exhibit.

Q. Do you have an explanation for this separate accumulation?

A. Yes sir I do. If you will note these wells lie on the western edge of the productive area. This is the locale of the Seven Rivers dolomite, and sandy section, which runs south to north along the "high" from 225 to 255. Eastward the Seven Rivers becomes more anhydritic and porosity is poorly developed. There is a very active water drive from the west and a porosity pinch out to the east. Hence this accumulation is a separate and distinct reservoir from that which lies below sea level that I have discussed previously to this.

Q. You stated that a water drive was active from the west, what type of water?

A. The water has a relatively high H_2S content.

Q. Does this cause the oil to have a higher H_2S content?

A. Yes sir, that in part is responsible for the higher H_2S content along with the type of lithology in which the oil occurs.

Q. Does this also cause the gas to have a higher H_2S content than that gas which lies in the same horizon farther to the east?

A. Yes sir, in part the higher H_2S content is due to the contamination of the water and also due to the type of lithology of the reservoir, and also the proximity of sour crude.

Q. I also note that generally the pressures are lower and the H_2S content higher along roughly the boundaries of the Jalco Gas Pool.

A. Yes sir, as stated the higher H_2S content is due to the contamination and lithology, the lower pressures is due to the water invasion.

Q. Then it is your belief that the Jalco and Langmat gas pools are one and the same?

A. Yes sir, in part they are one and the same.

Q. What do you mean by in part?

A. Well sir, part of the gas zone which lies in the Langmat Gas Pool becomes productive of oil to the west in roughly the area presently designated as the Jalco Gas Pool, and the dry gas zone is more restricted vertically than it is to the east.

Q. Then as I understand you want to designate a separate oil pool for that occurance which you have described?

A. Yes sir.

Q. And you want to call the Jalco and Langmat gas pools one and the same?

A. Yes sir.

Q. Then what are your recommendations as to how to keep the oil zone from being opened if the vertical limits of the gas includes the oil reservoir which it would for this occurance to the west.

A. I recommend that the entire area be designated as one oil pool and defined the vertical limits, also that it be one gas pool and defined the vertical limits, but on this western limb we have a seperate reservoir of oil which occurs sporatically up and down the high, therefore in some areas three reservoirs are present. One gas, and two oil along the high, but also along this area there are places where this second oil reservoir does not occur, therefore only the two reservoirs present that I previously described. Therefore to keep this second oil reservoir separate from the lower oil reservoir and the upper gas reservoir where it does occur I recommend that the vertical limits of the gas pool be limited to insure that the gas and oil reservoirs are kept separate where this second oil reservoir is present.

Q. Do you have any definite recommendations as to the vertical limits that the gas pool should be limited to over these areas where two oil reservoirs are present.

Q. I see that the Continental Meyer B-33 #2 well, you have oil indicated in the upper portion of the Yates.

A. Yes sir.

Q. Is this the same reservoir we have just discussed?

A. No sir it is not. It is a syncinal occurance of oil in the Yates and should be named horizonatly and vertically as a separate reservoir from the reservoir to the west and from the underlying reservoir which occurs thruout most of the area.

Q. Have you any recommendations as to the limits horizontally and vertically?

A. Yes sir I have, and they are: Vertically the Yates formation. Horizontally all but the SE/4 of Section 22, W/2 Section 27, E/2 Section 33, and NW/4 Section 34.

Q. I notice that no oil is produced below sea level in a portion of the cross-section. Do you have an explanation?

A. Yes sir the lithology of the Seven Rivers formation in this area was not condusive to the formation of porosity and permeability and it is this type of lithology that occurs in this immediate area at the horizon of the sub-sea oil accumulation which occurs elsewhere, but if you will notice as the structure climbs to the east and the Queen formation, which has favorable lithology for the formation of porosity and permeability, climbs into this sub-sea horizon oil is produced.

Q. I see that also on this cross-section you have an oil accumulation above sea leval. Is this the same occurance that was on the last exhibit?

A. Yes it is, and the gas zone thickens eastward as before and the oil is not produced, but as the section climbs eastward with the structure and favorable lithology is present in the sub sea oil zone oil production is obtained.

Q. I notice that the well on the west side is producing gas and oil, is that correct?

A. Yes it is a dual completion in the dry gas zone and the Seven Rivers oil zone.

Q. Will your recommendations affect this dual?

A. Yes sir it will affect this well, but the affect will be to protect it. At the present time the vertical limits of the Jalco Gas Pool is Yates and all but the lower 100' of the Seven Rivers, the Cooper-Jal oil pool is Yates and

Seven Rivers. Therefore the Commission cannot prevent an off-set operator from opening both zones and due to the differential pressures would be determined to the oil reservoir, these dual completions are expensive not taking in the fact of waste of energy.

Cross Section T-24

A. The oil zone as before below sea level and gas aboíe until we reach the Falby-Yates oil pool and obtain Yates synclinal oil. Then gas is present again, as before when the section climbs and favorable lithology is present in this zone oil is found.

Q. Do you wishto alter the Falby Yates oil pool?

A. Yes sir I would like to add the NW/4 NW/4 19-24-37.

Q. What affect would this have?

A. This will validate the Yates well which is presently on this 40.

Q. What of the other well on this same 40.

A. This well is completed in the zone below sea level and would fallnto the pool that I suggested earlier, which lies at a 100' below sea level.

Q. Would this also validate the other wells which are producing from both zonez?

A. Yes sir, the Falby-Yates would over lie the 100 reservoir.

Cross Section T-25

A. Yes there is an exception to the Western Gas Wimberly #1 SE NW 23-25-37, it is a dry gas well below 100' (ch for oil), but this well is outside the horizontal limits of a gas pool.

Q. I also notice that you have another accumulation of oil above sea level.

A. Yes sir, this is another occurance of oil similar to the Falby-Yates occurance and should be named as a separate pool.

Q. Do you have recommendations to make as to the horizontal and vertical limits? Also the accumulation in the Cont. Sholes A-24 #3 is above sea level.

A. Yes sir this is the Seven Rivers occurance along the dolomitic ridge I spoke of earlier and would be included in that reservoir when described more completely

Cross-Section M-1

A. The oil zone lies on the average of 200' below sea level and crosses stratigraphic boundaries. The commercial gas occurs in the Seven River and Queen.

Cross Section M-2

A. The oil occurs in the Grayburg and Queen, note the boundaries of the Langmat and Eumont. The lack of any apparant change, as with the Eunice-Monument and Arrowhead.

