

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 18, 1960

IN THE MATTER OF:)

Application of Pan American Petroleum)
Corporation for a hearing de novo before)
the Commission in Case No. 1909, Order)
No. R-1628, relating to the request for)
a 386-acre non-standard gas unit in the)
Dakota Producing Interval, San Juan)
County, New Mexico, comprising all of)
partial Section 7 and the W/2 of partial)
Section 8, both in Township 28 North,)
Range 10 West.)

Case 1909

BEFORE: Mr. A. L. Porter
Mr. Murray Morgan

TRANSCRIPT OF HEARING

MR. PAYNE: Application of Pan American Petroleum Corporation for a hearing de novo before the Commission in Case No. 1909, Order No. R-1628.

(Whereupon, Pan American's
Exhibits 1 through 7 were
marked for identification.)

MR. PORTER: The meeting will come to order, please.
Mr. Buell.

MR. NEWMAN: Kirk Newman of Roswell, New Mexico representing Pan American Petroleum Corporation and Skelly Oil Company. I have associated Mr. Guy Buell, a member of the Texas Bar, for Pan American and Mr. George Selinger, member of the Oklahoma Bar

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for Skelly.

MR. BUELL: May it please the Commission, we have one witness, Mr. Eaton, who has not been sworn.

(Witness sworn.)

GEORGE W. EATON, JR.

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

DIRECT EXAMINATION

BY MR. BUELL:

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

A My name is George W. Eaton, Jr., Senior Petroleum Engineer, Pan American Petroleum Corporation, Farmington, New Mexico.

Q Does the Farmington Office have jurisdiction over Pan American's operations in the area of the Angel Peak Dakota Gas Pool?

A Yes.

Q Have you ever testified at a Commission hearing?

A Yes, sir.

Q And your ~~previous~~ qualifications as a petroleum engineer are a matter of public record?

A They are.

MR. BUELL: Any questions, Mr. Porter?

MR. PORTER: No, sir.

Q I direct your attention now, Mr. Eaton, to what has been



marked as Pan American's Exhibit No. 1. What is that?

A Exhibit No. 1 is a portion of a map of the Angel Peak Dakota Pool, showing the area in 28 North, Range 10 West, showing the Northern tier of partial section across the Northern boundary of that township. The scale of the map is one inch equals one thousand feet.

Q What is the significance of the red line I see on that exhibit, Mr. Eaton?

A The red line denotes the defined limits by the New Mexico Oil Conservation Commission of the Angel Peak Dakota Pool. That nomenclature is through the April nomenclature order.

Q How are the Dakota gas wells distinguished on this exhibit?

A The Dakota gas wells are the only wells which are shown on this exhibit and they are colored in red.

Q All right now, with respect to Pan American's proposed Day Gas Pool, how is it designated on Exhibit 1?

A The proposed Day Gas Unit is shown in a hashed outline in the Northwestern portion of the map and shown to consist of partial Section 7 and West Half of partial Section 8, Township 28 North, Range 10 West.

Q Do you show the proposed well location on the Day Gas Unit on Exhibit 1?

A Yes. Day Gas Unit Well No. 1 is shown by the red dot



in the approximate center of the proposed Day Gas Unit.

Q In your opinion, Mr. Eaton, based on your study and general knowledge of the Dakota Gas Formation in this area, do you feel that a Dakota gas well completed at the location you've shown on Exhibit 1, do you feel that such a well would be in the same Dakota Gas Reservoir as the other Dakota wells on Exhibit 1?

A I do so feel.

Q Do you feel that all the Dakota wells on Exhibit 1, regardless of whether they're within the present horizontal limits of the Angel Peak Dakota Pool or not, do you feel that all Dakota completions on Exhibit 1 are in the same Dakota Reservoir?

A They are all in the same Dakota Reservoir.

Q Why is this unit non-standard, Mr. Eaton?

A The proposed Day Gas Unit is non-standard because it is not contained wholly within a Governmental section and does not consist entirely of contiguous quarter sections, being legal subdivision of a Governmental survey, and it is more than 320 acres in size.

Q What caused this, Mr. Eaton?

A This resulted from the irregularities in the Public Land Survey along the North boundary, Township 28 North, Range 10 West, which resulted in a series of short sections across the Northern boundary.

Q Going back to the proposed well location for a minute,



is that a regular location within the ~~purview~~ of the Dakota rule?

A Yes, sir. This is a standard location under the Dakota spacing rule.

Q From here, looking at Exhibit 1, it looks like that well is also located in the approximate center of the proposed Day Gas Unit.

A It is located as near center of the Day Gas Unit as possible and still be a standard location.

Q All right, let me ask you this, Mr. Eaton, do you feel that all of the acreage in the Day Gas Unit is productive of gas from the Dakota?

A Yes, sir, I do.

Q Upon what data do you base that conclusion?

A The proposed Day Gas Unit is virtually surrounded by completed Dakota wells.

Q It might help for the record if you would point out and locate and name some of the wells that are producing from Dakota that surround this acreage.

