CASE 5226: Application of INEXCO OIL CO. FOR POOL CREATION AND SPECIAL POOL RULES, EDDY COUNTY.

CASE No. 5226

Application,

Transcripts,

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 25, 1974

EXAMINER HEARING

IN THE MATTER OF:

Application of Inexco Oil Company for pool creation and special pool rules, Eddy County, New Mexico.

CASE NO. 5226

BEFORE: Richard L. Stamets, Examiner

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I N D E X

E X H I B I T S

MR. STAMETS: Case No. 5226.

MR. DERRYBERRY: Case 5226. Application of Inexco Oil Company for pool creation and special pool rules, Eddy County, New Mexico.

(Whereupon, a discussion was held off the record.)

MR. STAMETS: Let the record show that the Examiner, Richard L. Stamets is hearing Case No. 5226.

At this time we will call for appearances in this case.

MR. KELLAHIN: Tom Kellahin and Jason Kellahin of Kellahin and Fox, Santa Fe, New Mexico, appearing on behalf of the Applicant, Inexco Oil Company.

MR. BUELL: Mr. Examiner, I am Sumner Buell, appearing on behalf of David Fasken in opposition to the Application.

MR. STAMETS: Are there other appearances of people who will present testimony in this case?

MR. EATON: Paul Eaton of the firm of Hinkle, Bondurant, Cox and Eaton of Roswell, New Mexico, representing Monsanto Company in opposition to the Application.

MR. STAMETS: Any other appearances?

MR. SEEREY: We may wish to make a statement on behalf of Mobil. John Seerey.

MR. WILLIAMS: Bob Williams on behalf of Morris R. Antweil. We will be represented by Don Stevens, momentarily.

MR. BEVERIDGE: Richard Beveridge on behalf of Western Reserve Oil Company. We may wish to make a statement.

MR. STAMETS: Are there any others at this time who will be presenting testimony?

Will all of the witnesses that will likely appear in this case please stand at this time and be sworn?

(Witnesses sworn)

MR. STAMETS: You may proceed, Mr. Kellahin.

T. R. FLUELLEN, JR.

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

DIRECT EXAMINATION

BY MR. TOM KELLAHIN:

Q Would you please state your name, by whom you are employed and your capacity?

A My name is T.R. Fluellen, Jr., and I am employed by Inexco Oil Company as a geologist.

Q Mr. Fluellen, Have you ever testified before this Commission before?

A No.

Q Would you please briefly state for us what your educational and employment experience has been?

A I earned a Bachelor of Science degree in Geology in 1948 from the University of Houston. I worked three years as a professional geologist for the Texas State Board of Water Engineers. I have worked for a major oil company from that time until a short while ago when I joined Inexco Oil Company.

Q How long have you been employed by Inexco?

A Six months.

Q In what capacity?

A As a geologist.

Q Mr. Fluellen, what experience have you had in Eddy County, New Mexico with regard to oil and gas production?

A Most of my experience or most of my work with Inexco has been in Eddy County, New Mexico.

Q Have you made a study of and are you familiar with the facts surrounding this particular application by Inexco Oil Company?

A Yes.

MR. TOM KELLAHIN: I tender the witness as an expert geologist.

VOIR DIRE EXAMINATION

BY MR. STAMETS:

Q Mr. Fluellen, your experience with a major oil company, was in geology?

A Yes.

Q Is that Standard Oil Company of California, Chevron's subsidiary, and was that in West Texas and New Mexico region?

A I have worked out here. I have worked other places also. Texas Gulf Coast, Louisiana, Mississippi, Alabama and Florida, off shore.

MR. STAMETS: The witness is qualified.

DIRECT EXAMINATION (Continued)

BY MR. TOM KELLAHIN:

Q Would you please refer to what has been marked as Applicant's Exhibit No. 1 and identify it and explain what information it contains?

I apologize, I am quite short of exhibits, gentlemen.

A This is a map showing the location of the area

we wish to discuss today. It lies about five miles north of the City of Carlsbad. The field itself, the Catclaw Draw Field is about 5 miles northwest of Carlsbad. This map also has marked in an orange-red, the outlines of the Catclaw Draw Field. Also shown in darker red and in green is proposed spacing.

Q I note in the Exhibit No. 1, Mr. Fluellen, that you have included Section 8, Township 21 South, Range 26 East. You have included that Section 8 in your Application. Does the Applicant desire to have this continued as part of this particular Application?

A No.

Q Is it your request to have it deleted from this Application?

A Yes, that is my request.

Q Why is the Applicant seeking to delete that Section from its Application?

A Because Coquina Oil Company is in the process of completing their Arco Federal No. 1 in that Section, and that well is reported to be completing in the Morrow.

