BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 1, 1964

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco Inc., for the creation of a new oil pool and for special temporary pool rules, San Juan County, New Mexico.

Case No. 3073

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 3073.

MR. DURRETT: Application of Texaco Inc., for the creation of a new oil pool and for special temporary pool rules, San Juan County, New Mexico.

MR. KELLY: Booker Kelly of Gilbert, White and Gilbert in Santa Fe, appearing on behalf of Texaco. I have two witnesses and ask that they be sworn.

MR. UTZ: Are there any other appearances?

MR. BUELL: For Pan American Petroleum Corporation, Guy Buell.

MR. UTZ: Any other appearances?

MR. DURRETT: Did you have a witness?

MR. BUELL: Yes, sir.

(Witnesses sworn.)

A. P. McCONNELL, JR.

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

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name, position and employer, please?

A I am A. P. McConnell, Junior. I am District Geologist with Texaco in Farmington, New Mexico.

Q Have you previously testified before this Commission?

A No, sir.

Q Would you give the Examiner a brief statement of your qualifications?

A I was graduated from the University of Washington in 1942 with a Bachelor of Science degree in geology. From 1945, '49 I was doing field work in West Texas and New Mexico, including the Four Corners area here. From 1949 to '56 I was in Midland, Texas doing subsurface geology. In 1956 I was transferred to Farmington, New Mexico as District Geologist and in charge of drilling and exploration work, which included the Tocito Dome area.

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

MR. UTZ: Yes, sir, they are.

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

Q Referring to what has been marked Exhibit A, could you state to the Examiner what Texaco seeks by this application?

A Texaco seeks the creation of a new oil pool that would include sections in Townships 25 and 26 North, Range 18 West, San Juan County, New Mexico. They also seek 160-acre oil well spacing, 640-acre gas well spacing, and a gas-oil ratio of 4,000 to 1.

Q On Exhibit A you have drawn a structure map. Could you briefly explain that?

A Exhibit A is a structural interpretation of the Tocito

Dome area. It is contoured on a 50-foot interval on the Barker Creek formation of the Pennsylvanian. It shows both the Pan American and Texaco wells. In the Northwest corner there is the Pan American P-1 Navajo dry hole, the Pan American N-1 shut-in gas well, the Texaco No. 1 Navajo "AL" producer, and the No. 2 Navajo "AL" of Texaco's.

Q Could you give the present status of these wells?

A The Texaco No. 1 Navajo "AL" was completed for initial potential of 430 barrels per day, flowing through perforations 6275 to 6302. During May the well produced 3820 barrels of oil plus 12,224,000 cubic feet of gas.

MR. UTZ: Would you give me those figures again?

A 3820 barrels of oil plus 12,224,000 MCF of gas.

MR. PORTER: Was that just produced a portion of the month of May?

A The well was completed the first day of May and it was produced during May.

MR. PORTER: You say it had a potential of 430 barrels?

A Right.

MR. PORTER: Thank you.

A The No. 2 "AL" is testing and has produced 99 barrels of oil per day through perforations of 6314 to 18, flowing.

Q (By Mr. Kelly) On your structure map you have shown

what would be your interpretation based on present data of some type of barrier between the Pan American acreage and the Texaco acreage. Is this interpretation based on just evidence you have now correct?

A That is right.

Q Do you feel if further evidence were established that it might be possible there is communication between these two proposed pools?

A Yes, there could be.

Q Would there be any harm as far as the development in this area in treating this as one pool?

A Well, no, there would be no harm if it were treated as one pool, that would be all right if it were -- if we had two separate pools at this time and then later proved to be one pool, we might get into trouble with spacing and correlative rights.

Q In other words, if temporary rules were established for the lower proposed pool of 160 acres and the statewide rules of 40 acres were left up on the Northwest corner, you would have spacing problems and correlative rights problems possibly?

A That is right.

Q Would you recommend then that Texaco's application be amended to include additional acreage as far as the proposed pool limits?

A Yes, it could be extended to include Sections 17, 20 and 21.

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

Q Referring to what has been marked Exhibit B, would you go through that for the Examiner?

A Exhibit B is a cross section starting on the Northwest from the Pan American 1-P Navajo through the Pan American 1-N Navajo to the Texaco No. 1 "AL" Navajo and on the end the No. 2 "AL" Navajo. The electric log correlations show that the porous zone is continuous over a wide area. The pay zone in the No. 2 "AL" was cored and had good porosity and permeabilities in excess of 70 millidarcies. The "AL" 1 and the "AL" 2 were drilled on 160-acre spacing and there's no indication of any physical barrier between the two wells. Further, that the initial bottom hole pressures corrected to 525 feet subsea show the following: that the Pan American 1-N Navajo is 3207 psi, that the Pan American 1-P Navajo is 3215 psi, and that the Texaco No. 1 "AL" Navajo is 3206 psi.

Q This bottom hole pressure information is contained on Texaco's Exhibit E, is that correct?

A That's right.

Q Mr. McConnell, in all the information that is available

to Texaco now indicates that oil wells are capable of drilling in excess of 160 acres in the proposed area, is that correct?

A That is correct.

Q Do you have any information to indicate that an oil well could not drain 160 acres in this area?

A We have no indication that would indicate it otherwise.

Q Were Exhibits A, B and what has been marked Exhibit E prepared by you or under your direction?

A Exhibits A and B were prepared by me.

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

Q Exhibit E was prepared by Mr. Walsh?

A Right.

MR. KELLY: We will hold up on offering Exhibit E for Mr. Walsh. Texaco offers Exhibits A and B.

MR. UTZ: Without objection, Texaco's Exhibits A and B will be entered into the record in this case.

(Whereupon, Applicant's Exhibits A and B were offered and admitted in evidence.)

MR. KELLY: I have no further questions at this time, Mr. Examiner.

MR. UTZ: Are there questions of the witness?

MR. POHLMANN: Could I ask a question?

MR. UTZ: Yes, state your name for the record.

MR. POHLMANN: Henry Pohlmann, Oil and Gas Supervisor for The Navajo Tribe. I would like to ask the witness a question.

CROSS EXAMINATION

BY MR. POHLMANN:

Q Is it possible that this is a minimum picture that has been drawn here, this contour, Exhibit A?

A Yes, it is possible.

Q It could be a lot larger?

A Yes.

MR. POHLMANN: Thank you.

MR. UTZ: Any other questions?

MR. DURRETT: I have a question or two.

BY MR. DURRETT:

Q Your next witness may go into this, and if so, just tell me that. I believe you felt that you felt one oil well would drain 160 acres. What do you base your opinion upon?

A I would like Mr. Walsh --

Q Will he go into that?

A Yes.

Q All right.