A To the Northwest of the proposed Dakota Gas Unit in the Southwest Quarter of Section 36, Township 29 North, Range 11 West, Pubco State No. 26 is a completed Dakota well. In Section 12 of Township 28 North, Range 11 West, the Angel Peak Oil Company No. 21 is a completed and producing well. This is immediately West of the proposed Day Gas Unit.



To the Southeast of the proposed Day Gas Unit there are two producing Dakota wells. Those wells are both located in Section 17, Township 28 North, Range 10 West and are Pan American's J. F. Day E No. 1 and Sunset International Sipco Kutz Federal No. 1 E.

To the Northeast in Township 29 North, Range 10 West, there is a completed Dakota well in the Southwest Quarter of Section 34. This well is a Southwest Productions Zachary No. 1. These wells virtually surround the Day Gas Unit.

Q How many acres are within the Day Gas Unit, Mr. Eaton?

A There are 385.89 acres in the Day Gas Unit.

Q For ease in testimony, throughout the remainder of your testimony let's refer to that as 386 acres, it almost is. The Dakota Pool rules provide for a maximum unit size of 324?

A That is correct.

Q So the Day Gas Unit is approximately 62 acres larger than the maximum under the rules?

A Yes, sir, that's right.

Q In your opinion, Mr. Eaton, will a Dakota well in this area drain that large an area?

A Yes, sir, it will.

Q I direct your attention now to what has been marked as Pan American's Exhibit No. 2. What is that exhibit, Mr. Eaton?

A Exhibit No. 2 shows interference data collected on Pan American's J. C. Davidson F No. 1 during the fall months of 1959.



Q All right, what is the exhibit composed of?

A The right-hand portion of the exhibit is a plat of the area surrounding the Pan American J. C. Davidson F No. 1, which is located in the Southwest Quarter of Section 28, Township 28 North, Range 10 West.

Q Mr. Eaton, would you go over to Exhibit 1 and just point to that location so we can orientate it with respect to the Day Gas Unit? Thank you. Coming back to Exhibit 2, what is shown on the left portion of the exhibit?

A On the left-hand portion of Exhibit No. 2 is shown a plot of the shutin pressure data which was observed on J. C. Davidson F No. 1 between the time when the well was completed and when it was first connected to a pipeline.

Q In other words, that well was completed and was not immediately connected and did not produce for that period of time while it was awaiting connection?

A Yes, the well was completed August 18, 1959. It was connected to a gas pipeline on November 17, 1959.

Q These pressure plots that you show on the left-hand portion of Exhibit 2 were pressures taken while the well was shutin awaiting connection?

A That is correct.

Q Would you go ahead and describe the pressure plot, please?

A Soon after completion and on September 2nd, 1959, a



pressure of 1995 pounds was measured. Later on, on October 9, 1959, this pressure had increased to a maximum of 2,006 P.S.I. Immediately thereafter a decline was observed until on November 17 the pressure was 2,001 P.S.I.

Q What is the significance of that decline, Mr. Eaton, the pressure on this well declining when it was not producing?

A This shows that this well is experiencing interference from production from other wells in the vicinity.

Q What was the nearest well to this shutin well that was producing from the Dakota during this interval of time?

A The nearest well which was producing during a portion of this time is Pan American Fred Feasel L No. 1 which is located in the Northeast Quarter of Section 32, Township 28 North, Range 10 West.

Q How far away was that well from the shutin well?

A This well is 3100 feet distant from the shutin well.

Q What does that indicate to you as an engineer from the standpoint of the area being drained by this producing well?

A This shows that the production from the Fred Feasel L No. 1 is affecting the pressure distribution over an area of 691 acres.

Q In other words, these data show that a Dakota well in this area will drain at a minimum 691 acres?

A It shows that at this time that this well was draining



691 acres.

Q I direct your attention now to Exhibit 3. What does that exhibit reflect?

A Exhibit 3 is a similar exhibit to that shown in Exhibit 2 in that it is also evidence of an interference data which was collected on a Pan American well in the Angel Peak Dakota Pool during the latter part of 1959. This well is Pan American J.E. Day D No. 1. It is located in the Northeast Quarter, Section 20, Township 28 North, Range 10 West.

Q Are these wells shown on the insert plat on Exhibit 3, are they near the Day Gas Unit?

A Yes, sir. The wells shown on Exhibit 3 are very close to the proposed Day Gas Unit. The Day Gas Unit on Exhibit 3 is shown in the red outline in the upper portion of the right-hand portion of the exhibit.

Q Was the well used on this exhibit, was it similarly completed, did produce, was shut in a while waiting on connection, and you observed pressures during that interval of time?

A That is correct.

Q What do these pressure data reflect?

A These pressure data reflect that J. F. Day D No. 1 was experiencing interference as a result of production from Sunset International Kutz Federal No. 1 E during the time that J. F. Day No. 1 was shut in.



Q Here again we observed a decline in pressure on the particular well although it was not producing?

A That is correct.

Q How far away was the nearest Dakota well producing at this interval of time?

A The nearest producing well for J. F. Day D No. 1 is 4200 feet distant.

