Case Number

4359

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 27, 1970

EXAMINER HEARING

IN THE MATTER OF:

Application of Pan American Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

Case No. 4359

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 4359.

MR. HATCH: Case 4359. Application of Pan American Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

MR. BUELL: For Pan American Petroleum Company, Guy F. Buell.

MR. MORRIS: Mr. Examiner, I'm Richard Morris, of Montgomery, Federici, Andrews, Hannahs and Morris, Santa Fe, appearing on behalf of Marathon Oil Company.

MR. LOSEE: Mr. Examiner, A. J. Losee, Artesia, appearing on behalf of the Yates Petroleum Corporation.

MR. BUELL: We have one witness, Mr. Examiner. Mr. Hosford.

MR. UTZ: Stand and be sworn.

(Witness sworn)

(Applicant's Exhibit 1 marked for identification)

PATRICK E. HOSFORD,

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

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Hosford, would you state your complete name, by whom you are employed, and in what location and in what capacity, please, sir.

A Patrick E. Hosford, employed by Pan American Petroleum Company in Fort Worth, Texas as a staff engineer.

Q Mr. Hosford, you've testified before this Commission on previous occasions and your qualifications as a petroleum engineer are a matter of public record, are they not?

A Yes, they are.

MR. BUELL: Any questions, Mr. Examiner?

MR. UTZ: No, sir.

Q (By Mr. Buell) In connection with your testimony in this case, Mr. Hosford, would you look first at what has been identified as Pan American's Exhibit No. 1. What is that exhibit?

A Exhibit No. 1 is a structure map contoured on top of the Atoka Penn Correlative Marker that Pan American uses, showing a major portion of the Atoka Penn gas pool in Eddy County, New Mexico.

Q How have you identified the wells of interest in this particular area?

A The Atoka Penn wells are identified by orange circles. These are producing wells.

Q As well as some that have been produced and been abandoned?

A Yes, sir.

Q How have you identified the proposed location of our

new well to this unit?

A The proposed location is identified by a red circle with a red arrow pointing to the proposed location in the south half of Section 22.

Q Now, this is an unorthodox location, Mr. Hosford. Why is it unorthodox?

A It's unorthodox because the pool rules provide the wells be drilled 990 from the 320-acre unit boundaries, with wells to be located in the southeast quarter and the northwest quarter of each section.

Q Was the number one well on this unit a grandfather well, and do you know what I mean by "grandfather" well?

A Yes, sir, I do. This particular well was drilled and completed early in 1959, and the pool rules became effective, or at least applied to wells completed after June 5th, 1959. This well was completed prior to the field rules adoption and therefore is exempt from the field rules itself.

Q In other words, it could have been located without exception where we are asking for our number two well to be located?

A Yes, sir. It could have been at the time it was drilled.

Q Do you think if we had known the number one had watered out, we would have located in the west portion of the unit instead of the east?

A If we had any idea that water influx would have been a contributing factor to a well's performance in this reservoir, we sure would have.

Q Are there other grandfather wells in this pool that are off-pattern?

A Yes, sir, there appears to be several grandfather wells. One appeared in Section 14 drilled in 1957. It's a standard of Texas Everest. And here appears to be one in Section 15, completion date in '58. However, it appears to be a standard well drilled about the same location as our Flint gas unit.

Q Has the Commission previously granted an unorthodox location in this gas well?

A Yes, sir. There have been previous unorthodox locations approved.

Q Some of them penalized, their allowable?

A Yes, sir. There are two that do have penalized allowables. One with a seventy-five per cent allowable and one with a seventy-nine per cent allowable.

Q All right. What has happened to our Flint gas unit No. 1 that causes us to desire this unorthodox location?

MR. UTZ: Which wells were those penalized?

THE WITNESS: One is the Marathon Oil Guy F. Nickerson, A Well No. 1.

Q (By Mr. Buell) Is that Marathon?

A Yes, sir, located in Section 30, 18 South, 28 East. It has a seventy-five per cent acreage factor.

MR. UTZ: Section 30?

THE WITNESS: Section 30. It's not on this map. It's on the edge of the map over here (indicating). And we do have one posted on this map in Section 15. It's the **Standard** of Texas, Paul Terry Well No. 2 located in Section 15, 18 South, 28 East. It does carry a .79 allowable.

MR. UTZ: Thank you.

THE WITNESS: I might also point out that there is another off-pattern well that for some reason does not carry the penalty in the north half of Section 21. It's a well operated by Yates, Dayton Townsite Gas Unit.

Q (By Mr. Buell) Was that a Yates well?

A Yes, Yates Petroleum. This well, as I mentioned, was drilled off-pattern for some reason, no penalty was assessed. I wasn't familiar with the case myself.

Q All right, sir. Now, what's happened to our **Flint** Gas Unit No. 1?

A Our **Flint** Gas Unit No. 1 has been a real fine well. In February of this year, it produced, during the month of February, about 1600 mcf a day and was making six barrels of water at that time. This well began to cut water in November of 1968 and an analysis of this water indicated it was pool formation water. Following this production in February, in

April this well just suddenly went to a hundred per cent water production and we were unable to bring it back, which would indicate the suddenness of this water influx in this particular well.

Q Have any other wells to this eastern periphery watered out also?

A Yes, sir. Our Pan American C. R. Martin in the west half of Section 23 did water out also. It did produce some gas from the Atoka Penn and subsequently watered out.

Also, the Ingram Well in the north half of Section 27 to the south down here, watered out in the main Penn gas or Atoka Gas pay and is now producing from some stringers above this main pay. It's not too good a well at this time.

Q All right, sir. In view of the Flint Gas Unit No. 1 going to water, what portion of this proration do you feel is underlain by recoverable gas in the Atoka Gas Penn Pool?

A I think that there probably has been some coning, in a sense, of water into this Flint Gas Unit No. 1, and I would -- in my estimation, approximately three-fourths of this 320-acre unit is still capable of producing gas. I would say one-fourth or roughly eighty acres has watered out.

Q All right. In view of that, then, what would be your recommendation to the Commission by way of an allowable adjustment if they should elect to approve our application here today?

A I think it would only be proper to protect correlative rights of other parties that a well drilled at the proposed unorthodox location be allowed to produce at seventy-five per cent of top allowable.

Q Do you feel with a twenty-five per cent penalty, would protect the correlative rights of all the other interest owners in this gas pool?

A Yes, sir, I feel like it would protect the correlative rights of interest owners in this gas pool and yet still allow Pan American to recover gas that is obviously remaining in this 320-acre unit.

Q If this application is not approved and this well is never drilled, what will happen to the gas under this unit?

A The remaining gas under this unit, in my estimation, would migrate beyond the unit, would be recovered by remaining field wells.

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

A No, sir, I don't.

MR. BUELL: May it please the Examiner, that's all we have by way of evidence. I would like to formally offer our Exhibit No. 1.

MR. UTZ: Without objection, Exhibit No. 1 will be entered into the record of this case.

(Whereupon, Applicant's Exhibit No. 1 was entered into the record.)

MR. UTZ: Any questions of the witness?

MR. MORRIS: Yes, sir.

CROSS-EXAMINATION

BY MR. MORRIS:

Q Mr. Hosford, does the proration unit in the south half of Section 22 presently carry an over or underproduced status?

A I was looking at the proration schedule here for April, and this well has recovered about 5.5 billion cubic feet of gas when it did go off production.

Q You can't say that it is underproduced at the present time?

A Well, it looks like it did go in with a beginning allowable in March of 131 million and produced 35 million in March and came out with a -- I don't know how to read this thing -- overproduction of 96 million.

MR. BUELL: If the Flint Gas Unit No. 1 is underproduced, it will never make it up. And if it's overproduced, it's making that overproduction up rapidly.

Q (By Mr. Morris) Assuming that the unit is presently underproducing, is it your proposal that the underproduction that has accrued to the unit in this particular well, be transferred to the well at your proposed location? In other words, that the underproduction just be carried forward with respect to the unit itself?

A It is my own personal recommendation that it would not be.

Q It would not be?

A It would not be.

Q Now your well in the north half of Section 22, do you know whether it is in an overproduced or underproduced status at the present time?

A It appears to be in an overproduced status in the column, yes, sir. It has a net allowable as of March 1, 146 million.

MR. UTZ: Just a minute.

THE WITNESS: Am I reading this right, Mr. Utz?

MR. UTZ: There is an over and under column right next to the production column on the sheets you are reading from.

THE WITNESS: Yes, sir.

MR. UTZ: And at the top of those two columns is a month.

THE WITNESS: Right.

MR. UTZ: What month is that?

THE WITNESS: We are showing March, as far as the beginning net allowable, the mcf production in the over and under.

MR. UTZ: Let's just worry about the beginning net. Let's not worry about the overproduction in the over and under-

produced column.

THE WITNESS: Fine. At the beginning, as of March, its overproduction shows it to be overproduced 183 million.