Note this well, it has open hole from the dry gas zone into the oil zone. It produced in the month of January 23 BOPD and sold 56,000 MCF and cannot be prorated because it produces oil. The offset operator's gas allowable was 29,382 MCF, almost 1/2/

Cross-Section M-3

A. Note the dry gas which is an exception - Stanolind C Meyer 9-B. Note the syniclinal occurance of Yates oil, this was dismissed on T-25.

Note the exception where the gas is below 100' but these wells are now SI anyway and would not be exceptions to my recommendations.

Cross-Section E-3

Note the exception of vertical limits of gas but, I don't believe any are producing. I am not sure, anyway they are outside of the gas pools as presently defined.

Cross-section E-1

Same occurance note Gulf Shipp #1 is an exception.

Q. Do you have any more statements?

A. I would like to read very hastily remarks from New Mexico Bureau of Mines Bulletin 18.

Arrowhead Pool - Revel L. Boss
" Page 198

Cooper-Jal P. W. Miller and R. L. Bates Page 202

Eunice Pool Edgar Kraus Page 211
Langlie Mattix Page 233
Monument Page 252
South Eunice Page 266

As pointed out the vertical limits as they now exist do not cover all producing.

582 Jalco Gas Pool

Rincon - Oil & Gas Pool

MCF

R-

GOC - Continental Mound

Case 582 Jalco Gas Pool

T-P Exhibit 57

Phillips

Oil or gas pool? - Santa Fe gas pool

Exhibit 1 - St Louis - oil and gas pool

Blue

~~Red~~ - Most obtainable the 19 [illegible] age producible

in the [illegible]

Red - Less

Brown - [illegible]

1'50 - [illegible]

Objection: Co. [illegible]

(3) [illegible]

Exhibit

Exhibit 3 - Paper in connection [illegible]
of 1951 production [illegible].

Waste - Continuing study since 1941

Process

Small chart
12 mos. 1953

Casinghead gas - produced underground production with oil [illegible]

Dry gas - without oil - from reservoir or that part of reservoir containing only gas

Talking about dry gas here

Combination will [illegible] reduced more to

Open Producing Capacity [illegible]
market demand, [illegible]

Cubic Ft. T.P
Romaine & Aransas bet. Dallas / [illegible] ?
Gas Dallas Not separate connection
MCF(?)

Amended (?)

Bell Rubber [illegible]

[illegible] Sorfellis

Wit. [illegible]

Rem: Is it [illegible]
Commissioner defers decision
Use Resolution — Yes
Administration — No

Cases 637, 45, 50

~~W½ SW¼ Sec.~~

Case 653: Check on unit agreements.

Some letters will change prop. terms in the Acreage Clause.

Counsel thinks maybe the whole thing could be handled administratively (Check this)

Case 654:

656: Quance - Dual Completion?

657

658

659: Case 521 — Warren Petrol. Corp.
Order R-356
370-A

* — Cannot enter Order following additional Allowable.

660 — Some Objection by Sub Grand

* This particular section already has 4 gas wells — Skelly, Skelly & Sk

666

Application for 640 acre proration unit
— Girard, Kellahin

Amerada — Permian Pipeline

552 — Shell, Permian

Points of dispute
1. Pool limits
2. Whether operator was right to multiple allowable to one well. Price posting — only to obtain exception
3. Definition of gas well as opposed to oil well
4. Oil wells in gas fields, a pool
5.

Hinkle — appoint technical committee Mr. Carr to come prepared in light of prior hearing.

Rule to provide for 640 units i.e. 4 x present 160 acre unit

Judge Jones
Order of 3-5- dated 1949
—
Denied the [illegible] motion of defendant.

Continental

Kelbaker — found and voided as claim entered
Already three years.

Russell - T-P Closing Argument

1. Notice, hearing necessary to determine questions
— jurisdictional.

Motion for rehearing ? on
Motion to strike original order.

Rule 601

1. What should be considered?

4 orders for Whole Case 345 - Different pools, Rules, Exceptions, Changes

521
Consolidate
Result:
Order R-356 - Spacing, Well
→ {R-356A

Cooper-Jal - oil pool

Order 8.50
Eunice-Monument Oil Pool
South Eunice Oil Pool
Arrowhead Oil Pool
Weeks Oil Pool
Penrose Skelly Oil Pool
Langley Maddox
Cooper Jal " "
Order R-Talbot-Yates " "
Eaves Oil Pool
Rhodes " "
Leonard " "
R-334 South Leonard "

1 of 5

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Call order
675

Case No. [redacted] 587-589
Orders No. R-368A to R-376A, Inclusive

(* RULE 2. EACH WELL DRILLED OR RECOMPLETED WITHIN THE ARROW GAS POOL SHALL BE LOCATED ON A TRACT CONSISTING OF NOT LESS THAN A QUARTER SECTION OF APPROXIMATELY 160 SURFACE CONTIGUOUS ACRES SUBSTANTIALLY IN THE FORM OF A SQUARE WHICH SHALL BE A LEGAL SUBDIVISION (QUARTER SECTION) OF THE U. S. PUBLIC LAND SURVEYS.)

not

Cum. with'd. 12, 115, 914 MCF
Net. Stor. 20, 734, 148 MCF

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 7. (a) For the purpose of gas allocation in the ARROW Gas Pool, a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys; **EXCEPT THAT IN THE CORRECTION SECTIONS LOCATED IN TOWNSHIPS 21S-35E, 21S-36E, 21S-37E and 21S-38E, THE PROVISION THAT SUCH STANDARD PRORATION UNIT BE A LEGAL SUB-DIVISION (QUARTER SECTION) OF THE U. S. PUBLIC LAND SURVEYS SHALL BE WAIVED;** provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing by the Commission, or as outlined in Paragraph (b). Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres. Any standard proration unit consisting of between 158 and 162 contiguous surface acres shall be considered as containing 160 acres for the purpose of gas allocation.

(b) The Secretary of the Commission shall (*HAVE AUTHORITY TO) grant an exception to Rule 7 (a) without Notice and Hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with:

(* 1. THE NON-STANDARD UNIT CONSISTS OF LESS ACREAGE THAN STANDARD PRORATION UNIT.

2. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT LIES WHOLLY WITHIN A LEGAL QUARTER SECTION AND CONTAINS A WELL CAPABLE OF PRODUCING GAS INTO A GAS TRANSPORTATION FACILITY ON THE DATE OF THIS ORDER.

3. THE OPERATOR RECEIVES WRITTEN CONSENT IN THE FORM OF WAIVERS FROM ALL OPERATORS IN THE ADJOINING 160 ACRE PRORATION UNITS.)