Q From the standpoint of area of drainage, what does that show? What amount of acreage?

A This indicates a drainage area of 1275 acres.

Q I direct your attention now to Pan American's Exhibit No. 4. What is that exhibit?

A Exhibit No. 4 shows interference data which were collected on the Pan American J. F. Day E No. 1 located in the Southeast Quarter, Section 17, Township 28 North, Range 10 West.

Q These wells are in the same area as the wells shown on Exhibit 3?

A Yes, sir, they are. They are the same three wells, and immediately Southeast of the proposed Day Gas Unit.

Q Is this another well that was completed, shut in while waiting on connection and pressures observed during that time?

A Yes, sir.

Q What do these data reflect?

A These data indicate that during the time J. F. Day E



No. 1 was shut in it was experiencing interference from the Sunset Kutz Federal No. 1 E. The Sunset Kutz Federal No. 1 E is located 3,000 feet distant from the J. F. Day E No. 1.

Q Interference over a linear area of 3,000 feet, when you convert that to acreage, Mr. Eaton, how many acres did that show that well to be draining?

A That indicates that well is draining 650 acres.

Q In that connection, Mr. Eaton, with reference to Exhibit 4, that well was submitted as an interference well at the Examiner Hearing, was it not?

A Yes, sir, it was.

Q On the exhibit presented then, the distance between the shutin well and the nearest producing well was shown as 2550?

A Yes, that's correct.

Q In preparing this exhibit you found that was incorrect and instead of 2550 it should have been 3,000 feet?

A I found that the distance should have been shown as 3,000 feet.

Q With reference to 3,000, how were the pressures, how were they measured?

A They were measured with a dead weight tester which is accurate within five tenths of a pound.

Q I direct your attention to Pan American's Exhibit No. 5.

Will you please explain that exhibit?

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A Exhibit No. 5 is simply a tabulation of the pressure data which are plotted graphically on Exhibits No. 2, 3 and 4.

Q Do you feel that Exhibit 5 is self-explanatory?

A Yes, sir.

Q Mr. Eaton, I direct your attention now to what has been marked as Pan American's Exhibit No. 6. What is that exhibit?

A Exhibit No. 6 is an expanded portion of the Northern part of Township 28 North, Range 10 West showing that portion of the Angel Peak Dakota Pool and the area and tier of short sections which exist along the Northern boundary of Township 28 North.

Q What is the significance of the different colors I see on that?

A The various operators acreage is colored, I denoted by color on this exhibit. For example, acreage operated by Southern Union Gas Company is shown in green and acreage operated by Pan American Petroleum Corporation is shown in yellow. Acreage operated by Sunset International Petroleum Corporation is shown in brown and acreage operated by the Skelly Oil Company is shown in blue.

Q What are the units that you have outlined on that exhibit for these partial sections, Mr. Eaton?

A On the West side of this tier of short sections we have shown the 321.43 acre unit which the Commission Order No. R-1628 indicates that it would approve.



Q That Order 1628 is the order that was issued you after the Examiner Hearing?

A Yes, sir, that is right.

Q All right, what are the other units that you show there?

A The other units are units which would follow the pattern set by the suggestion in R-1628 which would fill up the remaining short tier of short sections and with approximately the same size units. Immediately to the East of the Day Gas Unit, as suggested under R-1628, is a 319.67 acre unit, immediately East of that would be a 322.88 acre unit. Immediately East of that a 327.29 acre unit, and the residual portion comes out to be 270.11 acres.

Q Would you go through those and locate for the record the acreage contained in each of those units?

A In the Dakota Gas Unit, as proposed by Order R-1628, the non-standard unit would consist of the West Half of partial Section 7, which is operated by Southern Union, and the East Half of partial Section 7 which is operated by Pan American, and the West Half, West Half of partial Section 8 which is operated by Pan American.

Moving to the East, the next unit would consist of the East Half of the West Half of partial Section 8 which is operated by Pan American, the East Half of Section 8 which is operated by Sunset International, and the West Half of partial Section 9 which is operated by Skelly.



Moving again to the East, the next non-standard unit which consists of the East Half of partial Section 9, operated by Skelly, and the West Half of partial Section 10 which is operated by Southern Union and the West Half of the East Half of partial Section 10 which is also operated by Southern Union.

Moving again to the East we find the next 327.29 acre non-standard unit to consist wholly of Southern Union operated acreage. And Section 12, the 270.11 acre unit is also a hundred percent Southern Union.

Q By the units you show on this exhibit you don't mean to reflect to the Commission that the various operators involved are forming units such as you show, do you?

A No, sir.

Q You just formed those units to follow the pattern indicated under Order R-1628?

A Just to continue the pattern indicated by R-1628.

Q If that pattern is followed through these partial sections as reflected on Exhibit 6, how many wells would it take to develop the acreage in these partial sections?

A It would take five wells.

Q And the fifth unit, I believe, is 270.11 acre unit?

A That is correct.

Q All right. I direct your attention to what has been marked as Pan American's Exhibit No. 7. What does that exhibit

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reflect?