BY MR. UTZ:

Q With reference to your Exhibit B as your cross section

between the four wells, it is my understanding that the Navajo 1-P of Pan Americans was a dry hole, which one was the dry hole?

A The Pan American 1-P.

Q That is a dry hole?

A Yes.

Q And the Pan American 1-N, is that a gas well?

A It is a shut-in gas well.

MR. PORTER: Is that gas in the Pennsylvanian?

A Yes, sir.

Q (By Mr. Utz) Do you have any information as to the potential of that well?

A Yes, sir.

MR. BUELL: Mr. Examiner, if you please, we intend to put that on unless you would like to have it right here.

MR. UTZ: If he has it, I would like to have it at this time.

A It was potentialed for 577,000 gas per day plus 40 barrels of condensate.

MR. EATON: 40 barrels per million?

A Per million.

Q (By Mr. Utz) And your Texaco 1 or your Tribal "AL" No. 1 was potentialed for 430 barrels a day, and during the month of May it produced 3820?

A Yes, sir.

Q It wasn't producing quite its potential, was it?

A I don't know, sir.

Q Well, 3820 would be 30 times 4 into 20, was it on the line 30 days during May?

A I don't know that.

Q And the Navajo 2 "AL" also is an oil well, right?

A Yes, sir.

Q That well was potentialed for 99 barrels of oil per day, is that correct?

A I believe that's right, yes, sir.

Q So it appears that neither of these wells would be top allowable wells on 160 acre basis, would that be a fair statement?

A Yes, sir, that's a fair statement.

Q I note between the Pan American No. 1 and your Tribal "AL" No. 1 that you've shown a syncline in your contouring here. Was that on the basis of the No. 1 Tribal N No. 1 of Pan American's being a gas well, and yours being an oil well?

A No, sir, that's based on other information.

Q What other information do you have?

A Seismic information.

Q Seismic, I see. The Pan American well is, however, slightly higher structurally, would that be a fair interpretation

of this cross section?

A Yes, sir, it is higher.

Q Do you have an opinion as to whether the Pan American well could possibly be a part of a gas cap?

A Yes, sir, it could be.

Q But you actually don't have any concrete information to show that there's connection between these two wells?

A Only that the reservoir is continuous.

Q Do you have any gas analysis that would give you any indication whether it was from the same formation or not?

A I believe the engineer will develop this further.

MR. UTZ: Are there any other questions of the witness? The witness may be excused.

(Witness excused.)

A. G. WALSH

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

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name, position and employer, please?

A I am A. G. Walsh, and I am District Petroleum Engineer in Farmington, New Mexico for Texaco Incorporated.

Q Have you previously testified before the New Mexico

Commission?

A No, sir, I have not.

Q Would you give the Examiner a brief statement of your qualifications?

A I was graduated from the Texas A & M College with a B. S. in petroleum engineering in 1950, at which time I went to work for Seaboard Oil Company in an engineering capacity. I worked in West Texas with Seaboard Oil Company for eight years, at which time I went to work for Texaco Incorporated. In July of 1961 I was promoted to District Petroleum Engineer in the Farmington District. Since that time I have been working with development in production problems in New Mexico in the Farmington District, and as such I'm familiar with the drilling and completion and subsequent production history of the Navajo Tribe "AL" No. 1 and "AL" No. 2.

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

Q Referring to what has been marked Texaco Exhibit C, has Texaco undertaken a study to establish that we are concerned with an oil pool here?

A Yes. Exhibit C is a brief reservoir fluid study of the separated liquids and vapor that were collected from the Texaco Navajo Tribe "AL" No. 1 on May 6, 1964. The liquid and gas were

recombined in proportion to their producing rates and returned to reservoir conditions of 159 degrees Fahrenheit and approximately 200 pounds per square inch. Under these stimulations the system was found to be in two phases with liquid occupying 42 percent of the volume. This is interpreted to indicate that the Navajo Tribe "AL" No. 1 has penetrated a gas-oil contact and is producing from both a gas and oil saturated zone.

Q Has Texaco encountered any high gas-oil ratio problem in the "AL" No. 1 well?

A Yes, the initial gas-oil ratio on "AL" No. 1 was 2,880 cubic feet per barrel. Since that time it has increased and now it's approximately 3800 feet per barrel.

Q What do you think the explanation for this is?

A The reason that the gas-oil ratio is high is the fact that the well penetrated a gas-oil contact and is completed from a zone which is gas saturated, and immediately below it a zone which is oil saturated. There apparently is excellent vertical communication within the reservoir since Texaco has made an effort to produce from the lowermost portion of the pay section to reduce the gas-oil ratio. These attempts have been unsuccessful, however.

Q Referring back to Exhibit A, could you locate other possible locations where you would encounter the same problem that you have in your "AL" No. 1?

A This situation will no doubt occur at any time a well intersects a gas-oil contact. The way our geologists have the structure mapped,at the present time one could expect a well located in the Northwest corner of the Southwest, the Northwest Quarter of the Southwest Quarter of Section 27. This situation could exist there; likewise in the Northwest Quarter of the Northwest Quarter of Section 34 this same situation could exist.

Q If 160-acre spacing were granted here and the 2,000 to 1 statewide GOR was retained, what would be the effect as far as these wells are concerned?

A This would reduce the amount of oil that a well would be allowed to produce in one day. This, of course, results in a much longer time for the operator to recover the oil that's in place, and also takes a longer time for him to recover his investment. This reduces the incentive for an operator to drill and produce this type of reservoir.

Q In effect, it would have the effect of nullifying if the Commission were to grant 160 to nullify the 160-acre spacing for these wells, wouldn't it?

A That is correct. In the case of the "AL" No. 1 it would effectively reduce the oil allowable by 50 percent.

Q If your economic analysis shows that it would be uneconomic to develop wells on say 80-acre spacing, this would have

the same effect as far as these wells were concerned?

A That is correct. It would extend the length of time required to recover the oil.

Q Now, has Texaco made any attempt to negotiate with anyone to get a pipeline in here?

A Yes, Texaco has made contact with El Paso Natural Gas Company and has also been working with the Pan American Petroleum Corporation in an effort to develop a contract whereby the gas can be sold, and also to build a pipeline from the field area over to the El Paso trunk line, which is approximately eight miles to the east.

Q Now, going on to what has been marked Texaco Exhibit D, which is your economic analysis, would you give the Examiner your underlying data and then go through that?

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

A Exhibit D is an economic analysis of development of an oil well on either 80-acre spacing or under 160-acre spacing. The significant factors are that under 80-acre spacing the present worth of the working interest income is $162,000. The development and operating costs for a well under these conditions is $142,000.

Under 160-acre spacing the present worth working interest income is $310,000, whereas the development operating costs are

$167,000. As you can see, an operator has an incentive to develop this type of reservoir under 160 acres. Under 80-acre spacing the income is such that it is not an attractive investment.