** 1. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT LIES WHOLLY WITHIN A LEGAL SECTION.

2. THE ACREAGE ASSIGNED THE NON-STANDARD UNIT IS ADJACENT TO OR CONTIGUOUS WITH THE ACREAGE CONTAINING SAID WELL, OR IS ADJACENT TO OR CONTIGUOUS WITH ACREAGE WHICH IS ADJACENT TO OR CONTIGUOUS WITH THE ACREAGE CONTAINING SAID WELL.

3. THE OPERATOR SO MAKING SUCH APPLICATION FOR SUCH AN EXCEPTION TO RULE 7 (a) RECEIVES WRITTEN CONSENT IN THE FORM OF WAIVERS FROM ALL OPERATORS IN ALL ACREAGE IMMEDIATELY ADJACENT TO OR CONTIGUOUS WITH ALL ACREAGE TO BE INCLUDED IN SUCH NON-STANDARD UNIT.

4. IN THE EVENT THERE IS MORE THAN 160 ACRES INVOLVED, THE ACREAGE INVOLVED CONTAINS A WELL CAPABLE OF PRODUCING ITS ESTIMATED ALLOWABLE FOR THE FIRST TWELVE (12) MONTHS THE WELL WILL BE PRODUCING GAS.

(c) THE SECRETARY OF THE COMMISSION SHALL HAVE AUTHORITY TO GRANT AN EXCEPTION TO RULE 7 (a), AFTER NOTICE AND HEARING, WHEN THE OPERATOR IS UNABLE TO COMPLY WITH THE PROVISIONS OF RULE 7 (b).**

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 8. At least 30 days prior to the beginning of each gas proration period the Commission shall hold a hearing after due notice has been given. The Commission shall cause to be submitted by each gas purchaser its (*PRELIMINARY) Nominations of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period, by months, from the _____ Gas Pool. (*THE COMMISSION SHALL CONSIDER THE PRELIMINARY NOMINATIONS OF PURCHASERS, ACTUAL PRODUCTION, AND SUCH OTHER FACTORS AS MAY BE DEEMED APPLICABLE IN DETERMINING THE AMOUNT OF GAS THAT MAY BE PRODUCED WITHOUT WASTE WITHIN THE ENSUING PRORATION PERIOD. PRELIMINARY NOMINATIONS SHALL BE SUBMITTED ON A FORM PRESCRIBED BY THE COMMISSION.)

WHEN A PURCHASER OF GAS, AFTER FILING ITS NOMINATIONS FOR A PRORATION PERIOD, SHALL FIND THAT ITS REQUIREMENTS FOR GAS HAVE INCREASED OR DECREASED FROM THE AMOUNTS NOMINATED FOR ANY MONTH DURING THE PRORATION PERIOD, SUCH PURCHASER SHALL FILE, NOT LATER THAN THE 10TH OF THE PRECEDING MONTH, SUPPLEMENTAL NOMINATIONS INDICATING ITS REVISED ESTIMATED REQUIREMENTS DURING SUCH MONTH.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 9. (*EACH MONTH, THE COMMISSION SHALL CAUSE TO BE SUBMITTED BY EACH GAS PURCHASER ITS "SUPPLEMENTAL NOMINATIONS" OF THE AMOUNT OF GAS WHICH EACH IN GOOD FAITH ACTUALLY DESIRES TO PURCHASE WITHIN THE ENSUING PRORATION MONTH FROM THE _____ GAS POOL.) The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month, and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. Included in the monthly proration schedule shall be a tabulation of allowable and production for the second preceding month (*TOGETHER WITH AN ADJUSTED ALLOWABLE COMPUTATION FOR THE SECOND PRECEDING MONTH. SAID ADJUSTED ALLOWABLE SHALL BE COMPUTED BY COMPARING THE ACTUAL ALLOWABLE ASSIGNED WITH THE ACTUAL PRODUCTION. IN THE EVENT THE ALLOWABLE ASSIGNED IS GREATER THAN THE ACTUAL PRODUCTION, THE ALLOWABLES ASSIGNED THE TOP ALLOWABLE UNITS SHALL BE REDUCED PROPORTIONATELY, AND IN THE EVENT THE ALLOWABLE ASSIGNED IS LESS THAN THE PRODUCTION THEN THE ALLOWABLES ASSIGNED THE TOP ALLOWABLE UNITS SHALL BE INCREASED PROPORTIONATELY. "SUPPLEMENTAL NOMINATIONS" SHALL BE SUBMITTED ON A FORM PRESCRIBED BY THE COMMISSION.)

The Commission shall include in the proration schedule the gas wells in the _____ Gas Pool delivering to a gas transportation facility, or lease gathering system, and shall include in the proration schedule of the _____ Gas Pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility, which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated to the pool each month shall be equal to the sum of the supplemental nominations together with any adjustment which the Commission deems advisable. The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the proportion that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 10. Underproduction: The dates 7:00 A.M., January 1 and 7:00 A.M., July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period; but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. (*IF AT THE END OF THE FIRST SUCCEEDING PRORATION PERIOD, A GREATER AMOUNT OF ALLOWABLE REMAINS UNPRODUCED THAN WAS CARRIED FORWARD AS UNDERPRODUCTION, THE AMOUNT CARRIED FORWARD TO THE SECOND SUCCEEDING PERIOD SHALL BE THE TOTAL UNDERPRODUCTION LESS THE AMOUNT CARRIED FORWARD TO THE FIRST SUCCEEDING PERIOD.)

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion.
** ** Suggested Addition.

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 11. Overproduction: A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If, at the end of the first succeeding proration period, the well is still overproduced, **AND HAS NOT BEEN IN BALANCE SINCE THE END OF THE PRECEDING PRORATION PERIOD, THEN** it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time, a well is overproduced an amount equaling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

REVISIONS SUGGESTED BY
PERMIAN BASIN PIPELINE COMPANY

(*) Suggested Deletion
** ** Suggested Addition

Case No. 584
Orders No. R-368A to R-376A, Inclusive

RULE 14. The monthly gas production from each gas well shall be metered (* SEPARATELY) and the gas production therefrom shall be submitted to the Commission **BY THE GAS PURCHASER** on Form _____ so as to reach the Commission on or before the twentieth day of the month next succeeding the month in which the gas was produced. The (* OPERATOR) **GAS PURCHASER** shall show on such report what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas; provided, however that gas used on the lease for consumption in lease houses, treaters, combustion engines and other similar lease equipment shall not be charged against the well's allowable.

Copies of Form _____, Monthly Production Report, shall be distributed by the (* OPERATOR) **GAS PURCHASER** as follows: Original to Oil Conservation Commission, Box 871, Santa Fe; two copies to Oil Conservation Commission, Box 2045, Hobbs, New Mexico.