A Exhibit No. 7 is a map of the same area as shown in Exhibit No. 6 and it shows the Northern portion of the presently defined Angel Peak Dakota Pool showing the tier of partial sections which exists along the Northern boundary of 28 North.

Q What is the significance of the units I see you have outlined on Exhibit 7?

A On the West side of Township 28 North in the area of partial sections we have shown the proposed Day Gas Unit which will consist of 386 acres. We have followed this pattern across this tier of partial sections forming units of approximately that same size.

Q On Exhibit 6 you showed the units following the pattern of order. On Exhibit 7 you followed the pattern proposed by the Day Gas Unit, which we are asking Commission approval here today?

A Yes, that is right.

Q Would you name for the record the gas units as formed on Exhibit 7?

A Yes. The proposed Day Gas Unit would consist of the West Half of partial Section 7 operated by Southern Union, the East Half of partial Section 7 operated by Pan American and the West Half of partial Section 8 which is also operated by Pan American. Proceeding to the East, the next unit would consist of the East Half of partial Section 8 which is operated by Sunset



International and Section 9 which is operated by Skelly.

Moving again to the East we find two units which are wholly operated by Southern Union Gas Company. The most Westerly one would consist of Section 10 and the West Half of Section 11, and the Easternmost one would consist of the East Half of Section 11 and Section 12.

Q Now again on Exhibit 7, you don't know that the operators involved are planning units of that type, do you?

A No, sir, the only one I have personal knowledge of is this proposed Day Gas Pool.

Q You have simply formed those to follow the pattern by our proposed Day gas?

A That is correct.

Q By that pattern what would be the largest of the four non-standard?

A By that pattern the largest of the four non-standard would consist of 401.74 acres.

Q I believe looking at Exhibit 7 it would take only four wells to develop the acreage in these partial sections following the pattern of the Day Gas Unit?

A That is correct.

Q Your previous testimony has shown, has it not, Mr. Eaton, that certainly one well in this area completed in the Dakota will effectively and efficiently drain in excess of your largest unit



which is approximately 402 acres?

A Yes, sir, our data show that during the fall of 1959 there were wells in this field which were actually draining larger areas than 402 acres.

Q In your engineering opinion would four wells developing these partial sections efficiently and adequately drain the Dakota gas reserves under this acreage?

A Yes, sir, they would.

Q Then you would have to be of the opinion that a fifth well which would fall on the 270.11 acre tract would be an unnecessary well?

A Yes, sir, it would not be needed to effectively drain this reservoir.

Q If it is an unnecessary well, it would then, if drilled, result in economic waste, would it not?

A Yes, sir.

Q When you compare the units on Exhibit 7 with the units reflected on Exhibit 6, which seemed to you, in your engineering opinion, to be the more orderly the more uniform development of the two?

A The units shown on Exhibit 7 appear to me to be more orderly and more uniform.

Q Actually, attempting to form units as shown on Exhibit 6 simply compounds an already complex situation from the standpoint



of ownership in these partial sections, does it not, Mr. Eaton?

A Yes, sir, it's always a problem when you're involved in these partial sections, but to split up the acreage would compound you.

Q I didn't mean to interrupt you. Let me direct you back to Exhibit 6 and would you locate the Pan American acreage immediately to the right of the Day Gas Unit shown on Exhibit 6?

A Yes, this would be the East Half of the West Half of Section 8.

Q Now, with that acreage in mind, our neighbors to the East are Sunset International and Skelly, are they not?

A Yes.

Q They're good neighbors?

A Yes, good neighbors.

Q Do you have any assurance that they would include that Pan American acreage we have mentioned in a unit they might form?

A I have no indication to that effect.

Q Although they are good neighbors they might want to take care of their own acreage and not Pan American's?

A Yes, sir, that's possible.

Q In your opinion, Mr. Eaton, will the approval of this request for the non-standard Day Gas Unit being made here today by Pan American, will the approval of that request serve conservation and protect the correlative rights of all parties of



interest?

A Yes, sir.

Q Do you have anything else you would like to add, Mr. Eaton?

A I don't believe so.

MR. BUELL: That's all we have at this time, Mr. Porter.

MR. PORTER: Anyone have any questions of Mr. Eaton?

MR. PAYNE: Yes, sir.

MR. PORTER: Mr. Payne.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Eaton, is it your opinion that if an operator in a 320 acre pool establishes that a well will efficiently drain 800 acres that he should have an 800-acre unit for that one well?

A No, sir, not necessarily.

Q Well, when should he and when shouldn't he?

A When such an application would provide for orderly development, then he might be justified.

Q As your proposal here today does in your opinion?

A Yes, sir.

Q Now, Mr. Eaton, referring to Exhibit 7, you propose that there be four non-standard units with the acreage dedication being considerably in excess of 320 acres, is that right?

A This exhibit is not proposing four non-standard units,



it's just showing the pattern which might follow the granting of the non-standard unit for the Day Gas Unit.

Q Let's assume they are developed that way, do you feel it's more orderly to have four units considerably in excess of the standard acreage dedication in the pool than it is to have four standard units insofar as acreage is concerned and one non-standard unit?