MR. UTZ: 183?

THE WITNESS: Yes, sir.

MR. UTZ: That is the March overproduced status?

THE WITNESS: Yes, sir.

MR. UTZ: Okay. Now, while we're at it, on the well to the south, what is the March underproduced status?

THE WITNESS: The March underproduced status is 96 million.

MR. UTZ: 96 million?

THE WITNESS: Yes, sir.

MR. UTZ: 180 on the well to the north, overproduced?

THE WITNESS: Right.

MR. UTZ: You may proceed.

Q (By Mr. Morris) Mr. Hosford,has Pan American given any consideration to forming a new proration unit constituting the west half of Section 22 and dedicating that to the well in the northwest quarter of the Section?

A No, sir. We have not, to my knowledge.

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

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

MR. LOSEE: Yes.

CROSS-EXAMINATION

BY MR. LOSEE:

Q Hopefully, we are dealing under the same ground rules, but I have some questions. Mr. Hosford, what is your understanding as to the standard locations in the Pan American's Atoka field, in what quarter section?

MR. BUELL: Pardon me, we are dealing here with the Atoka Penn Gas Pool.

THE WITNESS: Okay. As I testified on the direct, the standard location is in the southeast quarter in the northwest quarter of the Section.

Q (By Mr. Losee) So that actually your Flint No. 1, even though it was on production when the field rules were established, is at a standard location?

A With the exception of the fact that it appears to be located at 660 from the unit boundary rather than 990 as the field rules now require.

Q And the proposed location you offer now is an exception to the quarter section requirement of the field?

A Yes, sir.

Q Now I understood your testimony that you thought that twenty-five per cent of the gas under your proration unit comprising the south half of 22, had been recovered, and there was about seventy-five per cent remaining?

A What I'm saying that of the 320-acre proration unit, I believe that about twenty-five per cent or eighty acres of this unit has been affected by water encroachment and is no longer capable of producing gas. However, I feel the remaining three-fourths of this proration unit will be capable of producing gas.

Q Well, now, how do you calculate that, seventy-five and twenty-five?

A Primarily by drawing a line between the Pan American C. R. Martin here in Section 23 and through the Ingram well, both of which have watered out. A line through this would just about diagonally split the southeast quarter of Section 22.

Q Would you please draw that line for me on your exhibit?

A Yes, sir.

MR. UTZ: I would like to find Section 23 on this map.

THE WITNESS: It's to the right of 22, sir.

MR. UTZ: Okay. What well in that section?

THE WITNESS: The mark. I'm going to draw a line between the C. R. Martin No. 3 and the Ingram well in Section 27 to the south.

(Whereupon a discussion was held off the record.)

THE WITNESS: Okay, sir. I have drawn the line between the two wells.

Q (By Mr. Losee) Well, now, about what minus datum does your line come in at?

A This line appears to follow, for the most part, the 5800 foot contour.

Q Well, now, your well is 39 feet higher than that, your Flint No. 1?

A Yes, sir.

Q And as I understand you, that well quit producing in April because of water encroachment?

A Yes, sir, it, in February, produced about 1600 mcf a day, but only six barrels of water, and suddenly in April, it was completely gone.

Q Let me ask you if you would now draw another line across that south half of Section 22 at approximately 5761 feet for me?

A (Witness complies) Okay, sir.

Q Now, would you have any way of calculating the acreage that's below that line?

A If you drew a line through this, it would appear that approximately half of the 320 would be productive. However, as I said before, I believe there is a coning problem into the No. 1 because of the high pressure withdrawals in the active water aquifer we do have.

Q And that coning differentiates between eighty acres and a hundred and sixty acres being under water?

A Yes, sir. It would indicate that -- Now, this eighty acres is an approximation of being flooded out. It would be eighty acres plus the portion of acreage included in the cone itself. And I haven't made any estimate as to what that small acreage would be.

Q Would you explain to me why you feel the coning has taken place in this well?

A I would think that if it were not a coning problem, I would have expected that we would have seen a more gradual increase in water production and a more gradual loss in productivity. But this well just went in a hurry. It produced small volumes of water for some time, which would indicate a cone was developing, but its sudden loss in productive capacity and going to a hundred per cent water, says that this cone has hit, and it's been rather sudden.

Q Which well in this field has produced the most gas?

A I do not have a cumulative schedule in front of me and I don't know the answer to that question.

MR. BUELL: I would suspect it's the Flint Gas Unit No. 1, since Mr. Losee asked the question.

MR. UTZ: I would suspect that too.

Q (By Mr. Losee) Did you calculate, as an engineer, the reserves that were originally in place under this tract?

A No, sir, I have not looked at poor volumes as such for this Flint Gas Unit Well.

Q Has anybody with Pan American calculated those reserves and that you have seen the calculations?

A No, sir. I do have access to T/Z curve extrapolations for the performance of the Flint Gas Unit up until the time when we felt like we had reliable pressure information, the last pressure being in August of 1969.

Q Do you know, has Pan American given their opinion as to the total reserves in this Pan American Atoka Field?

A Yes, sir. By the same approach, we do have a total field perceiver that I did not prepare, but I do have access to.

Q What was your figure for the total reserves?

A Indicated total ultimate recovery is about 86 billion cubic feet.

Q How many wells are there in this field, Mr. Hosford, producing?

A According to the proration schedule, there are 17.54 wells that at least have an allocation. Some of these are admittedly fairly weak wells, as I understand it, and that effectively you probably have twelve capable wells in the field out of the 17.54.

MR. UTZ: Let me interject. 17.54 is acreage factor?

Q (By Mr. Losee) Well, the total consideration for

proration, then, in this field, is acreage, is it not?

A Yes, sir; it is.

Q Would you be kind enough to divide 17.5 into 86 billion?

A This would indicate right at 4.9 billion.

Q 4.9?

A Yes, sir.

Q Now, how much gas has this Flint No. 1 produced?

A According to the information I have, it produced about 5.5 billion prior to wiring up.

Q So that actually on a strictly acreage calculation, dividing the total prorated acres in the field, Pan American's calculations of the total reserves in the field, Pan American has already recovered out of this well approximately eight tenths billion feet more than a strictly acreage calculation?

MR. BUELL: May it please the Examiner, I'm going to object to that. I don't think it's pertinent to this hearing, how much the Flint Gas Unit has recovered. The testimony is in the record and unrefuted. What the Flint Gas Unit has recovered is completely immaterial to this case. I think Mr. Losee is making a collateral attack on the allocation formula, and while this might be the form, it's the wrong application.

MR. LOSEE: Mr. Examiner, in support of my question, the field has been prorated on an acreage basis. The well drilled by Pan American is the largest producer in the field

up to this point. They now propose a non-standard location, having already recovered eight tenths billion more than their own calculations reflect, eight tenths billion, under the prorations.

MR. UTZ: Mr. Buell, can you state for the record how much gas this well produced before you prorated your total pool?

MR. BUELL: You have that figure?

THE WITNESS: No, sir; I don't.

MR. BUELL: It was certainly on production prior to the Commission's application to prorate this pool, but I do want to state this, that prior to the Commission's adoption of the allocation formula, that this well was operated under the rule. It's operated under the rule since the adoption of the allocation formula, and that's why I think Mr. Losee's line of questioning is not pertinent to this hearing. If he doesn't like the allocation formula, he ought to file an application to change it.

MR. LOSEE: Well, Mr. Examiner, in answer to your question, one billion, one hundred thirty-six million was produced by Pan American prior to proration on July 1 of 1961. We are not attacking the formula. The Commission rules provide that when an applicant proposes an exception to the location requirements, the Commission may take such action as is necessary to offset the advantage gained by the location. We submit that

Pan American, according to its own reserve calculations, has already recovered in excess of the gas which was originally under this tract, and that to permit them to go in and drill a well at an unorthodox location, would give them an undue advantage and would hinder the correlative rights of the other operators in the field.

MR. BUELL: May it please the Examiner, the advantage that the rules refer to and Mr. Losee quoted quite accurately, is the advantage that will occur due to the unorthodox location. We have recommended a penalty of twenty-five per cent to minimize and mitigate and offset any advantage that we will have due to this unorthodox location.

Now, what Mr. Losee is trying to get you to do is to apply it retroactively. If you apply his line of reasoning, you'd shut in every well in the field and just make them plug it if they had produced more than their share of 17.5 into 86 billion. It's completely outside the Commission's procedure and rules and policies.

MR. HATCH: I don't believe any well is restricted to its proportionate share based on a number of wells in the pool.

MR. UTZ: The objection will be sustained. According to the way I figure, this well has produced since proration 4.4 billion. By the figures you brought out, its share was

4.9 billion. The gas the well produced before the end of proration, I don't think is part of this case. It appears to me that the well does have some gas coming or the unit does have some gas coming, at least to the extent of a half a billion according to the figures here. The well has operated under the proration scheme. It is now underproduced. It would seem, if the proration scheme is protecting correlative rights, that the unit does have some gas left under the proration scheme in the pool, so I will sustain Mr. Buell's objection.