Q What figures did you use to arrive at your barrels of oil, MCF, and price of gas, et cetera?

A These figures were based on assuming that this is an oil-saturated zone, having a pay thickness of approximately 20 feet. The porosity we used was 8.3 percent. This is obtained from core data and also log data. We've assumed that the water saturation is 30 percent, that the recovery factor would be approximately 15 percent, and that a formation volume factor of 1.5 would apply. The price of oil that we used was $2.69 a barrel. Under Texaco's leases the Navajo Tribe has a 16-2/3 percent royalty and we have used a thirteen cent per MCF price per gas.

Q On your "AL" No. 1 you have a core analysis, is that correct?

A No, we have core analysis on "AL" No. 2.

Q What does that show as far as porosity and permeability?

A The porosity is in the range of 8.3 percent, which we have here. The permeability is relatively high for limestones in this area, it's in excess of 70 millidarcies.

Q This would be further evidence, in your opinion, to show that oil wells could drain in excess of 160 acres?

A Yes, sir.

Q Now, this economic analysis is based on a comparison of 80 and 160 acres, and you show a possible return of $20,000 on 80 acres. With this type of risk, in your opinion would a prudent operator develop this pool on 80-acre spacing with a possible $20,000 return?

A No, sir, Texaco or any other prudent operator would be unable to make this type of development.

Q Of course, if the statewide 40-acre spacing were allowed, the picture would be doubly black?

A Well, this would result in a net loss, yes, sir.

Q Has Texaco, in developing this case for hearing, consulted with the representatives of the Navajo Tribe?

A Just briefly, yes, sir.

Q Have they made certain suggestions or requests concerning rules changes that would affect the proposed rules?

A Yes, sir. The Navajo Tribe has suggested that we make several changes in the rules which we propose.

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

Q Referring to what has been marked Exhibit F, which is proposed rules, would you show the Examiner both where Exhibit F varies from the proposed rules that were in the application and

also what changes have been made in Exhibit F itself as far as it goes?

A The first rule that is different from what appeared in the application is Rule 2 in which a gas well is specified or allocated 640-acre spacing. Our application did not mention gas wells. Rule 2 (b), at the request of the Navajo Tribe, has been altered to show that wells may be drilled on non-standard spacing. This was originally written up so that the Navajo Tribe might have odd lot leasing; however, the Tribe has advised us that they do not have any odd lots in the neighborhood and that this would not be necessary.

On page 2 of the Exhibit F, Rule 3 (b), the same applies. We have eliminated the mention of odd lot leasing by the Navajo Tribe. On page 3 of the Exhibit F in Rule 4 (a), the terms "the Northwest Quarter or Southeast Quarter of" have been eliminated. This was done at the request of the Tribe.

Q So that would leave you with what sort of spacing?

A This would leave you with the same spacing, 640-acre gas well.

Q I mean location.

A You can put the well in the center of any quarter section, any quarter quarter section.

Q There are no other changes?

A I believe that is all. Yes, that's all.

Q This application that Texaco is seeking would be a temporary one-year application to allow interference tests to properly develop the pool?

A That is correct. In the proposed rules the provision is made for transfer of allowable and interference test.

Q If, in fact, further evidence showed that you could not drain 160 acres, then you could always come back and infill drill, is that correct?

A That is correct.

Q Based on the geologic and engineering evidence Texaco has at the present time, everything indicates that 160 acres could be adequately drained?

A That's the way we believe at the present time.

Q In your opinion would the granting of this application be in the interest of conservation and the prevention of waste and the protection of correlative rights?

A Yes, sir.

Q Were Exhibits C, D, E and F prepared by you or under your direction?

A That is correct.

MR. KELLY: I have no further questions.

MR. UTZ: Do you wish to introduce those exhibits at

this time?

MR. KELLY: I would like to move to introduce these exhibits, and also move to amend our application to include Sections 21, 20 and 17, and for the rules changed as outlined by Mr. Walsh.

MR. UTZ: These rules were included in your application, were they not?

MR. KELLY: They were, but those changes would have to be inserted, I think we are okay on the advertising because it just refers to the "AL" No. 1.

MR. UTZ: Exhibits C through F will be entered into the record of this case without objection. The motion to amend your application to include Sections 17, 20 and 21 will be granted as well as the proposed rule changes since it is not in conflict with the advertisement.

(Whereupon, Applicant's Exhibits C through F were offered and admitted in evidence.)

MR. UTZ: Are there any questions of the witness?

MR. POHLMANN: Yes, Henry Pohlmann, Oil and Gas Supervisor, Navajo Tribe.

CROSS EXAMINATION

BY MR. POHLMANN:

Q On rule change 3 (b), the Tribe would prefer that just

certain words be struck out of (b), I think we agreed to that, not the removal of (b) altogether. 3 (b), for example, it would be our preference that the words "in order to facilitate the leasing of odd lot acreage by the Navajo Tribe," those words be stricken from the rule and all the remaining words remain as it was our desire not to remove the whole thing?

A That's the way it was presented in the exhibit. Those words were removed.

Q I have a question, we have referred to the potential of "AL" No. 1 on a number of occasions as 430 barrels a day. Is that absolute potential?

A No, sir. The well will make in excess of that. I don't have the exact figures handy, but I am reaching back in memory. I believe the well was producing with 1600 pounds tubing pressure at the time.

Q And through a $\frac{1}{4}$" choke?

A Yes, that's correct.

Q So the absolute potential would be far in excess of 430 barrels a day?

A Yes, sir. Correct me if I'm out of order. I believe one of the gentlemen at the table asked whether or not the well had the ability to produce 160-acre allowable. As evidenced by that potential and other tests which have been run on the well, it

certainly has the ability to produce the 160-acre allowable.

MR. PORTER: Apparently it didn't produce the full month of May then?

A Yes, sir, it produced fourteen days during May. We have an allowable of 124 barrels per day.

MR. PORTER: I see.

A And the New Mexico rules will allow you to produce I think 20 percent over the allowable in one month.

MR. PORTER: We allow 25 percent.

A 25 percent, so the well actually only produced fourteen days, and it does have the ability to produce.

Q (By Mr. Pohlmann) How about the porosity in "AL" No. 1, could it be greater than 8.3 percent?

A We have made an analysis on the porosity in "AL" No. 1 based on the sonic log, and the 8.3 percent is what we came up with.

Q Is it possible, I mean, to be higher?

A Yes, it's possible.

Q And recovery factor of 15 percent, is it possible that this might be higher?

A This could very well be higher. It could also be lower.

Q Is this a possible secondary recovery project?

A I think all oil reservoirs are possible secondary recovery prospects, yes.