Midland, Texas
502 V. & J. Tower

June 3, 1953

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JUN 8 1953

Mr. A. L. Hill
El Paso Natural Gas Company, Chairman
Advisory Committee to the
New Mexico Oil Conservation Commission on Case 521
1006 Main Street
Houston, Texas

Dear Sir:

Pursuant to your request the General Rules Subcommittee has completed formulating a final set of rules for gas proration in Lea, Eddy, Roosevelt, and Chaves Counties, New Mexico, which was adopted at the meeting of the General Rules Subcommittee on June 2, 1953.

It is to be pointed out that these rules in no way are binding on the member companies, but were adopted by a majority vote of the General Rules Sub-Committee.

Also, attached is a letter from the Amerada Petroleum Corporation dated May 27, 1953, which sets out suggestions and/or opinions concerning the general rules which were adopted by the General Rules Subcommittee. This letter was read at our meeting on June 2, 1953, however, no action was taken on its contents since it was addressed to the Advisory Committee. Therefore, it is recommended that when your Committee considers the General Rules adopted by the General Rules Subcommittee that consideration be given to the contents of the attached letter.

Yours very truly,

SAMEDAN OIL CORPORATION, Chairman
General Rules Sub-Committee

/s/ BY: George E. Trimble

Enclosure

Distributed by:
New Mexico Oil & Gas Engineering Committee
Hobbs, New Mexico
6-3-53.

FINAL REPORT
GENERAL RULES FOR GAS PRORATION IN LEA, EDDY, ROOSEVELT, AND CHAVES COUNTIES, NEW MEXICO

DEFINITION OF A GAS WELL
(Modified definition #24 of State-Wide Rules)

GAS WELL shall mean a well producing gas or natural gas from a common source of gas supply from a gas pool determined by the Commission.

Modified State-wide Rule 104 (f)

(f) The Secretary of the Commission shall have authority to grant an exception to the requirements of (a), (b), (c), and (d), (refer to Rule 104-Oil Conservation Commission), above without notice and hearing where application has been filed in due form and

(1) The necessity for the unorthodox location is based on topographical conditions, or is occasioned by the recompletion of a well previously drilled to another horizon, and

(2) (a) The ownership of all oil and gas leases within a radius of 660 feet of the proposed location is common with the ownership of the oil and gas leases under the proposed location, or

(b) All owners of oil and gas leases within such radius consent in writing to the proposed location.

Modified State-wide Rule 104 (k)

The provisions of Statewide Rule 104, Paragraph (k) shall not apply to gas pools located in Lea, Eddy, Chaves, and Roosevelt, Counties, New Mexico.

Suggested addition to State-wide Rule #506

RULE 506 (e)

In a gas pool, as defined by the Oil Conservation Commission, each proration unit containing an oil well producing in excess of five barrels of crude oil per day shall be permitted to produce an oil allowable calculated by dividing the gas allowable as assigned to a gas well on the same unit size as the oil well by the gas-oil ratio of the oil well. The maximum allowable which may be assigned well shall be the top unit oil allowable as determined by Rule 505 unless, after hearing, the Commission shall amend this rule as it applies to a particular pool in order to prevent waste.

Modified State-wide Rule 601

RULE 601 ALLOCATION OF GAS PRODUCTION

(a) At such time as the Commission determines that allocation of gas production is necessary to prevent waste or to protect correlative rights the Commission, after notice and hearing, shall consider the nominations of purchasers from each gas pool and other relevant data, and shall fix the allowable production of each pool, and shall allocate production among the gas wells in the pool upon a reasonable basis with due regard for correlative rights. Unless special pool rules are adopted as provided in (b) below, the general rules of this section shall apply to each gas pool allocated under these rules.

(b) After notice and hearing, the Commission, in order to protect correlative rights, or prevent waste, or both, may promulgate special rules, regulations or orders pertaining to any gas pool.

(c) The term "gas purchaser" as used herein, shall mean the "taker" of gas at the wellhead and it shall be the responsibility of said "taker" to submit the nomination. An Operator of the gas well who takes gas at the well head and uses such gas for his own operations either on leases or in a fuel system shall submit the nomination form.

Modified State-wide Rule 602

RULE 602 PRORATION UNITS

For the purposes of gas allocation in the absence of special pool rules a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys. Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres.

Modified State-wide Rule 603

RULE 603 - ALLOCATION

(a) At least 30 days prior to the beginning of each gas proration period the

Commission shall hold a hearing after due notice has been issued. The Commission shall cause to be submitted by the purchasers of gas their nominations of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period by months from each gas pool from which he purchases gas. The Commission shall consider nominations of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period.

(b) The Commission shall cause to be submitted each month supplemental nominations from purchasers of gas in like manner as the nominations described above setting out changes, if any, which should be made due to fluctuations of market demand. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. The Commission shall include in the proration schedule all wells producing from any reservoir appearing on the proration schedule. The total allowable to be allocated to the wells in the pool shall be determined by the Commission in the following manner: The total allowable for the current month shall be equal to the total market demand for the current month (plus the total market demand for the preceding month less the total allowable for the preceding month) less the net field status at the end of the second preceding month.

(c) The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the amount that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units; provided that for this purpose standard units shall be as defined in Rule 602 above. More than one proration unit or fractional parts thereof may be assigned to a gas well and the allowables assigned said well may be increased proportionately provided that;

(1) No more than 640 acres shall be assigned to any one well

(2) All acreage in such units may reasonably be presumed to be productive of gas; and

(3) the multiple unit so formed shall not have an over-all length or width exceeding 5280 feet; and

(4) the well to which such additional units are assigned shall be located not closer to any boundary of such pooled units than the distance represented by 25% of the length of the longer of the two boundaries of said pooled unit which are adjacent to said first mentioned boundary. Provided further, that where three proration units are pooled the well shall not be located more than 1320 feet from the nearest boundary of any unit so pooled.

(5) Exceptions to the provisions of this rule may be granted by the Commission after notice and hearing or after the Commission has been furnished waivers by all offset operators.

Modified State Wide Rule 604

RULE 604 BALANCING OF PRODUCTION

(a) Underproduction

The dates 7:00 A. M. January 1, and 7:00 A. M. July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period, but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

(b) Overproduction

A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If at the end of the

first succeeding proration period the well is still overproduced it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time a well is overproduced as amount equalling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

Modified State-Wide Rule #605

RULE 605 GRANTING OF ALLOWABLES

(a) No gas well shall be given an allowable until Form C-104 has been filed together with a plat showing (1) acreage attributed to said well and (2) the locations of all wells on the lease and the immediately surrounding leases producing from the same reservoir and (3) the lease ownership of said leases.

(b) Allowables to newly completed gas wells shall commence on the date of completion or the date of filing of Form C-104 and plat described above, whichever date is later.