A In this particular case I feel that it is.

Q Now, why is that?

A Because by formation of the four non-standard units you are confronted with a communitization including only two operators in the Day Gas Pool, only two operators in the unit immediately to the East, and only a single operator in the remaining two non-standard units.

Q I take it then that you are proposing that spacing at least in some instances should be dependent on ownership?

A No, sir, not necessarily. Actually, there's no way that a tier of short sections can be spaced identical with sections that are normal in size. You have got to have some exceptions.

Q But if it's spaced as shown on your Exhibit No. 6, you would have four units with essentially 320 acres in them and one with 270, wouldn't you?

A That is correct.

Q Now, do you know of your own knowledge of any Dakota



wells that were drilled when the spacing was only 160 acres?

A Yes, sir.

Q So that the fact that he had a 270-acre non-standard unit might not result in not having that well drilled?

A No, sir, it might not. We think that well would be unnecessary and therefore would constitute economic waste.

Q Isn't it true, Mr. Eaton, that an operator knows when he acquires acreage in these short sections that it may be necessary for him to execute communitization agreements in order to form a drilling and proration unit?

A Yes, sir, I'm sure they are aware of that.

MR. PAYNE: Thank you, that's all.

MR. PORTER: Anyone else have a question? Mr. Utz.

BY MR. UTZ:

Q Mr. Eaton, pertaining to this communitization, do you know of any other 320-acre standard units in either the Mesaverde or Dakota which have three or more parties communitized?

A Yes, sir.

Q So it is not any special problem in itself as far as communitization is concerned?

A It's not impossible, certainly. It is more operators are involved in communitization the more difficult it is. It is certainly not impossible.

Q Yes, but it happens every day even on standard units



doesn't it?

A Surely.

Q Pertaining to the small unit on your Exhibit No. 6, I believe it is, yes, the 270-acre unit, as a matter of fact, do we know whether that's even productive or not?

A No, sir. It is productive in my opinion.

Q Supposing it is productive, is it any reason to believe that we couldn't go over into Section 7 of 28 North and 9 West and pick up another 20 or 30 acres and make the unit more nearly 320 acres normal size for the Dakota Pool?

A That would be possible. I don't think it would be desirable for several reasons.

Q Why not?

A First of all, the data available to me indicate that the acreage in the productive limits, that it's very far into Range 9 West, the productive limits wouldn't extend very far into Range 9 West. In the second place I don't know what the operators plans might be, the owner of the acreage in that short section in Range 9 and I could find no precedent in New Mexico of a proration unit which extended into two different townships.

Q I think I can assure you we can find them. I can't say off-hand where they are.

MR. PAYNE: There's no reason to believe that an oil pool stops at township lines?



A Oh, no.

Q One of your objections to including the West Half of the West Half of Section 7 is that it might not be productive, is that right?

A You are talking about the West Half of the West Half of Section 7 in 28, 9?

Q Right.

A It might not be. By the time development progresses out to that portion we'll know somewhere along the line you will wind up with the productive limits which may limit the amount of acreage that might be assigned to a non-standard unit.

Q Is that peculiar to just these correction areas, don't we have that in standard units all the time?

A To a lesser extent for the reason that these correction sections are narrower and therefore longer to get the same.

BY MR. MORGAN:

Q Mr. Eaton, you show on your Exhibit 3 that you have radial drainage of 4200 feet. You are familiar with that exhibit?

A Yes, sir.

Q In this you would have lateral drainage just a little less than that in this proposed unit as shown on Exhibit 7, and you would have about 3860 feet of lateral drainage in this proposed unit. Do you agree with those figures? Is that the way you figure it out?



A I haven't checked them.

Q What?

A No, I haven't checked them out.

Q About three-quarters of a mile, that is what it would be?

A Yes.

Q In your studies have you been able to determine the relative efficiency of drainage half that distance from the well and the relative efficiency of drainage twice that distance from the well?

A Our data indicate that there are no significant difference in recovery owing to well being 3800 feet apart. I haven't made a study of those specific numbers. I don't want to mislead you.

Q According to that, then, if this were a continuous gas pool across this strip herewould a well right in the middle of it, draw gas from each end of it?

A Do you mean to ask now would one well in the exact middle?

Q If one well were right in the middle of this would it draw gas from one end or the other of it?

A And only the tier?

Q One well.

A And would it drain only the tier of short sections?

Q No, I didn't say that; would it drain gas from both ends of the tract with one well in the center of it?

A Yes, given enough time, yes, sir. Just stimply a matter



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of time.

Q And efficiently? A Yes, sir.

Q There would be no gas here. Suppose this well was depleted, there would be no gas remaining out here in the ends if there were no other wells around it at all?

A Yes, there will be gas left around there. There would be under any spacing pattern.

MR. MORGAN: That's all.

BY MR. UTZ:

Q Looking at Exhibit No. 2 where you show a drainage of 691 acres, were those pressures top hole pressures or bottom hole?

A They were top hole pressures acquired with a dead weight gauge.