Q In this case the recovery factor, then, might be 30 percent, or something in excess of 30 percent?

A It could be different from 15 percent.

MR. POHLMANN: Thank you.

MR. UTZ: Are there any other questions?

MR. DURRETT: I have a question.

MR. UTZ: Mr. Durrett.

BY MR. DURRETT:

Q I was involved in another matter for a moment and I heard you reach a conclusion that one oil well would efficiently drain 160 acres. Could you just very briefly summarize what you base that conclusion on?

A Well, there are several things that enter into the ability of a well to drain a wide area. One of them is the fact that it must be established that the entire area is in communication with the well bore. Exhibit B is a cross section which covers some two and a half to three miles and if you'll refer back to Exhibit B you'll see that the pay zone is continuous over this real wide area.

Another thing that enters into the ability of a well to drain a wide area is the reservoir permeability. As established earlier, core analyses of the Texaco "AL" No. 2 shows that there is a permeability in excess of 70 millidarcies. We have drill stem test

data which shows that the bottom hole flowing pressures and shut-in pressures stabilize within a matter of minutes. In other words, if on a drill stem test a well has a bottom hole flowing pressure of 2,000 pounds and it is shut in, it jumps up to the shut-in bottom hole pressure of 3200 pounds in a matter of minutes.

Q Which well are you speaking about here, the Texaco wells?

A Specifically I am referring to the Texaco "AL" No. 1.

Q As compared to which well? As compared to the "AL" No. 2 on your bottom hole pressures? Which wells were you comparing to?

A I wasn't making a comparison. I was saying that on all the wells that we have run drill stem test on, the shut-in pressures stabilize in a matter of minutes. Texaco has run some on the "AL" No. 1, some actual production tests, with a bottom hole pressure bomb in the hole and, let me reach in my file a minute. This test was taken at the same time that we were obtaining the bottom hole fluid sample. The well had a flowing bottom hole pressure of 2,757 psi. It was shut in and six minutes later it stabilized at 3,167 psi. I would like to comment that this is the pressure at the bottom. It is not corrected down to the minus 3925 datum that Mr. McConnell referred to.

Q You have not conducted any interference test?

A No, we have just completed the second well.

Q Is that because of the time involved that it was just completed?

A That is correct.

Q Do you plan to run interference tests if this application is approved?

A Yes, sir.

Q One additional question. Now, referring to your proposed rules, the Rule 4, what was the line of thought or the reason behind your striking the rigid spacing provisions here to come up with what we generally term a flexible pattern? What was your reason that you felt that a flexible drilling pattern would be better?

MR. KELLY: Possibly I can answer this.

MR. DURRETT: Yes.

MR. KELLY: This is not something that Texaco is recommending one way or the other. We have no particular feelings on it. However, the Tribe requested this change and we have no objection to it. We put in the, we say more standard spacing in our original rules, but when we discussed this with the Tribe, since it is all Tribe territory, we had no objection to making that change. We have left it to the discretion of the Commission. It was done as a courtesy to the Tribe.

MR. UTZ: From an Examiner standpoint and an engineering

standpoint, how does the witness feel about flexible spacing in this area?

A We see no objection to it. We initially preferred that we set these rules up so that the well could be drilled in a Southwest Quarter of the Northwest Quarter of any quarter section. But I feel that the flexibility certainly wouldn't be damaging to drainage.

MR. UTZ: This, in effect, could allow 40-acre spacing, so-to-speak, and 160-acre units on allowable. In other words, you could drill two wells on adjoining 40's?

A Yes, they would have to be in separate sections, however, or separate quarter section.

MR. UTZ: Separate 160-acre units?

A Yes.

MR. UTZ: Go ahead.

MR. DURRETT: I would like to deviate just a minute. Mr. Pohlmann, are you in a position to state the Navajo's reason for desiring the flexible spacing pattern?

MR. POHLMANN: Yes, sir.

MR. DURRETT: Go ahead.

MR. POHLMANN: We prefer the more flexible spacing pattern because this pool may not be as defined on this map.

This is probably a minimum picture. So we have other lands to sell in this area and we like these locations flexible so that people can drill any place that they think they might get something.

Say it another way. From a Navajo viewpoint we'll get more wells drilled on our land with a flexible spacing than we will with this rigid spacing. Of course, the more wells we will get drilled the more money we will make, the more property we will sell. It's better for us from an economic picture.

MR. UTZ: You think you can recover more oil in this manner?

MR. POHLMANN: I personally believe that more wells, more oil will be recovered, but we will make more money, which, of course, is my primary purpose in life.

MR. UTZ: Particularly if you have 160-acre pattern?

MR. POHLMANN: It's still only one well to 160 acres no matter where it is drilled, in what quarter section.

MR. PORTER: You consider structure here more important than a geometric pattern of well location?

MR. POHLMANN: Very definitely.

MR. DURRETT: Do you feel, Mr. Pohlmann, that a so-called rigid pattern would seriously hamper your development program or your proposed plans for selling your leases?

MR. POHLMANN: Yes, sir, I think it could hamper. I don't know if the word seriously could be used in there, but I think it would be detrimental to us to have a rigid pattern.

MR. DURRETT: Thank you.

MR. UTZ: You would not be so concerned, however, if all your acreage in the area were already leased, would you?

MR. POHLMANN: I would have less concern then, but we have a sale coming up in this area on July 14th. This hearing is awfully close to that.

MR. DURRETT: That's all the questions I have.

MR. PORTER: I have a question or two.

MR. UTZ: Mr. Porter.

BY MR. PORTER:

Q Now, you are proposing 160-acre spacing for oil well locations and 640-acre spacing for gas wells, is that correct?

A That is correct.

Q The question was asked of the other witness if he thought there was a probability that the Pan American well was drilled into a gas cap. What's your opinion on that? Do you think that represents a gas cap here?

A According to our geological interpretation it's very possible that it is a dry gas reservoir.

Q I see.

A There is a disturbing lack of data at the present time because of the fact that there has been no completed wells between Pan American's well and our well. At the present time Pan American is drilling their "N" No. 2 which may ultimately serve to clear up a lot of the questions that we now have. This well is located in the Southwest Quarter of the Northeast Quarter of Section 20.

Q In a matter of allocating production, are you proposing to allow a gas well on a 640 to withdraw the same amount of gas that you would an oil well on 160?

A No, sir, we are proposing that a gas well be allowed to produce the same amount on 640 acres, the same amount of gas that four oil wells would be allowed to produce on 160 acres.

MR. PORTER: That's all I have.

MR. UTZ: Mr. Nutter.

BY MR. NUTTER:

Q Is my interpretation correct, you mean that you believe that is an associated reservoir and that there's an oil pool and a gas cap?