Suggested Rule #606

RULE 606 REPORTING OF PRODUCTION

The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission so as to reach the Commission on or before the twenty-fifth day of the month next succeeding the month in which the gas was produced. The operator shall shown on such form what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas.

AMERADA PETROLEUM CORPORATION
P. O. Box 2040
Tulsa 2, Okla.

May 27, 1953

Mr. A. L. Hill, Chairman
Advisory Committee on Gas Proration - New Mexico
El Paso Natural Gas Company
1006 Main Street
Houston, Texas

Dear Sir:

It is the opinion of the Amerada Petroleum Corporation that the proration of natural gas in the State of New Mexico and more particularly in the area of Lea, Eddy, Chaves and Roosevelt Counties is necessary for the prevention of physical waste and the protection of correlative rights.

Under this premise we have reviewed the recommendations of your subcommittees, working under the direction of the Advisory Committee appointed by the Commission, and concur in their recommendations with the following exceptions, to wit:

1. An amendment to Rule 506 providing for prorating an oil well completed in a gas reservoir is not necessary. The present rules provide a method of taking care of such a contingency.

2. Provision should be made to permit a tolerance in the size and shape of units, particularly in those areas already developed or where present oil wells can be dually completed for gas. We suggest that proposed Rule 602 be revised as follows:

   After Public Land Surveys insert:

   "Provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing by the Commission, or after the Commission has been furnished waivers from all offsetting operators, if such units comply with the following conditions:

   (1) All lands therein lie within the same section;
   (2) All acreage is contiguous and does not contain more than four legal quarter-quarter sections and/or lots.

Where these general rules would result in a conflict with the present operating practices, hearings should be held to adopt special field rules.

With reference to the report of the Subcommittee on definition of pools, we are not in agreement with the statement that all the shallow gas wells in Townships 24 and 25 are producing from the Queen Sand. We presume this can be satisfactorily resolved when the various pools come up for hearing.

We would appreciate your consideration in the above matters when you make your report to the Commission.

Yours very truly,
AMERADA PETROLEUM CORPORATION
/s/ R. S. Christie

RSC:vd
cc: Mr. R. R. Spurrier, Secretary
New Mexico Oil Conservation Comm.
P. O. Box 871
Santa Fe, New Mexico

MINUTES OF THE GENERAL RULES SUBCOMMITTEE
ON GAS PRORATION
FOR LEA, EDDY, CHAVES, AND ROOSEVELT COUNTIES, NEW MEXICO
June 2, 1953

The meeting was called to order at 9:00 A. M. (MST). The Secretary called the roll and considered the Minutes of the previous meeting read as copies had been previously distributed. There were no corrections or objections. An attendance record of those present is attached.

With reference to the draft of adopted rules, four letters were received concerning comments and corrections, and were read to those present. Copies of these letters are attached. Since the letters from Shell, Humble, and Permian Pipeline Company pertained to ommissions and errors made in making the draft of the adopted gas proration rules for the four county area, the corrected draft of rules was read without any objections. The corrected draft is also attached.

Proposed changes in the adopted rules on gas proration was distributed by the El Paso Natural Gas Company. El Paso stated that the adopted rules 602 and 603 conflict and allows a tract of less than 160 acres to have a top allowable, and that the adopted rule 603 (b) as now written would entitle a non-producing gas well to have an allowable.

A motion was made by El Paso that the adopted rule 603 (c) be modified to read as follows:

603 (c) The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the amount that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units; provided that for this purpose standard units shall be as defined in Rule 602 above. More than one proration unit or fractional parts thereof may be assigned to a gas well and the allowables assigned said well may be increased proportionately provided that;

(1) No more than 640 acres shall be assigned to any one well

(2) All acreage in such units may reasonably be presumed to be productive of gas; and

(3) the multiple unit so formed shall not have an over-all length or width exceeding 5280 feet; and

(4) the well to which such additional units are assigned shall be located not closer to any boundary of such pooled units than the distance represented by 25% of the length of the longer of the two boundaries of said pooled unit which are adjacent to said first mentioned boundary. Provided further, that where three proration units are pooled the well shall not be located more than 1320 feet from the nearest boundary of any unit so pooled.

(5) Exceptions to the provisions of this rule may be granted by the Commission after notice and hearing or after the Commission has been furnished waivers by all offset operators.

The motion was seconded by Continental Oil Company and was adopted by the following vote:

El Paso Natural Gas Company	Aye
Southern Union Gas Company	Aye
Continental Oil Company	Aye
Gulf Oil Corporation	Aye
Humble Oil and Refining Company	Aye
Shell Oil Company	Aye
Phillips Petroleum Company	Abstain
Texas-Pacific Coal and Oil Company	Abstain
Samedan Oil Corporation	Aye
Permian Pipe Line Company	Aye

El Paso Natural Gas Company made a motion that the adopted rule 603 (b) be modified as follows:

The sentence reading , "The Commission shall include in the proration schedule all wells producing from any reservoir appearing on the proration schedule.", to be deleted and the following inserted, "The Commission shall allocate the allowable production among the gas wells in the pool delivering to a gas transportation facility upon a reasonable basis and recognizing correlative rights, and shall include in the proration schedule of such pool any well which it finds is being unreasonably discriminated against through denial of access to a gas transportation facility which is reasonably capable of handling the type of gas produced by such well." The motion was seconded by Southern Union Gas Company. The motion was not carried by the following vote:

El Paso Natural Gas Company	Aye
Southern Union Gas Company	Aye
Continental Oil Company	Aye
Gulf Oil Corporation	No
Humble Oil and Refining Company	No
Shell Oil Company	No
Phillips Petroleum Company	No
Texas-Pacific Coal and Oil Company	Abstain
Samedan Oil Corporation	No
Permian Pipe Line Company	Aye

A motion was made by El Paso Natural Gas Company that the adopted Rule 604 (a) be modified such that the balancing dates be January 1, and July 1.

The motion was seconded by Southern Union Gas Company and was carried by the following vote:

El Paso Natural Gas Company	Aye
Southern Union Gas Company	Aye
Continental Oil Company	Aye
Gulf Oil Corporation	Aye
Humble Oil and Refining Company	Aye
Shell Oil Company	Aye
Phillips Petroleum Company	Aye
Texas-Pacific Coal and Oil Company	Abstain
Samedan Oil Corporation	Aye
Permian Pipe Line Company	Abstain

A motion was made by Samedan Oil Corporation that final rules as corrected and adopted by the General Rules Subcommittee be submitted to the Advisory Committee and that the Subcommittee adjourn.

The motion was seconded by Phillips Petroleum Company and was carried unanimously.