Q You show a pressure drop in the neighborhood of four pounds from early in October to about the middle of November, is that correct?

A Five pounds, yes, sir.

Q Five pounds. All right. Do these wells make any liquids?

A Yes, sir.

Q Considerable amount, don't they?

A Some of them considerable amount, yes, sir.

Q When you took this pressure in the middle of November, do you know how many liquids was in the bottom of the hole?

A Yes, sir, not any.



Q You don't think there was any even though the well does make liquids?

A That's right.

Q Why do you believe that?

A We determined it with our sonet log device. We found no fluid level.

Q I see, you actually measured the liquids then, or attempted to measure them?

A Yes, sir, we attempted to measure the liquid but we found none.

Q Is that normal for these Dakota wells when they're shut in for several months that no liquids come into the hole?

A That's been our experience. Our experience has been that there is liquid accumulation in the hole immediately after the production and the longer the well is shut in the fewer liquids there are, the gas pressure indications in the tubing driving the liquid back into the formation.

Q There are liquids present as liquids in the reservoir, however?

A I don't really know the answer to that question. I personally don't think so, but although with some of the reservoirs that are reported it would seem to be on the border line. I think it's condensate.

Q Present as a liquid in the reservoir or retrograde?



A Retrograde.

Q On Exhibits 3 and 4, did you also attempt to measure liquids in the bottom of the hole on your last pressure reading on those wells also?

A Not on these two particular wells I don't believe. We ran a number of sonolog shots out in this field and we never found any liquids. I don't believe that the sonolog was run on those two particular wells. We were satisfied that there weren't any.

Q Had there been liquids however, a top hole pressure reading wouldn't have been accurate, is that correct?

A That's right.

MR. UTZ: That's all I have.

MR. PORTER: Mr. Nutter.

BY MR. NUTTER:

Q Do you mean to tell me when you finish producing a well there's liquids in the well bore and then when you shut the well in the pressure in the tubing chases the liquids back into the reservoir?

A Yes, sir, that's been our experience. These Dakota wells. Now I don't mean to infer that goes for every well.

Q Now, in other words, you might say that this would be a similar situation to expanding gas cap here in the tubing driving the liquids down into the reservoir?

A That's an oversimplification, but yes, sir, I guess so.



Q As that gas cap expands and drives the liquids in the well bore you would have a decrease in pressure, wouldn't you?

A No. What actually happens is that gas bubbles through that liquid and builds up a pound of pressure say, that decreases the head of liquid which permits another bubble of gas to filter through that head of liquid which in turn decreases the liquid head again.

Q You are not telling me the liquids come in one way and the gas is going the other way?

A Yes.

Q The liquids going into the reservoir and the gas is coming out?

A That's right. That may not be into the same pore space, if I make myself clear.

Q Maybe that's what an interference test is. Mr. Eaton, are you aware of quite a number of instances in the Blanco-Mesaverde Gas Pool where the Commission has permitted the dedication of acreage in short sections similar to what we have here in such a manner as to achieve as near to possible a standard size proration unit?

A I'm aware that there are a number of non-standard units in the Blanco-Mesaverde Field in these area of short sections.

Q Hasn't it usually been the objective of the Commission to try to achieve a standard size unit if at all possible?



A I don't know.

Q Are you aware of instances where the Commission has permitted the dedication of acreage in short sections in which the total amount of acreage dedicated to the well approximated 385 acres?

A Yes, sir.

Q Now, you are acquainted with the situation where they have attempted to achieve the 320 and also with some where they have attempted to achieve the 385?

A Yes.

Q Which has been the more standard policy of the Commission?

A The number of proration units in the Blanco-Mesaverde Field which exceed 385 acres in size are very few.

Q There are quite a number that comprise short sections and fractions of short sections which approximate 320 acres, however, are there not?

A Yes, sir.

MR. NUTTER: I believe that's all. Thank you.

BY MR. PAYNE:

Q Mr. Eaton, this pool is not prorated, is it?

A No, sir.

Q In view of that, what is Pan American's chief objection to the order entered after the Examiner Hearing? Does it relate to offset obligations?



A No, sir.

Q If you have no problem then with offset obligations and no problem with restriction on production, I don't quite understand why you care how much acreage is dedicated to this well.

A We feel that the dedication of acreage along the pattern that will be established by this proposed Day Gas Unit would provide for more orderly and uniform development in this area of short sections.

Q Now, the unit as proposed by you, Pan American, would have an interest in only one well?

A That is correct.

Q And if the units were established as shown on your Exhibit 6, Pan American would have an interest in two wells?

A That is correct, assuming that our neighbors to the East are willing to take part of Pan American's acreage in the pooling agreement.

Q Well, now, those neighbors to the East, Mr. Eaton, would have to get approval for a non-standard unit no matter what they proposed to dedicate, would they not?

A Yes, sir.

Q So that the Commission could at that time see if the proposal was to include Pan American's acreage or to leave it out?

A Yes, sir.



MR. PAYNE: Thank you.

MR. PORTER: I believe it's been established that they're good neighbors. Anyone else have a question?