A Yes, sir. On the basis of the reservoir fluid testing that we have done, we think that the Texaco "AL" No. 1 produces from an oil zone and a gas zone.

Q Do you believe that one of the sources of drive for this

oil pool would be the expansion of the gas cap?

A Yes, sir, very likely.

Q You think it's prudent to produce the gas from the gas cap and lose that source of energy for the oil pool?

A Well, the gas will represent considerable economic advantage to the operators. We are going to have to produce it. It's there, we are going to have to produce it. As I stated in our testimony, we have made an attempt to segregate the gas zone from the oil zone in the "AL" No. 1 and we have been unable to do so.

Q You attempted, I believe you said, to produce the well with a low GOR?

A Right.

Q Why have you done that?

A It was our intention to see if we could do it to determine if it could be produced at a gas-oil ratio of less than 2,000 to 1.

Q If the GOR for this pool were 2,000 to 1, it would provide the operators with more incentive to perforate their wells in the oil and not across the twilight zone between the oil and gas, wouldn't it?

A That's very possible.

Q Thereby conserving the gas in the gas zone?

A That's true, if that sort of completion would be successful. The work that we have done on the "AL" No. 1 indicates that it would be very difficult. There appears to be very excellent communication between the upper portion of the reservoir and the lower portion.

Q If the gas cap is produced and the oil moves upstructure into the gas cap, wetting the gas sands, a certain amount of that oil would be lost and never be able to be recovered?

A That is possible.

Q If the oil is produced and the gas expands into the oil pool, there is no gas lost if the gas is produced later?

A Well, in theory that is correct, yes, sir.

Q Are you proposing a no-flare order for this pool in conjunction with your requested 4,000 to 1 GOR?

A No, sir.

Q Why?

A We are making every effort at the present time to bring a gas line in, and it's our opinion that this order would have no effect.

Q What would the allowable be with the proposed 640-acre spacing and the depth factor under the present 70 barrels a day basic allowable?

A 334 barrels per day for an oil well.

Q And you would be allowed 400 MCF of gas per barrel?

A That's what we are producing.

Q You would have some 1200 MCF of gas that would be available to a flare without a no-flare order in the pool?

A Right.

MR. NUTTER: Thank you.

MR. UTZ: Are there any other questions?

MR. PORTER: I would like to ask a question. Has any attempt been made to unitize this?

A No, sir.

MR. PORTER: That's all.

BY MR. UTZ:

Q In your opinion would unitization be the way to handle a reservoir that is a gas cap reservoir?

A It would depend on a number of conditions. At the present time I don't feel that we have sufficient data to determine whether or not a unitization as it occurs to date. In order for unitization to be effective it's probable that you would need to have some well in which to return gas to the reservoir, and on the basis of the information we have right now I don't think there's a well available for that.

Q On your 4,000 to 1 GOR ratio on 640 acres a gas well would receive about five and three-tenths million?

A That's correct.

Q That wouldn't be depleting the market, it would be depleting the gas cap at a pretty high rate?

A That is correct.

MR. NUTTER: What evidence do you have that one gas well will drain 640 acres?

A Texaco has not developed any evidence to that effect. It's my understanding that Pan American will present some data which would verify that.

MR. NUTTER: I see.

Q (By Mr. Utz) Do you have any information as to the pay zone in this pool?

A I didn't understand your question.

Q Do you have any information as to the net pay or pay zone in this pool?

A We based our economics on 20 feet of pay. That's what we found in our "AL" No. 1 in this zone; as it occurs in the Pan American "N" No. 1, we have estimated 18 feet. In our "AL" No. 2 we have four feet of pay.

MR. PORTER: Is that net?

A Yes, sir, net pay.

Q (By Mr. Utz) You have only four feet in your No. 2?

A Yes, sir.

Q It appears to be thinning out pretty fast, doesn't it?

A Well, it's below, a portion of the pay is below water.

Q Below water did you say?

A Yes, sir.

Q Do you think this is also a water drive pool?

A I'm not ready to say that. I couldn't tell you.

Q There is that possibility, though?

A I suppose it is, yes, sir.

Q With the "AL" No. 1 and the "AL" No. 2 being just a little over a half a mile apart and the structure being such that you go from approximately 20 feet to four feet, isn't it pretty certain that this is a fairly steeply dipping structure?

A I would say that the structure dips fairly steeply from the "AL" No. 1 to the "AL" No. 2. That's the only information we have.

Q On a 160-acre basis what acreage would you dedicate to the "AL" 2?

A We would dedicate 160 acres.

Q Which 160?

A The Southeast Quarter of Section 28.

Q Based on what you know now, do you think that entire 160 will be productive of oil?

A The well is drilled in the Southeast Quarter of the

Southeast Quarter, Mr. Utz. It's in one of the furthest extremities in the quarter section, I think it's reasonable to assume that the entire quarter section is productive of oil.

Q On a steeply dipping structure such as this there is a great possibility of having a large amount of dry acreage dedicated to a well, is there not?

A That, of course, is possible, yes.

Q In your Exhibit D, or your economics exhibit, this eight year's life on 160-acre, was that based on the top allowable of 334 barrels?

A That was based on that initially, yes.

Q And you tapered it off to something less than that?

A Yes, sir. It's based on our interpretation of what the producing life of the well would be. If you'll notice, I think we have a total gas-oil ratio, a cumulative gas-oil ratio of almost 4,000 to 1 and, of course, this means that as the well produces the gas-oil ratio goes up and the well will be penalized during its later life. Also as a result of depletion will be unable to produce the top allowable during the later part of its life.

Q So this economic picture you present here was based on a well such as the "AL" 1?

A This was based on a well with the approximate pay

characteristics of "AL" No. 1, but which would contain all oil rather than a gas and oil saturated zone. A well such as "AL" No. 1, the economics, of course, will be less attractive than this because the "AL" No. 1 does have this gas cap present.

Q Any well that doesn't have the capability of producing 334 barrels for an extended period of time, the economics would be much less than you show here?

A Correct.

Q Were these rules taken from any particular order?

A They are similar to the rules that were established for the Angel Peak Gallup Field which produces in San Juan County.

Q Do you have a name to propose for this pool?

A We have proposed the Tocito Dome Pennsylvanian.

Q As I understood your answer to the question of Mr. Nutter's, what you would propose to do then would be to flare gas at the rate of 4,000 cubic feet to 1 until such time as you could negotiate a contract with a gas company to lay a line?

A That's correct.

Q This could be for a period of, or a substantial length of time, could it not?

A We're estimating somewhere in the range of six months.

Q Would you term this act as being an act of conservation?

A We feel like that by doing this we'll give the operator

incentive to drill more wells and to develop the field at an earlier date.

Q Then the elapsed time would be your only consideration. You know with reasonable certainty that you are going to get a gas connection, do you not?