Distributed:
N. M. Oil and Gas Engineering Committee
Hobbs, New Mexico
6-2-53.

June 2, 1953

NAME	COMPANY	ADDRESS
F. Norman Woodruff	El Paso Natural Gas Company	Houston, Texas
Ben R. Howell	" " " "	El Paso, Texas
J. W. Bauleh, Jr.	" " " "	Jal, New Mexico
A. A. Kemnitz	Samedan Oil Corporation	Hobbs, New Mexico
Ed Noble	" "	Midland, Texas
Max E. Curry	Skelly Oil Company	Hobbs, New Mexico
E. W. Nestor	Shell Oil Company	" " "
Joe V. Peacock	Phillips Petroleum Company	Amarillo, Texas
William Randolph	Continental Oil Company	Hobbs, New Mexico
W. G. Abbott	Amerada Petroleum Corporation	Monument, New Mex.
C. M. Bumpass	Gulf Oil Corporation	Hobbs, New Mexico
J. D. Walker	" " "	Fort Worth, Texas
W. E. Ainsworth	Permian Basin Pipe Line Company	Omaha, Nebraska
E. R. Reynolds	Texas-Gulf Producing Company	Midland, Texas
J. M. Simpson	" " "	"
A. M. Wiederkhr	Southern Union Gas Company	Dallas, Texas
Quilman B. Davis	" " "	"
Kenneth J. Barr	Stanolind Oil & Gas Company	Hobbs, New Mexico
Frank V. Cooksey	Texas-Pacific Coal & Oil Company	Midland, Texas
W. B. Macey	Oil Conservation Commission	Santa Fe, New Mex.
George E. Trimble	Samedan Oil Corporation	Midland, Texas
S. J. Stanley	Oil Conservation Commission	Hobbs, New Mexico
Glenn Staley	N. M. Oil & Gas Engineering Committee	" " "
R. S. Dewey	Humble Oil & Refining Company	Midland, Texas
C. C. Wilson	Continental Oil Company	Hobbs, New Mexico

AMERADA PETROLEUM CORPORATION
P. O. Box 2040
Tulsa 2, Okla.

May 27, 1953

Mr. A. L. Hill, Chairman
Advisory Committee on Gas Proration - New Mexico
El Paso Natural Gas Company
1006 Main Street
Houston, Texas

Dear Sir:

It is the opinion of the Amerada Petroleum Corporation that the proration of natural gas in the State of New Mexico and more particularly in the area of Lea, Eddy, Chaves and Roosevelt Counties is necessary for the prevention of physical waste and the protection of correlative rights.

Under this premise we have reviewed the recommendations of your subcommittees, working under the direction of the Advisory Committee appointed by the Commission, and concur in their recommendations with the following exceptions, to wit:

1. An amendment to Rule 506 providing for prorating an oil well completed in a gas reservoir is not necessary. The present rules provide a method of taking care of such a contingency.

2. Provision should be made to permit a tolerance in the size and shape of units, particularly in those areas already developed or where present oil wells can be dually completed for gas. We suggest that proposed Rule 602 be revised as follows:

   After Public Land Surveys insert:

   "Provided, however, that a gas proration unit other than a legal quarter section may be formed after notice and hearing by the Commission, or after the Commission has been furnished waivers from all offsetting operators, if such units comply with the following conditions:

   (1) All lands therein lie within the same section;
   (2) All acreage is contiguous and does not contain more than four legal quarter-quarter sections and/or lots.

Where these general rules would result in a conflict with the present operating practices, hearings should be held to adopt special field rules.

With reference to the report of the Subcommittee on definition of pools, we are not in agreement with the statement that all the shallow gas wells in Townships 24 and 25 are producing from the Queen Sand. We presume this can be satisfactorily resolved when the various pools come up for hearing.

We would appreciate your consideration in the above matters when you make your report to the Commission.

Yours very truly,
AMERADA PETROLEUM CORPORATION
/s/ R. S. Christie

RSC:vd
cc: Mr. R. R. Spurrier, Secretary
New Mexico Oil Conservation Comm.
P. O. Box 871
Santa Fe, New Mexico

SHELL OIL COMPANY
P. O. Box 1509
Midland, Texas

May 22, 1953

Samedan Oil Corporation
V.&J. Tower
Midland, Texas

Attention: Mr. George E. Trimble

Gentlemen:

We have examined the draft of the rules adopted by the General Rules Subcommittee of the Advisory Committee to the New Mexico Oil Conservation Commission on Case 521 and the proposed letter of transmittal that were attached to your letter of May 14, 1953, and we have no objection thereto except to the last sentence of the proposed letter where it is stated that it was the majority opinion of the General Rules Subcommittee that when gas proration is effected in the four county area applicable rules on a field by field basis should be formulated by hearing. We have no recollection of any resolution or motion to this effect being passed, and therefore suggest the deletion of that sentence if an examination of the minutes by you supports our recollection as stated above.

It is to be understood, of course, that our approval of the rules as being those adopted by the Subcommittee is not an approval by us of all of the matters contained in the rules, and that we may make suggestions as to changes therein before the Advisory Committee or before the Commission, if we see fit to do so. We believe that this proposition is satisfactorily covered in your letter of transmittal.

Very truly yours,

/s/ Richard L Hughston, Attorney

New Mexico Oil & Gas Engineering Committee
June 2, 1953
Hobbs, New Mexico

HUMBLE OIL & REFINING COMPANY
P. O. Box 2180
Houston 1, Texas

May 20, 1953

File 6-1
New Mexico Rules Correspondence

Mr. George E. Trimble
Samedan Oil Corporation
Midland, Texas

Dear Sir:

In reporting the correction concerning Paragraph (k) at the meeting of May 12, 1953, the minutes are correct insofar as they go. However, they do not include the following wording which was adopted as a rule at the April 30 meeting:

> "The provisions of Statewide Rule 104, Paragraph (k) shall not apply to gas pools located in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico."

In order that these provisions shall not apply and the provisions of (i) shall be applicable as passed by the Committee, it will be necessary that the above rule be included in the General Rules recommended to the Advisory Committee.

Yours very truly,

/s/ S. F. Holmesly

ak

New Mexico Oil & Gas Engineering Committee
June 2, 1953
Hobbs, New Mexico

NORTHERN NATURAL GAS COMPANY

2223 Dodge Street
Omaha 1, Nebraska

May 26, 1953

Mr. George E. Trimble
Samedan Oil Corporation
502 V. J. Tower
Midland, Texas

In Re: General Rules for Gas Proation in Lea, Eddy, Roosevelt and Chaves Counties, New Mexico

Dear George:

I have just had an opportunity to review the General Rules appended to your letter of May 14, 1953. In general they comport with our understanding of the action taken by the General Rules Subcommittee.