MR. LOSEE: Mr. Examiner, let me explain without pursuing the line of questioning any farther. It's not, one, our purpose to make any attack on the proration existing in the field. But I do think that the information as to the volume of gas produced is something the Commission should consider in determining what penalty should be assessed against Pan American to offset the advantage they are gaining by drilling a second well. And that's the purpose.

MR. BUELL: Mr. Examiner, we are poles apart on our proration philosophy. I think the only thing this Commission can look at here is to set a penalty that will mitigate or minimize or take away the advantage of this unorthodox well location and not at past production. If this well had recovered more than the gas that was originally underneath it, that's not a part of this hearing. As you stated,

this unit has gas underlying. We are asking for an unorthodox location. You should penalize us to take away the advantage of the unorthodox location and nothing else.

MR. UTZ: Do you have any further questions?

MR. RAMEY: Mr. Hosford, did you say that the well in Section 27 -- I believe it's the Ingram Well -- has that watered out?

THE WITNESS: Yes, sir. It has watered out in the main pay. It is producing from some stringers above the main pay.

MR. RAMEY: So if you drew the line from this well to your well, it would reflect approximately a hundred and sixty productive acres; right?

THE WITNESS: That would be pretty close. Yes, sir.

MR. BUELL: A little more.

MR. RAMEY: Yes, slightly more. That's all.

MR. UTZ: Mr. Losee?

MR. LOSEE: Yes, I have one more. Is Mr. D. L. Ray still with Pan American Petroleum Corporation?

THE WITNESS: Yes, sir, he is.

MR. LOSEE: You mentioned one of the unorthodox locations being granted to Lynn Myer down in Section 32, did you not, wherein he drilled a dry hole?

THE WITNESS: No, sir, I don't think I mentioned that particular case.

MR. LOSEE: Are you familiar with it?

THE WITNESS: No, sir, I'm not familiar with it.

MR. LOSEE: Okay. I think that's all the questions I have.

CROSS-EXAMINATION

BY MR. STAMMETT:

Q Mr. Hosford, could you tell me how long a period of time it was between the time the Ingram Well watered out and your well watered out and the amount of production from the Flint Well in that period of time.

A I don't have that information readily available. I do have the current production on the Ingram Well, but I don't have the date of watering out. I'm sure we could find it.

Q Would you think that this information would be significant in determining whether this waterfront had moved across uniformly or coned in as you suggested?

A It might shed some light on it; yes, sir.

Q Would you furnish that to the Commission, please?

A Yes, sir, I will.

MR. STAMMETT: Thank you.

MR. UTZ: Other questions?

CROSS-EXAMINATION

BY MR. UTZ:

Q Mr. Hosford, I would like to go into the matter in which

this well did water out a little bit more. When did the well water out?

A It actually -- According to a letter from our area superintendent in Hobbs, this well, on April 9th, ceased to produce due to an influx of water.

Q 1970?

A Yes, sir, and then we do know that a follow-up report to this indicated that the last day of gas production from this well, was during the week of April 15th to the 22nd, and I don't know the exact date in that period that it finally gassed its last little bit of gas there.

Q It's probably 4-15 that the well ceased to produce?

A Yes, sir, it is oil production. This is one of the problems that we have here. There is a 60-day work clause and we are approaching our 60-day period rather rapidly. June 15th, we must have another well spudded or lose the acreage.

Q Now, how much gas did it produce in the month of March?

A I was looking at -- (indicating). According to the proration schedule, gas production during the month of March, was 35 million for the month, a little better than one million a day.

Q And what was its allowable?

A Its allowable -- Actually, it wound up, or it came in

with an under situation and its allowable at the end of the month was 96 million or its net allowable was 96 million.

Q You mean underproduction?

A Yes, underproduction, 96 million.

Q What was its beginning?

A Beginning allowable was 131 million.

Q So slightly over a million a day it produced the month of March, which was something under its allowable? In other words, it wasn't producing its allowable?

A Its allowable actually includes a lot of back or underage, still. We would have to back out the amount of underage.

Q And you would have to have the schedule prior to that in order to make that determination?

A Yes, sir.

Q Do you have any record of how it produced the first nine or ten days of April?

A The word we had here -- it's a wire from our field office that said that it actually ceased producing first on March 26th, 1970, and then the well was swabbed on April 7, 8, and 9th in an attempt to kick it off and get it back to a full flowing status. This was unsuccessful and this was when the area wired us on April 9th that they could not get the well back on production. A follow-up wire dated May 4th indicates that the well did produce 904 mcf during the month of

April, 904. So you can see between March and April, it went in a hurry.

Q And you contend that because of this rapid decline in production, that the well did cone?

A Yes, sir. The performance would indicate to me that it's a coning situation.

MR. UTZ: Mr. Losee, are you going to put on any testimony?

MR. LOSEE: Yes, sir.

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

Next witness.

MR. LOSEE: I would like the witness, to, before he leaves, to draw his same lines on this map that he drew.

MR. UTZ: Well, I've already drawn that line.

MR. LOSEE: Okay.

THE WITNESS: Yes, he has drawn the line correctly.

(Witness excused)

MR. LOSEE: Mr. Examiner, I have two witnesses, Mr. Norman and Mr. Mahfood.

MR. UTZ: Mr. Morris, do you have any testimony?

MR. MORRIS: No, I don't.

MR. UTZ: This will be all the witnesses, then.

(Witnesses sworn)

MR. BUELL: May it please the Examiner, in order to

save time I'm going to, if the Examiner will permit me to, to make a running objection to any testimony that goes into reserves or past production or anything of that matter which you have already ruled upon, and I will object to any direct evidence going in by these gentlemen that does not pertain to penalty or with minimized or eliminate any advantage due to the unorthodox location.

MR. UTZ: I would gather, then, that in substance what you object to is anything other than productive acreage?

MR. BUELL: Yes, sir.

MR. LOSEE: Well, Mr. Utz, we're going to make a tender again of reserves on the ground that this is a factor to consider as far as the advantage to be taken into account under the Commission's rules, not for the purpose of attacking the proration formula, which we support. But under that formula, they have drilled a well at an unorthodox location and produced somewhere in the number of acres that should correctly -- that they calculate would be under that tract on the acreage formula. I grant you if you start with prorationing, it comes out with about four to five billion since then, but I think that is a factor that the Commission should consider in connection with the authority to drill at this unorthodox location. So, as a result, I'm going to make a tender.

MR. UTZ: Do you have something?

MR. BUELL: Yes, sir. I want to state again that our Flint Gas Unit No. 1 is operated under the rules of the Commission prior to prorationing and after prorationing and any testimony of that type, I don't care what Mr. Losee says, is a collateral attack on the allocation formula and it's not proper for this hearing.

MR. UTZ: Let's take a ten-minute recess.

(Whereupon, the hearing was recessed for ten minutes)

MR. UTZ: The Hearing will come to order. My ruling, on Mr. Buell's objection will stand. However, in view of the fact that I am an Examiner and my ruling may be upset by the Commission as a whole, we will allow testimony in regard to reserves and production to be put into the record so that the full Commission will have the opportunity to look at this. But it will go into this record with the objection standing.

MR. LOSEE: Thank you, Mr. Examiner.

MR. UTZ: You may proceed.

(Whereupon, Yates Exhibits 1 and 2 were marked for identification)

RICHARD C. NORMAN,

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

DIRECT EXAMINATION

BY MR. LOSEE:

Q State your name, please.

A My name is Richard C. Norman.

Q You live in Artesia?

A I do.

Q And your occupation?

A I'm a geologist, Petroleum Geologist for Yates Petroleum Corporation.

Q Have you previously testified before this Commission as an expert witness and had your qualifications accepted?

A Yes, sir.

Q Please refer to what has been marked Yates Exhibit No. 1 and explain what is shown by this contour map.

A This is the structure contour map on top of the Morrow-B Productive Sand or its equivalent. Contour intervals are twenty foot.

Q Would you explain -- this is actually the eastern portion of the Atoka-Penn Gas field, is it not?

A That is correct.

Q Now, you have indicated a section across there from A and A-1 across three wells, have you not?

A Across actually two wells, in a proposed location.

Q What is the purpose of that?

A The purpose is to show the original gas-water contact in what we believe to be the present gas-water contact.

Q And that actually will be the subject of a cross-section which is our exhibit 2, is it not?

A That is correct.

Q Does this map show the original gas-water contact in this field in the area of the subject application?

A Yes, it does. The dark blue color represents position of the original water and is approximately minus 5832.

Q How did you determine the presence of water in this reservoir so that you could draw this original gas-water contact line?