A Yes, sir.

MR. UTZ: How does the Navajo Tribe feel about this?

MR. POHLMANN: We're on your team along the line of questioning you have been asking, if I may use those words.

MR. UTZ: Any other questions of the witness?

MR. KELLY: Just one or two questions.

REDIRECT EXAMINATION

BY MR. KELLY:

Q On the possibility of flaring gas, as far as you know Pan American has taken the lead in getting this pipeline?

A Yes, that is correct.

Q And Texaco is, as far as you are aware, has been very actively negotiating with them, is doing everything to get this done?

A That is true.

Q If the Navajo Tribe was on their team, I wonder if they are on our team.

MR. POHLMANN: Yes, sir. At certain times we are on

your team, but in a case like this we have to be on their team, because seriously speaking, if we take that stand we know it will hurry you people up with the pipeline. You'll work a little faster.

MR. KELLY: Texaco would suggest if a no-flare order were to be imposed that we would be given some reasonable time limit for it starting. So we would have a product, but we would be able to produce for some length of time.

MR. PORTER: I have another question.

RECROSS EXAMINATION

BY MR. PORTER:

Q What about your oil line here, do you have an oil pipeline?

A At the present time the oil is being trucked.

Q You do anticipate a pipeline?

A It will depend, of course, on the economics. If the reservoir of sufficient size is indicated, the pipeline will be put in.

Q Who is buying the oil?

A I believe the oil is going to the West Coast. We are selling our oil to the McWood Corporation.

Q It is probably linked up with the Four Corners Pipeline?

A Well, we're selling to the Four Corners Pipeline.

MR. PORTER: Thank you.

MR. UTZ: Are there any other questions of the witness? If not, the witness may be excused.

(Witness excused.)

MR. UTZ: Do we have any other testimony in this case?

MR. BUELL: If it please the Examiner, we have some testimony we would like to present. We have one witness, Mr. Eaton. We will avoid all repetition possible consistent with an orderly presentation and with making a 12:00 o'clock plane in Albuquerque.

GEORGE W. EATON, JR.

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

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Eaton, would you state your complete name, by whom you are employed and what capacity and what location?

A George W. Eaton, Junior, Senior Engineer for Pan American Petroleum Corporation in Farmington, New Mexico.

Q You've testified at many previous Commission hearings and your qualifications as a petroleum engineer are a matter of public record, are they not?

A They are.

MR. BUELL: Any questions as to Mr. Eaton's qualifications?

MR. UTZ: No questions.

Q So the Examiner may follow your testimony with respect to your recommendations, I wish you would briefly at the outset summarize as rapidly as possible your recommended pool rules for this associated oil and gas reservoir.

A I have six pertinent rules which I intend to recommend. They are as follows: One, assignment of up to 160 acres to an oil well; two, assignment of up to 640 acres for a gas well; three, gas allowables based on 100 percent acreage, that is, the allowable for a 660 acre gas well would be four times the top gas limit for an oil well on 160 acres. Four, a gas-oil ratio limit of 4,000 cubic feet per barrel. Fifth, a definition of an oil well as one which produces with a gas-oil ratio less than 20,000 cubic feet per barrel. Saying it another way, a gas well would be one which produces with a gas liquid ratio in excess of 20,000 cubic feet per barrel.

Q Would you briefly state the basis for your selecting a breakover point of 20,000 to 1?

A The basis for that selection of definition is that Pan American's Navajo "N" No. 1, I believe to be a true gas well. That well had a gas liquid ratio of 24,400 cubic feet per barrel

at its completion. Therefore, a gas well definition would have to be one that had no more than 24,000 cubic feet per barrel and 20,000 is something less than that, so that looks like a good break-over point between a gas well and an oil well.

Q Do you have any other recommendation with regard to pool rules?

A I have one other, and that is that gas wells be balanced for proration purposes under the same rule as exists in the general gas order for Northwest New Mexico.

MR. PORTER: Just a minute right here, Mr. Buell.

MR. BUELL: Yes, sir.

MR. PORTER: Do any of your recommendations differ with those of Texaco?

A I believe they are substantially identical. I don't believe Texaco touched on the balancing provision. I had this other basic thing I wanted to get in why I picked 20,000 cubic feet per barrel as a definition.

Q (By Mr. Buell) Are you generally familiar with the Texaco pool rule exhibit?

A Yes, sir, I am.

Q With probably your recommendation of the adding to the exhibit of a balancing rule you would concur in those rules as you understand them?

A Yes, sir.

(Whereupon, Pan American's Exhibit No. 1 was marked for identification.)

Q Would you look now at what has been marked as Exhibit No. 1? What is that Exhibit, Mr. Eaton?

A Exhibit No. 1 is a map of the Tocito Dome area showing thereon the completed wells in the area and two wells which are currently in the processes of completion and/or drilling. The completed wells are the Pan American Navajo "P" No. 1, a dry hole in the Southwest Quarter of Section 8 --

Q That's the northernmost well on Exhibit 1?

A That is correct.--the Pan American Navajo "N" No. 1 in the Southwest Quarter of Section 17, a gas well. The next completed well is an oil well, being the Texaco Navajo "AL" No. 1 in the Northeast Quarter of Section 28. There are two wells that are incomplete, the Texaco Navajo "AL" No. 1 in the Southeast Quarter of Section 28 is currently testing; the Pan American Navajo "N" No. 2 in the Northeast Quarter of Section 20 is currently drilling below 4,000 feet.

Q The Pan American well that you mentioned is drilling is located between the Pan American completed gas well and the Texaco completed oil well?

A That is correct.

Q What is the significance of the red line you have used to connect these three completions in this reservoir on your Exhibit No. 1?

A The red line labeled A-A^1 is the trace of a cross section which appears as our Exhibit No. 2.

(Whereupon, Pan American's Exhibit No. 2 was marked for identification.)

Q Would you look then at Exhibit 2, the cross section, the trace of which you just mentioned, and as briefly as possible outline for the record and the Examiner what Exhibit 2 reflects?

A Exhibit 2 shows the logs of the three completed wells in the Tocito Dome Pennsylvanian Pool. The log on the left of the cross section is from the Texaco "AL" No. 1, the oil well, the center log is the Pan American Navajo "N" No. 1, the gas well. The right-hand log is the Pan American Navajo "P" No. 1, the dry hole.

This cross section simply illustrates that the three wells either were completed or tested and found not productive in the same correlative porous interval fairly close to the top of the zone that I've labeled top Pennsylvanian pay member. The other marker that I have noted on Exhibit No. 2 is the top of the Mississippian, which I will call also the base of the Pennsylvanian.

Q Mr. Eaton, what is the significance of the lower perforations on the Pan American gas well?

