CASE 3044: Motion of the OCC to amend certain rules for the classification of gas wells.

CASE NO. 3044

Application,
Transcripts,
Small Exhibits
ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 13, 1964

REGULAR HEARING

IN THE MATTER OF: The hearing called by the Oil Conservation Commission on its own motion to consider the amendment of certain rules. In the above-styled cause, the Commission proposes to consider the amendment of Rule 104 to define a wildcat oil well and a wildcat gas well, and to permit the dedication of 160 acres to a wildcat gas well drilled in Lea, Chaves, Eddy and Roosevelt Counties unless said well is projected to the Pennsylvanian formation or deeper, in which case 320 acres could be dedicated. It is also proposed to define the completion date of a gas well and to require certain tests to be conducted on wildcat gas wells anywhere in the State following their completion and to provide that the acreage dedicated to the well be reduced to 40 acres if such tests do not establish that the well is indeed a gas well. It is also proposed to consider amending Rule 401 to provide that unconnected gas wells be tested to determine their potential. It is further proposed to consider amending Rule 301 to require gas-oil ratio tests to be taken no sooner than 20 days nor later than 30 days following the completion or recompletion of a well and to be reported to the Commission within 10 days following completion of the test.

See attached sheets for proposed rule changes.

Case No. 3044

BEFORE: Governor Jack Campbell
Mr. A. L. Porter
Mr. E. S. (Johnny) Walker

TRANSCRIPT OF HEARING

MR. PORTER: The next case on the docket is Case 3044.

MR. DURRETT: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the amendment of certain rules.

If the Commission please, Jim Durrett appearing on behalf of the Commission and its Staff. I have one witness, Mr. Daniel S. Nutter.

(Witness sworn.)

MR. PORTER: Does anyone else desire to present testimony in this case?

MR. HUNKER: If the Commission please, I would like to make a statement. My name is George Hunker.

MR. PORTER: There will be time given for that, Mr. Hunker. Anyone else to present testimony?

DANIEL S. NUTTER, called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DURRETT:

Q Please state your name and position for the record.

A Dan Nutter, Chief Engineer for the Oil Conservation Commission.

Q Are you familiar with Case 3044 and what is proposed here today?

A Yes, I am.

(Whereupon, Exhibits 1 through 5 marked for identification.)

Q Would you please, in summary form, for the record, give us some background leading up to the docket of this case by the Commission?

A Yes. There's been considerable exploratory work done in Southeast New Mexico, in particular, looking for gas. The nature of Southeast New Mexico, as far as leases is concerned, is that there are many small leases issued by both fee owners and by the State, also quite a number of small Federal leases exist in Southeast New Mexico.

The present Rule 104 requires that any one wildcat well have dedicated to it only 40 acres. In certain areas where exploratory work, if it encounters anything, is quite likely to encounter gas, it makes it impossible with this 40-acre limitation to form a drilling block for a wildcat gas well.

As I mentioned, exploratory activity for gas in Southeast New Mexico has increased. The problem, therefore, has risen that we need some provision to permit the dedication of more than 40 acres to an exploratory well which is projected to a gas horizon, and which may encounter gas.

Q Will you please refer to what has been marked as Exhibit 1 in this case?

A Exhibit 1 is the proposed amendment of Rule 104, Sections A, B, C and D. It also contains on the fifth page, Proposed Amendment, Rule 301, and Proposed Amendment, Rule 401. Exhibit 1

in this case is the five pages which are attached to the docket and contain the proposed rules.

Q And the docket has been distributed here today?

A Correct.

Q Will you please refer to Exhibit Number 1 and let us talk about each rule separately, first referring to your proposed amendment of Rule 104, which appears on the first four pages, and part of the fifth page of your Exhibit Number 1. Would you please summarize the substantive changes that you are proposing in connection with this Rule 104?

A Yes. Rule 104 is entitled, Well Spacing: Acreage Requirements for Drilling Tracts. The present Rule 104 has numerous sections in it, being Sections A through M. These sections are not titled, however a generalized title which would be applicable tc each of these first four sections A through D, would be A would be the Classification of Wells: Wildcats and Development Wells; Section B of the present Rule 104 could be entitled: Acreage Assigned to Wildcats, Statewide; it also contains a Section II of Paragraph B in the present Rule 104 being Acreage Assigned and Locations for Wildcats in the San Juan Basin.

Section C could be entitled Acreage Assigned and Locations for Oil Pools, Statewide; and Section D has two paragraphs. D would be entitled, the first Section, Acreage Assigned and Locations Por Gas Pools Statewide. The second paragraph of D would

Acreage Assigned for Gas Pools Statewide, or San Juan Basin.

Q Now, titles, Mr. Nutter, you are adding the sub-heading titles, those are not in the present rules?

A The titles are not in the present rules. That would be the titles of these sections if they had titles.

Q All right.

A Now, we have taken the first four sections, A through D, and continuing the same numbering system of devised four sections to be amended, Section A is entitled: Classification of Wells: Wildcat and Development Wells; Section B would be Acreage Requirements for Wildcats, and contains several sections; C would be: Acreage Requirements for Development Wells; D would be: Acreage Assignment for Completed Wells, and contains several sections.

Section A, Classification of Wells, is essentially the same as the A in the rule as it exists today. Today it defines a wildcat well, which is a well drilled one mile or more from another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected.

I would like to call attention at this point, to a suggestion made by James Knauf of the United States Geological Survey regarding this paragraph. The paragraph mentions the word "formation". Now, he has pointed out that in several cases in the

Southeast particularly, and it also occurs in the Northwest formations of several different producing horizons which have become definitive and are carried as separate pools.

One of the most marked examples of this is the Pennsylvanian formation in Southeast New Mexico. There are numerous producing pays there, so a well could be projected to another producing horizon in the Pennsylvanian and be less than a mile from a well which is producing from another well in another horizon, and not be classified as a wildcat unless we do change this to say producing horizon rather than formation. I think for a stricter interpretation of what a wildcat would be we would need to define the word as producing horizon instead of formation.

The second paragraph there defines what a development well would be. It's a well drilled less than a mile that would produce from the same horizon that the projected well is going to, or less than a mile from a pool producing from the same horizon.

Section B gets into Acreage Requirements for Wildcats. There are three roman numeral sections, of this the first being Lea, Chaves, Eddy and Roosevelt Counties. Roman Numeral II is San Juan, Rio Arriba and Sandoval Counties; and III is All counties except the counties just named.

The acreage requirements for wildcat gas wells in Southeast New Mexico being Lea, Chaves, Eddy and Roosevelt Counties would be 160 acres for a wildcat gas well, which is a wildcat in accord-

ance with Section A of the Rule, and which is projected as a gas well to a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil, in the event production is encountered.

It's impossible in every instance to forecast whether gas or oil will be encountered, even whether anything will be encountered; but there are areas where a reasonable presumption can be made that this is a well which if productive, will be productive of gas.

The second paragraph of this rule requires that such a wildcat gas well shall be located on a tract consisting of 160 acres, or if it's projected to a formation of Pennsylvanian or older it shall be located on a tract containing 320 acres. We debated with ourselves as to whether this should say "may" or "shall". I think advisedly it should be "shall". This, in effect, establishes that a gas well will have 160 acres, or if it's a deep gas well it will have 320 acres. I envision that in all probability a forced pooling case could be brought before a wildcat is drilled under this rule.

Q And also, Mr. Nutter, referring to the portion of the rule which states whether or not it would be drilled on the 320 would be determined by the opinion of the engineer or supervisor approving the application, it would automatically follow that if

there was a dispute between the operator - supervisor, that the operator could apply for a hearing with the Commission, and the Commission would determine whether or not it could be drilled, isn't that correct?

A That is correct. I certainly think that any dispute of that nature could be solved at a hearing. The rule goes on to state what the location for a wildcat gas well would be. It's defined as being at least 660 feet from the outer boundary of 160 acres or 320 acre tract, and not closer than 330 feet to an inner boundary.

I believe a projection of a well as a gas well, if it's a wildcat, and the location being 660 feet would be of benefit here. We've had cases where wildcat wells have been projected on 330 foot locations. They were gas wells, and 330 feet normally is too close to the line for a gas well. So this 660 feet I believe would be an improvement here.

Wildcat oil wells in Lea, Chaves, Eddy and Roosevelt Counties would have 40 acres dedicated to them. They would continue to be permitted to be located 330 feet from the outer boundary of the 40-acre tract.

Roman Numeral Section II, San Juan, Rio Arriba and Sandoval Counties provides 160 acres for wells projected to gas producing horizons; 40 acres for wildcat wells projected to oil producing horizons. It establishes the location as being 790 feet

from the outer boundary of the tracts for gas wells, no closer than 130 feet to a quarter-quarter section line. It establishes that oil wells would be located no nearer than 330 feet to the 40-acre line. Roman Numeral Section II essentially is identical to Section B II of the present rule.

Roman Numeral Section III provides acreage assignment and well locations for wildcats drilled in all counties except the seven specifically covered. There's no production in any of these counties and a wildcat is a wildcat in that there's no possibility of determining beforehand whether its going to be oil or gas productive, so the standard 40-acre assignment is left intact.

Section C is entitled Acreage Requirements for Development Wells. Oil wells in all counties would be assigned 40 acres and be located 330 feet, not nearer than 330 feet to any boundary line of the tract, unless they were provided for in Special Pool Rules.

Gas wells, unless they were provided for in Special Pool Rules would be assigned 160 acres, if they were in formations of less than Pennsylvanian age; they would be assigned to 320 acres if they were in formations of Pennsylvanian age or greater. Again the word "shall" is used rather than "may".

I would imagine that this rule, if adopted, would require that any future well drilled in the Pennsylvanian formation or a formation older than Pennsylvanian age would be required

to have 320 acres dedicated to it.

Now, there are numerous pools, which we will get to in a minute, which have been defined by the Commission and do not have 320-acre spacing rules. In all probability the wells that are drilled there are now on 160 acres; the future wells that will be drilled in there would be on 320 acres. I therefore think it would be advisable if this rule is adopted to call another case at the earliest possible time to establish 320-acre spacing for the existing pools which are Pennsylvanian or greater age.

MR. PORTER: Mr. Nutter, at this point, is this right? Most of the pools you are talking about will probably be one and two well pools?

A Many of them small well pools. We might, right now, turn to a couple of these exhibits.

Q (By Mr. Durrett) Which exhibits are you referring to now, Mr. Nutter?

A I have been handed the Commission Exhibits 2 and 3. Exhibit 2 and 3 is entitled Southeast New Mexico Gas Pools with more than 160-acre Spacing. Exhibit 3 is entitled 160-Acre Gas Pools, Southeast New Mexico. Exhibit 3 has 70 pools listed there. Of these 70, 46 are Pennsylvanian or deeper; so, as I mentioned, I would envision the proper procedure would be at the earliest possible time, call a hearing and permit the operators to show cause why each of these 46 pools, of Pennsylvanian or greater age

should not go on 320-acre spacing. I know, for a fact, that in several cases the operator wouldn't care to show cause why this should not occur.

Q Well, to proceed the other way, if we docketed a case for 320-acre spacing, would you be against that?

A No, not particularly.

MR. PORTER: Mr. Nutter, in order to clarify this, what you are recommending there, as I understand it, if the statewide rule is adopted, it would not at present, apply to those existing Pennsylvanian pools that are 160 acres?

A I would like for it to, but I don't think that the call of this hearing is broad enough to cover those particular pools.

Q So, the purpose of the second hearing would be to go to 320 on the existing pools so that they would be covered by the statewide rules?

A This is correct. Actually Exhibit 3 contains this list of the 70 pools. There are some pools here that have actually been depleted and no longer producing. There are pools that have been defined by the Commission that are here, they have never produced yet. As you mentioned a moment ago, many of these are small pools that have one or two wells in them and no markets.

MR. PORTER: Many of them no connection whatever?

A Many of them no connection whatever. On the list of 70 pools, as far as I know, there's only one pool of Pennsylvanian

age or greater, that there has ever been a hearing held requesting more than 160-acre spacing. That particular case was denied by the Commission, it's the Crosby Devonian. That pool is developed on 160-acre spacing and I recommend that it not be recalled for consideration as a 320-acre.

MR. PORTER: The development in that area is essentially complete?

A That's correct, the pool is a special case and it has some serious faulting conditions in there that would make it impracticable to try to dedicate 320 acres to the wells. So, I believe that that would be one exception that I will make to calling up these various pools.

GOVERNOR CAMPBELL: I'm sure I just don't understand everything there is to be understood about this, quite obviously; I can certainly understand why wells have a need for a rule that set up spacing for wildcat gas wells. What is the reason for your suggesting that all existing pools that have been drilled and developed on other spacing patterns that we should go back now and create 320-acre spacing units. What's to be gained by that?

A As I mentioned before, many of these pools are in their infancy as far as development is concerned. The spacingof the wells is, in effect, on 320, but the 320 pool rules have never been established.

GOVERNOR CAMPBELL: If people wish to drill gas wells on 20 acres, what is the particular concern of the Commission, unless

someone comes in and requests it?

A There is a provision further on in this proposed rule for the establishment of non-standard units in which an operator could develop his acreage on less than the 160.

GOVERNOR CAMPBELL: Is this order for 320 being requested by the operator?

A No, it hasn't.

GOVERNOR CAMPBELL: Or are we just conceiving this?

A It has not been requested by operators. We have had, in the last two or three years, numerous hearings.

GOVERNOR CAMPBELL: Yes, I am aware of that.

A For 320-acre spacing for the deeper gas wells. I think it has been established in most of these instances that the gas pools of Pennsylvanian and greater age can effectively drain 320 acres.

GOVERNOR CAMPBELL: That then is the reason for your proposing the rules?

A This 320-acre provision is to eliminate the necessity for the establishment of pool rules. It has been no problem in most cases to come into a hearing and establish that 320 acres is advisable for the deeper pools. The question of economics of the drilling of the wells, the costs being taken into consideration, the permeability of the sands and the high pressures that have been encountered in these deep gas pools in conjunction with

the economics of the drilling.

GOVERNOR CAMPBELL: Then all you are really doing in this particular change is suggesting that for the Pennsylvanian or deeper, that there shall be initially 320-acre spacing instead of 160, is that what it amounts to?

A Yes, sir.

GOVERNOR CAMPBELL: As to these that are already in existence, you seem to feel there's some reason to have show cause orders on all of those, just to provide a greater measure of uniformity?

A That's correct. The way the rule is written, any development well drilled in the future would be requir[illegible] to be on 320 acres if it was a deep well. So that would mean if you had a pool that's on Exhibit 3 which would be on 160-acre spacing, the existing wells would be on 160, but the new wells would be required to be on 320; unless 320 were established as the spacing for the pool.

MR. PORTER: Mr. Nutter, at this point, I think most of the pools that are listed here in Pennsylvanian and deeper are actually one well pools, and I assume that we would have had spacing applications on a number of these pools had we had more than one well; so that the applicant might have had information to support his application?

A I'm positive, as positive as I can be that if 320 acres is not adopted as a result of this hearing that many of these pools

will be coming up for a hearing in the near future.

GOVERNOR CAMPBELL: Your idea was to have one hearing on show-cause on all the pools that have started on the basis of the 160, right?

A That's correct. We can iron it all out in one hearing. If the operator feels that his pool has been developed on 160 and 320 would be improper, he can come in and explain at the hearing why this should not occur.

Q (By Mr. Durrett) All right. Will you refer back now to Exhibit 1. I believe you were on Section D on Page 4, Acreage Assignment for Completed Wells.

A Yes, I just finished with the gas wells, as far as the acreage assignment is concerned. In the San Juan, Rio Arriba and Sandoval Counties, it would continue as it is, 160 acres, unless covered by special pool rules the well locations are the same, 790 to the outer boundary with a 130-foot exception to quarter-quarter section lines.

Development in the San Juan Basin is proceeding satisfactorily under the existing rule as far as the spacing is concerned, and the numerous pool rules which have already been established for the various pools up there. So, this in effect is no change from the existing Rule 104, as far as the San Juan Basin Gas Well development is concerned.

Next section in this rule would be "D", Acreage Assignment

to Completed Wells. The first roman numeral section is Well Tests and Classification. Now in order to establish that a well which has been drilled as a wildcat gas well or development gas well is actually a gas wel', I believe it's necessary that a test be taken. It therefore, is my recommendation that this rule be adopted. It reads as follows: "It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests.

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction."

We realize, that in the case of a wildcat which is projected as a gas well on the assignment of 320 acres that there is a possibility that two other types of well could result,

either an oil well or a dry hole. I believe that the oil well in all cases will take care of itself; the operator will file his completion forms, he will file the request for allowable and want to start running oil from that well as soon as possible. In the case of the dry hole you could have the situation where you have got 320 acres dedicated to a well and this well maybe did no more than just reveal a show of gas; the operator would say, "I have a shut-in gas well out there".

We know that in some instance short term leases may be dedicated to 320-acre wells, and in order to eliminate the possibility of a so-called shut in gas well sitting there holding some short term leases, we believe that it should be established that this well is a gas well. If the test is necessary to establish it, then the test should be taken. I'm not sure that the gas-liquid ratio nor the liquid gravity is necessary to be determined. I do, however, believe that a potential test should be taken on the well within some reasonable time. I believe that in order to have a beginning point and an ending point for the reasonable time, we have to define the date of completion of the well.

I know of no better way to determine the completion date for a gas well than to establish it by the date the wellhead or Christmas Tree, if you like, is installed. If the Christmas Tree or wellhead is not installed, evidently they don't have a well. So we would establish the completion date as being 30 days from

the conclusion of active completion work on the well; whichever date comes first, the installation of the Christmas Tree or the 30 days following conclusion of active completion work.

If it's determined as a result of taking the test that the well should not be classified as a gas well, the acreage would be reduced to 40 acres. If the operator just didn't take any tests and didn't file anything with the Commission then we would assume that he didn't have a gas well, that he's probably got a dry hole, but he hasn't told us about it, and this would also subject the well to the reduction of the acreage, and prevent the holding of short term locations being dedicated to the well.

Q Mr. Nutter, referring to the provision in the rule that you have just finished speaking about, and also all of your Exhibit Number 1, is it correct that you are not necessarily recommending to the Commission that they adopt this specific language, that it is just the substantive provisions of the rule is all that you are recommending?

A This is correct.

Q All right.

A The next section of portion "D" of the proposed rules is entitled Non-Standard Units. This section is a necessity. It has never been in the rules. It's always been necessary that if an operator in an undefined gas area, or in a gas pool which does not have special rules, wants to establish a non-standard unit,

it's been necessary for him to come to hearing. The only place where non-standard units are provided for is in the special pool rules. Special pool rules have not normally been written unless the operator ask for spacing an exception to the 160 spacing for gas wells.

This is a provision for the establishment of non-standard units without the necessity and expense of the hearing. It's quite standard, it follows almost identically the wording of the non-standard unit portion of special pool rules; the only exception being it has to take care of 160-acre standard unit and 320-acre standard unit. It requires that off-set operators be notified, and the ones who would be notified would be all off-set operators and operators owning interests in the quarter section for 160-acre pools or formations, or the half section for 320-acre pools or formations.