A It was based on well control. One well was a Pan American Petroleum C. R. Martin No. 3 in the northwest of 23 and it tested water and gas when it was attempted completion in the B zone. The other well is the Nearburg-Ingram well on Section 27, northwest quarter. It's a No. 1 Hawkins. And it tested a little bit of water on a GST, reported.

Q Does the structure map substantially agree at least in the area of the subject application with Pan American's contours?

A After checking their map against ours, it's a reasonably close interpretation.

Q Do you have anything further to offer with respect to this map?

A No, I do not at this time.

Q Actually, Mr. Mahfood is going to testify to additional data on this map, is he not?

A That's correct.

MR. LOSEE: I have no further questions, Mr. Examiner.

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

MR. BUELL: Yes, sir. I have one.

CROSS EXAMINATION

BY MR. BUELL:

Q As I understand the thrust of your testimony in looking at your exhibits, is it your intent to testify as to the location of the present gas-water contact, or are you limiting your testimony to the original?

A Mine is to the original, Mr. Buell.

MR. BUELL: I have no questions.

MR. UTZ: And you are a geologist?

THE WITNESS: I am a geologist. Petroleum geologist.

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

(Whereupon, Yates Exhibit No. 3 was marked for identification)

EDDIE MAHFOOD,

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

DIRECT EXAMINATION

BY MR. LOSEE:

Q You are Eddie Mahfood of Artesia, New Mexico?

A Right.

Q What's your occupation?

A Petroleum Engineer employed by Yates Petroleum Corporation.

Q Have you previously testified before this Commission as an expert and had your qualifications accepted?

A Yes, sir.

Q Please refer to Yates Exhibit No. 1 and let me ask you if you concur with Mr. Norman in the peaking of the original gas-water contact in this --

MR. UTZ: Excuse me. Did you say Yates No. 1?

MR. LOSEE: Yes, we call this Yates Exhibit No. 1.

MR. UTZ: Oh, referring to exhibit. I thought you were referring to the well.

MR. LOSEE: No.

THE WITNESS: Yes, I concur with Mr. Norman's interpretation. It seems to be reasonable.

Q (By Mr. Losee) Now, there's a second line drawn with an arrow which shows the gas-water contact on the Morrow Sand, the Morrow B Sand as of May 1970?

A That is right. That is at the extremity of the light blue on this map.

Q Is that represented by the dotted line?

A It is a dotted line with a blue border. This contact as of May, '70, is illustrated as a dotted line with a blue border.

Q Did you pick that marker on this map?

A Yes, I did and it is controlled by three wells, the Mallard, Mayer-Holt Well in Section 28, by the Flint Well in Section 22, and by the Everest Well in Section 14.

Q Now, what control in those wells, what data from those wells did you utilize in picking this point?

A The Everest Well is presently peaking -- 170 barrels of water per day is being trucked out of there. And as previously testified by Pan American, their Flint Well is now watered out. The Everest Well has a top at minus 5735 and a bottom at about minus 5767. The Flint Well has a top of 5760 and a bottom of 5780.

Q All right. Now, I notice some difference between the Everest and the Flint Wells, some ten or fifteen feet, as far as the present gas-water contact in surface datum. Would you explain how that occurred?

A Well, I've given Pan American the benefit of the doubt here in that it's my thinking that we have gas coning in the Flint Well and not water coning.

Q Before you go to exhibit 2, you have a red area on Yates Exhibit No. 1 which is cross-hatched to some extent. Would you explain what is reflected by that red area?

A Yes, this structure map is, of course, based on top of the Sand. And I have depicted the water contact at the bottom of the Sand by this red line which would be shifting the water-

free portion to the left.

Q Did you have any control to pick that bottom from, Mr. Mahfood?

A Yes, I've drawn an approximately twenty-foot difference here. I can best explain this on Exhibit 2.

Q All right. Please, then, refer to Exhibit 2, Yates Exhibit 2, and explain what this exhibit portrays.

A Exhibit 2 is a cross-section from the Bob Gushwa Well to the proposed located to the Flint No. 1 Well, and beyond to some point in Section 23. The cross-section shows the original gas-water contact at minus 5832. It shows the encroached water in -- I have drawn the top of it at approximately 5768, which I believe to be very lenient towards Pan American. This is a little past the halfway point between the top and bottom perforations in the Flint No. 1 Well.

You will notice that the distance from the Section line to the water contact at the bottom of the Sand, is 3150 feet. There is a distance from the section line to the water contact at the top of the Sand of 3650 feet. That 500-foot difference is this dash marked on Exhibit 1.

Q Now referring back to Exhibit 1, have you estimated the amount of acreage in the south half of Section 22 that has recoverable gas reserves --

A Yes, sir.

Q -- above the water?

A The planimetered acreage based on the bottom of the sand is a hundred and twenty-two acres and the acreage on the top of the sand is a hundred and fifty-eight acres. The average between the two would be 140 acres.

MR. UTZ: What was the top of the sand acreage?

THE WITNESS: 158.

Q (By Mr. Losee) In the bottom, 122?

A 122.

Q Do you have anything else with respect to Exhibit 2 which you wish to explain?

A I don't believe there is anything else necessary at this time.

Q Please refer to what has been marked as Yates Exhibit 3.

A This is a tabulation of the gas produced from the Atoka-Penn Pool annually and by wells in sections of the pool through March, 1970.

Q Now, this is actually all the wells in the pool; is that correct?

A That is correct.

Q And does it reflect that the Flint Well has produced the most gas?

A It certainly does.

Q When was this field prorated?

A July 1, 1961.

Q Do you have the figures as to how much gas was produced by the Flint Well prior to prorationing?

A Yes, sir, 1.131 billion. At that time the field cumulative was 3.35 billion.

Q So that at the time of prorationing, it had produced approximately a third of the reserves in the field?

A That is correct, to the reserves produced in the field.

Q Now, have you calculated the reserves under the Atoka-Penn Field as they originally existed?

A Yes, sir, based on pressure decline, I have estimated 96.5 billion cubic feet in place, of which 86 billion would be recoverable.

Q By using a cutoff at what pressure?

A Approximately 400 pounds bottomhole pressure.

Q So that you, in effect, concur substantially with Pan American on the amount of recoverable reserves?

A Yes, I do.

Q Now, have you calculated the original gas reserves under the Flint proration unit?

A Yes, volumetrically, the original reserves was 5.88 billion cubic feet. Based on my contouring of the water contacts, I calculate the remaining gas reserves to date at .985 billion cubic feet. Then, theoretically, the Flint Number 1 should have produced -- the difference between it is 5.88 and

.98 billion, or they should have produced 4.985 billion cubic feet through May 1, 1970. Actually, they have produced 5.606 billion cubic feet.

Q Okay. So that the Examiner understands, your 140-acre mean average between your recoverable acreage above at the base of the sand and at the top of the sand of 140 acres results in this calculation of 995 million cubic feet left in that space?

A That is correct.

Q Now, the Hawkins Well, which earlier a question was asked by Mr. Stammett of Mr. Hosford, with respect to how much gas was recovered by the Flint Well subsequent to the watering out of the Hawkins Well.

First, let me ask you what structure difference is, how many feet upstructure is the Flint Well to the Hawkins Well?

A Approximately 52 feet upstructure.

Q Now, if the Flint Well watered out in April of 1970, can you tell us when the Hawkins Well watered out?

A Prior to January 1968.

Q So over two years prior thereto?

A That is correct.

Q Do you know how much gas was recovered from the Flint Well subsequent to the watering out of the Hawkins Well?

A In excess of 1.7 billion.

Q Does that have any bearing on the question of whether there was substantial coning in the Flint Well or in this reservoir, and if so, please explain.

A I estimate that this 1.7 billion is probably -- well, it definitely does not indicate coning.

Q Does it indicate a lack of coning?

A I would think it would indicate a lack of coning.

Q All right. Now, have you examined the bottomhole pressure data for the wells in this field?

A Yes, sir.

Q Are they uniform or not uniform?

A They are very uniform. In particular, the west of this channel which we -- let's see -- it would be east of the Flint Well, there is a channel passing through there. And I would estimate everything west of there is very uniform and to my best understanding, the pressures are varied within only three pounds.

Q So that actually there is good communication throughout the reservoir?

A There certainly is.

Q And the reservoir is uniform in its withdrawal characteristics?

A Yes.

Q And does that have any bearing on the question of

whether there has been substantial coning in any of the wells in the field?

A I would think so, in the sense that there is such good communication and this water will be moving into the area of less resistence or lowest pressure, because of good communication, there will be no excessive drop in pressure in any one area. It will be uniform throughout the pool and therefore, the water will be moving uniformly.

Q Do you have anything further, Mr. Mahfood?

A No, sir.

MR. LOSEE: I think that's all of the Direct.

MR. BUELL: I have a question or two, Mr. Examiner. I'll limit my questions to that part of his testimony that I think is legal and proper as far as this record.

MR. UTZ: You may proceed.