A You'll notice that there are two sets of perforations on that well. They're approximately 30 feet apart. The lower set of perforations opened a porous member that occurred in that well that has not occurred in any other well in the area. It was open because it appeared to be productive from log calculations in that well. We perforated that zone by itself and attempted to selectively test it and actually did get gas from it. Later on, after opening the upper zone and attempting to selectively test it, we found communication existed between the two sets of perforations.

Now, we don't know whether that lower zone is productive of gas or whether, in fact, it is productive of any hydrocarbon, and in any event, it's apparently a relatively unimportant member since it hasn't appeared in any other wells. It may only be a matter of a few acres in size.

Q So, from the standpoint of being critical data with regard to separation of our well from the Texaco well, even assuming that some gas did come from that zone, it wouldn't be definitive of separation or communication?

A No.

Q From the standpoint of this hearing, and from the stand-

point of whether or not our gas well is in the same common source of supply with the Texaco oil well, what is the significance of this cross section, Mr. Eaton?

A This cross section presents my interpretation that all three of these wells are completed in or tested the same common source of supply.

Q Did you use all subsurface control available to you from wells completed in this immediate area?

A Yes, sir, I did.

Q By using all available subsurface control, is there any way that you can show separation between the Pan American gas well and the Texaco oil well?

A No, sir, there isn't.

Q Would you locate for the record on this exhibit approximately where the Pan American well would fall that is currently drilling?

A It would fall approximately one-third the distance between the Pan American Navajo "N" No. 1 and the Texaco "AL" No. 1.

Q Do you think it will be helpful in determining the question of separation or communication?

A It will be extremely helpful.

Q Do you feel similarly about any other wells that are

completed in this area?

A Yes, sir. Every well that is completed will provide more data to support my interpretation or the interpretation presented by the use of subsurface data and seismic data as Mr. McConnell did.

Q With regard to seismic data, of course, we all realize it's a valuable tool in oil and gas exploration, but based on your experience in the industry, do you think it is accurate enough to attempt to precisely define pool limits with such data?

A I think it would be extremely fortuitous if it were to coincide with the pool limits.

Q Do you recognize the possibility, Mr. Eaton, that subsequent development and data might show that in truth and in fact our gas is separate from the oil well?

A I certainly would admit that my interpretation could be wrong and these could be two separate reservoirs. I believe that they're not, I think they are associated. All these wells are completed in the same reservoir and it is an associated gas-oil reservoir.

Q From the standpoint of protection of correlative rights and the prevention of waste, would any harm result if these wells were prorated and regulated as if they were in the same pool and ultimate data showed that they were separate? Would any harm

result during this interim period by prorating them as being in a common source of supply?

A No harm would result.

Q Let's turn that coin over now. Can you see harmful results if they were prorated as separate and in truth and in fact ultimate data showed they were exclusively a separate source of supply?

A In that phase of it there would be an opportunity for violation of correlative rights and opportunity for waste to occur.

Q Let's touch briefly on a question of Mr. Nutters. From a strict reservoir engineering standpoint and ignoring all property rights, are you of the opinion that the most efficient way to produce an oil and gas reservoir, an associated oil and gas reservoir, would be through shutting in all the gas wells, all the high gas-oil ratio oil wells, and depleting that reservoir completely through low ratio oil wells?

A The most efficient recovery would result in doing that that you described there.

Q If you wanted to ignore property rights completely from a technical standpoint, that would be the best way to complete an associated reservoir?

A That's right. Forgetting completely correlative rights

that would be the best way to complete it.

Q In a reservoir such as this where there are differing property rights, would you see where such a method of depletion would do violence to property rights?

A Definitely violate correlative rights and property rights.

Q Would not the best solution be to strike a happy medium and protect correlative rights commensurate with the utmost conservation effort?

A Yes, sir, that's what we have done in proposing this set of rules. This is striking a good balance between a protection of correlative rights and a prevention of waste.

Q Are you familiar with any other associated oil and gas reservoir where the Commission has adopted rules similar in theory to what you are recommending here today?

A Yes, sir. I am very familiar with the Angel Peak Gallup reservoir where similar rules have been adopted.

Q And those rules have been in operation now for some time, if memory serves me correct?

A Yes, sir, they have.

Q Pan American is an operator in that pool?

A Yes, sir, they are.

Q Have you followed operations in that pool since these

type rules were adopted?

A Yes, sir.

Q What has been your observation with respect to the two objectives the Commission was attempting to achieve, protecting correlative rights commensurate with the maximum conservation effort?

A I believe those rules have accomplished that objective very well.

Q Has there been any indication whatsoever that we have had migration of oil up into the gas cap resulting in waste, as Mr. Nutter questioned the Texaco witness about?

A No, sir, there hasn't.

Q Actually, evidence has shown, has it not, that operating under those rules, that we have actually had an expansion of the gas cap?

A There have been some oil wells, wells that were originally oil wells which have later had to be classified into gas wells.

Q So certainly, then, in that pool those rules achieve the purpose for which they were designed?

A That is correct.

Q Do you know of any reason why they would not achieve the same purpose in this Pennsylvanian reservoir?

A I know of no reason that this reservoir should react

any differently. One thing I might add here, from a theoretical standpoint with these rules there should be some net expansion of the gas cap due to the fact that we are not taking into account in allocating to the gas wells production that would account for the volume of fluid, liquids, reservoir liquids that are produced by the oil well. So the gas wells are not exactly under these rules obtaining an equivalent volumetric withdrawal. This is the way these rules differ from the ones that we have in Devils Fork, for example.

Q Experience has shown us as a practical matter these rules will achieve our primary purpose?

A That is correct.

Q Protection of correlative rights and prevention of waste?

A That is right.

Q Lets talk briefly a moment on the status of our gas well, would you state for the record first its potential, IP?

A It's initial potential was 5,007 MCF per day plus a 220 barrels of condensate per day.

Q Do you recall what the gravity of that condensate was?

A 63.8 degrees.

Q As opposed to an oil gravity?

A My recollection is that the oil gravity on Texaco's well was 46 degrees.

MR. PORTER: 46 as compared with 68?

A 63.8.

Q (By Mr. Buell) What is the status of the Pan American well at this time?

A That well is shut in awaiting a gas market.

Q What is the status of a market?

A Pan American has signed a contract with the El Paso Natural Gas Company providing for sale of this gas. That contract has not yet received FPC approval, but such approval is expected in the fairly near future.

Q Are not our FPC experts predicting two or three weeks?

A Yes, sir, I have heard that estimate week.

MR. PORTER: What did you call them, an FPC expert?

MR. BUELL: I should have said our alleged.

Q Does our contract contemplate that El Paso will come into the pool to get the gas or are we going to have to take the gas to El Paso?