This, in effect, if an operator drills a well, say, in a 160-acre pool and he wants to establish a 120-acre unit, he must give notice to the man who owns the other 40, so that the man that owns the other 40 can have an opportunity to object, and possibly enter into an agreement with the driller of the well, to dedicate his 40 to it and pay a proportionate share of the costs, of course. I believe that this provision will be a blessing as far as the elimination of expense to the operators and to the Commission and should be adopted.

Q Does that cover all of your proposed changes or proposed amendments in Rule 104, Mr. Nutter?

A Yes, it does.

Q Are you of the opinion that one well of Pennsylvanian age or older in Southeast New Mexico, will efficiently and economically drain and develop a 320-acre tract?

A Yes. I believe that the history of the hearings that we have had here at the Commission over the last several years indicates that a well of that depth and in that cost bracket will come up with such economics and such drainage characteristics as to establish 320 acres as being an economic and efficient drainage or spacing pattern.

Exhibit Number 2 shows 24 gas pools in Southeast New Mexico which have spacing of more than 160 acres. Of these 24 pools 16 or 66 2/3 percent are Pennsylvanian or older. As far as I know, as I mentioned before, only one Pennsylvanian or older pool has come up for a hearing for more than 160-acre spacing and didn't ultimately get it. There are a few cases where there was more than one hearing before it was established as being the permanent spacing, but it has eventually been established in most cases.

Q That is set out on Exhibit Number 2 as far as the names of the pools, is that correct?

A That's correct. There is one pool on here the operator requested 640-acre spacing for a Pennsylvanian Pool. The

Commission couldn't see 640-acre spacing but they could see the 320. It's listed here.

Q In reaching your conclusion that one well of Pennsylvanian age or older in Southeast New Mexico will efficiently and economically drain and develop a 320-acre tract, have you considered the economic loss caused by the drilling of unnecessary wells, the protection of correlative rights, the prevention of waste, the risk arising from the drilling of an excessive number of wells, and the prevention of reduced recovery which might result from the drilling of too few wells?

A Yes, that's the reason for recommending 320 for Pennsylvanian and 160 for the shallower. It's also the reason for my recommendation that the existing pools on 160-acre spacing be called for hearing to establish 320 for them if they are Pennsylvanian or greater.

Q Do the records of the Commission in the cases shown on your Exhibit Number 2 concerning those pools reflect testimony and exhibits concerning this matter?

A Yes, they do.

MR. DURRETT: If the Commission please, I will, at this time, move that the Commission take administrative notice of the official records of the Commission concerning each of the pools listed on Exhibit 2, including all cases that have come before the Commission requesting 320-acre spacing in these pools?

MR. PORTER: The Commission will take administrative notice of the records in those cases.

Q (By Mr. Durrett) Now, Mr. Nutter, let's refer again to Exhibit Number 1, if you would, please.

GOVERNOR CAMPBELL: Are you going to go on beyond this Rule 104 now?

MR. DURRETT: Yes, I was.

GOVERNOR CAMPBELL: I have a question I want to ask Mr. Nutter with regard to the spacing situation. Perhaps it's a figment of my imagination, but I've often wondered whether in establishing rectangular, as distinguished from square units for drilling purposes there is any serious practical problem. First with regard to clustering of wells and dedication of non-productive a acreage beyond what you would have if it were a square unit. Actually, those are the two, the clustering of the wells and the possibility --

A Wagon wheeling --

GOVERNOR CAMPBELL" --of wagon wheeling the field. Has that been a serious problem engineerwise, drainagewise, in your estimation in the 320-acre gas spaced gas pools that we have?

A In my opinion this is a problem. However many considerations appear to come up in the cases that we've had for pool rules. In my opinion the ideal spacing for rectangular units would be to require the wells to be rigidly spaced, probably the best in the

case of 320-acre units is a 660, 1980 location.

As I've mentioned, in these cases that have come up we find that consideration has been given to other factors by the operators. Sometimes just the matter of structural position, when you are drilling on a unit that's 320 acres, that's a mile in length, and you give consideration to the structural position of that well, and the rigid pattern which would provide the best drainage characteristics in the center of the reservoir may not be too applicable there.

For that reason I have recommended that the location for the wells be 660 from the outer boundaries, although in some cases it might not be best as far as drainage is concerned. There are other considerations besides drainage which you must face, particularly on the outskirts of the pool and the structure of the pool.

GOVERNOR CAMPBELL: What you are saying is, then, that the other factors, in your judgment outweigh perhaps, or usually can outweigh the question that I raised there with regard to these--

A They often have.

GOVERNOR CAMPBELL: At least you are recommending the 320?

A Recommending the 320. There's a letter there from one of the companies that says I am wrong on the 660, that it ought to be 1980. As far as that goes, I prefer it, but I think it would be a little bit restrictive for a statewide rule.

GOVERNOR CAMPBELL: Thank you. Go ahead, Mr. Durrett.

Q (By Mr. Durrett) Now, Mr. Nutter, refer now to your Page 5 of your Exhibit Number 1, if you would, please, and give us a summary of your proposed amended Rule 301, and then proceed on to your proposed amendment of Rule 401.

A 301 is the proposed gas-oil ratio test for oil wells, which in its present form requires a test for the gas-oil ratio to be taken on a new well, no sooner than 30 nor later than 60 days after the well is completed, and put on production. In my opinion the normal well will clean up and you can take a representative gas-oil ratio on this well in much less than the 30 to 60 days that's permitted by the rules.

By the time the operator waits to the 59th or 60th day to conduct this gas-oil ratio test, and by the time the Proration Office has an opportunity to calculate it and assign the allowable to the well, it may have been producing with an extremely high gcr for a long period of time when it's allowable should be penalized.

A lot of gas can be flared under conditions like this and correlative rights can be violated if the well is offsetting a well which has a penalized allowable, or which has a normal allowable.

I'd therefore recommend that the time for taking this test be reduced from 30 to 60 days -- from the range of 30 to 60 days to a range of 20 to 30 days following the completion of the well.

As I said before, I believe that 20 days in almost all cases is sufficient time for a well to have cleaned out and a representative GOR obtained.

GOVERNOR CAMPBELL: Mr. Nutter, what other reasons are there that you believe that it can be done. What is your basis for requiring that it be done at an earlier time; what's the damage done if it's 60 days instead of 30 days?

A Correlative rights are violated if the well is producing with a high gas-oil ratio, and it should be penalized, then the offsetting operators correlative rights are damaged because if he has an older well in which he has already filed his test he has a penalized allowable, but this new well can produce, you might say, wide open as far as that goes, with only the restriction of top allowable for the pool applied to it.

GOVERNOR CAMPBELL: They usually don't have a connection in that length of time anyway, do they?

A This is oil wells.

GOVERNOR CAMPBELL: They get their connection on the line before you can --

A They produce for 60 days. They can produce for 60 days with an unrestricted gas-oil ratio before it's even required to be filed. It's not specified, but tradition has required that this test be filed within ten days after it's taken. I have put it in here that this test would be filed within the ten days.

GOVERNOR CAMPBELL: This is in an oil pool where there is no pool even where there's a gas-oil ratio in the pool at the present time they can do this?

A Yes, sir. They are not required to take the test until the 60th day, then they take another ten days to file it. It may take to the first of the following month before that becomes effective, as far as the penalty on a high GOR is concerned.

MR. PORTER: Mr. Nutter, as I understand it, this period of time is actually required for cleaning up a well and getting a representative gas-oil ratio, and your feeling is that the period of time which we allow now is too long. In other words, they can produce actually 90 days without having a penalized allowable --

A By the time the test is taken and the GOR applied to its allowable can be 90 days.

MR. PORTER: Right, thank you.

A And in the meantime correlative rights have been violated if it's in a pool where there is no no-flare provision; there can be a lot of gas flared and wasted.

Q (By Mr. Durrett) Please summarize your proposed amendment to Rule 401.

A Referring back to Section D of Rule 104 it requires that a potential test be taken within 30 days following completion of the well; with reference there to see Rule 301 and 401. As I stated, I don't know that it is perhaps necessary, so perhaps the reference to Rule 301 can be omitted, and make the 301 gas ratio

test applicable to oil wells as it currently is.

401 requires that a potential test be taken on wells that are connected and from which gas is being marketed. As I mentioned before, I think that in order to establish that a well is a gas well and that the acreage dedicated to it on its initial projection should continue to be dedicated to the well, then we have to know that the well is a gas well.

There's no provision in Rule 401 at the present time for testing or establishing that a gas well is a gas well until it's connected. So, I think in order to determine that a well is a gas well prior to connection, we need some sort of a test on the well.

MR. PORTER: In other words, to determine how much acreage could be dedicated to it?

A This is correct.

GOVERNOR CAMPBELL: Where the next well might be drilled?

A That's right. We know for a fact that pipelines don't go to a well and connect a well and set a meter loop without knowing something about the capability of this well to produce. These tests are being taken even before the wells are complete or connected. There's some sort of a test being taken on it.

GOVERNOR CAMPBELL: Have we actually had experience with situations where this created a problem--

A No.

GOVERNOR CAMPBELL: -- or are we just anticipating it?

A I'm anticipating a problem.

MR. CAMPBELL: We have had a lot of wells drilled; they've eventually been tied to gas connections where we haven't had any problem of this kind.

A The tests have been taken, but we didn't know about them maybe. This would require that a test be taken and filed with the Commission. If the well is connected the normal back pressure test that's required could be taken. If the well is not connected I propose that we go to the Interstate Oil Compact Manual for back pressure testing of gas wells.

I have Exhibit 4 and also Exhibit 5.

Q (By Mr. Durrett) Would you identify Exhibit 4, what is it entitled?

A Exhibit 4 is entitled "Non-Stabilized Multipoint Tests". Exhibit 5 is entitled "One-Point Potential Test". Now, the proposed rule as I've prepared it here says that these tests which are taken of gas wells which are not connected, would be taken within 30 days following the installation of a wellhead, and that well would be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contain in Supplement 1 to the New Mexico Oil Conservation Commission Manual for back pressure tests for natural gas wells.

Now, Supplement 1 to this manual does not exist now, but

I'm proposing that Supplement 1 be prepared, and that it contain some tests for unconnected gas wells. The Interstate Oil Compact in devising it's manual fo- back pressure testing of wells prepared a section entitled: Non-Stabilized Multipoint Tests, which is copied and offered as Exhibit 4 in this case, and I will read the first part of the first paragraph: "When well stabilization is impractical to obtain or when gas must be flared during the test--". You need some sort of a test, so the test follows. The first test contained in the compact: Non-stabilized multipoint test section is a Constant Time Multipoint Test. The second one which is shown on Page III-8 of that exhibit is the Isochronal Multipoint Test. Both of these tests will give a relative idea of the capability of the well to produce. It's not necessary to produce the wells for a greater period of time, because you are not after a stabilized rate of flow, so it's possible to take these tests in just a few hours and establish them as gas wells.

I recommend that these tests be considered for the supplement to the manual for back pressure tests.

The other test which is on Exhibit 5 is the One-Point Back Pressure Potential Test. This is the test that is used in the San Juan Basin where the slope of the test has been established by no knowledge of the Basin and a one-point test is adequate for getting a relative idea of the capability of the well.

So, I believe that as minimum tests in this supplement to

the back pressure testing manual that the Constant Time Multi-point Test, the Isochronal Test be pressured, and that the One-Point Back Pressure Test be considered to the San Juan Basin, for the supplement.

Q Am I correct that your reason for proposing these amendments to the rules is to provide a means by which wells could be tested to determine the amount of acreage that would be dedicated to them upon completion?

A Yes, sir.

Q Are you of the opinion that adoption of your proposed Rule 301 and 401, at least the substantive provisions of those rules would be to enable the Oil Conservation Commission to more efficiently and effectively administer the laws of the State of New Mexico, pertaining to the conservation of oil and gas, the prevention of waste and the protection of correlative rights?

A Yes, I believe that.

Q Do you have anything further to present to the Commission at this time?

A No, sir.

MR. DURRETT: I would move the introduction of Exhibits 1 through 5 in this case and that concludes our case on direct.

MR. PORTER: Number 1 being the proposed rule--

MR. DURRETT: Yes. Number 1 being the proposed rule. For the purpose of my motion, Mr. Nutter, let me ask you one additional question. Number 1 of your proposed rules, is that

correct?

A That's correct.

Q (By Mr. Durrett) And that isn't in the form of a docket but is the language as contained therein, substantially the language that was prepared by you, or under your direction?

A Yes.

Q Were Exhibits 2, 3, 4 and 5 prepared under your supervision?

A Exhibits 2 and 3 were, Exhibits 4 and 5 were reproductions of existing literature. As I mentioned, Exhibit 4 is a reproduction of the non-stabilized multipoint test procedures contained in the Interstate Manual for back pressure testing of wells. The Exhibit 5 is the one-point back pressure test which is contained in Chapter 3 of Order R-333-F issued by the Commission.

Q You did extract these Exhibits 4 and 5 from the various documents you have referred to and prepared them in the form of an exhibit?

A Correct.

MR. DURRETT: I would now move the introduction of Exhibits 1 through 5.

MR. PORTER: Without objection the exhibits will be admitted.

(Whereupon, Exhibits 1 through 5 were admitted in evidence.)

MR. PORTER: Does anyone have a question of Mr. Nutter? Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q Referring to top of Page 2, Section B, Roman Numeral II-A where you state that the well should be located 660 from the outer boundary of a unit on either 160 or 320-acre tracts, is it your recollection that on quite a number of our recent 320-acre spacing cases, that we have required the well to be located 990 feet from the outer boundaries?

A Yes, this is still the situation where you are not sure what you are going to get. Now, the one that you are referring to is a wildcat well. In other words, you are forcing, if you go to 990 here you are forcing a wildcat well to a 330 foot location because 990 has about a 330 in an opposite direction. So you force that well on a 330 foot location.

Of course, it's optional that an oil well can be drilled on a 330, but it would be impossible to get a 660 foot oil well if we went to 990 on a projected wildcat and it turned out to be an oil well.

This way while the gas well could be 660 from the outer boundary an oil well would be right in the center of the tract if it developed that the wildcat was an oil well.

Q That wouldn't be too serious for a well to establish whether it's an oil or gas pool, would it?

A Well, we recognize that there are going to be mistakes

in projection of these wells. Some of the projected wildcats that they think are going to be oil wells are going to be gas wells, and vice-versa, I'm sure.

Q Do you think it would be in line with recent policy to allow them to develop a wildcat pool or several wells before a pool has special pool rules on a 660 location when we already have several; in which case if the pool is established to a certain extent we can't go to a 990?

A Presumably, Elvis, we wouldn't be going to pool rules on the adoption of them except for spacing, unless they went for 640. Now, 990, or as I stated to Governor Campbell, 1980, 660 is better; the 660 is a minimum distance as far as the well should be located, it might ought to be located farther in.

Q Strictly in the case of a 320-acre tract?

A That's true.

Q Under Section D --

A Section what?

Q D, Roman Numeral I, is it your contention there not to require a test on wells that you drill on 40 acres?

A That's right.

Q So we may have a well or no well at all?

A That's right.

Q Under your 401 you recommend, I believe, a constant time test or an isochronal test?

A That's correct.

Q And these rules as they are written in the back pressure manual, would have to be revised somewhat to fit our situation?

A I don't know exactly what extent of revision would be necessary. I see one right here now, on Exhibit 4, in the end of that paragraph, it says: "unless determination is made in conjunction with the (State Regulatory Body)". Certainly the change has to be made there and put the word "New Mexico Oil Conservation Commission".

Q Most of the change would be in wording and not so much procedure?

A I think maybe wording changes, but I believe that this procedure, you could correct me if I'm wrong, that this procedure was considered by quite a number of reputable gas engineers and quite a number of committees, or committee meetings before it was adopted; and I think the procedure was probably established as a pretty good procedure, wasn't it?

Q I would agree with you. The procedure is a very good procedure and would fit in this case. You are not recommending the statewide point, however?

A It might; I'd hate to go on record as recommending that the well be flowed until a stabilization is obtained, because in some cases it might take a long time, and I'd hate to go on record as requiring an unconnected gas well to be flowed in every case to stabilization.

Q The reason you are not recommending it is because of the waste of gas?

A The waste of gas. As I mentioned, these would be minimum tests. I think that more extensive tests in certain cases would justified. I think perhaps --

Q On special permission?

A On special permission.

Q Would it be your recommendation to limit these constant time points to possibly one hour?

A I believe so. A maximum of one hour ought to be imposed unless special exception is obtained.

Q In quite a number of cases the one hour will actually be a stabilized back pressure test, will it not?

A It will in lots of reservoirs.

Q Do you know if the situation as it is now, even though we don't require a test before pipeline connection, that in some cases there is extensive testing, flaring of gas is taking place?

A Yes.

Q This will prevent some flaring of gas on the taking of tests?

A I think if it is specified that more extensive tests can not be taken without special permission that it will eliminate a lot of special testing of unvented wells. We know as a matter of fact that in an area that is considerable distance from a pipeline

that considerable testing is necessary before any pipeline can go into the area and spend a lot of money just to lay the trunk-line in there.

Q They're not going to build a five million dollar pipeline on a three hour test.

A Yes. But, in numerous cases I think some of the wells are over tested before being connected, and this may eliminate them.

Q After a little history of one-hour tests you will pretty well determine what you have got with a one-hour test?

A That's the reason the procedure as contained on Exhibit 5 for the San Juan Basin, that's a simple test but there is considerable history and knowledge of the area, the slopes have already been obtained and the one-point test is adequate to get an idea of the well's capability.

Q Would it be your recommendation that we use the constant time rather than the isochronal test which is more consuming?

A I think it ought to be up to the option of the operator. I think that the supplement to the back pressure testing manual should contain the isochronal as well as the constant time test. Maybe the history will show in Southeast New Mexico that one is better than the other. I think the supplement could contain both.

Q It's your opinion that the isochronal test would result in only possibly a little more accuracy to the slope of the well?

A I don't know if I am qualified to judge one test over the other.

Q The difference is the shut-in, the stabilized shut-in time between points, is it not?

A That's correct, that's the only difference between the two test.

MR. UTZ: That's all I have.

MR. PORTER: The Commission will recess the hearing until 2:00 o'clock.

(Whereupon, the hearing was recessed until 2:00 P. M.)

AFTERNOON SESSION

(Whereupon, the hearing was continued at 2:00 P. M.)

MR. PORTER: The hearing will come to order, please. Does anyone else have a question of Mr. Nutter? If there are no further questions the witness may be excused. Mr. Arnold has a question?

MR. ARNOLD: Can I ask one question?

BY MR. ARNOLD:

Q Mr. Nutter, in several places here you talk about development wells in these paragraphs, but you didn't mean that these rules were going to override special pool rules in pools which have rules which don't parallel these rules, did you?

A Oh, no, I don't think I would recommend that.

Q One place I was asking about in this particular paragraph

"D" on Page 4, it says: "It shall be the responsibility of the operator of any wildcat gas well or development gas well--"

Several of the operators were asking whether this paragraph would refer to Basin-Dakota wells, or whether you intended it that way.

A In what respect. I believe this rule would effect any gas well in any pool where the pool rule was silent on a subject. However, if the pool rule specifically mentions the subject, then the pool rule will Supercede the statewide rule.

Q The Basin-Dakota gas testing is covered by Rule 333-F.

A That is correct.

Q Which doesn't have anything to do with gas-oil ratio.

A Well, 333-F applies to all prorated gas pools in the San Juan Basin, as I recall testing procedure for prorated gas wells up there.