However, in order to clear up any misunderatanding that might exist, it is my thought that the first paragraph appearing on Page 1 of the General Rules for gas proration in the four counteis above mentioned should be modified somewhat. Obviously, all state-wide gas rules which were not modified by the General Rules Subcommittee would be applicable to the four-county area by virtue of their presently being in effect as state-wide rules. However, it was my understanding that the subcommittee did notpass on all state-wide gas rules, but only upon those which you have set forth in the General Rules for gas proration in the four-county area. Therefore, it would be my suggestion, that the first paragraph on Page 1 be modified to make clear to the Advisory Committee and to the New Mexico Oil Conservation Commission that rules which are not specifically covered in the General Rules for the four-county area were not considered by the subcommittee. I am sure that is what is intended. That way it is not possible for anyone to construe that those rules which were not acted upon by the subcommittee were in effect given tacit approval by the subcommittee. As you are well aware, such is not the case.

Thank you for sending us our copy as promptly as you did. I am sorry that I have been out of town for the past week and a half and therefore have not had an opportunity to go over these general rules for the four-county area until today. I am hopeful that my suggestions are not too late to be considered by yourself and Mr. Stanley when submitting the work of the General Rules Subcommittee to the Advisory Committee.

Very truly yours,

/s/ G. E. Stahl

GES:bb
cc: S. J. Stanley
New Mexico Oil Conservation Commission
P. O. Box 2045
Hobbs, New Mexico

Distributed by:
N.M. Oil & Gas Engineering Committee
Hobbs, New Mexico
6-2-53.

EL PASO NATURAL GAS COMPANY
Houston, Texas

June 2, 1953

PROPOSED CHANGES IN RULES FOR GAS PRORATION
DRAFTED BY THE GENERAL RULES SUBCOMMITTEE
OF THE ADVISORY COMMITTEE TO THE NEW MEXICO
OIL CONSERVATION COMMISSION ON CASE 521

RULE 506 (e)

In a gas pool, as defined by the Oil Conservation Commission, each proration unit containing a well producing in excess of five barrels of crude oil per day shall be permitted to produce an oil allowable calculated by dividing the gas allowable as assigned to a gas well on the same unit size by the gas-oil ratio of the well. The maximum allowable which may be assigned such well shall be the top unit oil allowable as determined by Statewide Rule 505 unless, after hearing, the Commission shall amend this rule as it applies to a particular pool in order to prevent waste. For wells producing less than five barrels of oil per day, the production of oil therefrom shall be considered incidental to the gas allowable calculated therefor.

RULE 601 ALLOCATION OF GAS PRODUCTION

(a) After notice and hearing, the Commission, in order to protect correlative rights, or prevent waste, or both, may promulgate special rules, regulations or orders pertaining to any gas pool.

(b) At such time as the Commission determines after due notice and hearing that allocation of gas production is necessary in a particular gas pool to prevent waste or to protect correlative rights, the Commission, after notice and hearing, shall consider the nominations of purchasers from such gas pool and other relevant data, and shall fix the allowable production of each pool, and shall allocate production among the gas wells in the pool upon a reasonable basis with due regard for correlative rights.

(c) The term "gas purchaser" as used herein, shall mean the "taker" of gas at the wellhead and it shall be the responsibility of said "taker" to submit the nomination. An Operator of a gas well who takes gas at the wellhead and uses such

gas for his own operations either on leases or in a fuel system or supplies gas to other operators for such purposes shall submit the nomination form.

RULE 603 ALLOCATION

(b) Well delivering to a gas transportation facility may produce during the ensuing proration month and shall include in the proration schedule of such pool any gas well which it finds is being unreasonably discriminated against by denial of access to a gas transmission facility which is reasonably capable of handling the type of gas produced by such well. The total allowable to be allocated....

(c) ...as defined in Rule 602 above shall be deemed to contain 160 acres. More than one proration unit may be assigned to a gas well and the allowables assigned said well may be increased proportionately provided that:

(1) The unit of proration shall consist of no more than 640 acres.

(2) Same as originally proposed (1).

(3) Same as originally proposed (2).

(4) Same as originally proposed (3).

(5) Exceptions to the provisions of this rule may be granted by the Commission after notice and hearing or after the Commission has been furnished waivers by all offset operators. The dates 7:00 A. M. January 1, and 7:00 A. M. July 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable....

RULE 606 REPORTING OF PRODUCTION

The production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission so as to reach the Commission on or before the fifteenth day of the month next succeeding the month on which the gas was produced.

Distributed by:
N.M. Oil & Gas Engineering Committee
Hobbs, New Mexico
6-2-53.

CORRECTED DRAFT

Midland, Texas
502 V. & J. Tower

June 1, 1953

Dr. A. L. Hill
El Paso Natural Gas Company, Chairman
Advisory Committee to the
New Mexico Oil Conservation Commission on Case 521
1006 Main Street
Houston, Texas

Dear Sir:

Pursuant to your request the General Rules Subcommittee has completed formulating a general set of rules for gas proration in Lea, Eddy, Roosevelt, and Chaves Counties, New Mexico. This report is attached for disposition by the Advisory Committee.

It is to be pointed out that these rules in no way are binding on the member companies, but were adopted by a majority vote of the General Rules Sub-Committee.

Yours very truly,

SAMEDAN OIL CORPORATION, Chairman
General Rules Sub-Committee

/s/ By: George E. Trimble

GET:kb
enclosure

New Mexico Oil & Gas Engineering Committee
June 2, 1953
Hobbs, New Mexico

GENERAL RULES FOR GAS PRORATION
IN
LEA, EDDY, ROOSEVELT, AND CHAVES COUNTIES, NEW MEXICO

DEFINITION OF A GAS WELL
(Modified definition #24 of State-Wide Rules)

GAS WELL shall mean a well producing gas or natural gas from a common sour. of gas supply from a gas pool determined by the Commission.

Modified State-wide Rule 104 (f)

(f) The Secretary of the Commission shall have authority to grant an exception to the requirements of (a), (b), (c), and (d), (refer to Rule 104-Oil Conservation Commission), above without notice and hearing where application has been filed in due form and

(1) The necessity for the unorthodox location is based on topographical conditions, or is occasioned by the recompletion of a well previously drilled to another horizon, and

(2) (a) The ownership of all oil and gas leases within a radius of 660 feet of the proposed location is common with the ownership of the oil and gas leases under the proposed location, or

(b) All owners of oil and gas leases within such radius consent in writing to the proposed location.

Modified State-wide Rule 104 (k)

The provisions of Statewide Rule 104, Paragraph (k) shall not apply to gas pools located in Lea, Eddy, Chaves, and Roosevelt, Counties, New Mexico.