CROSS EXAMINATION

BY MR. BUELL:

Q Actually, as I understand your testimony, the thrust of your testimony, about all you and Mr. Hosford disagree upon is whether or not the encroachment of the water has been uniform as you contend, or whether it's fingered in or coned in as he contends. Is that a fair summary?

A That is a fair summary, but the resulting of this testimony is that this water has encroached a much greater distance into the 320 acres than Mr. Hosford testified.

Therefore, there is much less remaining acreage in there.

Q You heard his testimony. He said he would assume that the encroachment was uniform. He would say about 160 was still underlying and as I understood your testimony, you said about 158, so really the only point you are in disagreement on is whether it's coning or fingering or whether it's a uniform encroachment.

MR. LOSEE: Mr. Examiner, I would like to correct my co-counsel's statement. I think it was 150 acres. 58 was at the top of the sand and 122 at the bottom. And the 140 was the encroachment.

THE WITNESS: Correct.

Q (By Mr. Buell) I didn't understand the 158 then, and I don't understand it now. What is the 158?

A 158 acres is that portion from the lease line to the water contact as shown at the top of the sand.

Q Well, isn't that what we are talking about, productive acreage?

A We're looking at the average, the mean, Now, the base of the sand, we only have 122 acres.

Q Now, you may be looking at the average or the mean, but I'm looking at the plain old productive surface acres. Now, that's 158, isn't it?

A We're assuming that this sand is fairly uniform thickness and that since this water is going to be moving on a

horizontal plane and the formation is slanted, you are going to have a tilted area we're looking at in the cross-section.

Q But the acreage included in that area that is in our unit **planimetered** from where the gas-water contact intercepts the pay is 158 acres.

A Where it intercepts at the top of the pay.

Q Yes, sir, is 158 acres?

A That is correct.

Q All right, sir. Now, you heard Mr. Hosford relate the production experience we had on our Flint Gas Unit No. 1?

A Yes.

Q That made small quantities of water over a long period of time and then suddenly went to one hundred per cent water.

A That's right.

Q Based on your experience, is that the performance of a well where you have a uniform encroachment of water?

A I would question where Mr. Hosford got his information from.

Q All right. You may question the data. We got it from our field people, and we believe them whether you do or not. But if it's bothering you to answer that question, I'll ask you to assume for the purpose of this question, that that performance data as he related it is accurate and truthful.

With that assumption, is that the performance of a well that has experienced a uniform encroachment of water?

A No, but you recall I stated earlier that I feel there was gas coning in this one, not water coning.

Q And on the contrary, is that not based on your experience, the performance you would expect out of a well that where you have a coning or fingering of water coming into the wellbore, with the same assumption?

A If it is fingering, I would say that it would start in small quantities and increase rapidly.

Q Have you had any experience with waterfloods where you have had coning of injected water or fingering of injected water?

A Yes.

Q Isn't that about the kind of performance you see in the well where the fingering has occurred?

A It starts small and gradually gets bigger.

Q You just go to one hundred per cent water almost overnight?

A No, sir, that would be a channel job.

Q Well, I mean channeling. I use channeling and fingering and coning synonymously. It makes it hard on you, but -- that would be channeling?

A Yes.

Q So actually the experience we noted on this well that

we observed and assume that it is correct and accurate, is more of a performance from channeling, isn't it?

A The information would suggest channeling, yes.

MR. BUELL: That's all I have, Mr. Examiner.

MR. UTZ: Are there other questions?

THE WITNESS: I would like to state, however, that this has been shown to be a uniform reservoir and therefore, channeling is not likely.

MR. BUELL: Yes, sir, the only thing that indicates channeling is the performance we observed on our well which indicates that the reservoir might not be as uniform and homogeneous as some of us up here on the surface think it is.

THE WITNESS: Yes, but this is not Mr. Hosford's observation.

MR. BUELL: I think that's all, Mr. Examiner.

MR. UTZ: Any other questions?

CROSS EXAMINATION

BY MR. STAMMETT:

Q You utilized the wells in Section 14, 22, and 28 --

A Yes.

Q -- to draw this gas-water contact as of May, 1970?

A That is right.

Q Did you say, or do you know if the well in Section 14, southwest quarter,and the Mallard Well in Section 28, if those

Q Small quantities?

MR. UTZ: What is the water cut; do you know?

THE WITNESS: No, sir, but I'm told that it is about five barrels a day when it is produced.

Q (By Mr. Stammett) I notice on your map that the new water-gas contact line wiggles toward the producing wells with the exception of the Pan American Flint Well. Why does this line wiggle toward the producing wells?

A Well, you'll notice that that Everest Well, the water contact is at about minus 5745. I have attempted to establish as the current water-oil contact here, but I've given the benefit of the doubt in that I'm assuming there is gas coning in the Flint Well, so what -- In effect, I have moved to the contact back in the Flint well.

Q I'm not sure that that answers my question. Let me refer to two specific wells. There is a well in the southeast quarter of Section 21 and another one in the northwest quarter of Section 28. Now, the gas-water contact wiggles toward those two wells. Why does the gas-water contact do that?

A Well, I'm allowing here that there was a pressure drop towards these wells which would allow the water to move a little closer to it than in between the wells some distance.

Q In other words, essentially this map shows some non-uniform migration of the gas-water contacts; is that correct?

A Yes.

MR. STAMMETT: I believe that's all the questions I have.

MR. BUELL: But you had it uniform around the Flint No. 1, don't you?

THE WITNESS: You recall I have retarded it around the Flint No. 1. I have given it the benefit of the doubt that there might be gas coning in there. It is possible that that water has passed the Flint No. 1 already, in which case you have less than 140 acres in there of water feet zone.

MR. UTZ: Other questions?

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Mahfood, this gas coning theory of yours, it's a little bit new, to me anyway. What you're saying in effect, is the way I interpret it, that the water-gas contact has moved past the well and the wells should still be producing gas?

A Yes, sir, and as we understand it, they abandoned the well quite suddenly. They say it went to water overnight. Is it possible that they shut the well in perhaps one day and then the water just overwhelmed this gas cone? I don't know the answer, sir.

Q Well, for the gas-water to be past the well or updip from the well, and the well is still producing gas, it would have to be channeled, wouldn't it?

A The gas would have to be channeled in there; that's

correct.

Q That's your testimony, that the gas was channeling to the wells before it watered out?

A Yes, sir.

Q I've been comparing your contours with Pan American's contours and for the most part -- Well, I'll go into it in a little more detail.

The 5800 contour appears to cross the proration tract at virtually the same location as Pan American. However, the 5700 foot contour appears to cross a little bit farther updip than the Pan American, particularly on the west side of the unit. I also note that the spacing of the 20 foot intervals between these two contours on yours is not uniform, whereas the 50 foot contours as shown on the Pan American is uniform between the 57 and 5800 foot contour.

Now, I would like for you to explain to me how you varied your 20 foot contours in between the 57 and 58, what control you would have to do that?

A Mr. Examiner, this structure map was prepared by our geologist, Mr. Norman, and I think he would be better qualified to answer that question.

MR. UTZ: He may answer the question, if he likes, from where he sits.

MR. NORMAN: Well, of course, when you go to a smaller spacing from 50 to 20, there is going to be a little more variance.

As you can see throughout the field there was -- in Section 15, for instance, there is a great spacing between 20 foot contours between minus 5600 and a minus 5620.

MR. UTZ: Yes, but you have some control there to do that; right?

MR. NORMAN: That's right.

MR. UTZ: What's the control down here?

MR. NORMAN: In the south half of 27?

MR. UTZ: Right.

MR. NORMAN: Well, we have a well to the south, the Nearburg-Ingram Well, and wells to the west over in the west half of 28, the Lynn Myer and the Holt Wells, you have got -- off to the northeast, you have got a Pan American No. 3 Martin, in the north northwest quarter of 23. I think there is a pretty fair amount of control in there and I don't see any reason to change the contours. To me, they are fairly uniform considering the geology.

We have got only one well for 320, you know, and --

MR. MAHFOOD: Mr. Examiner, I don't believe that this is anything unusual to have this irregular spacing between contours.

MR. NORMAN: I wish you would note -- excuse me. May I still talk?

MR. MAHFOOD: Yes.

MR. NORMAN: I wish you would note there between 20 and

29 there is a real sharpening of the contours there, and very closely. And this is in part response to sand build-up in the channels there built to the right or to the left, going through the east half of 29. And in some of these instances, there is probably some real structural flattenings and steepening that aren't necessarily related to sand that you're contouring on top of the hill.

MR. MAHFOOD: Mr. Examiner, may I point out also that Pan American Structure map is based on the correlation marking and not on the sand itself, whereas ours was based on the top of the sand itself.

MR. UTZ: Well, did you indicate that the sand thickness was pretty uniform?

MR. MAHFOOD: Yes, sir, but is it lime or shale that overlies this?