Q Would you take the position that the Basin-Dakota would be exempt?

A I would take the pool rules however they apply, would take precedent over these statewide rules. In an area where the pool rules are silent, then I think the statewide rules would apply.

MR. ARNOLD: That's all.

MR. PORTER: Does anyone else have a question of Mr. Nutter? The witness may be excused.

(Witness excused.)

MR. PORTER: Does anyone have anything further to offer in this case? I believe it was indicated there would be no further testimony, but does anyone have a statement?

MR. HUNKER: Yes, sir, I do.

MR. PORTER: Mr. Hunker.

MR. HUNKER: I presume that this is where you would like for me to sit.

MR. PORTER: That's fine.

MR. HUNKER: My name is George H. Hunker, Junior. I'm an attorney from Roswell, New Mexico, and I represent the Monsanto Company, formerly the Monsanto Chemical Company. I would like to explain that company's position from a practical standpoint, and point out to the Commission that in representing this company I brought to the Commission's attention the fact that we had no statewide rule with respect to wildcat gas wells.

Monsanto had an opportunity to take a farm-out on a tract in Western Eddy County. This tract was more than a mile from any defined pool, and more than a mile from any well. We needed to communitize a tract of either 160 acres or 320 acres, or 640 acres to form a proper spacing unit in order to save about five or six Federal leases that were expiring.

We talked to the United States Geological Survey, and learned much to our surprise that there was no statewide rule for a wildcat gas well; and that the United States Geological

Survey would not approve any kind of a communitization, 160 acres or 320 acres unless there was a field rule that would give them authority under the United States Mineral Leasing Act to communitize.

I have listened with interest to the testimony of Mr. Nutter, and I agree wholeheartedly in the proposals that have been made. The comments that I have had from the companies in Roswell have all been favorable. It came as a surprise to me to know that the Commission had suggested, or the staff of the Commission had suggested that for Pennsylvanian wells or deeper that 320 acres be the established rule. All that we were concerned with at the time we originally talked to the staff was for a statewide 160-acre rule in order that we could communitize a 160-acre tract, drill one gas well without having to drill two on the same 160-acre tract.

I would like to point out, that over the last several years, under a ruling by the solicitor of the Department of the Interior, partial assignments of Federal leases have been permitted, and these partial assignments have served to extend the terms of both the assigned portion of the lease and the retained portion of the lease. This is meant that operators have made the partial assignments to get a two-year extension of their lease, that they come up to the end of the two-year term and something has got to be done to get the two parts of the lease back together

again. Communitization is about the only way that it can be accomplished.

Most of the wells in the area of West Eddy County are in defined pools, but as far as there being any field rules established for those pools, I think that Mr. Nutter will agree with me that they are isolated wells and in most instances there are no field rules. There was no rule at the time the well was drilled that you could dedicate 160 acres to the well, or 320 acres to the well, or 640 acres to the well. The wells were merely drilled and after they were completed as gas wells, of course, the state-wide rule with regard to 160-acre spacing for a gas well in a field would apply.

I have no further comment to make other than to urge the Commission to take this matter under consideration at an early date. We hope that my client can get busy and drill a Morrow gas well before the end of the month of May.

GOVERNOR CAMPBELL: We share your hope.

MR. HUNKER: Thank you.

GOVERNOR CAMPBELL: Mr. Hunker, do you have any objection to the 320-acres for Pennsylvanian, or were you just making a comment as to it?

MR. HUNKER: I was merely making a comment with respect to that. I have no objection whatsoever. I think the rules as drafted would permit any operator to come in and ask the Commission

for a field rule with respect to a particular area and get 640-acre spacing if they felt it was justified economically and under all of the factors that were involved.

MR. PORTER: Mr. Hunker, did I understand you to say, or did I understand your situation to be this: As far as your client was concerned, that it would take affirmative action by the Commission approving this rule prior to the end of May --

MR. HUNKER: That is correct.

MR. PORTER: -- in order that he would drill this particular well?

MR. HUNKER: In order to drill this particular well, yes, sir. He wants to drill a Morrow test well and it must be drilling at the end of May, and our communitization agreement must be approved before the end of May in order to save the locations that are in the unit to be pooled.

MR. PORTER: Thank you.

MR. HUNKER: That's the practical approach to the problem.

MR. PORTER: Thank you. Does anyone else have a statement? Mr. Kellahin?

MR. KELLAHIN: If the Commission please, Jason Kellahin of Kellahin and Fox, Santa Fe, representing Amerada Petroleum Corporation. Amerada Petroleum Corporation is generally in favor or the proposals that have been made by Mr. Nutter in Case 3044. We do have in connection therewith a few comments, and they should be

taken as comments and suggestions, and certainly not as criticism of the proposed rules.

Initially on Page 2 of the Proposed Rules, Rule 104-B, Paragraph 2 (a), relative to the spacing of wildcat gas wells in San Juan, Rio Arriba and Sandoval Counties, Amerada feels that perhaps the well locations should coincide with those for Southeastern New Mexico, and for oil wells in Northwestern New Mexico, at 660 feet from the outer boundary of the tract and 330 feet from any quarter-quarter section or subdivision inner boundary. I think that this would coincide with the comments that Mr. Nutter made in response to the questions by Mr. Utz as to the reason for such well locations.

As it is in the proposed rule, if you projected a gas well in San Juan, Rio Arriba or Sandoval County and did locate it at the 130 foot location, for example, then encountered oil and made either an oil well or a dual completion, you would have to come back in for an exception. We see no reason on a wildcat well for a difference in those locations. It should be 660 feet and 330 as in the other pools.

In addition, we find, and I believe this is probably an oversight, the way we read the order there is no provision in the rules setting forth the acreage requirements for development wells outside of the designated counties. In other words, if you are outside of Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba

and Sandoval Counties, the rule makes no provision for the requirement on Development wells, although you have a statewide rule for development wells on oil.

In connection with the discussion that has been presented here this problem of well spacing has come up, and while we realize that this isn't a proper matter to be considered under the scope of the advertising of this case, Amerada would suggest that the Commission at some future date, give serious consideration to adopting a provision similar to that in effect in North Dakota, which was also recently adopted in Wyoming and which I think a similar provision is contained in the State of Oklahoma.

The North Dakota rule which we recommend for consideration provides that, and I'll quote directly from the rule: "Within 15 days after the discovery of oil or gas in a pool not then covered by an order of the Commission, the hearing shall be held and the Commission shall issue an order, prescribing a temporary spacing pattern for the development of the pool.

This order shall continue in force for a period of no more than 18 months, at the expiration of which time a hearing shall be held. The Commission shall require the application of, to determine the proper spacing for the pool, during the interim period and no permit shall be issued for the drilling of a direct offset to the discovery well".

I think that the adoption of such a provision would at least, in part, remove problems that have existed in the drilling

of wells as was stated on a wagon-wheel pattern, or along the lines clustering around the initial discovery well.

We recommend the Commission give some consideration to this. Thank you.

MR. PORTER: Mr. Woodruff, would you like to come up and take the chair?

MR. WOODRUFF: All right. I have a number of comments in my discussion. I think it would be wise, I might say that my company approached this hearing thinking that a continuation which would permit the Commission's staff and the industry to give further consideration to what is being recommended could result in the preparation of more understandable and workable rules.

Earlier in discussions it became apparent that it was desired to expedite this hearing, and it was my thinking, particularly after hearing Mr. Nutter testify, that he was recommending the intent rather than the wording of this rule, that it would be well for a short period to be given after this hearing was over, so that recommended wording could be presented to the Commission. However, after hearing Mr. Hunker's statement I assume that it would be the Commission's desire for us to go ahead with recommendations that we might see desirable at this time, even though some that I have are more changes in wording rather than in major substance.

Is it the Commission's desire that I go ahead and complete

this?

MR. PORTER: Yes, sir, you might go ahead and give us the benefit of what you have in the way of comment or suggestion.

MR. WOODRUFF: The same question entered our mind as had entered Mr. Arnold's, I assume; in his question to Mr. Nutter about providing that these rules not conflict with existing rules. We think that it certainly can be clearer than the rules as now set out. The fields with existing rules providing for testing will prevail.

I would suggest in Rule 104-A - Classification of Wells, that Paragraph 1 and Paragraph 2 be headed: Wildcat Wells, and Development Wells, since these two paragraphs pertain specifically to those, and will aid in picking up from the rules the portion applicable.

In the second paragraph pertaining to development wells, we would suggest that the first two lines be rephrased as follows: "Any well which is to be drilled within a defined oil or gas pool, or less than one mile from the outer boundary of such a pool which has produced oil--", and continue on. We believe that in speaking in favor of what I propose, we believe that it will give a clearer definition of what you mean by a development well.

Also, on Page 1 of the Proposed Rules, under B-I(a), pertaining to wildcat gas wells, we would recommend some rewording as follows: "In Lea, Chaves , Eddy and Roosevelt Counties, a well

shall be defined as a wildcat gas well in accordance with Section A above, when it is projected as a gas well to a formation and in an area which in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed productive of gas rather than oil."

There is a similar definition of a wildcat gas well on Page 2, Roman Numeral II pertaining to the San Juan Basin, which we would recommend be phrased in the same manner.

On Page 2, Subsection (b) of Roman Numeral I, at the top of the page, pertaining to wildcat oil wells, we would recommend the following wording: "In Lea Chaves, Eddy and Roosevelt Counties a well shall be defined as a wildcat oil well in accordance with Section A above, when it is not a wildcat gas well, as defined above."

The same type of definition of a wildcat oil well we would recommend for use when defining wildcat oil wells in San Juan, Rio Arriba and Sandoval Counties, in Subsection (b), Subsection II at the bottom of Page 2.

It is our belief that the recommendation for 320-acre spacing for wildcat wells recommended in areas other than the San Juan Basin could be and should be applicable to the San Juan Basin area also.

We would recommend that a provision be made for wildcat wells in the San Juan Basin permitting, or requiring the obtaining

of 320 acres before approving a wildcat well drilled to Pennsylvanian or below.

On Page 4, Section D, Roman Numeral I, Well Tests and Classification, Mr. Nutter has recommended a change in the first paragraph or has indicated that he thought that it might well not be necessary to continue the requirement for determining the gas-oil ratio and the liquid gravity for a well. We would agree that this should not be presented in this rule. In fact, it's our belief that Section D I should be replaced by a more general rule which gives more discretion to the Commission and to the operator of the well in determining what nature of tests need be taken for a wildcat well.

We do know at this time that there are a variety of tests that are recommended both by the Commission staff and desired by the operators when wells are completed, which do not conform with that which is recommended in this rule. We would recommend the following rule reading as follows. I will say again, this would replace Section D, Roman Numeral I - Well Tests and Classification. "It shall be the responsibility of an operator desiring to assign more than 40 acres to a gas well to take such tests as the Commission may require to substantiate the well's classification as a gas well."

With the rule mentioned, it is believed that it will not be necessary to amend Rule 401 as proposed, since those test pro-

cedures which would be set out in the amendment to the rule would be available to the operator and to the Commission upon a determination that it would be appropriate.

MR. PORTER: In other words, by giving more discretion under Section D, you would eliminate 401?

MR. WOODRUFF: That is correct. On Page 5 of Mr. Nutter's Exhibit 1 pertaining to Proposed Amendment Rule 301, we recommend that at the end of the second line where it refers to each well, that it provide each oil well so that it will be clearly understood that this does not pertain to a gas well.

I might say in conclusion that we think the overall intent of the rule proposed is very commendable, and we recommend the adoption of a rule which will accomplish the proposed intent. Thank you.

MR. PORTER: Thank you, Mr. Woodruff. Mr. Eaton, did you have a statement?

MR. EATON: No, sir, I don't believe so. Our company sent you a letter that outlined it's position, and I have nothing more to add.

MR. PORTER: Yes, sir. I think I got the meaning. It seems you are opposed to everything except the 320-acre spacing and that you would like that to go to 640.

MR. EATON: Yes, sir.

MR. PORTER: That reminds me from a letter we got, we got a reply in a few days, it said: "I hereby resign everything from

this well except the royalty payment." Any other comments on the case?

MR. DURRETT: If the Commission please.

MR. PORTER: Mr. Durrett?

MR. DURRETT: I would like to state for the record that we have received several communications from operators concerning the case before the Commission. I don't propose to read these in their entirety but I would summarize briefly unless the Commission desires to hear any one in full.

We have a letter from Pan American Petroleum Corporation which states substantially what you just stated. We have also received a letter from the Atlantic Refining Company stating that they support most of the rule amendments. They state that they recommend that location of development gas wells not be permitted in the corner locations of the proration units under statewide rules if they are to be assigning 320-acre proration units.

We have received a telegram from Western Union sent by Humble Oil and Refining Company which reads in part as follows: "Humble Oil and Refining Company urges that the Commission adopt the proposed amendments for wider spacing of wildcat gas wells", and there's also another pertinent provision which reads "further, that the Commission is to be commended on these proposed amendments which is another example of your progressive attitude and action."

We also received a letter from Continental Oil Company

stating that they have no objection to the proposed rules.

MR. PORTER: If there are no further comments to be made we will take the case under advisement.

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 28th day of May, 1964.

My Commission Expires:
June 19, 1967

Notary Public - Court Reporter

SE NEW MEXICO GAS POOLS WITH MORE THAN 160-ACRE SPACING

ANTELOPE RIDGE DEVONIAN	640	*
ATOKA PENN	320	*
BAGLEY LOWER PENN	320	*
" UPPER "	320	*
BLUITT SAN ANDRES	320	
BLUITT WOLFCAMP	320	
BUFFALO VALLEY PENN	320	*
CUSTER ELLENBURGER	320	*
EMPIRE PENN	320	*
EUMONT (Y-7R-Q)	640	
FOWLER PADDOCK	320	
" TUBB	320	
HOPE STRAWN, SOUTH	640	*
INDIAN BASIN MORROW	640	*
INDIAN BASIN UPPER PENN	640	*
INDIAN HILLS UPPER PENN	640	*
JALMAT (TANSILL-Y-7R)	640	
JOSTIS (GLORIETA)	320	
LUSK MORROW	640	*
TEAS PENN	320	*
TODD SAN ANDRES	320	
TU-PENN	320	*
WHITE CITY PENN	640	*
WEST JAL STRAWN	649	*

* = PENNSYLVANIAN OR OLDER

OF 24 GAS POOLS WHICH HAVE SPACING OF MORE THAN 160 ACRES, 16 OR 66.7 PER CENT ARE PENNSYLVANIAN OR OLDER

160-ACRE GAS POOLS, SE NEW MEXICO

ANDERSON PENN
ARKANSAS JCT QUEEN
AUSTIN MISS
BANDANA PT PENN
BELL LAKE DEV
BELL LAKE PENN
N. BELL LAKE DEV
BLINEBRY
BIG EDDY WOLFCAMP
BLACK RIVER PENN
S. BOWERS - SEVEN RIVERS
BUFFALO PENN
E BUFFALO PENN
N BURTON PENN
BYERS QUEEN
CASS RANCH MORROW
CEDAR LAKE MORROW
CEMETARY MORROW
CHISUM YATES
CRAWFORD PENN
CROSBY DEVONIAN
DOUBLE X DELAWORE
DUFFIELD PENN
FOUR LAKES DEVONIAN
FREN PENN
GETTY MORROW
GRAYBURG ATOKA
HARKEY PENN
HENSHAW DEV
HENSHAW QUEEN
E. NIGHTOWER DEV
HOUSE TUBB
LAGUNA SEVEN RIVERS
LAKE ARTHUR PENN
LEA PENN
LITTLE LUCKY LAKE ELLENBURGER
LOCO HILLS MORROW
LOS MEDANOS ATOKA
LYNCH PENN
N. MESCALERO PENN
MONUMENT MCKEE-ELLENBURGER
MOORE WOLFCAMP
NEWMILL PENN
E. PEARL SEVEN RIVERS
QUAIL RIDGE MORROW
N. QUAIL RIDGE MORROW
RED LAKE PENN
RED LAKE QUEEN
RIVERSIDE MORROW
S. SALT LAKE ATOKA
S. SALT LAKE MORROW
S. SALT LAKE PENN
SAWYER SAN ANDRES
SEVEN RIVERS HILLS MORROW
SHOE BAR PENN
SHUGART PENN
SHUGART SILURO-DEVONIAN
N. SKAGGS DRINKARD
SOMBRERO PENN
TEAGUE ABO
TEXLINE PENROSE
W. TONTO PENN
TUBB GAS
VACUUM QUEEN
VANDAGRIFF KEYES QUEEN
WARREN BLINEBRY
WARREN TUBB
WEIR TUBB
WELCH PENN
WILLIAMS QUEEN

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 3
Case No. 3044

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
OCC Exhibit No. 4
Case No. 5041

4. ~~Reports~~

Upon completion of the test, all calculations shall be shown on Form BPT 5 and, if applicable, Form BPT 2, BPT 3, and BPT 4. _____ copies of these forms and the back pressure curve described below shall be submitted to the (State Regulatory Body).

5. Plotting

a. The points for the back-pressure curve shall be accurately and neatly plotted on equal scale log-log paper (3-inch cycles are recommended) and a straight line drawn through the best average of three or more points. When no reasonable relationship can be established between three or more points, the well shall be retested.

b. The cotangent of the angle this line makes with the volume coordinate is the exponent "n" which is used in the back-pressure equation (III - 1 or III - 2). The exponent "n" shall always be calculated as shown in Basic Calculation 5.

c. If the exponent "n" is greater than 1.000 or less than 0.500, the well shall be retested.

d. If, after retesting the well, no reasonable alignment is established between three or more points, then a straight line shall be drawn through the best average of at least three points of the retest.

(1) If the exponent "n" is greater than 1.000 a straight line with an exponent "n" of 1.000 shall be drawn through the point corresponding to the highest flow rate utilized in establishing the line.

(2) If the exponent "n" is less than 0.500, a straight line with an exponent "n" of 0.500 shall be drawn through the point corresponding to the lowest flow rate utilized in establishing the line.

B. NON-STABILIZED MULTIPOINT TESTS

When well stabilization is impractical to obtain or when gas must be flared during the test, the exponent "n" of the back-pressure curve shall be established by either the Constant Time Multipoint Test or Isochronal Multipoint Test. The exponent "n" so determined shall then be applied to a stabilized one-point test to determine the absolute open flow. (See STABILIZED ONE-POINT BACK-PRESSURE TEST PROCEDURE, Pg. III - 12.) The flow during this one-point test shall be for a period adequate to reach stabilized conditions unless determination is made in conjunction with the (State Regulatory Body) that it would be impractical to continue flow until complete stabilization is reached.

1. Constant Time Multipoint Test

a. Shut-in Pressure

(1) Wells with a pipeline connection shall be produced for a sufficient length of time at a flow rate large enough to clear the well bore of accumulated liquids prior to the shut-in period. If the well bore cannot be cleared of

accumulated liquids while producing into a pipeline, the well shall be blown to the atmosphere to remove these liquids.

(2) Wells without pipeline connections shall be blown to the atmosphere to remove accumulated liquids.