Suggested addition to State-wide Rule #506

RULE 506 (e)

In a gas pool, as defined by the Oil Conservation Commission, each proration unit containing an oil well producing in excess of five barrels of crude oil per day shall be permitted to produce an oil allowable calculated by dividing the gas allowable as assigned to a gas well on the same unit size as the oil well by the gas-oil ratio of the oil well. The maximum allowable which may be assigned well shall be the top unit oil allowable as determined by Rule 505 unless, after hearing, the Commission shall amend this rule as it applies to a particular pool in order to prevent waste.

Modified State-wide Rule 601

RULE 601 ALLOCATION OF GAS PRODUCTION

(a) At such time as the Commission determines that allocation of gas production is necessary to prevent waste or to protect correlative rights the Commission, after notice and hearing, shall consider the nominations of purchasers from each gas pool and other relevant data, and shall fix the allowable production of each pool, and shall allocate production among the gas wells in the pool upon a reasonable basis with due regard for correlative rights. Unless special pool rules are adopted as provided in (b) below, the general rules of this section shall apply to each gas pool allocated under these rules.

(b) After notice and hearing, the Commission, in order to protect correlative rights, or prevent waste, or both, may promulgate special rules, regulations or orders pertaining to any gas pool.

(c) The term "gas purchaser" as used herein, shall mean the "taker" of gas at the wellhead and it shall be the responsibility of said "taker" to submit the nomination. An Operator of the gas well who takes gas at the well head and uses such gas for his own operations either on leases or in a fuel system shall submit the nomination form.

Modified State-wide Rule 602

RULE 602 PRORATION UNITS

For the purposes of gas allocation in the absence of special pool rules a standard proration unit shall consist of between 158 and 162 contiguous surface acres substantially in the form of a square which shall be a legal subdivision (quarter section) of the U. S. Public Land Surveys. Any allocation unit containing less than 158 acres or more than 162 acres shall be a non-standard unit and its allowable shall be decreased or increased to that proportion of the standard unit allowable that the number of acres contained therein bears to 160 acres.

Modified State-wide Rule 603

RULE 603 - ALLOCATION

(a) At least 30 days prior to the beginning of each gas proration period the

Commission shall hold a hearing after due notice has been issued. The Commission shall cause to be submitted by the purchasers of gas their nominations of the amount of gas which each in good faith actually desires to purchase within the ensuing proration period by months from each gas pool from which he purchases gas. The Commission shall consider nominations of purchasers, actual production, and such other factors as may be deemed applicable in determining the amount of gas that may be produced without waste within the ensuing proration period.

(b) The Commission shall cause to be submitted each month supplemental nominations from purchasers of gas in like manner as the nominations described above setting out changes, if any, which should be made due to fluctuations of market demand. The Commission shall hold a public hearing between the 15th and 20th days of each month to determine the reasonable market demand for gas for the ensuing proration month and shall issue a proration schedule setting out the amount of gas which each well may produce during the ensuing proration month. The Commission shall include in the proration schedule all wells producing from any reservoir appearing on the proration schedule. The total allowable to be allocated to the wells in the pool shall be determined by the Commission in the following manner:

The total allowable for the current month shall be equal to the total market demand for the current month plus the total market demand for the preceding month less the total allowable for the preceding month less the net field status at the end of the second preceding month.

(c) The allocation to a pool remaining after subtracting the capacities of marginal units shall be divided and allocated ratably among the non-marginal units in the amount that the acreage contained in each unit bears to the total acreage allotted to such non-marginal units; provided that for this purpose standard units as defined in Rule 602 above shall be deemed to contain 160 acres. For the purpose of assignment of allowables to gas wells, the unit of proration shall consist of no less than 160 acres nor more than 640 acres. More than one proration unit may be assigned to a gas well and the allowables assigned said well may be increased proportionately provided that:

(1) All acreage in such units may reasonably be presumed to be productive of gas; and

(2) the multiple unit so formed shall not have an over-all length or width exceeding 5280 feet; and

(3) the well to which such additional units are assigned shall be located not closer to any boundary of such pooled units than the distance represented by 25% of the length of the longer of the two boundaries of said pooled unit which are adjacent to said first mentioned boundary. Provided further, that where three proration units are pooled the well shall not be located more than 1320 feet from the nearest boundary of any unit so pooled.

Modified State Wide Rule 604

RULE 604 BALANCING OF PRODUCTION

(a) Underproduction

The dates 7:00 A.M. March 1, and 7:00 A.M. September 1, shall be known as balancing dates and the periods of time bounded by these dates shall be known as gas proration periods. The amount of current gas allowable remaining unproduced at the end of each proration period shall be carried forward to and may be produced during the next succeeding proration period in addition to the normal gas allowable for such succeeding period, but whatever amount thereof is not made up within the first succeeding proration period shall be cancelled. If, at the end of the first succeeding proration period a greater amount of allowable remains unproduced than was carried forward as underproduction, the amount carried forward to the second succeeding period shall be the total underproduction less the amount carried forward to the first succeeding period.

If it appears that such continued underproduction has resulted from inability of the well to produce its allowable, it may be classified as a marginal well and its allowable reduced to the well's ability to produce.

(b) Overproduction

A well which has produced a greater amount of gas than was allowed during a given proration period shall have its allowable for the first succeeding proration period reduced by the amount of such overproduction and such overproduction shall be made up within the first succeeding proration period. If at the end of the

first succeeding proration period the well is still overproduced it shall be shut in and its current monthly allowable charged against said overproduction until the well is in balance. If, at any time a well is overproduced as amount equalling six times its current monthly allowable, it shall be shut in until it is in balance.

The Commission may allow overproduction to be made up at a lesser rate than would be the case if the well were completely shut in upon a showing at public hearing after due notice that complete shut in of the well would result in material damage to the well.

Modified State-Wide Rule #605

RULE 605 GRANTING OF ALLOWABLES

(a) No gas well shall be given an allowable until Form C-104 has been filed together with a plat showing (1) acreage attributed to said well and (2) the locations of all wells on the lease and the immediately surrounding leases producing from the same reservoir and (3) the lease ownership of said leases.

(b) Allowables to newly completed gas wells shall commence on the date of completion or the date of filing of Form C-104 and plat described above, whichever date is later.

Suggested Rule #606

RULE 606 REPORTING OF PRODUCTION

The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be submitted to the Commission so as to reach the Commission on or before the twenty-fifth day of the month next succeeding the month in which the gas was produced. The operator shall shown on such form what disposition has been made of the gas produced. The full production of gas from each well shall be charged against the well's allowable regardless of what disposition has been made of the gas.