MR. NORMAN: That's shale and sandstone; some limestone.

MR. MAHFOOD: In previous testimony brought before this Court, I believe it has been presented that this shale and lime area is off the reservoir.

MR. UTZ: Any other questions of the witness?

MR. LOSEE: I have one. Do I understand the Examiner's inquiry about the 5700 foot line being different on the two maps?

MR.MAHFOOD: It's the 58 that's different.

MR. UTZ: Yes, the way I eyeball it, your 5700 foot

contour passes the eastern or western part of the unit a little higher than Pan American. You're almost halfway up. They are about a third of the way up.

MR. MAHFOOD: Well, I beg to disagree.

MR. LOSEE: Well, our eyeballs differ. Mr. Mahfood, I have just one question about this 158 acres and the 122 acres. And I guess you can best clarify for the Examiner and for Mr. Buell by looking at Exhibit 2. They actually quit producing the Flint Well at what point in the pay section; do you know?

MR. MAHFOOD: Well, I've allowed them with the water being halfway up, but from their testimony, you would belive that water is all the way up now.

MR. LOSEE: Well, now, if water was all the way up, how many acres would be left productive in the --

MR. MAHFOOD: Considerably less than this 140 that I'm allowing.

MR. LOSEE: Would it be the 122 that you calculated on the top of the sand?

MR. MAHFOOD: It would be something in that neighborhood probably.

MR. LOSEE: And 158 is from the bottom of the pay perforations?

MR.MAHFOOD: No, sir, from the top of them.

MR. LOSEE: I'm sorry. From the --

MR. MAHFOOD: From the top of the pay to the lease line. It's 158.

MR. LOSEE: And so that actually if it's watered out, though, you would have less than the 140?

MR. MAHFOOD: That's true.

MR. LOSEE: If it's completely the whole pay section, that?

MR. MAHFOOD: Yes.

MR. LOSEE: I think that's all.

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

(Witness excused)

MR. UTZ: Statements in this case?

MR. BUELL: Mr. Examiner, before we get to statements, I would like to offer as an exhibit in order that the Commission may have before them when they decide this matter, the productive history on our Gas Unit No. 1. It shows very vividly that this well has over a long period of time produced small quantities of water and through February of 1970 until it went to one hundred per cent water shortly thereafter. It was not prepared as an exhibit. It would be our exhibit number 2. I would also like Lee to withdraw it in order that I can have it Xeroxed and furnish a copy to Mr. Losee and to Mr. Morris.

It's just a tabulation of the statistical data on several wells in the pool including the Flint Gas Unit No. 1, which is the second from the left.

MR. UTZ: Would this be similar to Yates Exhibit No. --

MR. BUELL: I haven't looked at that exhibit, Mr. Examiner, because --

MR. HOSFORD: This does include water production, too, and the Yates does not.

MR. BUELL: I glanced at this and I thought this was getting into reserves and I objected to it so I didn't think I should even look at it.

MR. LOSEE: Would you allow us to review it?

MR. BUELL: I'd like you to; I want to make you a copy.

MR. LOSEE: Mr. Examiner, at this time, I would like to move the introduction of Yates Exhibits 1 through 3.

MR. UTZ: Without objection, they will be entered into the record of this case.

(Whereupon, Yates Exhibits 1, 2 and 3 were admitted into evidence)

(Whereupon, Applicant's Exhibit 3 was marked for identification)

MR. BUELL: I have a very short closing statement and I would like to be last, Mr. Examiner, if I might. I really don't know what Marathon and Yates are going to recommend. We

may be in agreement.

MR. UTZ: Who would like to be first with the statements?

MR. MORRIS: I'll be first.

MR. UTZ: Mr. Morris?

MR. MORRIS: Marathon Oil Company has not made any independent study of the recoverable acreage or the acreage still having recoverable gas reserves in this proration unit, and its only recommendation is that the Commission establish a penalty; that is, establish a proration unit that would be in conformity with the productive acreage still remaining in this proration unit. We would also recommend, Mr. Examiner, that the consideration be given by the Commission to the existing status of the unit and proceed in accordance with Mr. Hosford's recommendation that the overproduced status of the well be cancelled and that the new well, when it is drilled, be allowed to commence with neither an overproduced or an underproduced status.

MR. UTZ: Well, Mr. Morris, I believe the well is underproduced.

MR. MORRIS: Yes. Well, excuse me. Our concern is that the new well not commence with any status other than just a zero status.

MR. UTZ: In which case the old status would be

dropped from the well status and redistributed among the wells in the pool?

MR. MORRIS: Right.

MR. BUELL: That is our recommendation in this case, Mr. Examiner.

MR. UTZ: Just this case?

MR. BUELL: Yes, sir. I'm limiting that statement to this case.

MR. LOSEE: Mr. Examiner, we also concur with Pan American in this case with respect to not permitting the new proposed Flint No. 2 Well to make up the underproduced status of the No. 1. At that point we probably depart from concuring with Pan American. We don't want to take a position that they should not be permitted to drill the unorthodox well because our testimony indicates even on a volumetric calculation that there is some gas in the northeasterly portion of the proration unit. We would like to call the Commission's attention to the application of Mr. Lynn Myer, which was Case No. 3652. We would like for Pan American to be uniform throughout the field, in which they advise the Commission by telegram -- the case was 3632.

Mr.D. L. Ray -- and I could quote, but Mr. Myer requests a location in the northeast quarter of Section 32 to dedicate the east half of Section 32 to a well which the unorthodox location was approved and the well was dry. But the

point I make is that in that case, Pan American requested that no more than the 160 acres be dedicated to the off-pattern well.

As they have testified with probably two or three exceptions, all the wells and all of the eighteen wells in this Atoka-Penn Field are on a uniform basis. We think the reserves presentation, without any effort to attack the prorationing formula of allocation of acreage only, clearly reflects that Pan American has recovered substantially all of the reserves in place under its proration unit. We think that is a factor to consider when the Commission, in approving the unorthodox location, offsets such advantage as Pan American may have by reason of drilling the second well in the spacing unit upstructure.

We feel like that the only very definite evidence on the amount of acreage that is presently productive within the south half of this Section 22,is that presented by Yates. Mr. Hosford estimated, without a statement that he planimetered that his lower line of twenty-five per cent was a proper penalty and that the well at its present location, drawing the contour through it, left no more than 160. And here again, my eyeballs may differ with the Examiner, but I say it's something less than 160 at the present point, concurring really with Mr. Mahfood's testimony that the maximum that could be assigned is that portion of the reservoir wherein water is above

the top of the sand at 158 acres and the portion between that and the base of the sand at 122 acres above the water.

Yates takes the position that the mean average between those two of 140 acres -- no more than that should be dedicated to the well or really not dedicated, but a formula should be 14 30-seconds.

I think that's all I have.

MR. BUELL: May it please the Examiner, I'll be very brief and I would like to state at the outset -- if I don't, I'll forget it -- that this particular application as so often happens, that time is of the essence. And I'm advised that the primary terms on most if not all the leases in this particular unit have expired and the only thing that is holding those leases, has been production. The leases do contain a 60-day workover redrilling clause, so I would urge the Commission, if they can, without any inconvenience to them, to act as rapidly as they possibly can. I made all the arguments I'm going to make about the Yates collateral attack on the allocation formula. I think my arguments are all through the record on that. To me, this case is really simple.

If you believe the performance of the Flint Gas Unit No. 1, if you believe the testimony of Mr. Hosford that water has channeled or coned or fingered into that well, this application should be granted with a twenty-five per cent penalty. If you believe the testimony of the Yates witness, that

rather than water channeling into the well, on the contrary, gas has been channeling down to it, it should be granted with a fifty per cent penalty.

If the Commission sees fit to grant a fifty per cent penalty, you might as well issue an order denying it because I doubt if the well would ever be drilled with a penalty of that magnitude.

I think the record fully supports approval of this application with a twenty-five per cent penalty.

MR. UTZ: Other statements? The case will be taken under advisement.

(Whereupon, a discussion was held off the record)

MR. UTZ: We'll reopen the case. Mr. Buell offered some data on gas and water production for five wells and these will probably be the Flint and offsetting wells?

MR. BUELL: I believe it is, yes, sir. Just glancing at that, it indicates to me that it is.

MR. UTZ: You wanted to offer it as Exhibit No. 2?

MR. BUELL: Yes, sir.

(Whereupon, Applicant's Exhibit No. 2 was marked for identification and offered into evidence)

MR. MAHFOOD: May I point out that the Flint Well has been completed in the A zone only in the past two and a half years?

MR. LOSEE: B?

MR.MAHFOOD: No, I'm sorry. Not the Flint, the Hawkins Well.

MR. UTZ: Without objection, Pan American's Exhibit No. 2 will be entered into the record in this case. The case will be taken under advisement.