(3) The well shall be shut in until the rate of pressure buildup is less than 1/10 of 1 per cent of the previous recorded pressure, psig, in 30 minutes. This pressure shall be recorded.

b. Flow Tests

(1) After recording the shut-in pressure, a series of at least four flow rates of the same duration and the pressures corresponding to each flow rate shall be taken. Any shut-in time between flow rates shall be held to a minimum. These rates shall be run in the increasing flow-rate sequence. In the case of high liquid ratio wells or unusual temperature conditions, a decreasing flow-rate sequence may be used if the increasing sequence method did not result in the alignment of points. If the decreasing sequence method is used, a statement giving the reasons why the use of such method was necessary, together with a copy of the data taken by the increasing sequence method, shall be furnished the (State Regulatory Body). If experience has shown that the use of the decreasing sequence method is necessary for an accurate test, a test by the increasing sequence method will not be required.

(2) The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

(3) One criterion as to the acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should not be more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate not more than 75 per cent of the well's shut-in pressure, psig. If data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished the (State Regulatory Body).

(4) All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition and compliance with acceptable standards. The differential pen shall be zeroed before beginning the test.

(5) The field barometric pressure shall be determined.

(6) The specific gravity of the separator gas and of the produced liquid shall be determined.

(7) At the end of each flow rate the following information shall be recorded:

(a) Flowing wellhead pressure.

(b) Static column wellhead pressure if it can be obtained.

(c) Rate of liquid production.

(d) Flowing wellhead temperature.

(e) All data pertinent to the gas metering device.

(8) The stabilized one-point test data may be obtained by continuation of the last flow rate in the manner prescribed for Flow Test in the STABILIZED ONE-POINT BACK-PRESSURE TEST PROCEDURE. (See Pg. III - 11.)

c. Calculations

(1) General

A wellhead absolute open flow as determined from the wellhead equation, (III - 2), $Q = C (P_c^2 - P_w^2)^n$, is normally found to be equivalent to the bottom-hole absolute open flow as determined from the bottom-hole equation, (III - 1), $Q = C (P_f^2 - P_s^2)^n$, where the wellhead shut-in pressure of all wells in a given reservoir is below 2000 psig. Under this condition the wellhead absolute open flow is acceptable instead of the bottom-hole absolute open flow.

(2) Bottom-hole Calculations

(a) Bottom-hole pressures shall be calculated to a datum at the mid-point of the producing section open to flow. The point of entry into the tubing may be used as the datum if it is not more than 100 feet above or below the mid-point of the producing section open to flow.

(b) Under all shut-in conditions and under flowing conditions, when the static column wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Examples 1 and 2.

(c) When only the flowing wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Example 3.

(d) When the bottom-hole pressures are recorded by use of a properly calibrated bottom-hole pressure bomb and corrected to the proper datum, these pressures may be used in the bottom-hole formula.

(e) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, the calculation of the bottom-hole pressure shall be made as shown in Test Example 8.

(3) Wellhead Calculations

(a) The static column wellhead pressure must be obtained if possible.

(b) When only the flowing wellhead pressures can be obtained, the static

column wellhead pressures shall be calculated [illegible] Example 3.

(c) When liquid accumulation is thought [illegible] appreciably affects the wellhead shut-[illegible] correction of the surface pressure shut-[illegible] shall be made in the manner shown in [illegible] option of the operator, by using a bottom-[illegible] correcting to wellhead conditions as shown [illegible] or 10.

d. Reports

Upon completion of the test, all calculations shall be [illegible] and, if applicable, Form DPT 2, DPT 3, and DPT [illegible] forms and the back-pressure curve described [illegible] the (State Regulatory Body).

e. Plotting

(1) The points for the back-pressure curve shall be [illegible] plotted on equal scale log-log paper (3-inch cycle [illegible] and a straight line drawn through the best [illegible] points. When no reasonable relationship [illegible] three or more points, the test shall be rerun [illegible]

(2) The categories of the straight line back-pressure [illegible] the exponent "n" which is used in the back-pressure [illegible] LT - 2). The exponent "n" shall always be [illegible] shown in Basic Calculations 3.

(3) If the exponent "n" is [illegible] than 1.000 [illegible] the well shall be retested.

(4) If, after retesting the well, no reasonable straight [illegible] three or more points, then a straight line shall be [illegible] through the best average of the lowest three points of the plot.

(a) If the exponent "n" is greater than 1.000, a [illegible] an exponent "n" of 1.000 shall be drawn through the [illegible] corresponding to the highest rate of flow utilized in establishing [illegible]

(b) If the exponent "n" is less than 0.500, a straight line shall be drawn through an exponent "n" of 0.500 shall be drawn through the [illegible] corresponding to the lowest rate of flow utilized in establishing [illegible]

(5) The constant time data points are used only to determine the value of the exponent "n". The back-pressure curve shall be drawn through the established data point and parallel to the line of slope [illegible] constant time data points. The absolute open flow potential [illegible] from this back-pressure curve as calculated as shown in [illegible]

X

2. Isochronal Multipoint Test

a. Shut-in Pressures

(1) Wells with a pipeline connection shall be produced for a sufficient length of time at a flow rate large enough to clear the well bore of accumulated liquids prior to the shut-in period. If the well bore cannot be cleared of accumulated liquids while producing into a pipeline, the well shall be blown to the atmosphere to remove these liquids.

(2) Wells without pipeline connections shall be blown to the atmosphere to remove accumulated liquids.

(3) Prior to each flow test as described below, the well shall be shut in until the rate of pressure buildup is less than 1/10 of 1 per cent of the previously recorded pressure, psig, in 30 minutes. This pressure shall be recorded and used with the data from the subsequent flow test.

b. Flow Tests

(1) After recording the initial shut-in pressure, a series of at least four flow rates of the same duration and the pressures corresponding to each flow rate shall be taken. Each flow rate shall be preceded by a shut-in pressure as prescribed above in 2. a. (3).

(2) The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

(3) One criterion as to the acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should not be more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate not more than 75 per cent of the well's shut-in pressure, psig. If data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished to the (State Regulatory Body).

(4) All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke, or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition, and compliance with acceptable standards. The differential pen shall be zeroed before beginning the test.

(5) The field barometric pressure shall be determined.

(6) The specific gravity of the separator gas and of the produced liquid shall be determined.

(7) At the end of each flow rate the following information shall be recorded:

(a) Flowing wellhead pressure.

(b) Static column wellhead pressure if it can be obtained.

(c) Rate of liquid production.

(d) Flowing wellhead temperature.

(e) All data pertinent to the gas metering device.

(8) The stabilized one-point test data may be obtained by continuation of the last flow rate in the manner prescribed for Flow Test in the SHUT-IN ONE-POINT BACK-PRESSURE TEST PROCEDURE. (See Pg. III - 17.)

c. Calculations

(1) General

A wellhead absolute open flow as determined from the wellhead equation, (III - 2), $Q = C (P_c^2 - P_w^2)^n$, is normally found to be equivalent to the bottom-hole absolute open flow as determined from the bottom-hole equation, (III - 1), $Q = C (P_t^2 - P_s^2)^n$, where the wellhead shut-in pressure of all wells in a given reservoir is below 2000, psig. Under this condition the wellhead absolute open flow is acceptable instead of the bottom-hole absolute open flow.

(2) Shut-in Pressure

The shut-in pressure preceding each flow rate shall be used in connection with the static column wellhead pressure corresponding to that flow rate.

(3) Bottom-hole Calculations

(a) Bottom-hole pressures shall be calculated to a datum at the mid-point of the producing section open to flow. The point of entry into the tubing may be used as the datum if it is not more than 100 feet above or below the mid-point of the producing section open to flow.

(b) Under all shut-in conditions and under flowing conditions, when the static column wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Examples 1 and 2.

(c) When only the flowing wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Example 3.

(d) When the bottom-hole pressures are recorded by use of a properly calibrated bottom-hole pressure bomb and corrected to the proper datum, these pressures may be used in the bottom-hole formula.

(e) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, the calculation of the bottom-hole pressure shall be made as shown in Test Example 4.

the static wellhead pressure (P_w) cannot be lowered due to existing producing conditions.

Any test prescribed herein will be considered unacceptable if the average flow rate for the final 7-day deliverability test is more than ten percent in excess of any consecutive 7-day average of the preceding two weeks. A deliverability test not meeting this requirement shall be invalid and the well shall be re-tested.

All charts relative to initial or annual deliverability tests or photostats thereof shall be made available to the Commission upon its request.

All testing agencies, whether individuals, companies, pipeline companies, or operators, shall maintain a log of all tests accomplished by them, including all field test data.

All forms heretofore mentioned are hereby adopted for use in the San Juan Basin Area in open form subject to such modification as experience may indicate desirable or necessary.

Initial and Annual Deliverability and Shut-In Pressure Tests for gas wells in all formations shall be conducted and reported in accordance with these rules and procedures. Provided however, these rules shall be subject to any specific modification or change contained in Special Pool Rules adopted for any pool after notice and hearing.

CHAPTER III INFORMATIONAL TESTS

A. A one-point back pressure test may be taken on newly completed wells before their connection or reconnection to a gas transportation facility. This test shall not be a required official test but may be taken for informational purposes at the option of the operator. When taken, this test must be taken and reported as prescribed below:

ONE-POINT BACK PRESSURE POTENTIAL TEST PROCEDURE

1. This test shall be accomplished after a minimum shut-in of seven days. The shut-in pressure shall be measured with a deadweight gauge.

2. The flow rate shall be measured by flowing the well three hours through a positive choke, which has a 3/4-inch orifice.

3. A 2-inch nipple which provides a mechanical means of accurately measuring the pressure and temperature

of the flowing gas shall be installed immediately upstream from the positive choke.

4. The absolute open flow shall be calculated using the conventional back pressure formula as shown in the New Mexico Oil Conservation Commission "Back Pressure Test Manual."

5. The observed data and flow calculations shall be reported in duplicate on Form C-122, "Multi-Point Back Pressure Test for Gas Wells."

6. Non-critical flow shall be considered to exist when the choke pressure is 13 psig or less. When this condition exists the flow rate shall be measured with a pitot tube and nipple as specified in the Commission's Manual of "Tables and Procedure for Pitot Tests." The pitot test nipple shall be installed immediately downstream from the 3/4-inch positive choke.

7. Any well completed with 2-inch nominal size tubing (1.995-inch ID) or larger shall be tested through the tubing.

B. Other tests for informational purposes may be conducted prior to obtaining a pipeline connection for a newly completed well upon receiving specific approval therefor from the Commission's Aztec office. Approval of these tests shall be based primarily upon the volume of gas to be vented.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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 A L

A. L. PORTER, Jr., Member & Secretary

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

CASE No. 3044
Order No. R-2707

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION ON ITS OWN MOTION TO CONSIDER THE AMENDMENT OF CERTAIN RULES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 13, 1964, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 25th day of May, 1964, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, a gas well completed in a formation no deeper than the top of the Pennsylvanian formation will efficiently and economically drain and develop a 160-acre tract.

(3) That in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, a gas well completed in the Pennsylvanian formation or a deeper formation will efficiently and economically drain and develop a 320-acre tract.

(4) That Rule 104 of the Commission Rules and Regulations should be amended to permit the dedication of 160 acres to a gas well in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, projected to or completed in a formation no deeper than the top of the Pennsylvanian formation.

(5) That Rule 104 of the Commission Rules and Regulations should also be amended to permit the dedication of 320 acres to

a gas well in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, projected to or completed in the Pennsylvanian formation or a deeper formation.

(6) That Rule 104 of the Commission Rules and Regulations should also be amended to establish a testing procedure to determine whether a well in Lea, Chaves, Eddy, and Roosevelt Counties should properly be classified as a gas well upon completion.

(7) That amendment of Rule 104 as set out above will prevent the economic loss caused by the drilling of unnecessary wells, will avoid the augmentation of risks arising from the drilling of an excessive number of wells, will prevent reduced recovery which might result from the drilling of too few wells, and will otherwise prevent waste and protect correlative rights.

(8) That Rule 301 of the Commission Rules and Regulations should be amended to require a gas-oil ratio test to be taken within 20 to 30 days following completion or recompletion of an oil well and to be filed with the Commission within 10 days following completion of the test.

(9) That Rule 401 of the Commission Rules and Regulations should be amended to require gas wells which are not connected to a gas gathering facility to be tested within 30 days following the installation of a christmas tree and to require the test to be filed with the Commission within 10 days following completion of the test.

(10) That amendment of Rules 301 and 401 as set out above will enable the Oil Conservation Commission to more efficiently and effectively administer the laws of the State of New Mexico concerning the conservation of oil and gas, the prevention of waste, and the protection of correlative rights.

IT IS THEREFORE ORDERED:

(1) That Rule 104 of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCAT WELLS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from (1) the outer boundary of any defined pool which has

produced oil or gas from the formation to which the well is projected, and (2) any other well which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is not a wildcat well as defined above shall be classified as a development well for the nearest pool which has produced oil or gas from the formation to which the well is projected. Any such development well shall be spaced, drilled, operated, and produced in accordance with the rules and regulations in effect in such nearest pool, provided the well is completed in the formation to which it was projected.

Any well classified as a development well for a given pool but which is completed in a producing horizon not included in the vertical limits of said pool shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from that horizon. If there is no designated pool for said producing horizon within one mile, the well shall be re-classified as a wildcat well.

B. ACREAGE AND WELL LOCATION REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy, and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat well which is projected as a gas well to a formation and in an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

Provided however, that any such wildcat gas well which is projected to a formation of Pennsylvanian age or older shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. Any such

"deep" wildcat gas well to which is dedicated more than 160 acres shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, "side" boundary is defined as one of the outer boundaries running lengthwise to the tract's greatest overall dimension; "end" boundary is defined as one of the outer boundaries perpendicular to a side boundary and closing the tract across its least overall dimension.)

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat well which is not a wildcat gas well as defined above shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary of such tract.

In the event gas production is encountered in a well which was projected as an oil well and which is located accordingly but does not conform to the above gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

II. <u>San Juan, Rio Arriba, and Sandoval Counties</u>

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat well which is projected to a gas-producing horizon shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat well which is projected to an oil-producing horizon as recognised by the Commission shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any wildcat well in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE AND WELL LOCATION REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each development well for a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary of such tract nor closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy, and Roosevelt Counties

Unless otherwise provided in special pool rules, each development well for a defined gas pool of less than Pennsylvanian age or for a defined gas pool of Pennsylvanian age or older which was created and defined by the Commission prior to June 1, 1964, shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in the special pool rules, each development well for a defined gas pool of Pennsylvanian age or older which was created and defined by the Commission after June 1, 1964, shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. Any such well having more than 160 acres dedicated to it shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, "side" boundary and "end" boundary are as defined in Section B I (a) of this rule.)

(b) <u>San Juan, Rio Arriba, and Sandoval Counties</u>

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

(c) <u>All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval</u>

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public

Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rule 401.)

Date of completion for a gas well shall be the date a christmas tree is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

E. Notice of Intention to Drill (C-101) for any well shall designate the exact legal subdivision allotted to the well and no C-101 will be approved by the Commission or any of its agents without proper designation of acreage.

F. The Secretary-Director of the Commission shall have authority to grant an exception to the well location requirements of Sections B and C 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, and

2. (a) All owners of 40-acre tracts directly or diagonally offsetting the 40-acre tract upon which the unorthodox location is proposed have consented in writing to the proposed location, or

(b) In lieu of paragraph 2(a) of this rule, the applicant may furnish proof of the fact that all of said offset operators were notified by registered or certified mail of his intent to drill an unorthodox location. The Secretary-Director of the Commission may approve the application if no offset operator has entered an objection to the unorthodox location within 20 days after the Secretary-Director has received the application.

G. Whenever an exception is granted, the Commission may take such action as will offset any advantage which the person securing the exception may obtain over other producers by reason of the unorthodox location.

H. If the drilling tract is within an allocated oil pool or is placed within such allocated pool at any time after completion of the well and the drilling tract consists of less than 39 1/2 acres or more than 40 1/2 acres, the top unit allowable for such well shall be increased or decreased in the proportion that the number of acres in the drilling tract bears to 40.

I. If the drilling tract is within an allocated gas pool or is subsequently placed within an allocated gas pool, and the drilling tract consists of less than 158 acres or more than 162 acres in 160-acre pools, or less than 316 acres or more than 324 acres in 320-acre pools, the top allowable for such well shall be decreased or increased in the proportion that the number of acres in the drilling tract bears to a standard unit for the pool.

J. In computing acreage under H and I above, minor fractions of an acre shall not be counted but 1/2 acre or more shall count as 1 acre.

K. The provisions of H and I above shall apply only to wells completed after January 1, 1950. Nothing herein contained shall affect in any manner any well completed prior to the effective date of this rule and no adjustments shall be made in the allowable production for any such wells by reason of these rules.

L. In order to prevent waste the Commission may, after notice and hearing, fix different spacing requirements and require greater acreage for drilling tracts in any defined oil pool or in any defined gas pool notwithstanding the provisions of B and C above.

M. The Commission may approve the pooling or communitization of fractional lots of 20.49 acres or less with another oil proration unit when:

1. The units involved are contiguous;

2. They are part of the same basic lease, carrying the same royalty interest; and

3. The ownership of the units involved is common.

Application to the Commission for pooling shall be accompanied by three (3) copies of a certified plat showing the dimensions and acreage involved in the pooling, the ownership of all leases and royalty interests involved, and the location of any proposed wells.

Applicant shall furnish all operators who directly and diagonally offset the units involved a copy of the application to the Commission, and shall include with his application a written statement that all offset operators have been properly notified. Offset operators shall include only those operators who have offset properties within the State of New Mexico. The Commission shall wait at least ten days before approving any such pooling, and shall approve such pooling only in the absence of objection from any offset operator. In the event that an operator objects to the pooling, the Commission shall consider the matter only after proper notice and hearing.

The Commission may waive the ten-day waiting period requirement if the applicant furnishes the Commission with the written consent to the pooling by all offset operators involved.

The Commission may consider that the requirements of subparagraphs 2 and 3 of paragraph M of this rule have been fulfilled if the applicant furnishes with each copy of each application to the Commission a copy of an executed pooling agreement communitizing the units involved.

Each well drilled on any communitized tract shall be located in the approximate geographical center of the combined units with a tolerance of 150 feet for topographical conditions, but in any event shall not be located closer than 330 feet to the outer boundaries of the proposed proration unit or communitized tract.

(2) That Rule 301 (a) of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

(a) Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each oil well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

Each operator shall also take an annual gas-oil ratio test of each producing oil well, located within a pool not exempted from the requirements of this rule, during a period prescribed by the Commission. A gas-oil ratio survey schedule shall be established by the Commission setting forth the period in which gas-oil ratio tests are to be taken for each pool wherein a test is required. The gas-oil ratio test applicable shall be such test designated by the Commission, made by such method and means, and in such manner as the Commission in its discretion may prescribe from time to time.

(3) That Rule 401 of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

All operators shall conduct tests to determine the daily open flow potential volumes of all natural gas wells from which gas is being used or marketed. Such tests shall be reported on forms prescribed by the Commission within 60 days after: (1) the date of initial connection of the well to a gas transportation facility and (2) the date of reconnection following workover.

To establish comparable open flow capacity, wells shall be tested in accordance with the New Mexico Oil Conservation Commission "Manual for Back-Pressure Test for Natural Gas Wells." In the event the Commission approves an alternate method for testing, all wells producing from a common source of supply shall be tested in a uniform and comparable manner.