A That contract provides that Pan American will deliver the gas to El Paso. This means that a line will have to be laid from the pool area to a point on the El Paso line which runs roughly from Shiprock down to Gallup in a north-south direction over, near the middle of Range 17 West, which is just off of the map shown here in Exhibit 1.

Q The east edge of your map?

A Yes.

Q Has any engineering work been done by Pan American with regard to the line that we will use to connect up with El Paso's main line?

A Yes, sir, the preliminary engineering work on this matter has been completed, but we have held up final design of the line on account of the present development that is occurring in the Tocito Dome Penn Field.

Q Why is development important to your engineering of this line?

A Well, in view of the length of the line involved it's very necessary that we not design a line and install it that's too big, because there would be excessive cost. Likewise, we have to have a line that is big enough to handle the volume of gas that's going to be available to us, for again, it would be extremely costly to immediately loop the line or lay another one to handle the additional gas.

Q Based on the current situation existing in the pool at this time, what, in your opinion, would be an accurate estimate as to when the design would be completed and the pipeline completed and the pipe laid and connection made with El Paso?

A I believe we will be selling gas from this pool within

six months.

Q In connection with the testimony I believe of Mr. Walsh, has it been Pan American's hope and desire that Texaco would cooperate not only in the planning of this line but cooperate with the cost of this line?

A Yes, sir. And preliminary contacts with Texaco along that line have been made to work out an arrangement by which we can share the costs of the line and share the capacity of the line.

Q Do you have anything else that you would care to add at this time, Mr. Eaton?

A No, sir, I don't believe so.

MR. BUELL: That's all we have by way of direct of Mr. Eaton. May I formally offer Pan American's Exhibits 1 and 2?

MR. UTZ: Without objection Pan American's Exhibits 1 and 2 will be entered into the record of this case.

(Whereupon, Pan American's Exhibits 1 and 2 were offered and admitted in evidence.)

CROSS EXAMINATION

BY MR. UTZ:

Q On your cross section Exhibit 2 you didn't use seismic data in your interpretation?

A No, sir, I only used subsurface data available from the three completed wells.

Q That's basically the difference between your interpretation and Texaco's?

A Yes, sir.

Q Did you have a recommendation as to pool limits?

A Well, I didn't, but I will join with Texaco in their revised or amended application insofar as the pool limits are concerned.

Q In effect, then, that would create a pool of some four sections in Texaco's area, for example, that has actually not been proven?

A Yes, sir.

Q Would you not be of the opinion that a better way to handle this would be if the 160-acre and the 640-acre development is approved to create a spacing area rather than a pool area?

A That would be satisfactory, yes, sir.

Q That would eliminate the possibility of having a large amount of dry acreage being dedicated to the pool?

A It might eliminate having a nomenclature contracture hearing sometime.

Q In this situation that is definitely a possibility, is it not?

A Yes, could be.

Q You spoke of the Angel's Peak order in relation to this

order, now there is a basic difference between the two orders. It is 80-acre and 320-acre gas spacing and this order 640 and 40-acre gas spacing, is it not?

A That is correct.

Q The larger the spacing, whether oil or gas, the more likelihood you have of including not productive acreage to a unit, is that not true?

A I believe I'd have to agree that that would be more likely.

Q So a gas well receiving some five and three tenths million allowable when it would actually only have maybe 160 acres, or say 320 acres productive acreage, that would be allowing him, would it not, to disturb correlative rights by producing a 640-acre allowable and only have 160 or 320 acres productive?

A You said violation of correlative rights?

Q Yes.

A Yes.

Q And more than his share of the gas in place?

A Yes, with regard to waste, we would have to assume that there would be some well that had more than 640 productive acres and had only 640 acres assigned to it. So the two might balance out, but then that wouldn't take care of correlative rights. It would take care of your waste problem.

Q Yes. So actually the only thing Pan American has to gain by a 4,000 to 1 ratio is twice the allowable, is that not true?

A That is correct. And Pan American supported this 4,000 cubic feet per barrel because the initial well in the pool had a gas-oil ratio at its completion of more than 2,000 cubic feet per barrel. Until this morning when we had this fluid analysis data available to us, we were of the opinion that that might all be solution gas, which this would unnecessarily penalize the oil well to restrict it to a gas-oil ratio limit down below its solution gas-oil ratio, which it cannot possibly produce less at a lower gas-oil ratio than its solution ratio.

Q In regard to this no-flare situation, what would you think of the possibility of say a 2,000 to 1 ratio until you got a pipeline connection, or something less than 4,000?

A Well, that would be one way of handling the matter. I would rather recommend that a reasonable time limit be permitted in which to get this pipeline installed and gas sales commenced.

Q After which a complete shut-in would be ordered?

A Yes.

Q What would you consider a reasonable time limit?

A Oh, since I believe that we will have this line installed and gas sales made within six months, I would say six

months.

MR. PORTER: Mr. Eaton, in connection with that, you have a shut-in gas well during all this time, wouldn't this do damage to your correlative rights if these oil wells are allowed to produce and flare gas at that rate?

A Well, perhaps to some extent. I don't think that these correlative rights will be irreparably damaged in a six-month period. I'm willing to risk it over a short period.

Q (By Mr. Utz) You are gambling on getting an oil well somewhere?

A It would be nice, Mr. Utz.

MR. BUELL: If I may speak on behalf of Pan American in that this is more of a policy and position and principle involved since everyone has to admit that flaring of gas is waste, just looking at it as that and nothing else. As you stated now we are an operator of a gas well which will be shut-in until we get a market. It would seem to me that the Commission would need to weigh the pros and cons involved here with the detriment that would occur in development with a no-flare order effective immediately with regard to the volumes of gas that would be saved due to that order.

This is a field where we desperately need development information not only from the standpoint of designing our line, but

also from the standpoint of what type and size reservoir we have here. So, on behalf of Pan American it would seem to me that the Commission in its wisdom is going to have to weigh and decide.

MR. UTZ: You mean you think you are going to anticipate your development of this pool by production rather than the drilling of wells?

MR. BUELL: I think our experience is going to come through both. But certainly a no-flare order with no provision at this time for saving the gas is going to be a detriment to development, because companies just don't invest their money in a well they know they are going to have to shut-in for a period of time.

MR. UTZ: They might invest their money so they can get their money out that they have already invested, might they not?

MR. BUELL: That would seem to follow. We are in the process of drilling as actively as we can right now with Texaco's cooperation.

MR. PORTER: That's all I have.

MR. UTZ: Any other questions? The witness may be excused.

(Witness excused.)

MR. UTZ: Any other statements in this case or further

testimony? The case will be taken under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

Witness my Hand and Seal this 12th day of July, 1964.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3073, heard by me on July 6, 1964.

Examiner
New Mexico Oil Conservation Commission