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EXHIBIT	MARKED	OFFERED AND ADMITTED
Pan American's Exhibit 1	2	8
Pan American's Exhibit 2	56	56
Yates Exhibits 1 & 2	27	51
Yates Exhibit 3	30	51

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, David Bingham, Court Reporter 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.

David Bingham
Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4359, heard by me on July 1, 1970.

Examiner
New Mexico Oil Conservation Commission

July 1, 1970

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

June 3, 1970

Re: Case No. 4359
Order No. R-3970
Applicant:
Pan American Petroleum Corp.

Mr. Guy Buell
Pan American Petroleum Corporation
Post Office Box 1410
Fort Worth, Texas 76101

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC
Other Mr. A. J. Losee and Mr. Richard Morris

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4359
Order No. R-3970

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR AN UNORTHODOX GAS WELL
LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 27, 1970, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 3rd day of June, 1970, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Pan American Petroleum Corporation, seeks an exception to the Special Rules and Regulations for the Atoka-Pennsylvanian Gas Pool to drill a gas well at an unorthodox location 1650 feet from the South line and 990 feet from the West line of Section 22, Township 18 South, Range 26 East, NMPM, Eddy County, New Mexico.

(3) That the Special Rules and Regulations governing the Atoka-Pennsylvanian Gas Pool provide that each well completed or recompleted in said pool shall be located in the northwest quarter or the southeast quarter of the section and shall be located no nearer than 990 feet to the outer boundary of the quarter section nor nearer than 330 feet to any governmental quarter-quarter section line.

(4) That the S/2 of said Section 22 is presently dedicated to applicant's Flint Gas Com Well No. 1 located in the SE/4 of said Section 22.

(5) That said Flint Gas Com Well No. 1 is no longer productive of gas in the Atoka-Pennsylvanian Gas Pool due to an influx of water from the southeast.

(6) That the proposed location, in the SW/4 of said Section 22, is an off-pattern quarter section location.

(7) That the evidence indicates that a well drilled at the proposed non-standard location should encounter the pay section above the gas/water contact.

(8) That the correlative rights of offset operators will be impaired if the subject well is assigned a standard allowable for the subject pool.

(9) That to offset the advantage to be gained over offset operators by the drilling of a well at the proposed non-standard location, the allowable for said well should be reduced.

(10) That approval of the proposed unorthodox location will not violate correlative rights and will afford the applicant the opportunity to produce his just and equitable share of the gas from the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and otherwise prevent waste, provided the subject well receives no more than 62.50 percent of a standard allowable for the Atoka-Pennsylvanian Gas Pool.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby granted an exception to the well location requirements of the Special Rules and Regulations governing the Atoka-Pennsylvanian Gas Pool and is hereby authorized to drill a gas well at an unorthodox location 1650 feet from the South line and 990 feet from the West line of Section 22, Township 18 South, Range 26 East, NMPM, Eddy County, New Mexico.

(2) That an acreage factor for proration purposes of 0.625 shall be assigned to said well.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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

eer/

Case. 4359
Heard 5-27-70
Rec. 5-28-70

Grant Pan Am. on NSL for their Flint Gas unit #2 to be drilled 1650/S, 990/W Sec. 22-18S-26E.

Assign the following acreage to the well.

Sec. 22-18S-26E
SW/4, NW/4 SE/4. 200 Ac.

Acreage proration factor .625.

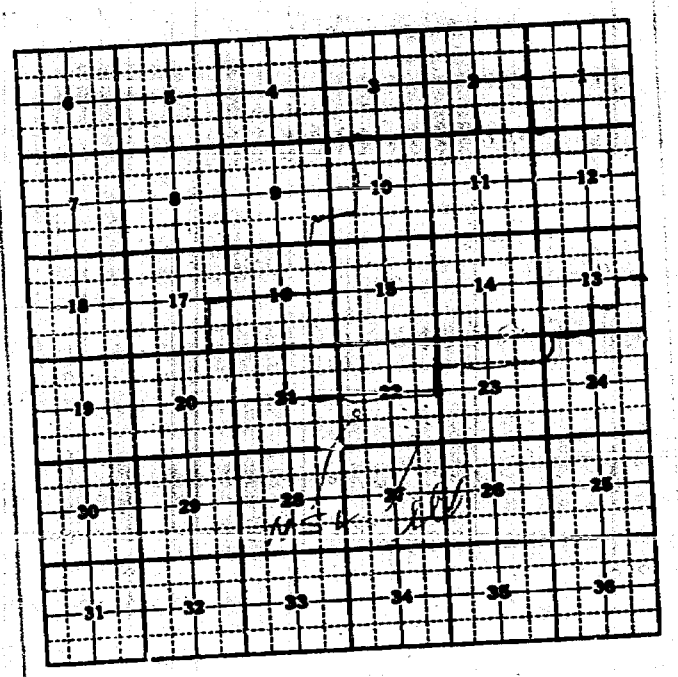
The #1 has watered out but has gas remaining under the tract on which they are entitled to allowable.

Name

Address

Ph.

Remarks:



T ..... R ..... State or County .....

Docket No. 13-70

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 27, 1970

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

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 4357: Application of Stallworth Oil & Gas for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill an infill producing oil well at an unorthodox location, 1315 feet from the South and East lines of Section 25, Township 16 South, Range 30 East, in its Square Lake Grayburg-San Andres Waterflood Project, Eddy County, New Mexico.

CASE 4358: Application of Union Oil Company of California for a non-standard gas proration unit and unorthodox location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 240-acre non-standard gas proration unit comprising the NE/4 and E/2 SE/4 of Section 18, Township 8 South, Range 38 East, Bluitt-San Andres Associated Pool, Roosevelt County, New Mexico, to be dedicated to its Federal 18 Well No. 2 at an unorthodox location 660 feet from the South and East lines of said Section 18. Applicant further requests that the allowable assigned to the subject well be effective as of May 1, 1970.

CASE 4359: Application of Pan American Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a gas well at an unorthodox location 1650 feet from the South line and 990 feet from the West line of Section 22, Township 18 South, Range 26 East, Atoka-Pennsylvanian Gas Pool, Eddy County, New Mexico.

CASE 4360: Application of Pan American Petroleum Corporation to directionally drill, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to locate its Byers "A" Well No. 30 at a point 663 feet from the North line and 1935 feet from the West line of Section 3, Township 19 South, Range 38 East, Hobbs (Grayburg-San Andres) Pool, Lea County, New Mexico, and directionally drill said well to a bottom-hole location 330 feet from the North line and 1650 feet from the West line of said Section 3.

CASE 4341: (Continued from the April 29, 1970, Examiner Hearing)
Application of Pan American Petroleum Corporation for two non-standard gas proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard

(Case 4341 continued)

gas proration units for its State "C" Tract 13 Well No. 5, a dual completion, located 1980 feet from the North line and 660 feet from the West line of Section 36, Township 21 South, Range 37 East, Lea County, New Mexico, said units to be comprised as follows:

Blinebry Gas Pool - 240 acres - NW/4 and W/2 NE/4

Tubb Gas Pool - 200 acres - W/2 NW/4, NE/4 NW/4 and W/2 NE/4

CASE 4361: Application of Read & Stevens for an unorthodox gas well location, Chaves County, New Mexico. Applicants, in the above-styled cause, seek authority to drill a gas well at an unorthodox location 990 feet from the South and West lines of Section 6, Township 15 South, Range 28 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, to be dedicated to a gas proration unit comprising the W/2 of said Section 6.

CASE 4362: Application of William J. LeMay for a non-standard gas proration unit or compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 318.9-acre non-standard gas proration unit comprising Lots 1 and 2 and the E/2 NW/4, and NE/4 of Section 7, Township 20 South, Range 25 East, Dagger Draw-Morrow Gas Pool, Eddy County, New Mexico, or a 478-acre non-standard unit comprising Lots 1, 2, 3, and 4, and the E/2 W/2, and NE/4 of said Section 7. In the alternative, applicant seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying said Section 7. The acreage in the above proposals is to be dedicated to a well 1650 feet from the North and West lines of said Section 7 which is to be re-entered.

CASE 4352: (Continued from the May 13, 1970, Examiner Hearing)
Application of Jack L. McClellan for the creation of a new gas pool or, in the alternative, the establishment of pool rules for two existing pools, Chaves and Lea Counties, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Queen gas pool comprising the following-described acreage:

CHAVES COUNTY, NEW MEXICO

Township 15 South, Range 29 East
Section 11: SE/4

(Case 4352 continued)

CHAVES COUNTY, NEW MEXICO

Township 15 South, Range 29 East
Section 12: SW/4
Section 13: NW/4
Section 14: E/2
Section 23: NE/4 and SW/4

In the alternative applicant seeks the promulgation of special rules for the Sulimar-Queen Pool, Chaves County, and Double L-Queen Pool, Chaves and Lea Counties, New Mexico, as separate or as consolidated pools, including provisions for the classification of oil and gas wells, spacing and well location requirements for oil and gas wells, and an allocation formula for withdrawals by oil wells and gas wells.