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a christmas tree. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement 1 to the New Mexico Oil Conservation Commission "Manual for Back-Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M Campbell

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. Porter, Jr.

A. L. PORTER, Jr., Member & Secretary

esr/

Case 30,44

PROPOSED AMENDMENT RULE 104, SECTIONS A, B, C, AND D

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCATS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is to be drilled less than one mile from the outer boundary of a defined oil or gas pool which has produced oil or gas from the formation to which the proposed well is projected shall be classified as a development well and shall be spaced, drilled, operated and produced in accordance with the regulations in effect in the nearest such pool, provided the well is completed in the formation to which it was projected. Provided further, that any well completed in a formation other than the one to which it was originally projected shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from the same formation in which the well is completed.

If there is no designated pool for the aforesaid formation within one mile, the well shall be classified as a wildcat.

B. ACREAGE REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected as a gas well in a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil.

Such wildcat gas well shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys; provided, however, if such wildcat gas well is projected to a formation of Pennsylvanian age or older, it shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys.

Any such wildcat gas well shall be located at least 660 feet from the outer boundary of the 160-acre or 320-acre tract and shall be located not closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy and Roosevelt Counties, a wildcat oil well shall be defined as a wildcat in accordance with Section A above but which is not a wildcat gas well as defined above.

Such wildcat oil well shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected to a gas-producing horizon and shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat oil well shall be defined as a wildcat in accordance with Section A above which is projected to an oil-producing horizon as recognized by the Commission and shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any well classified as a wildcat in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Christmas tree

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half-section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

PROPOSED AMENDMENT RULE 301

RULE 301. GAS-OIL RATIO TEST

Amend the first paragraph of Section (a) to read as follows: 30 or 60

Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

PROPOSED AMENDMENT RULE 401

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

Add the following paragraph to the existing rule:

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a well head. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement I to the New Mexico Oil Conservation Commission "Manual for Back Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

SE NEW MEXICO GAS POOLS WITH MORE THAN 160-ACRE SPACING

ANTELOPE RIDGE DEVONIAN	640	*
ATOKA PENN	320	*
BAGLEY LOWER PENN	320	*
" UPPER "	320	*
BLUITT SAN ANDRES	320	
BLUITT WOLFCAMP	320	
BUFFALO VALLEY PENN	320	*
CUSTER ELLENBURGER	320	*
EMPIRE PENN	320	*
EUMONT (Y-7R-Q)	640	
FOWLER PADDOCK	320	
" TUBB	320	
HOPE STRAWN, SOUTH	640	*
INDIAN BASIN MORROW	640	*
INDIAN BASIN UPPER PENN	640	*
INDIAN HILLS UPPER PENN	640	*
JALMAT (TANSILL-Y-7R)	640	
JOSTIS (GLORIETA)	320	
LUSK MORROW	640	*
TEAS PENN	320	*
TODD SAN ANDRES	320	
TJ-PENN	320	*
WHITE CITY PENN	640	*
WEST JAL STRAWN	640	*

* = PENNSYLVANIAN OR OLDER

OF 24 GAS POOLS WHICH HAVE SPACING OF MORE THAN 160 ACRES, 16 OR. 66.7 PER CENT ARE PENNSYLVANIAN OR OLDER

160-ACRE GAS POOLS, SE NEW MEXICO

ANDERSON PENN
ARKANSAS JCT QUEEN
AUSTIN MISS
BANDANA PT PENN
BELL LAKE DEV
BELL LAKE PENN
N. BELL LAKE DEV
BLINEBRY
BIG EDDY WOLFCAMP
BLACK RIVER PENN
S. BOWERS - SEVEN RIVERS
BUFFALO PENN
E BUFFALO PENN
N BURTON PENN
BYERS QUEEN
CASS RANCH MORROW
CEDAR LAKE MORROW
CEMETARY MORROW
CHISUM YATES
CRAWFORD PENN
CROSBY DEVONIAN
DOUBLE X DELAWARE
DUFFIELD PENN
FOUR LAKES DEVONIAN
FREN PENN
GETTY MORROW
GRAYBURG ATOKA
HARKEY PENN
HENSHAW DEV
HENSHAW QUEEN
E. HIGHTOWER DEV
HOUSE TUBB
LAGUNA SEVEN RIVERS
LITTLE LUCKY LAKE ELLENBURGER
LOCO HILLS MORROW
LOS MEDANOS ATOKA
LYNCH PENN
N. MESCALERO PENN
MONUMENT MCKEE-ELLENBURGER
MOORE WOLFCAMP
NEWMILL PENN
E. PEARL SEVEN RIVERS
QUAIL RIDGE MORROW
N. QUAIL RIDGE MORROW
RED LAKE PENN
RED LAKE QUEEN
RIVERSIDE MORROW
S. SALT LAKE ATOKA
S. SALT LAKE MORROW
S. SALT LAKE PENN
SAWYER SAN ANDRES
SEVEN RIVERS HILLS MORROW
SHOE BAR PENN
SHUGART PENN
SHUGART SILURO-DEVONIAN
N. SKAGGS DRINKARD
SOMBRERO PENN
TEAGUE ABO
TEXLINE PENROSE
W. TONTO PENN
TUBB GAS
VACUUM QUEEN
VANDAGRIFF KEYES QUEEN
WARREN BLINEBRY
WARREN TUBB
WEIR TUBB

SF
Unit

be taken ~~within~~ no sooner than 20 days nor later ~~than~~ than 30 days following the completion or recompletion of a well and, to be reported ~~to~~ to the Commission within 10 days following completion of the test.

Case ———

In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the amendment of certain rules.

In the above-styled cause, the Commission proposes to consider the amendment of Rule 104 to define a wildcat oil well and a wildcat gas well, and to permit the dedication of 160 acres to a wildcat gas well drilled in Lea Chaves Eddy and Roosevelt Counties unless said well is projected to the Pennsylvanian formation or deeper, in which case 320 acres could be dedicated. ~~It is also proposed to define the completion date of a gas well. Rule 107 requires gas tests to be conducted on gas wells~~ It is also proposed to require certain tests to be conducted on wildcat gas wells anywhere in the State following their completion and to provide that the acreage dedicated to the well be reduced to 40 acres if such tests do not establish that the well is indeed a gas well. It is also proposed to consider amending Rule 401 to provide that ~~gas wells~~ unconnected gas wells be ~~tested~~ tested to determine their potential. It is further proposed ~~to amend Rule 307~~ to consider amending Rule 301 to require gas oil ratio tests

PROPOSED AMENDMENT RULE 104, SECTIONS A, B, C, AND D

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCATS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is to be drilled less than one mile from the outer boundary of a defined oil or gas pool which has produced oil or gas from the formation to which the proposed well is projected shall be classified as a development well and shall be spaced, drilled, operated and produced in accordance with the regulations in effect in the nearest such pool, provided the well is completed in the formation to which it was projected. Provided further, that any well completed in a formation other than the one to which it was originally projected shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from the same formation in which the well is completed.

If there is no designated pool for the aforesaid formation within one mile, the well shall be classified as a wildcat.

B. ACREAGE REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy and Roosevelt Counties

(a) Wildcat Gas Wells

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
OCC Exhibit No. 1
Case No. 3044

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected as a gas well in a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil.

Such wildcat gas well shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys; provided, however, if such wildcat gas well is projected to a formation of Pennsylvanian age or older, it shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys.

Any such wildcat gas well shall be located at least 660 feet from the outer boundary of the 160-acre or 320-acre tract and shall be located not closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy and Roosevelt Counties, a wildcat oil well shall be defined as a wildcat in accordance with Section A above but which is not a wildcat gas well as defined above.

Such wildcat oil well shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected to a gas-producing horizon and shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat oil well shall be defined as a wildcat in accordance with Section A above which is projected to an oil-producing horizon as recognized by the Commission and shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any well classified as a wildcat in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half-section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

PROPOSED AMENDMENT RULE 301

RULE 301. GAS-OIL RATIO TEST

Amend the first paragraph of Section (a) to read as follows:

Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

PROPOSED AMENDMENT RULE 401

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

Add the following paragraph to the existing rule:

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a well head. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement I to the New Mexico Oil Conservation Commission "Manual for Back Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
OCC Exhibit No. 4
Case No. 3044

4. Reports

Upon completion of the test, all calculations shall be shown on Form BPT 5 and, if applicable, Form BPT 2, BPT 3, and BPT 4. _____ copies of these forms and the back pressure curve described below shall be submitted to the (State Regulatory Body).

5. Plotting

a. The points for the back-pressure curve shall be accurately and neatly plotted on equal scale log-log paper (3-inch cycles are recommended) and a straight line drawn through the best average of three or more points. When no reasonable relationship can be established between three or more points, the well shall be retested.

b. The cotangent of the angle this line makes with the volume coordinate is the exponent "n" which is used in the back-pressure equation (III - 1 or III - 2). The exponent "n" shall always be calculated as shown in Basic Calculation 5.

c. If the exponent "n" is greater than 1.000 or less than 0.500, the well shall be retested.

d. If, after retesting the well, no reasonable alignment is established between three or more points, then a straight line shall be drawn through the best average of at least three points of the retest.

(1) If the exponent "n" is greater than 1.000 a straight line with an exponent "n" of 1.000 shall be drawn through the point corresponding to the highest flow rate utilized in establishing the line.

(2) If the exponent "n" is less than 0.500, a straight line with an exponent "n" of 0.500 shall be drawn through the point corresponding to the lowest flow rate utilized in establishing the line.

B. NON-STABILIZED MULTIPOINT TESTS

When well stabilization is impractical to obtain or when gas must be flared during the test, the exponent "n" of the back-pressure curve shall be established by either the Constant Time Multipoint Test or Isochronal Multipoint Test. The exponent "n" so determined shall then be applied to a stabilized one-point test to determine the absolute open flow. (See STABILIZED ONE-POINT BACK-PRESSURE TEST PROCEDURE, Pg. III - 12.) The flow during this one-point test shall be for a period adequate to reach stabilized conditions unless determination is made in conjunction with the (State Regulatory Body) that it would be impractical to continue flow until complete stabilization is reached.

1. Constant Time Multipoint Test

a. Shut-in Pressure

(1) Wells with a pipeline connection shall be produced for a sufficient length of time at a flow rate large enough to clear the well bore of accumulated liquids prior to the shut-in period. If the well bore cannot be cleared of

accumulated liquids while producing into a pipeline, the well shall be blown to the atmosphere to remove these liquids.

(2) Wells without pipeline connections shall be blown to the atmosphere to remove accumulated liquids.

(3) The well shall be shut in until the rate of pressure buildup is less than 1/10 of 1 per cent of the previous recorded pressure, psig, in 30 minutes. This pressure shall be recorded.

b. Flow Tests

(1) After recording the shut-in pressure, a series of at least four flow rates of the same duration and the pressures corresponding to each flow rate shall be taken. Any shut-in time between flow rates shall be held to a minimum. These rates shall be run in the increasing flow-rate sequence. In the case of high liquid ratio wells or unusual temperature conditions, a decreasing flow-rate sequence may be used if the increasing sequence method did not result in the alignment of points. If the decreasing sequence method is used, a statement giving the reasons why the use of such method was necessary, together with a copy of the data taken by the increasing sequence method, shall be furnished the (State Regulatory Body). If experience has shown that the use of the decreasing sequence method is necessary for an accurate test, a test by the increasing sequence method will not be required.

(2) The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

(3) One criterion as to the acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should not be more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate not more than 75 per cent of the well's shut-in pressure, psig. If data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished the (State Regulatory Body).

(4) All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition and compliance with acceptable standards. The differential pen shall be zeroed before beginning the test.

(5) The field barometric pressure shall be determined.

(6) The specific gravity of the separator gas and of the produced liquid shall be determined.

(7) At the end of each flow rate the following information shall be recorded:

(a) Flowing wellhead pressure.

(b) Static column wellhead pressure if it can be obtained.

(c) Rate of liquid production.

(d) Flowing wellhead temperature.

(e) All data pertinent to the gas metering device.

(8) The stabilized one-point test data may be obtained by continuation of the last flow rate in the manner prescribed for Flow Test in the STABILIZED ONE-POINT BACK-PRESSURE TEST PROCEDURE. (See Pg. III - 11.)

c. Calculations

(1) General

A wellhead absolute open flow as determined from the wellhead equation, (III - 2), $Q = C (P_c^2 - P_w^2)^n$, is normally found to be equivalent to the bottom-hole absolute open flow as determined from the bottom-hole equation, (III - 1), $Q = C (P_f^2 - P_s^2)^n$, where the wellhead shut-in pressure of all wells in a given reservoir is below 2000 psig. Under this condition the wellhead absolute open flow is acceptable instead of the bottom-hole absolute open flow.

(2) Bottom-hole Calculations

(a) Bottom-hole pressures shall be calculated to a datum at the mid-point of the producing section open to flow. The point of entry into the tubing may be used as the datum if it is not more than 100 feet above or below the mid-point of the producing section open to flow.

(b) Under all shut-in conditions and under flowing conditions, when the static column wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Examples 1 and 2.

(c) When only the flowing wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Example 3.

(d) When the bottom-hole pressures are recorded by use of a properly calibrated bottom-hole pressure bomb and corrected to the proper datum, these pressures may be used in the bottom-hole formula.

(e) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, the calculation of the bottom-hole pressure shall be made as shown in Test Example 8.

(3) Wellhead Calculations

(a) The static column wellhead pressure must be obtained if possible.

(b) When only the flowing wellhead pressures can be obtained, the static

X

2. Isochronal Multipoint Test

a. Shut-in Pressures

(1) Wells with a pipeline connection shall be produced for a sufficient length of time at a flow rate large enough to clear the well bore of accumulated liquids prior to the shut-in period. If the well bore cannot be cleared of accumulated liquids while producing into a pipeline, the well shall be blown to the atmosphere to remove these liquids.

(2) Wells without pipeline connections shall be blown to the atmosphere to remove accumulated liquids.

(3) Prior to each flow test as described below, the well shall be shut in until the rate of pressure buildup is less than 1/10 of 1 per cent of the previously recorded pressure, psig, in 30 minutes. This pressure shall be recorded and used with the data from the subsequent flow test.

b. Flow Tests

(1) After recording the initial shut-in pressure, a series of at least four flow rates of the same duration and the pressures corresponding to each flow rate shall be taken. Each flow rate shall be preceded by a shut-in pressure as prescribed above in 2. a. (3).

(2) The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

(3) One criterion as to the acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should not be more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate not more than 75 per cent of the well's shut-in pressure, psig. If data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished to the (State Regulatory Body).

(4) All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke, or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition, and compliance with acceptable standards. The differential pen shall be zeroed before beginning the test.

(5) The field barometric pressure shall be determined.

(6) The specific gravity of the separator gas and of the produced liquid shall be determined.

(7) At the end of each flow rate the following information shall be recorded:

(a) Flowing wellhead pressure.

(b) Static column wellhead pressure if it can be obtained.

(c) Rate of liquid production.

(d) Flowing wellhead temperature.

(e) All data pertinent to the gas metering device.

(8) The stabilized one-point test data may be obtained by continuation of the last flow rate in the manner prescribed for Flow Tests in the STABILIZED ONE-POINT BACK-PRESSURE TEST PROCEDURE. (See Pg. III - 12.)

c. Calculations

(1) General

A wellhead absolute open flow as determined from the wellhead equation, (III - 2), $Q = C (P_c^2 - P_w^2)^n$, is normally found to be equivalent to the bottom-hole absolute open flow as determined from the bottom-hole equation, (III - 1), $Q = C (P_c^2 - P_s^2)^n$, where the wellhead shut-in pressure of all wells in a given reservoir is below 2000, psig. Under this condition the wellhead absolute open flow is acceptable in lieu of the bottom-hole absolute open flow.

(2) Shut-in Pressure

The shut-in pressure preceding each flow rate shall be used in conjunction with the static column wellhead pressure corresponding to that flow rate.

(3) Bottom-hole Calculations

(a) Bottom-hole pressures shall be calculated to a datum at the mid-point of the producing section open to flow. The point of entry into the tubing may be used as the datum if it is not more than 100 feet above or below the mid-point of the producing section open to flow.

(b) Under all shut-in conditions and under flowing conditions, when the static column wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Examples 1 and 2.

(c) When only the flowing wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Test Example 3.

(d) When the bottom-hole pressures are recorded by use of a properly calibrated bottom-hole pressure bomb and corrected to the proper datum, these pressures may be used in the bottom-hole formula.

(e) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, the calculation of the bottom-hole pressure shall be made as shown in Test Example 4.

(4) Wellhead Calculations

(a) The static column wellhead pressure must be obtained if possible.

(b) When only the flowing wellhead pressures can be obtained, the static column wellhead pressures shall be calculated as shown in Test Example 11.

(c) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, appropriate correction of the surface pressure shall be made. This correction shall be made in the manner shown in Test Example 8 or, at option of the operator, by using a bottom-hole pressure bomb and correcting to wellhead conditions as shown in Test Example 9 or 10.

d. Reports

Upon completion of the test, all calculations shall be shown on Form RPT 5 and, if applicable, Form RPT 2, 3, and 4. _____ copies of these forms and the back-pressure curve described below shall be submitted to the (State Regulatory Body).

e. Plotting

(1) The points for the back-pressure curve shall be accurately and neatly plotted on equal scale log-log paper (3-inch cycles are recommended) and a straight line drawn through the best average of three or more points. When no reasonable relationship can be established between three or more points, the well shall be retested.

(2) The cotangent of the angle this line makes with the volume co-ordinate is the exponent "n" which is used in the back-pressure equation (III - 1 or III - 2). The exponent "n" shall always be calculated as shown in Basic Calculation 5.

(3) If the exponent "n" is greater than 1.000 or less than 0.500, the well shall be retested.

(4) If, after retesting the well, no reasonable alignment is established between three or more points, then a straight line shall be drawn through the best average of at least three points of the retest.

(a) If the exponent "n" is greater than 1.000, a straight line with an exponent "n" of 1.000 shall be drawn through the point corresponding to the highest rate of flow utilized in establishing the line.

(b) If the exponent "n" is less than 0.500, a straight line with an exponent "n" of 0.500 shall be drawn through the point corresponding to the lowest rate of flow utilized in establishing the line.

(5) The isochronal data points are used only to determine the value of the exponent "n". The back-pressure curve shall be drawn through the stabilized data point and parallel to the line established by the isochronal data points. The absolute open flow may be determined from this back-pressure curve or calculated as shown in Test Example 4.

of the flowing gas shall be installed immediately upstream from the positive choke.

4. The absolute open flow shall be calculated using the conventional back pressure formula as shown in the New Mexico Oil Conservation Commission "Back Pressure Test Manual."

5. The observed data and flow calculations shall be reported in duplicate on Form C-122, "Multi-Point Back Pressure Test for Gas Wells."

6. Non-critical flow shall be considered to exist when the choke pressure is 13 psig or less. When this condition exists the flow rate shall be measured with a pitot tube and nipple as specified in the Commission's Manual of "Tables and Procedure for Pitot Tests." The pitot test nipple shall be installed immediately downstream from the 3/4-inch positive choke.