BY MR. UTZ:

Q Pan American would have under this larger unit more interest in the well to be drilled in Section 7?

A Yes, sir.

Q That is your main concern, is it not?

A We would also be operator of that well and have a larger interest in the unit. We would participate in drilling only one well. We think that is desirable.

MR. UTZ: That's all.

BY MR. PORTER:

Q Mr. Eaton, you realize that one of our two primary functions as a Commission is to protect correlative rights, do you not?

A Yes, sir.

Q When we establish a standard unit for proration don't you think it should be the Commission's policy to try to see that the units are as near that standard as possible without creating too many hardships on the operator?

A We think that correlative rights will be protected under our proposal.

Q You don't think that a larger than a standard unit would tend to drain gas from standard units?



A No, sir.

Q In this shape?

A No, sir. Let me amplify that a bit. Certainly I don't want to testify that a well in the center of this proposed non-standard unit would drain exactly the particular 386 acres which would be assigned to it, neither would any other standard unit.

Q It wouldn't drain 320 in that shape either?

A No, sir. No, sir.

MR. PORTER: Anyone else have a question of the witness?

MR. SELINGER: Yes, I would like to ask the witness some questions.

MR. PORTER: Mr. Selinger.

BY MR. SELINGER:

Q Mr. Eaton, you have been asked about correlative rights. Will you step to one of the exhibits and indicate whether or not if I'm correct in my arithmetic whether or not that strip will contain 14 wells completely around it on 320 acres?

A That is correct.

Q So that you are talking about drilling four wells in this strip rather than 14 offsets completely surrounding the strip, is that correct?

A That is correct.

MR. SELINGER: That's all.

BY MR. PAYNE:



Q Five wells would more adequately protect the strip than would four, would it not?

A Not if production is on a ratable basis.

BY MR. SELINGER:

Q Don't you think that the operators owning interest in the strip itself should be the best judges as to whether or not correlative rights are being violated?

A Yes, sir.

BY MR. PAYNE:

Q Do you think all the operators should be interested in the particular unit we're dealing here with today since only two of them own acreage in it?

A Yes, I do, because what happens to the non-standard unit proposed for the Day Gas Unit will dictate the probable action in the remaining tier of partial sections.

BY MR. SELINGER:

Q Who owns acreage, not only in the strip but also in the field, having Dakota wells, of the one, two, three, four operators? Does Southern Union have production other than in the strip in this field?

A I'm not sure.

Q Does Sunset?

A Yes, sir.

Q Does Pan American?

A Yes, sir.

MR. SELINGER: That's all.



MR. PORTER: Mr. Buell.

MR. BUELL: May I at this time offer Pan American's Exhibits 1 through 7 inclusive and let me assure the Commission that this application is not intended on Pan American's part to be an attack either directly or indirectly on the 320 acre Dakota spacing. We feel we have an unusual acreage situation here that frankly we feel it calls for an unusual remedy. It's complex. It's complicated, and that's why we ask for the relief that we requested.

MR. PORTER: Anyone have any objection to the admission of these exhibits? The exhibits will be admitted to the record.

MR. SELINGER: Mr. Porter, the representatives of the good neighbor to the East would like to present some testimony.

MR. PORTER: The present witness may be excused.

(Witness excused.)

MR. PORTER: Does that conclude your testimony, Mr. Buell?

MR. BUELL: Yes.

MR. PORTER: Mr. Selinger, you may call your witness, please.

MR. SELINGER: Mr. Payne, there are two witnesses we would like to have sworn at this time.

(Witnesses sworn.)



BILL COLE

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

DIRECT EXAMINATION

BY MR. SELINGER:

Q State your name. A Bill Cole.

Q You are associated with what company and in what capacity?

A Skelly Oil Company in the Contracts Department.

Q Particularly, are you involved in negotiations for communitization of tracts for proposed units?

A Yes, we are at this present time negotiating with Sunset.

Q You are familiar with the Skelly Oil Company's interest and the Sunset interest in this particular strip, are you not?

A Yes, sir.

Q Have you been negotiating with them for some time with respect to a proposed unit?

A We have been negotiating for about three or four months.

Q I'll refer you to Exhibit 7 and ask you whether or not the negotiations that you and Sunset have been carrying on for the past three or four months conforms with the unit that Pan American has indicated as lying just East of the unit proposed at this hearing?

A That is the unit we are negotiating on.

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Q How much acreage does Skelly, which is indicated in blue on that exhibit, have in that strip?

A We have 256.77 acres.

Q Does it all lie in the unit lying immediately East of the unit involved at this hearing?

A Yes.

Q Now, I'll refer you to Exhibit 6. If the present order remains as is issued, the unit which lies immediately East of the present proposed Day Unit under that order would contain how many varied interests of operation?

A Well, it would contain Pan American, Sunset and Skelly.

Q That is indicated on Exhibit 6 in yellow, brown and blue, is that correct?

A Yes, sir.

Q And would that unit contain all of the Skelly acreage?

A No, it would not.

Q What would result from the Skelly acreage under that Exhibit 6?