ATTORNEYS
LAWYERS

P. O. DRAWER 700
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201
[505] 622-6221

'70 MAY 21 PM 1 04

JEFF D. ATWOOD [1883-1960]

CHARLES F. MALONE
RUSSELL D. MANN
PAUL A. COOTER
BOB F. TURNER
ROBERT A. JOHNSON
JOHN W. BASSETT

ROBERT E. SABIN
RUFUS E. THOMPSON

May 20, 1970

Mr. A. L. Porter, Jr.
Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Re: Examiner Hearing May 27, 1970
Cases Nos. 4359, 4360 and 4341

Dear Mr. Porter:

We would appreciate your filing the enclosed Entries of Appearance in the three cases mentioned above.

Thank you and with regards,

Very truly yours,

Charles F. Malone

CFM:bc
Encls.
cc: Guy Buell, Esquire

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF PAN AMERICAN PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL, ATOKA-PENNSYLVANIAN GAS POOL, EDDY COUNTY, NEW MEXICO.	)))))	Case No. 4359

ENTRY OF APPEARANCE

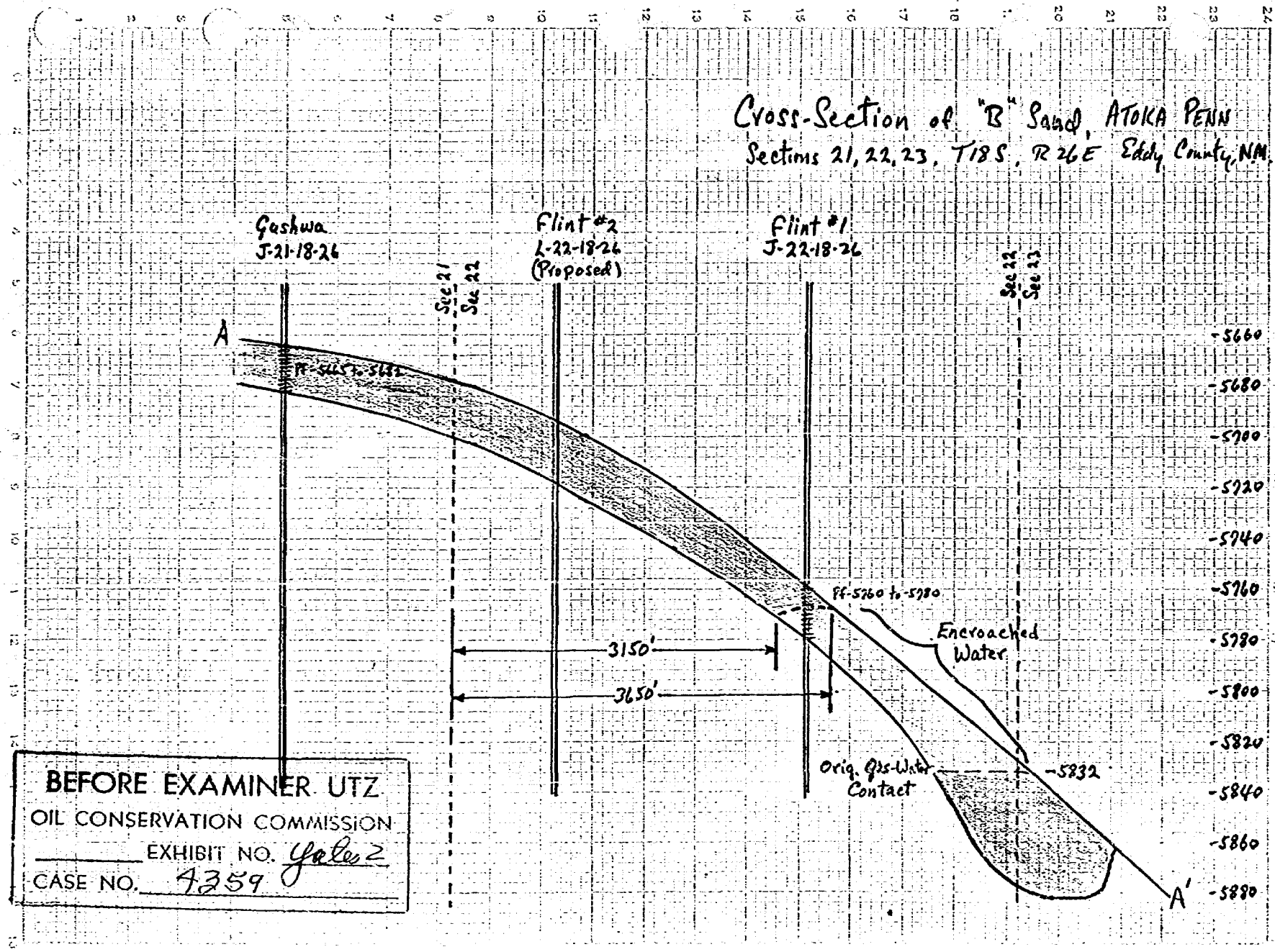
The undersigned Atwood, Malone, Mann & Cooter of Roswell, New Mexico, hereby enter their appearance herein for the Applicant, Pan American Petroleum Corporation, with Guy Buell, Esquire, of Fort Worth, Texas.

ATWOOD, MALONE, MANN & COOTER

By 

Attorneys for Pan American
Petroleum Corporation
P. O. Drawer 700
Roswell, New Mexico 88201

Cross-Section of "B" Sand, ATOKA PENN
Sections 21, 22, 23, T18S, R26E Eddy County, NM.



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. Yates 2
CASE NO. 4359

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE No. 4359

Order No. R- 3970

APPLICATION OF PAN AMERICAN PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO.

6-1-70

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 27, 1970, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of June, 1970, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Pan American Petroleum Corporation, seeks an exception to the Special Rules and Regulations for the Atoka-Pennsylvanian Gas Pool to drill a gas well at an unorthodox location 1650 feet from the South line and 990 feet from the West line of Section 22, Township 18 South, Range 26 East, NMPM, Eddy County, New Mexico.

(3) That the Special Rules and Regulations governing the Atoka-Pennsylvanian Gas Pool provide that each well completed or recompleted in said pool shall be located in the northwest quarter or the southeast quarter of the section and shall be

990 feet to the outer boundary of the quarter section nor nearer than located no nearer than 330 feet to any governmental quarter-quarter section line.

(4) That the S/2 of said Section 22 is presently dedicated to applicant's Flint Gas Com Well No. 1 located in the SE/4 of said Section 22.

(5) That said Flint Gas Com Well No. 1 is no longer productive of gas in the Otero-Pennsylvanian Gas Pool due to an influx of water from the ~~southeast~~ southeast.

(6) That the proposed location, in the SW/4 of said Section 22, is an off-pattern gas well location.

(7) That the evidence indicates that a well drilled at the proposed non-standard location should encounter the gas section above the gas/water contact.

(8) (7) That the correlative rights of offset operators will be impaired if the subject well is assigned a standard allowable for the subject pool.

(9) (8) That to offset the advantage to be gained over offset operators by the drilling of a well at the proposed non-standard location, the allowable for said well should be reduced.

(10) (9) That approval of the proposed unorthodox location will not violate correlative rights and will afford the applicant the opportunity to produce his just and equitable share of the gas from the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk

(2) That a standard 320-acre gas proration unit for said pool, comprising the _____ of said Section 22, shall be dedicated to said well.

(2) That an acreage factor for proration purposes of 0.625 shall be assigned to said well.

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

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

western union **Telegram**

KA140 LC329 NSA E 99 (427).

NS FWA387 JH PDB=FAX FORT WORTH TEX 5 415P CDT=

NEW MEXICO OIL CONSERVATION COMMISSION= 1970 MAY 5 PM 4 2

P O BOX 871 SANTA FE NMEX=

Case 4259

PAN AMERICAN REQUESTS THAT YOU SCHEDULE HEARING TO BE INCLUDED ON MAY 27 DOCKET TO CONSIDER UNORTHODOX LOCATION FOR FLINT GAS UNIT WELL NO. 2, ATOKA PENN POOL, EDDY COUNTY, NEW MEXICO. UNORTHODOX LOCATION TO BE 990' FWL AND 1650' FSL, SECTION 22, T-18-S R-26-E. THE OFFSET OPERATORS TO THIS LOCATION ARE YATES PETROLEUM COMPANY, 207 4TH ST ARTESIA, NEW MEXICO AND TOM L. INGRAM, BOX 1757, 1000 S. KENTUCKY, ROSWELL, NEW MEXICO=

D L RAY PAN AMERICAN PETROLEUM CORPORATION=

DOCKET MAILED
Date 5-14-70

WU 1201 (R 5-69)

CASE 4360: Application of PAN AM. TO DIRECTIONALLY DRILL, LEA COUNTY NEW MEXICO.