7. Any well completed with 2-inch nominal size tubing (1.995-inch ID) or larger shall be tested through the tubing.

B. Other tests for informational purposes may be conducted prior to obtaining a pipeline connection for a newly completed well upon receiving specific approval therefor from the Commission's Aztec office. Approval of these tests shall be based primarily upon the volume of gas to be vented.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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 A L

A. L. PORTER, Jr., Member & Secretary

esr/

PROPOSED AMENDMENT RULE 104, SECTIONS A, B, C, AND D

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCATS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is to be drilled less than one mile from the outer boundary of a defined oil or gas pool which has produced oil or gas from the formation to which the proposed well is projected shall be classified as a development well and shall be spaced, drilled, operated and produced in accordance with the regulations in effect in the nearest such pool, provided the well is completed in the formation to which it was projected. Provided further, that any well completed in a formation other than the one to which it was originally projected shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from the same formation in which the well is completed.

If there is no designated pool for the aforesaid formation within one mile, the well shall be classified as a wildcat.

B. ACREAGE REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected as a gas well in a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil.

Such wildcat gas well shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys; provided, however, if such wildcat gas well is projected to a formation of Pennsylvanian age or older, it shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys.

Any such wildcat gas well shall be located at least 660 feet from the outer boundary of the 160-acre or 320-acre tract and shall be located not closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy and Roosevelt Counties, a wildcat oil well shall be defined as a wildcat in accordance with Section A above but which is not a wildcat gas well as defined above.

Such wildcat oil well shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected to a gas-producing horizon and shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat oil well shall be defined as a wildcat in accordance with Section A above which is projected to an oil-producing horizon as recognized by the Commission and shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any well classified as a wildcat in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half-section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

PROPOSED AMENDMENT RULE 301

RULE 301. GAS-OIL RATIO TEST

Amend the first paragraph of Section (a) to read as follows:

Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

PROPOSED AMENDMENT RULE 401

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

Add the following paragraph to the existing rule:

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a well head. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement I to the New Mexico Oil Conservation Commission "Manual for Back Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

Docket No. 14-64

DOCKET: REGULAR HEARING - WEDNESDAY - MAY 13, 1964

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

ALLOWABLE: (1) Consideration of the oil allowable for June, 1964.

(2) Consideration of the allowable production of gas for June, 1964, from ten prorated pools in Lea and Eddy Counties, New Mexico, and also presentation of purchasers' nominations for said pools for the six-month period beginning July 1, 1964; consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico for June, 1964.

CASE 3043: (This case will be continued)
In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the institution of gas prorationing in the Blanco-Pictured Cliffs Pool, San Juan County, New Mexico, and the Gavilan-Pictured Cliffs Pool, Rio Arriba County, New Mexico, and the extension of said Blanco-Pictured Cliffs Pool to include the E/2 of Section 15, Township 29 North, Range 9 West, the SW/4 of Section 31, Township 30 North, Range 8 West, and all of Sections 9, 15, 16, and 22, the NE/4 of Section 27, and the N/2 and SE/4 of Section 21, all in Township 30 North, Range 9 West.

CASE 3044: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the amendment of certain rules. In the above-styled cause, the Commission proposes to consider the amendment of Rule 104 to define a wildcat oil well and a wildcat gas well, and to permit the dedication of 160 acres to a wildcat gas well drilled in Lea, Chaves, Eddy and Roosevelt Counties unless said well is projected to the Pennsylvanian formation or deeper, in which case 320 acres could be dedicated. It is also proposed to define the completion date of a gas well and to require certain tests to be conducted on wildcat gas wells anywhere in the State following their completion and to provide that the acreage dedicated to the well be reduced to 40 acres if such tests do not establish that the well is indeed a gas well. It is also proposed to consider amending Rule 401 to provide that unconnected gas wells be tested to determine their potential. It is further proposed to consider amending Rule 301 to require gas-oil ratio tests to be taken no sooner than 20 days nor later than 30 days following the completion or recompletion of a well and to be reported to the Commission within 10 days following completion of the test.

See attached sheets for proposed rule changes.

CASE 3045: Southeastern New Mexico nomenclature case calling for an order for the creation and extension of certain pools in Lea County, New Mexico:

a) CREATE a new oil pool for Abo production, designated as the South Double A-Abo Pool, and described as:

TOWNSHIP 17 SOUTH, RANGE 36 EAST, NMPM
SECTION 30: NE/4

b) EXTEND the Allison-Abo Pool to include therein:

TOWNSHIP 9 SOUTH, RANGE 36 EAST, NMPM
SECTION 2: SW/4

c) EXTEND the North Bagley-Upper Pennsylvanian Pool to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
SECTION 10: S/2
SECTION 15: NE/4
SECTION 22: N/2 SE/4

d) EXTEND the Baish-Wolfcamp Pool to include therein:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM
SECTION 21: NE/4

e) EXTEND the South Lane-Pennsylvanian Pool to include therein:

TOWNSHIP 10 SOUTH, RANGE 33 EAST, NMPM
SECTION 34: SE/4

f) EXTEND the Lea-Bone Springs Pool to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
SECTION 11: SW/4

g) EXTEND the Sand Springs-Devonian Pool to include therein:

TOWNSHIP 11 SOUTH, RANGE 34 EAST, NMPM
SECTION 11: W/2 NE/4

h) EXTEND the North Vacuum-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
SECTION 31: W/2 W/2

i) EXTEND the Vacuum-Glorieta Pool to include therein:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
SECTION 26: NW/4
SECTION 27: All
SECTION 28: All
SECTION 29: All
SECTION 30: S/2 and NE/4
SECTION 31: S/2
SECTION 32: All
SECTION 33: All
SECTION 34: N/2 NW/4

j) EXTEND the Vacuum-Wolfcamp Pool to include therein:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
SECTION 31: NW/4

PROPOSED AMENDMENT RULE 104, SECTIONS A, B, C, AND D

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCATS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from ~~another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from~~ the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is to be drilled less than one mile from the outer boundary of a defined oil or gas pool which has produced oil or gas from the formation to which the proposed well is projected shall be classified as a development well and shall be spaced, drilled, operated and produced in accordance with the regulations in effect in the nearest such pool, provided the well is completed in the formation to which it was projected. ~~Provided further, that~~ Any well completed in a formation other than the one to which it was originally projected shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from the same formation in which the well is completed.

If there is no designated pool for the aforesaid formation within one mile, the well shall be classified as a wildcat.

B. ACREAGE AND LOCATION REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a ~~wildcat~~ well ~~gas well shall be defined as a wildcat in accordance with Section A above~~ which is projected as a wildcat gas well in a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil,

~~Such wildcat gas well~~ shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys; provided, however, if such wildcat gas well is projected to a formation of Pennsylvanian age or older, it shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys.

A ~~Any such~~ wildcat gas well shall be located at least 660 feet from the outer boundary of the 160-acre or 320-acre tract and shall be located not closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy and Roosevelt Counties, a wildcat ~~oil well shall be defined as a wildcat in accordance with Section A above but which is not a wildcat gas well as defined above~~. projected to an oil-producing horizon as recognized by the Commission ~~Each wildcat oil well~~ shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat ~~gas well shall be defined as a wildcat in accordance with Section A above~~ which is projected to a gas-producing horizon ~~and~~ shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and ~~which is located accordingly but~~ does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat ~~oil well shall be defined as a wildcat in accordance with Section A above which is~~ projected to an oil-producing horizon as recognized by the Commission ~~and~~ shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any well classified as a wildcat in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE AND LOCATION REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

~~It shall be the responsibility of~~ The operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated ~~to~~ shall determine the gas-liquid ratio and the liquid gravity for the well ~~and~~ conduct a potential test within 30 days following completion of the well and ~~to~~ file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it ~~for the pool or formation in which it is completed~~ may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval ~~to~~ of non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

OPTIONAL FORM NO. 10
5010-104

UNITED STATES GOVERNMENT

Memorandum

TO : A. L. Porter, Santa Fe, New Mexico

FROM : James A. Knauf, District Engineer, Artesia, New Mexico

DATE: May 8, 1964

SUBJECT: Proposed Rule 104

The wording of the proposed amendment is a great improvement over the old wording however I would like to throw in the following comments (to be discarded if you don't think they are appropriate):

1. As it is still almost impossible to determine whether several of our "old" Permo-Penn pools are producing from the Wolfcamp or Pennsylvanian, it might be an administrative convenience to use some formation other than the Pennsylvanian as the change-over horizon between 160-acre and 320-acre spacing for wildcat gas well in southeast New Mexico.

2. Use of the word "formation" appears acceptable in the second paragraph of Rule 104-A when it comes to drilling the one-mile development well but may not fit all situations in the completion proviso (underlined in blue) especially if the well is completed in a different producing horizon within the same formation with a different petroleum product. Due to the massive thickness of several geologic formations in southeastern New Mexico, it is not impossible to have "oil" produced from one horizon and "dry gas" produced from another horizon of the same formation.

3. Unless the third paragraph is just a continuation of the second paragraph, this wording appears to conflict with the red underlined part of the first paragraph.

PROPOSED AMENDMENT RULE 104, SECTIONS A, B, C, AND D

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCATS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from another well which has produced oil or gas from the formation to which the proposed well is projected or one mile or more from the outer boundary of any defined pool which has produced oil or gas from the formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is to be drilled less than one mile from the outer boundary of a defined oil or gas pool which has produced oil or gas from the formation to which the proposed well is projected shall be classified as a development well and shall be spaced, drilled, operated and produced in accordance with the regulations in effect in the nearest such pool, provided the well is completed in the ~~formation~~ producing horizon to which it was projected. Provided further, that any well completed in a ~~formation~~ producing horizon other than the one to which it was originally projected shall be operated and produced in accordance with the rules and regulations in effect in the nearest pool within one mile which is producing from the same ~~formation~~ producing horizon in which the well is completed.

If there is no designated pool for the aforesaid ~~formation~~ producing horizon within one mile, the well shall be classified as a wildcat.

B. ACREAGE REQUIREMENTS FOR WILDCATS

I. Lea, Chaves, Eddy and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected as a gas well in a formation and an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil.

Such wildcat gas well shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys; provided, however, if such wildcat gas well is projected to a formation of Pennsylvanian age or older, it shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys.

Any such wildcat gas well shall be located at least 660 feet from the outer boundary of the 160-acre or 320-acre tract and shall be located not closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy and Roosevelt Counties, a wildcat oil well shall be defined as a wildcat in accordance with Section A above but which is not a wildcat gas well as defined above.

Such wildcat oil well shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat gas well shall be defined as a wildcat in accordance with Section A above which is projected to a gas-producing horizon and shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat oil well shall be defined as a wildcat in accordance with Section A above which is projected to an oil-producing horizon as recognized by the Commission and shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary line of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any well classified as a wildcat in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Date of completion for a gas well shall be the date a well head is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half-section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

PROPOSED AMENDMENT RULE 301

RULE 301. GAS-OIL RATIO TEST

Amend the first paragraph of Section (a) to read as follows:

Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

PROPOSED AMENDMENT RULE 401

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

Add the following paragraph to the existing rule:

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a well head. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement I to the New Mexico Oil Conservation Commission "Manual for Back Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

SUPPLEMENT NO. 1
NMOCC BACK PRESSURE MANUAL FOR
TESTING GAS WELLS

When a gas well is not connected to a pipeline within 30 days after the wellhead is installed, the operator shall conduct a completion test in accordance with the following procedure:

1. Constant Time Multipoint Test

   a. Shut-in Pressure

      (1) The well shall be blown to the atmosphere for a sufficient length of time to remove accumulated liquids.

      (2) The well shall be shut-in until the rate of buildup does not change in a 30-minute period. This pressure shall be recorded.

   b. Flow Tests

      (1) After recording the shut-in pressure, a series of at least four flow rates of one hour duration and the pressures corresponding to each flow rate shall be taken. Any shut-in time between flow rates shall be held to a minimum. These rates shall be run in the increasing flow-rate sequence. In the case of high liquid ratio wells or unusual temperature conditions, a decreasing flow-rate sequence may be used if the increasing sequence method did not result in the alignment of points. If the decreasing sequence method is used, a statement giving the reasons why the use of such method was necessary, together with a copy of the data taken by the increasing sequence method, shall be furnished the ~~State~~ NMOCC ~~Body~~. If experience has shown that the use of the decreasing sequence method is necessary for an accurate test, a test by increasing sequence method will not be required.

It shall be noted that the flow tests for this test are for only one hour. Longer flow tests shall not be made without special permission from the Commission.

(2) The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

(3) One criterion as to the acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should not be more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate not more than 75 per cent of the well's shut-in pressure, psig. If data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished the ~~NMOCC~~ report.

(4) All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition and compliance with acceptable standards. The differential pen shall be zeroed before beginning the test.

(5) The field barometric pressure shall be determined.

(6) The specific gravity of the separator gas and of the produced liquid shall be determined.

(7) At the end of each flow rate the following information shall be recorded:

(a) Flowing wellhead pressure.

(b) Static column wellhead pressure if it can be obtained.

(c) Rate of liquid production.

(d) Flowing wellhead temperature.

(e) All data pertinent to the gas metering device.

c. Calculations

(1) General

A wellhead absolute open flow as determined from the wellhead equation

(c) When liquid accumulation in the well bore during the shut-in period appreciably affects the wellhead shut-in pressure, appropriate correction of the surface pressure shall be made. This correction shall be made in the manner shown in calculation example No. 7, page 34, at the option of the operator, by using a bottom-hole pressure bomb and correcting to wellhead conditions as shown in calculation example No. 6, page 28, Case II.

d. Reports

Upon completion of the test, all calculations shall be shown on Form C-122. Three copies of these forms and the back-pressure curve described below shall be submitted to the NMOCC.

e. Plotting

(1) The points for the back-pressure curve shall be accurately and neatly plotted on equal scale log-log paper (3-inch cycles are recommended) and a straight line drawn through the best average of three or more points. When no reasonable relationship can be established between three or more points, the well shall be retested.

(2) The cotangent of the angle this line makes with the volume coordinate is the exponent "n" which is used in the back-pressure equation. The exponent "n" shall always be calculated as shown in calculation example No. 1, page 9.

(3) If the exponent "n" is greater than 1,000 or less than 0.500, the well shall be retested

(4) If, after retesting the well, no reasonable alignment is established between three or more points, then a straight line shall be drawn through the best average of at least three points of the retest.

(a) If the exponent "n" is greater than 1.000, a straight line with an exponent "n" of 1.000 shall be drawn through the point corresponding to the highest rate of flow utilized in establishing the line.

(b) If the exponent "n" is less than 0.500, a straight line with an exponent "n" of 0.500 shall be drawn through the point corresponding to the lowest rate of flow utilized in establishing the line.

(5) The constant time data points are ordinarily used only to determine the value of the exponent "n". Usually the back-pressure curve is drawn through the stabilized data point and parallel to the line established by the constant time data points. This establishes a stabilized absolute open flow. The back pressure curve for this test shall be drawn through the one-hour constant time points. The "one-hour absolute open flow" may be determined from this back-pressure curve or calculated as shown in calculation example No. 1, page 7, ~~B.T.~~ Manual.

Spoke NMOCC Back Pressure

FORM 446 1-63

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING P. O. BOX 1410
FORT WORTH 1, TEXAS

WILLIAM V. GRISHAM
DIVISION ENGINEER

May 8, 1964

File: GHF-183-986.510

Subject: May 13, 1964 Hearing - NMOCC
Proposed Amendments to Statewide
Rules 104, 301 and 401

Mr. A. L. Porter, Jr.
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Pan American Petroleum Corporation supports the portion of the proposed amendment to Statewide Rule 104 providing for larger proration units for gas wells in Lea, Chaves, Eddy, and Roosevelt Counties as a step in the right direction. We recommend further to the Commission that 640-acre proration units be established for all gas wells in the state of New Mexico unless smaller units are provided for in special field rules.

We object to the provisions in the proposed amendments for Rules 104, 301 and 401 that require tests on gas wells not connected to a pipeline. Specifically, we object to proposed Amendment D-I, Rule 104, amendment of Rule 301, and addition to Rule 401. Our objection to these amendments is that tests on unconnected gas wells are unnecessary as far as our experience has shown and require equipment not normally installed prior to connection to a pipeline. The proposed amendment to Rule 104 numbered D-I does not define a gas well or what constitutes a wellhead or the conditions under which the special tests are to be conducted. Also, if the tests were conducted immediately after completion, another test would have to be made to satisfy the requirements of Rule 301 that a gas-oil ratio test be taken in the interval between 20 and 30 days after completion.

We believe that the intent of these amendments was to permit an early determination of whether a wildcat well drilled for gas is completed in a gas reservoir or an oil reservoir. Under normal circumstances, we believe that the classification will be evident and that if an oil reservoir is encountered the operator will immediately file a potential test and completion forms for the discovery oil well to permit sales as soon as possible. However, for a gas well completion, considerable time is necessary to define the reservoir and secure a gas market. We believe that gas well tests during this period of time would serve no useful purpose and be an unnecessary expenditure for the operator.

Yours very truly,

W. V. Grisham

ATLANTIC

THE ATLANTIC REFINING COMPANY

INCORPORATED - 1870

PETROLEUM PRODUCTS

1964 MAY 12 AM 10 19

DOMESTIC PRODUCING DEPARTMENT
NEW MEXICO DISTRICT
BOONE MACAULAY, DISTRICT MANAGER
R. F. CHAMPION, DISTRICT LANDMAN
W. T. EASTES, DISTRICT GEOPHYSICIST
E. R. DOUGLAS, DISTRICT GEOLOGIST
A. D. KLOXIN, DISTRICT DRLG. & PROD. SUP'T.
W. P. TOMLINSON, DISTRICT ENGINEER
E. R. WARE, ADMINISTRATIVE SUPERVISOR

MAILING ADDRESS
P. O. BOX 1978
ROSWELL, NEW MEXICO

May 11, 1964

New Mexico Oil Conservation Commission
Post Office Box 2088
Santa Fe, New Mexico

Attention: Mr. A. L. Porter

Re: Case 3044

Gentlemen:

The Atlantic Refining Company is in support of most of the rules ammendments you will be considering in Case 3044. The one exception we have is for spacing of development gas wells under C-II-(a) of proposed Rule 104. We recommend that location of development gas wells not be permitted in the "corner" locations of the proration units under statewide rules if they are to be assigned 320-acre proration units. Such rule will insure more uniform well distribution in a reservoir and reduce the dedication of unproductive acreage.