A It would result in two units being formed, splitting up Skelly's acreage in fractional Section 9.

Q So that it would result in the two units containing portions of the Skelly acreage, is that correct?

A That's correct.

MR. SELINGER: I believe that's all. Oh, I have one



question further.

Q Referring to both Exhibits 6 and 7, the North part of the entire tier is composed of lots, are they not?

A That is correct.

Q And the South part contain approximately 80 acres?

A That's correct.

MR. SELINGER: I believe that's all.

MR. PORTER: Anyone have a question of the witness?

The witness may be excused.

(Witness excused.)

TOM POPP

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

DIRECT EXAMINATION

BY MR. SELINGER:

Q State your name. A Tom Popp.

MR. PORTER: What was that name again?

A Tom Popp.

Q Mr. Popp, what company are you associated with?

A I am with the Sunset International Petroleum Corporation.

Q What is your position with that corporation?

A District Superintendent over Northwest New Mexico.

Q Are you an engineer by profession?

A Yes.



Q Are you familiar with the negotiations that your company has had with the Skelly Oil Company in the proposed unit which is depicted on Exhibit 7 as the unit lying immediately East of the present Day proposed unit?

A Yes, sir, I understand we are negotiating with Skelly in setting up such a unit.

Q Does Sunset have other acreage in this immediate area?

A Yes, sir.

Q Do you have other wells, producing wells, from the Dakota Gas Reservoir in this immediate area?

A Yes, sir, we have one immediately adjoining that to the South that has been pointed out and used to show interference by Pan American.

Q One of your wells was used in the interference depicted on Exhibits 2, 3 and 4?

A Yes, sir.

Q Are you an engineer of an accredited school?

A Yes, sir.

Q What year did you graduate with what degree?

A I graduated in 1958 from the University of Wyoming with the degree of Petroleum Engineer.

Q Now, I refer you to Exhibits 2, 3 and 4 and from those exhibits have you come to any conclusion to whether or not a well will drain Dakota gas in excess of 320 acres?



A From the information available and presented by Pan American I believe and we believe that a well will drain in excess of 320 acres.

Q Will it drain at least 384, approximately that amount of acreage?

A Yes, sir.

Q If the units are required to be drilled and formed in line with Exhibit 6, it would result in a unit containing your acreage composed of two partners, is that correct?

A Yes, sir.

Q And if a unit is proposed in line with Exhibit 7 it would result in only one partner, is that correct?

A Yes, sir.

Q And the two companies have been, that is Skelly and Sunset have been negotiating for the formation of a unit as depicted in Exhibit 7?

A Yes, sir.

MR. SELINGER: I believe that's all.

MR. PORTER: Anyone have a question of Mr. Popp? Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Popp, what is dedicated to your Kutz E Federal No. 1 in Section 17?



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A It's the East Half of the section.

Q That's 320 acres? A 320 acres.

Q And you have the little strip in this proposed unit directly North of it, do you not?

A Yes, sir. We have the East Half of the partial Section 8.

Q Why didn't you ask for communitization with that 320 acres with what acreage you have in Section 8?

A Would you repeat the question, sir?

Q The question was, you have 320 acres dedicated in the East Half of Section 17 and adjoining acreage directly to the North. My question was why didn't you ask for communitization with the portion you have in the partial Section 8 to the 320 acres in Section 17?

MR. SELINGER: We would like to object to that question because we are not, neither Sunset, Skelly or Pan American is attacking the 320 acre order of the Commission.

MR. UTZ: It looks like you are.

MR. SELINGER: We are not. We are not asking for any exception in the regular Governmental subdivision. We are asking for an exception due to the adjustment on the township line.

MR. UTZ: You are asking for some 308.

MR. SELINGER: Whether we ask for 320 or 386 we are required to have a unit. Regardless of the size of the unit we are required, even if we ask for 320, we still have to come in and ask



for a hearing because of the very nature of the situation here.

MR. PORTER: Will you give us an opportunity, the Commission will sustain your objection. Does anyone else have a question?

MR. SELINGER: That's all we have.

MR. PORTER: The witness may be excused.

(Witness excused.)

MR. PORTER: Does anyone have testimony to present in this case? Any comments or statements that you want to make for the record?

MR. WHITWORTH: Guy Whitworth on behalf of El Paso Natural Gas Company. El Paso Natural Gas concurs with the application of Pan American in Case 1909.

MR. PORTER: Anyone else?

MR. PAYNE: Mr. Commissioner, we have a communication from Southern Union Gas which reads as follows: "Southern Union Gas Company strongly recommends the Commission's approval of this application. We believe the application is both practical and just and in the best interest of conservation. The utilization of these partial sections will result in the better distribution of the dedicated area resulting in no loss of productive acreage. Most important we feel the area will be adequately drained by the proposed drill site." Signed by Paul J. Clote, Manager of Drilling and Production.



MR. PORTER: Any other communications regarding the case? The Commission will take the case under advisement and take up next Case 1904.

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 day of May, 1960.


 Notary Public-Court Reporter

My commission expires:

June 19, 1963.

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