Yours very truly,

W. P. Tomlinson

WPT:VRC:ly

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1964 MAY 12 PM 12 57

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA088 DB182
D MDA075 LONG PD=FAX MIDLAND TEX 12 132P CST=
A L PORTER, JR, SECRETARY AND DIRECTOR=
NEW MEXICO OIL CONSERVATION COMM PO BOX 871 SANTA FE NMEX=

DEAR MR PORTER, REFERENCE IS MADE TO CASE 3044 WHICH WILL CONSIDER AMENDMENT OF STATEWIDE RULES 104, 301, AND 401, TO ALLOW 160 ACRE SPACING AND DEDICATION TO WILDCAT GAS WELLS COMPLETED ABOVE THE PENNSYLVANIAN FORMATION AND 320 ACRE SPACING AND DEDICATION TO WILDCAT GAS WELLS COMPLETED IN OR BELOW THE PENNSYLVANIAN INSTEAD OF THE CURRENT 40 ACRE SPACING. HUMBLE OIL & REFINING COMPANY URGES THAT THE COMMISSION ADOPT THE PROPOSED AMENDMENTS FOR WIDER SPACING OF WILDCAT GAS WELLS. FURTHER, THAT THE COMMISSION IS TO BE COMMENDED ON THESE PROPOSED AMENDMENTS WHICH IS ANOTHER EXAMPLE OF YOUR PROGRESSIVE ATTITUDE AND ACTION. YOURS VERY TRULY=
HUMBLE OIL & REFINING COMPANY R R MCCARTY.==

=3044 104 301 401 160 320 &.=

CONTINENTAL OIL COMPANY

LEGAL DEPARTMENT

A. T. SMITH
GENERAL ATTORNEY
C. R. HAMPTON
F. E. RADLOFF
W. M. GRIFFITH
G. H. MAYBERRY
C. R. ROBERTS
J. D. TRESNER
ATTORNEYS

1755 GLENARM PLACE
DENVER 2, COLORADO

May 12, 1964

New Mexico Oil
Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Re: Case 3044

The proposed amendments to the rules under Case 3044 have been reviewed and you are advised that Continental Oil Company has no objection to them.

Very truly yours,

William M. Griffith

William M. Griffith

pk

SUPPLEMENT I

TO

MANUAL FOR

BACK PRESSURE TEST FOR NATURAL GAS WELLS

STATE OF NEW MEXICO

THE TESTING PROCEDURE OUTLINED HEREIN

IS TO BE USED FOR TESTING UNCONNECTED

GAS WELLS AS REQUIRED BY COMMISSION

RULE 104 D I AND RULE 401, AS AMENDED

MAY 25, 1964.

SUPPLEMENT I

NEW MEXICO OIL CONSERVATION COMMISSION PROCEDURE

FOR TESTING UNCONNECTED GAS WELLS

Rules 104 D I and 401 of the Commission Rules and Regulations require that unconnected gas wells be tested to determine their potential within 30 days following the installation of a Christmas tree and the results of such tests reported to the Commission on Form C-122 within 10 days following the completion of the tests.

Unless specific test procedures are applicable to a given well or pool, the following procedures are to be used in so testing any unconnected gas well. It is anticipated that by the use of the Constant Time Multipoint Test with four one-hour flows, the loss of gas will be held to a minimum and good test results still obtained. The pre-test flow to clear the well-bore of accumulated liquids should also, in the interest of conservation, be closely watched and held to the absolute minimum required to achieve clean-out.

More extensive testing of an unconnected gas well than that outlined herein is not permitted except upon written authority from the appropriate District Office of the Commission.

A. L. PORTER, Jr.
Secretary-Director

July 1, 1964

Time out
no sig.

Test Procedure

Constant Time Multipoint Test For Unconnected Wells

A. Shut-in Pressure

1. The well shall be blown to the atmosphere for a sufficient length of time to clear the well-bore of accumulated liquids.

2. The well shall be shut in until the rate of pressure build-up is less than 1/10 of one per cent over a 30-minute period. Pressures, psig, shall be recorded.

B. Flow Tests

1. After recording the shut-in pressure, a series of four 1-hour flow rates and the pressures corresponding to each flow rate shall be taken. Any shut-in time between flow rates shall be held to a minimum. These rates shall be run in an increasing flow-rate sequence. In the case of high liquid ratio wells or unusual temperature conditions, a decreasing flow-rate sequence may be used if the increasing sequence method did not result in the alignment of points. If the decreasing sequence method is used, a statement giving the reasons why the use of such method was necessary, together with a copy of the data taken by the increasing sequence method, shall be furnished the Commission. If previous testing in a given area has shown that the decreasing sequence method is necessary for an accurate test, a test by the increasing sequence method will not be required.

It shall be noted that the flow periods for this test are limited to one hour for each rate of flow. Longer flow periods of unconnected wells shall not be made without special permission from the Commission.

2. The lowest flow rate shall be a rate sufficient to keep the well clear of all liquids.

3. One criterion as to acceptability of the test is a good spread of data points. In order to assure a good spread of points, the wellhead flowing pressure, psig, at the lowest flow rate should be no more than 95 per cent of the well's shut-in pressure, psig, and at the highest flow rate should be no more than 75 per cent of the well's shut-in pressure, psig. If accurate data cannot be obtained in accordance with the foregoing provisions, an explanation shall be furnished the Commission.

4. All flow rate measurements shall be obtained by the use of an orifice meter, critical flow prover, positive choke, or other authorized metering device in good operating condition. When an orifice meter is used as the metering device, the meter shall be calibrated and the diameters of the orifice plate and meter run verified as to size, condition, and compliance with acceptable standards. The differential pen shall be zeroed before starting the test.

5. The barometric pressure shall be recorded as 13.2 psia in Southeast New Mexico and 12.0 psia in Northwest New Mexico.

6. The specific gravity of the separator gas and of the produced liquid shall be determined and recorded.

7. At the end of each flow rate, the following information shall be recorded:

   (a) Flowing wellhead pressure

   (b) Static column wellhead pressure if it can be obtained

   (c) Rate of liquid production

(d) Flowing wellhead temperature

(e) All data pertinent to the gas metering device

C. Calculations

1. General

A wellhead absolute open flow as determined from the wellhead equation, $Q = C\left(P_c^2 - P_w^2\right)^n$, is normally found to be the equivalent to the bottom-hole absolute open flow as determined from the bottom-hole equation, $Q = C\left(P_f^2 - P_s^2\right)^n$, when the wellhead shut-in pressure of all wells in a given reservoir is below 2000 psig. Under this condition, either a wellhead absolute open flow or a bottom-hole absolute open flow is acceptable.

2. Bottom-hole Calculations

(a) Bottom-hole pressures shall be calculated to a datum at the mid-point of the producing section open to flow. The point of entry into the tubing may be used as the datum if it is not more than 100 feet above or below the mid-point of the producing section open to flow.

(b) Under all shut-in conditions and under flowing conditions, when the static column wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Calculation Example No. 6, Page 28 of the Commission Manual for Back Pressure Test for Natural Gas Wells.

~~(c) When only the flowing wellhead pressures can be obtained, the bottom-hole pressures shall be calculated as shown in Calculation Example No. 5, Page 25 of the Manual.~~

(c)(d) When the bottom-hole pressures are recorded by use

of a properly calibrated bottom-hole pressure bomb and corrected to the proper datum, these pressures may be used in the bottom-hole formula.

(d) When liquid accumulation in the well-bore during the shut-in period appreciably affects the wellhead shut-in pressure, the calculation of the bottom-hole pressure shall be made as shown in Calculation Example No. 7, Page 34 of the Manual.

3. Wellhead Calculations

(a) The static column wellhead pressure must be obtained if possible.

(b) When only the flowing wellhead pressures can be obtained, the static column wellhead pressures shall be calculated as shown in Calculation Example No. 5, Page 25 of the Manual.

(c) When liquid accumulation in the well-bore during the shut-in period appreciably affects the wellhead shut-in pressure, appropriate correction of the surface pressure shall be made. This correction shall be made in the manner shown in Calculation Example No. 7, Page 34 of the Manual, or, at the option of the operator, by using a bottom-hole pressure bomb and correcting to wellhead conditions as shown in Case II of Calculation Example No. 6, Page 28 of the Manual.

D. Reports

Upon completion of the test, all calculations shall be shown on Commission Form C-122. Three copies of this form and the back pressure curve described below shall be submitted to the Commission.

E. Plotting

1. The points for the back-pressure curve shall be accurately and neatly plotted on equal-scale log-log paper (3-inch cycles are recommended) and a straight line drawn through the best average of three or more points. When no reasonable relationship can be established among three or more points, the well ~~will~~ shall be retested.

2. The cotangent of the angle this line makes with the volume (horizontal) coordinate is the exponent "n" which is used in the back-pressure equation. The exponent "n" shall always be calculated as shown in Calculation Example No. 1, Page 9 of the Manual.

3. If the exponent "n" calculates out to be greater than 1.000 or less than 0.500, the well shall be retested.

4. If, after retesting the well, no reasonable alignment can be established ~~among~~ through three or more points, then a straight line shall be drawn through the best average of at least three ~~or more~~ points of the retest and exponent "n" calculated as described above.

   (a) If the exponent "n" is greater than 1.000, a straight line with an exponent value of 1.000 shall be drawn through the point corresponding to the highest rate of flow which was used in establishing the line whose value was more than 1.000.

   (b) If the exponent "n" is less than 0.500, a straight line with an exponent value of 0.500 shall be drawn through the point corresponding to the lowest rate of flow which was used in establishing the line whose value was less than 0.500.

5. The constant time data points are ordinarily used only to determine the value of the exponent "n". Usually the back-pressure curve is drawn through the stabilized data point and parallel to the line established by the constant time data points. This establishes a Stabilized Absolute Open Flow. The back-pressure curve for this test shall be drawn through the one-hour constant time points. The One-hour Absolute Open Flow may then be determined from this back-pressure curve or calculated as shown in Calculation Example No. 1, Page 7 of the Back Pressure Test Manual.

SE NEW MEXICO GAS POOLS WITH MORE THAN 160-ACRE SPACING

ANTELOPE RIDGE DEVONIAN	640	*
ATOKA PENN	320	*
BAGLEY LOWER PENN	320	*
" UPPER "	320	*
BLUITT SAN ANDRES	320	
BLUITT WOLFCAMP	320	
BUFFALO VALLEY PENN	320	*
CUSTER ELLENBURGER	320	*
EMPIRE PENN	320	*
EUMONT (Y-7R-Q)	640	
FOWLER PADDOCK	320	
" TUBB	320	
HOPE STRAWN, SOUTH	640	*
INDIAN BASIN MORROW	640	*
INDIAN BASIN UPPER PENN	640	*
INDIAN HILLS UPPER PENN	640	*
JALMAT (TANSILL-Y-7R)	640	
JOSTIS (GLORIETA)	320	
LUSK MORROW	640	*
TEAS PENN	320	*
TODD SAN ANDRES	320	
TV - PENN	320	*
WHITE CITY PENN	640	*
WEST JAL STRAWN	649	*

* = PENNSYLVANIAN OR OLDER

OF 24 GAS POOLS WHICH HAVE SPACING OF MORE THAN 160 ACRES, 16 OR 66.7 PER CENT ARE PENNSYLVANIAN OR OLDER

3

160-ACRE GAS POOLS, SE NEW MEXICO

ANDERSON PENN /
ARKANSAS JCT QUEEN
AUSTIN MISS
BANDANA PT PENN
BELL LAKE DEV
BELL LAKE PENN
N. BELL LAKE DEV
BLINEBRY
BIG EDDY WOLFCAMP
BLACK RIVER PENN
S. BOWERS - SEVEN RIVERS
BUFFALO PENN
E BUFFALO PENN
N BURTON PENN
BYERS QUEEN
CASS RANCH MORROW
CEDAR LAKE MORROW
CEMETARY MORROW
CHISUM YATES
CRAWFORD PENN
CROSBY DEVONIAN
DOUBLE X DELAWARE
DUFFIELD PENN
FOUR LAKES DEVONIAN
FREN PENN
GETTY MORROW
GRAYBURG ATOKA
HARKEY PENN
HENSHAW DEV
HENSHAW QUEEN
E. HIGHTOWER DEV
HOUSE TUBB
LAGUNA SEVEN RIVERS
LAKE ARTHUR PENN
LEA PENN
LITTLE LUCKY LAKE ELLENBURGER
LOCO HILLS MORROW
LOS MEDANOS ATOKA
LYNCH PENN
N. MESCALERO PENN
MONUMENT MCKEE-ELLENBURGER
MOORE WOLFCAMP
NEWMILL PENN
E. PEARL SEVEN RIVERS
QUAIL RIDGE MORROW
N. QUAIL RIDGE MORROW
RED LAKE PENN
RED LAKE QUEEN
RIVERSIDE MORROW
S. SALT LAKE ATOKA
S. SALT LAKE MORROW
S. SALT LAKE PENN
SAWYER SAN ANDRES
SEVEN RIVERS HILLS MORROW
SHOE BAR PENN
SHUGART PENN
SHUGART SILURO-DEVONIAN
N. SKAGGS DRINKARD
SOMBRERO PENN
TEAGUE ABO
TEXLINE PENROSE
W. TONTO PENN
TUBB GAS
VACUUM QUEEN
VANDAGRIFF KEYES QUEEN
WARREN BLINEBRY
WARREN TUBB
WEIR TUBB
WELCH PENN
WILLIAMS QUEEN

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 3
Case No. 2044

DRAFT
JMD/esr
May 22, 1964

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. 3044

Order No. R-2767

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION ON ITS OWN MOTION TO CONSIDER THE AMENDMENT OF CERTAIN RULES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 13, 1964, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of May, 1964, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, a gas well completed in a formation no deeper than the top of the Pennsylvanian formation will efficiently and economically drain and develop a 160-acre tract.

(3) That in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, a gas well completed in the Pennsylvanian formation or a deeper formation will efficiently and economically drain and develop a 320-acre tract.

(4) That Rule 104 of the Commission Rules and Regulations should be amended to permit the dedication of 160 acres to a gas

well in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, projected to or completed in a formation no deeper than the top of the Pennsylvanian formation.

(5) That Rule 104 of the Commission Rules and Regulations should also be amended to permit the dedication of 320 acres to a gas well in Lea, Chaves, Eddy, and Roosevelt Counties, New Mexico, projected to or completed in the Pennsylvanian formation or a deeper formation.

(6) That Rule 104 of the Commission Rules and Regulations should also be amended to establish a testing procedure to determine whether a well in Lea, Chaves, Eddy, and Roosevelt Counties should be properly classified as a gas well ~~or an oil well~~ upon completion.

(7) That amendment of Rule 104 as set out above will prevent the economic loss caused by the drilling of unnecessary wells, will avoid the augmentation of risks arising from the drilling of an excessive number of wells, will prevent reduced recovery which might result from the drilling of too few wells, and will otherwise prevent waste and protect correlative rights.

(8) That Rule 301 of the Commission Rules and Regulations should be amended to require a gas-oil ratio test to be taken within 20 to 30 days following completion or recompletion of an oil well and to be filed with ~~reported to~~ the Commission within 10 days following completion of the test.

(9) That Rule 401 of the Commission Rules and Regulations should be amended to require gas wells which are not connected to a gas gathering facility to be tested within 30 days following the installation of a Christmas tree ~~wellhead~~ and to require the test to be filed with the Commission within 10 days following completion of the test.

(10) That amendment of Rules 301 and 401 as set out above will enable the Oil Conservation Commission to more efficiently and effectively administer the laws of the State of New Mexico concerning the conservation of oil and gas, the prevention of waste, and the protection of correlative rights.

IT IS THEREFORE ORDERED:

(1) That Rule 104 of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

attached

(2) That Rule 301(a) of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

attached

(3) That Rule 401 of the Commission Statewide Rules and Regulations is hereby amended to read in its entirety as follows:

attached

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

RULE 104. WELL SPACING: ACREAGE REQUIREMENTS FOR DRILLING TRACTS

A. CLASSIFICATION OF WELLS: WILDCAT WELLS AND DEVELOPMENT WELLS

Any well which is to be drilled a distance of one mile or more from (1) the outer boundary of any defined pool which has produced oil or gas from the ~~horizon~~ formation to which the well is projected, and (2) any other well which has produced ~~gas~~ oil or gas from the ~~horizon~~ formation to which the proposed well is projected, shall be classified as a wildcat well.

Any well which is not a wildcat well as defined above shall be classified as a development well for the nearest pool which has produced oil or gas from the ~~horizon~~ formation to which the well is projected. Any such development well shall be spaced, drilled, operated, and produced in accordance with the rules and regulations in effect in such nearest pool, provided the well is completed in the ~~horizon~~ formation to which it was projected.

Any well classified as a development well for a given pool but which is completed in a producing horizon not included in the vertical limits of said pool shall be operated and produced in accordance with the rules and regulations in effect

in the nearest pool within one mile which is producing from ~~the~~ that horizon. If there is no ~~pool~~ designated pool for said producing horizon within one mile, the well shall be re-classified as a wildcat well.

B. ACREAGE AND WELL LOCATION REQUIREMENTS FOR WILDCATS ~~WELLS~~

I. Lea, Chaves, Eddy, and Roosevelt Counties

(a) Wildcat Gas Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat well ~~gas well shall be defined as a wildcat in accordance with Section A above~~ which is projected as a gas well to a formation and in an area which, in the opinion of the engineer or supervisor approving the application to drill, may reasonably be presumed to be productive of gas rather than oil,

~~Such wildcat gas well~~ shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter-section, being a legal subdivision of the U. S. Public Land Surveys, [redacted] and shall ~~not~~ be located not closer than 660 feet to any outer boundary ~~line~~ of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

Provided however, that any such wildcat gas well which is projected to a formation of Pennsylvanian age or older shall be located on a drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. Any such "deep" wildcat gas well to which is dedicated more than 160 acres shall be located ~~no closer than~~ 660 feet ~~from~~ to the nearest ~~long side of the~~ side boundary of the dedicated tract ~~and at least~~ nor closer than 1980 feet ~~from~~ to the nearest end boundary ~~and shall not be located~~ nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, "side" boundary is defined as one of the outer boundaries running lengthwise ~~or parallel~~ to the ~~unit~~

tract's greatest overall
~~longest dimension~~ dimension; "end" boundary is defined as one of the outer boundaries perpendicular to a side boundary and closing the tract across its ~~shortest~~ least overall dimension.)

(b) Wildcat Oil Wells

In Lea, Chaves, Eddy, and Roosevelt Counties, a wildcat well ~~oil well shall be defined as a wildcat in accordance with Section A above but~~ which is not a wildcat gas well as defined above.

~~Such wildcat~~ oil well shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary ~~line~~ of such tract.

In the event gas production is encountered in a well which was projected ~~to an oil producing horizon~~ as an oil well and which is located accordingly but does not conform to the above ~~described~~ gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

II. San Juan, Rio Arriba, and Sandoval Counties

(a) Wildcat Gas Wells

In San Juan, Rio Arriba, and Sandoval Counties, a wildcat well ~~gas well shall be defined as a wildcat in accordance with Section A above~~ which is projected to a gas-producing horizon ~~and~~ shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located accordingly but does not conform to the oil well location rule below, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(b) Wildcat Oil Wells

A wildcat well ~~oil well shall be defined as a wildcat in accordance with Section A above~~ which is projected to an oil-producing horizon as recognized by the Commission ~~and~~ shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary ~~line~~ of such tract.

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above ~~designated~~ gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Any ~~well classified as a~~ wildcat well in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

C. ACREAGE AND WELL LOCATION REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each development ~~oil~~ well ~~drilled within a defined oil pool~~ for a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U~~nited S~~ Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall ~~not~~ be ~~located~~ not closer than 330 feet to any boundary ~~line~~ of such tract nor closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy, and Roosevelt Counties

Unless otherwise provided in special pool rules, each development ~~gas~~ well ~~drilled within a defined gas pool~~ for a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U~~nited S~~ Public Land Surveys, and shall ~~not~~ be ~~drilled~~ located not closer than 660 feet to any outer boundary ~~line~~ of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each development ~~gas~~ well ~~drilled within a defined~~ gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. ~~Any such tract having more than 160 acres dedicated to it~~ shall be located ~~not closer than~~ 660 feet ~~from~~ to the nearest side boundary of the dedicated tract ~~and at least~~ nor closer than 1980 feet ~~from~~ to the nearest end boundary ~~and shall not be located closer~~ nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, "side" boundary and "end" boundary are as defined in Section B I (a) of this Rule.)

Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to determine the gas-liquid ratio and the liquid gravity for the well and to conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rules 301 and 401.)

Date of completion for a gas well shall be the date a ~~well head~~ Christmas tree is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

Land Surveys and shall ~~not~~ be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

(b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each development well ~~drilled within~~ for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the United States Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

(c) <u>All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval</u>

Unless otherwise provided in special pool rules, each development well ~~drilled within~~ for a defined gas pool ~~of less than Pennsylvanian age~~ shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the United States Public Land Surveys, and shall ~~not~~ be ~~drilled~~ located not closer than 660 feet to any outer boundary ~~line~~ of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

D. ACREAGE ASSIGNMENT, COMPLETED WELLS

I. <u>Well Tests and Classification</u>

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to, ~~determine the gas-liquid ratio and the liquid gravity for the well and to~~ conduct a potential test within 30 days following completion of the well and to file the same with the Commission within 10 days following completion of the tests. (See Rule ~~301 and~~ 401.)

Date of completion for a gas well shall be the date a ~~well head~~ Christmas tree is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Commission will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

II. <u>Non-Standard Units</u>

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Secretary-Director of the Commission may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above-described gas well location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

III. All counties except Le- Rio Arriba, and Sandov

Any well classified as Chaves, Eddy, Rooseveit, San Juan on a tract consisting of approxim stantially in the form of a squar S. Public Land Surveys, or on a g lot and shall be located not close tract (-, ---, ---, ---, ---, be classified as a gas well, the C cated to the well.

Failure of the operator specified time will also subject th

II. Non-Standard Units

Any completed gas well w of acreage dedicated to it for the may not be produced until a standar dedicated or until a non-standard u lot and shall be located not closer tract.

Memo

From D. S. NUTTER CHIEF ENGINEER

[redacted] any boundary of such

C. ACREAGE REQUIREMENTS FOR DEVELOPMENT WELLS

I. Oil Wells, All Counties

Unless otherwise provided in special pool rules, each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the United States Public Land Surveys, or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

II. Gas Wells

(a) Lea, Chaves, Eddy and Roosevelt Counties

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of less than Pennsylvanian age shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the United States Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in special pool rules, each well drilled within a defined gas pool of Pennsylvanian age or older shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half-section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

Pickup Rule Book

PROPOSED ~~AMENDMENT~~ RULE 301

RULE 301. GAS-OIL RATIO TEST

Amend the first paragraph of Section (a) to read as follows:

Each operator shall take a gas-oil ratio test no sooner than 20 days nor later than 30 days following the completion or recompletion of each oil well, if (1) the well is a wildcat, or (2) the well is located in a pool which is not exempt from the requirements of this rule. (Wells completed within one mile of the outer boundary of a defined oil pool producing from the same formation shall be governed by the provisions of this rule which are applicable to the pool). The results of the test shall be reported to the Commission on Form C-116 within 10 days following completion of the test. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

PROPOSED AMENDMENT RULE 401

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

Add the following paragraph to the existing rule:

All gas wells which are not connected to a gas gathering facility shall be tested within 30 days following the installation of a ~~well head~~. Tests shall be taken in accordance with the "Procedure for Testing Unconnected Gas Wells" contained in Supplement I to the New Mexico Oil Conservation Commission "Manual for Back Pressure Tests for Natural Gas Wells." Tests shall be reported on Form C-122 in compliance with Rule 1121 and shall be filed within 10 days following completion of the test.

(2) In San Juan, Rio Arriba, and Sandoval Counties, a wildcat well which is projected to a known gas producing horizon shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U. S. Public Land Surveys, and shall be located 990 feet from the outer boundaries of the tract, provided however, that a tolerance of plus or minus 200 feet is permissible. Provided further, that no well shall be drilled closer than 130 feet to any quarter-quarter section or subdivision inner boundary. Provided further, that the district supervisor of the Commission shall have authority to grant approval for the spacing of any wildcat well in accordance with paragraph (b), subsection (1) above when such wildcat well is projected to an oil-producing horizon as recognized by the Commission. In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located according to paragraph (b), subsection (1) above but does not conform to the above-described gas location rule, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given. In the event oil production is encountered in a well which was projected to a gas-producing horizon and which is located according to the above-described gas well location rule but does not conform to paragraph (b), subsection (1) above, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of oil can be given.

(c) Each well drilled within a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal sub-division of the United States Public Land Surveys or on a governmental quarter-quarter section or lot and shall not be drilled closer than 330 feet to any boundary line of such tract or closer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

(d) (1) Each well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U. S. Public Land Surveys and shall not be drilled closer than 660 feet to any outer boundary line of the tract nor closer than 330 feet to any 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, except as noted in paragraph (2) below.

(2) In San Juan, Rio Arriba, and Sandoval Counties, a well drilled within a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal sub-division of the U. S. Public Land Surveys and shall be located 990 feet from the outer boundaries of the tract, provided however, that a tolerance of plus or minus 200 feet is permissible. Provided further, that no well shall be drilled closer than 130 feet to any quarter-quarter section or subdivision inner boundary.

(e) Notice of Intention to Drill (C-101) for any well shall designate the exact legal subdivision allotted to the well and no C-101 will be approved by the Commission or any of its agents without proper designation of acreage.

(f) The Secretary of the Commission shall have authority to grant an exception to the well location requirements of ~~(b), (c), and (d)~~ 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, 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, except in San Juan, Rio Arriba, and Sandoval Counties, where the radius shall be 790 feet from the proposed location, or

(b) All owners of oil and gas leases within such radius consent in writing to the proposed location.

(c) In lieu of paragraph 2 (b) of this rule the applicant may furnish proof of the fact that said offset operators were notified by registered mail of his intent to drill an unorthodox location. The Secretary-Director of the Commission may approve the application if, after a period of twenty days following the mailing of said notice, no operator has made objection to the drilling of the unorthodox location.

(G) Whenever an exception is granted, the Commission may take such action as will offset any advantage which the person securing the exception may obtain over other producers by reason of the unorthodox location.

(H) If the drilling tract is within an allocated oil pool or is placed within such allocated pool at any time after completion of the well and the drilling tract consists of less than 39½ acres or more than 40½ acres, the top unit allowable for such well shall be increased or decreased in the proportion that the number of acres in the drilling tract bears to 40.

(i) If the drilling tract is within an allocated gas pool or is placed within such allocated pool at any time after completion of the well and the drilling tract consists of less than 158 acres or more than 162 acres, the top unit allowable for such well shall be increased or decreased in the proportion that the number of acres in the drilling tract bears to 160.

(J) In computing acreage under (h) and (i) above, minor fractions of an acre shall not be counted but ½ acre or more shall count as 1 acre.

(K) The provisions of (h) and (i) above shall apply only to wells completed after January 1, 1950. Nothing herein contained shall affect in any manner any well completed prior to the effective date of this rule and no adjustments shall be made in the allowable production for any such wells by reason of these rules.

(l) In order to prevent waste the Commission may, after notice and hearing, fix different spacing requirements and require greater acreage for drilling tracts in any defined oil pool or in any defined gas pool notwithstanding the provisions of (B) and (C) above.

(m) The Commission may approve the pooling or communitization of fractional lots of 20.49 acres or less with another oil proration unit when:

(1)

2. (a) All owners of ~~the~~ 40-acre tracts directly or diagonally offsetting the 40-acre tract upon which the unorthodox location is proposed have consented in writing to the proposed location, or

(b) In lieu of paragraph 2(a) of this rule the applicant may furnish proof of the fact that all of said offset operators were notified by registered or certified mail of his intent to drill an unorthodox location. The Secretary-Director of the Commission may approve the application if ~~after a period of 20 days following receipt of said~~ no offset operator has entered an objection to the unorthodox location within 20 days after the Secretary-Director has received the application.

(2) I If the drilling tract is within ~~an~~ an allocated gas pool or is subsequently placed within an allocated gas pool, and the drilling tract consists of less than 158 acres ~~and~~ or more than 162 acres in 160-acre pools, or less than 316 acres or more than 324 acres in 320-acre pools, the top allowable for such well shall be decreased or increased in the proportion that the number of acres in the drilling tract bears to a standard unit for the pool.

1. The units involved are contiguous;

2. They are part of the same basic lease, carrying the same royalty interest; and

3. The ownership of the units involved is common.

Application to the Commission for pooling shall be accompanied by three (3) copies of a certified plat showing the dimensions and acreage involved in the pooling, the ownership of all leases and royalty interests involved, and the location of any proposed wells.

Applicant shall furnish all operators who directly and diagonally offset the units involved ~~with~~ a copy of the application to the Commission, and ~~applicant~~ shall include with his application a written statement that all offset operators have been properly notified. ~~In this instance~~, Offset operators shall include only those operators who have offset properties within the State of New Mexico. The Commission shall wait at least ten ~~(10)~~ days before approving any such pooling, and shall approve such pooling only in the absence of objection from any offset operator. In the event that an operator objects to the pooling, the Commission shall consider the matter only after proper notice and hearing.

The Commission may waive the ten-day waiting period requirement if the applicant furnishes the Commission with the written consent to the pooling by all offset operators involved.

The Commission may consider that the requirements of subparagraphs 2 and 3 of Paragraph (m) of this rule have been fulfilled if the applicant furnishes with each copy of each application to the Commission a copy of an executed pooling agreement communitizing the units involved.

Each well drilled on any communitized tract shall be located in the approximate geographical center of the combined units with a tolerance of 150 feet for topographical conditions, but in any event shall not be located closer than 330 feet to the outer boundaries of the proposed proration unit or communitized tract.

RULE 105. PIT FOR CLAY, SHALE AND DRILL CUTTINGS

In order to assure a supply of proper material for mud-laden fluid to confine oil, gas, or water to their native strata during the drilling of any well, operators shall provide before drilling is commenced an adequate pit for the accumulation of drill cuttings.

RULE 106. SEALING OFF STRATA

(a) During the drilling of any oil or natural gas well, all oil, gas, and water strata above the producing horizon shall be sealed or separated in order to prevent their contents from passing into other strata.

(b) All fresh waters and waters of present or probable value for domestic, commercial or stock purposes shall be confined to their respective strata and shall be adequately protected by methods approved by the Commission. Special precautions by methods satisfactory to the Commission shall be taken in drilling and abandoning wells to guard against any loss of artesian water from the strata in which it occurs, and the contamination of artesian water by objectionable water, oil or gas.

(c) All water shall be shut off and excluded from the various oil and gas bearing strata which are penetrated. Water shut-offs shall ordinarily be made by cementing casing.

RULE 107. CASING AND TUBING REQUIREMENTS

(a) All wells drilled for oil or natural gas shall be completed with a string of casing which shall be properly cemented at a sufficient depth to protect adequately the oil or natural gas bearing strata to be produced. In addition thereto, such other casing and cement shall be used as necessary in order to seal off all oil, gas, and water strata which may be encountered in the well, except the interval (s) to be produced.

Sufficient cement shall be used on surface casing to fill the annular space back of the casing to the top of the hole, provided however, that authorized field personnel of the Commission may, at their discretion, allow deviations from the foregoing requirement when known conditions in a given area render the same impracticable.

All cementing shall be by pump and plug method unless some other method is expressly authorized by the Commission.

All casing strings shall be tested and proved satisfactory as provided in paragraph (c) below.

(b) After cementing, but before commencing tests required in paragraph (c) below, all casing strings shall stand cemented in accordance with Option 1 or Option 2 below. Regardless of which option is taken, the casing shall remain stationary and under pressure for at least eight hours after the cement has been placed. Casing shall be considered to be "under pressure" if some acceptable means of holding pressure is used or if one or more float valves are employed to hold the cement in place.

OPTION 1.

Allow all casing strings to stand cemented a minimum of eighteen (18) hours prior to commencing tests. Operators using this option shall report on Form C-103 the actual time the cement was in place before initiating tests.

OPTION 2.

(May be used in the Counties of San Juan, Rio Arriba, McKinley, Sandoval, Lea, Eddy, Chaves, and Roosevelt only.) Allow all casing strings to stand cemented until the cement has reached a compressive strength of at least 500 pounds per square inch in the "zone of interest" before commencing tests, provided however, that no tests shall be commenced until the cement has been in place for at least eight (8) hours.

The "zone of interest" for surface and intermediate casing strings shall be the bottom 20 percent of the casing string, but shall be no more than 1000 feet nor less than 300 feet of the bottom part of the casing unless the casing is set at less than 300 feet. The "zone of interest" for production casing strings shall include the interval or intervals where immediate completion is contemplated.

To determine that a minimum compressive strength of 500 pounds per square inch has been attained, operators shall use the typical performance data for the particular cement mix used in the well, at the minimum temperature indicated for the zone of

E - OIL PRODUCTION OPERATING PRACTICES

RULE 301. GAS-OIL RATIO TEST

(a) Each operator shall take a gas-oil ratio test nor sooner than 30 days nor later than 60 days following the completion or recompletion of an oil well, provided that (1) the well is a wildcat, or (2) the well is located within a pool not exempted from the requirements of this rule. (Wells located within one mile of the outer boundaries of a defined oil pool shall be governed by the provisions of this rule which are applicable to the nearest pool producing from the same formation.) The results of such test shall be reported on Form C-116. The gas-oil ratio thus reported shall become effective for proration purposes on the first day of the calendar month following the date they are reported.

Each operator shall also take an annual gas-oil ratio test of each producing oil well, located within a pool not exempted from the requirements of this rule, during a period prescribed by the Commission. A gas-oil ratio survey schedule shall be established by the Commission setting forth the period in which gas-oil ratio tests are to be taken for each pool wherein a test is required. The gas-oil ratio test applicable shall be such test designated by the Commission, made by such method and means, and in such manner as the Commission in its discretion may prescribe from time to time.

(b) The results of gas-oil ratio tests taken during regular survey periods shall be filed with the Commission on Form C-116 not later than the 10th of the month following the close of the survey period for the pool in which the well is located. The gas-oil ratios thus reported shall become effective for proration purposes on the first day of the second month following the close of the survey period. Unless Form C-116 is filed within the required time limit, no further allowable will be assigned the affected well until Form C-116 is filed.

(c) In the case of special tests taken between regular gas-oil ratio surveys, the gas-oil ratio shall become effective for proration purposes upon the date Form C-116, reporting the results of such test, is received by the Proration Department. A special test does not exempt any well from the regular survey.

(d) During gas-oil ratio test, each well shall not be produced at a rate exceeding top unit allowable for the pool in which it is located by more than 25 per cent. No well shall be assigned an allowable greater than the amount of oil produced on official tests during a 24-hour period.

RULE 302. SUBSURFACE PRESSURE TESTS ON NEW POOLS

The operator shall make a subsurface pressure test on the discovery well of any new pool hereafter discovered, and shall report the results thereof to the Commission within 30 days after the completion of such discovery well. On or before December 1st of each calendar year the Commission shall designate the months in which subsurface pressure tests shall be taken in designated pools. Included in the designated list shall be listed the required Shut-in Pressure time and datum of tests to be taken in each pool. In the event a newly discovered pool is not included in the Commission's list the Commission shall issue a supplementary Bottom Hole Pressure Schedule. Tests as designated by the Commission shall only apply to flowing wells in each pool. This test shall be made by a person qualified by both training and experience to make such test, and with an approved subsurface pressure instrument which shall have been calibrated both prior and subsequent to such test against an approved dead-weight tester.

utilization is desired by the landowner, the well need not be filled above a sealing plug set below the fresh water formation, provided that written agreement for such use shall be secured from the landowner and filed with the Commission.

RULE 204. LIABILITY

The owner of any well drilled for oil or gas, or any seismic, core or other exploratory holes, whether cased or uncased, shall be responsible for the plugging thereof.

F - NATURAL GAS PRODUCTION OPERATING PRACTICE

RULE 401. METHOD OF DETERMINING NATURAL GAS WELL POTENTIAL

All operators shall conduct tests to determine the daily open flow potential volumes of all natural gas wells from which gas is being used or marketed. Such tests shall be reported on forms prescribed by the Commission within 60 days after: (1) the date of initial connection of the well to a gas transportation facility and (2) the date of reconnection following workover.

To establish comparable open flow capacity, wells shall be tested in accordance with the New Mexico Oil Conservation Commission "Manual for Back-Pressure Test for Natural Gas Wells." In the event the Commission approves an alternate method for testing, all wells producing from a common source of supply shall be tested in a uniform and comparable manner.

RULE 402. METHOD AND TIME OF SHUT-IN PRESSURE TESTS

(a) Shut-in pressure tests shall be taken on all natural gas wells annually. Such tests shall be taken by the operator of the well during the month of July, August, or September unless otherwise specified by special pool rules or special directive. Tests shall be reported to the appropriate District Office of the Commission on Form C-125 not later than October 15 of the same year.

(b) Shut-in pressures shall be taken with a dead weight gauge after a minimum shut-in period of 24 hours. When the shut-in period exceeds 24 hours, the length of time the well was shut in shall be reported to the Commission.

(c) The Secretary-Director of the Commission may prescribe special shut-in pressure test periods and procedures for pools when he deems the same necessary in order to obtain more accurate pressure data.

RULE 403. NATURAL GAS FROM GAS WELLS TO BE MEASURED

All natural gas produced shall be accounted for by metering or other method approved by the Commission and reported to the Commission by common purchaser of the gas. Gas produced from a gas well and delivered to a gas transportation facility shall be reported by the owner or operator of the gas transportation facility. Gas produced from a gas well and required to be reported under this rule, which is not delivered to and reported by a gas transportation facility, shall be reported by the operator of the well.

RULE 404. NATURAL GAS UTILIZATION

(a) After the completion of a natural gas well, no gas from such well shall be (1) permitted to escape to the air, (2) used expansively in engines or pumps and then vented, or (3) used to gas-lift wells unless all gas produced is processed in a gasoline plant, used in the manufacture of carbon black, or beneficially used thereafter without waste.

(b) Carbon black plants may utilize natural gas only in those instances in which all casinghead gas and residue gas produced in the vicinity of or which may reason-

ably be reached from the carbon black plant, is being used benefically.

(c) Any carbon black plant hereinafter constructed, or any existing carbon black plant which enlarges or expands its facilities for the manufacturer of carbon black, may utilize natural gas in the manufacture of carbon black only after permission of the Commission is obtained upon due notice and hearing.

RULE 405. STORAGE GAS

With the exception of the requirement to meter and report monthly the amount of gas injected and the amount of gas withdrawn from storage in the absence of waste these rules and regulations shall not apply to gas being injected into or removed from storage.

RULE 406. CARBON DIOXIDE

(a) Insofar as is applicable, the statewide regulations relating to gas, natural gas, gas wells, gas reservoirs, shall also apply to carbon dioxide, carbon dioxide wells, and carbon dioxide reservoirs.

(b) Copies of rules and regulations particularly affecting carbon dioxide gas fields, insofar as they may vary from these general rules and regulations for oil and natural gas, may be obtained from the Commission office in Santa Fe.