Q What effect does the Catclaw Draw Pool to the southeast have upon that particular Section, on the well involved there? What is the distance between the Catclaw

Draw Pool and the Coquina well?

A Less than a mile from the boundary of the Catclaw Draw Field.

Q Would that Coquina well be subject to the Catclaw Draw Pool?

A Yes.

Q What is the spacing in the Catclaw Draw?

A It is, at the present, 640 acres.

Q Would you please identify for the Examiner the location of the well which is the subject of this Application on Exhibit No. 1? Could you draw a red circle around it on my copy of the exhibit, please?

(Whereupon, a discussion was held off the record.)

BY MR. TOM KELLAHIN:

Q For the benefit of the Examiner, Mr. Fluellen, would you please identify the location of the Fasken El Paso Federal Well, No. 1, which is the subject of this Application?

A It lies in the southwest quarter of the northwest quarter of Section 3, Township 21 South, Range 26 East in Eddy County, New Mexico. I believe the well you have circled is in the southeast quarter of the northwest quarter.

(Whereupon, a discussion was held off the record.)

A To clarify this point, I believe this is the same well which is the subject of David Fasken's Application in Case 5228, and in that case the well is described as being located 2724 feet from the north line of the Section and 2870 feet from the east line of the Section, and although this is a long section, but it would appear to definitely be in the east half of the west half of the Section rather than the west half of the west half of the Section, and so it would appear that there is some error in description of the well in the subject case. It could be that we would have to have re-advertisement of this case on that location, but since there seems to be plenty of people here who are interested in this case and the next case, and if such action should be taken, I don't believe anybody would appear and we could go ahead and issue whatever order is necessary. However, a re-advertisement may not be necessary in this case.

MR. TOM KELLAHIN: If the Examiner please, I believe that the specific name designation of the Well in our Application, although it does contain a minor error on the actual location within that Section, is sufficiently

specific enough to notify all parties of interest.

BY MR. TOM KELLAHIN:

Q Mr. Fluellen, will you please describe for us the general geology found in the area in question?

A We are dealing with the Morrow Section only and this section in the area of the Catclaw Draw Field is the same type Morrow Section that is seen over a wide area in this part of Eddy County, New Mexico. The Section is approximately 400-feet thick and composed of interbedded sands and shales. The sand bodies themselves are lenticular and porosity within those sands is discontinuous.

Q Would you please refer to what has been marked as Applicant's Exhibit No. 2 and identify it and explain what information it contains?

A This is a porosity log of the Hennigan No. 1 Nan-Bet in Section 19, 21 South, Range 26 East in Eddy County, New Mexico. On this log I have shown in red the terminology that we use to describe the Morrow Section. That is, A Sand, B Sand, C Sand and D Sand. These zones can be broken down into more detail, but this is what we are using today in our testimony.

Q Why have you chosen the particular Hannigan Well No. 1 as your porosity level?

A We feel that this is a good example of the Morrow Section in the Catclaw Draw Field.

Q Would you please refer to what has been marked as Applicant's Exhibit No. 3?

A This is a map of the Catclaw Draw Field and the area immediately surrounding that on which I have shown the aerial extent of porosity within the Morrow zones as described on the guide log that I just submitted. The color code I have used is the A-Sand is shown in purple. The B-Sand is shown in blue --

Q (Interrupting) Slow down just a minute. The A-Sand is purple?

A There is a legend in the lower righthand corner.

Q Okay, thank you.

A As shown on the legend in the lower righthand corner, the A-Sand is shown in purple, the B-Sand is shown in blue, the C-Sand is shown in green and the D-Sand is shown in red.

The idea of this map is to show by use of color lines the aerial extent of porous zones within the Morrow. That is, all of the wells included inside the red line will have porosity in the D-Sand, all of the wells inside the green line have porosity in the C-Sand,

and that idea was continued for the B and the A-Sands.

The outside limits of these porous zones is oftentimes not well controlled. We do not in all cases see a zero cut-off to tell us just exactly where that line should fall. Also, because of the way the map was built, the fact that we do not always see that zero cut-off, that it calls up the point that because a piece of land falls outside of the color line does not necessarily mean that that piece of land is not porous in the sand. What this is, is a minimum aerial extent of the porous zones in these sands.

Q Is the Coquina Well included inside or outside any of those porous sand zones?

A It is seen slightly outside of any porous zones, although I have been told that it is being completed in the Morrow, but this is evidence to show that in some places we know that these porous zones are more extensive than I would have shown it here.

Q How have you picked the particular contours of the individual sand that you have chosen on that plat?

A Those that I can see and identify porosity in the log, I have included inside, and where I have controlled, we chose the porosity as not present, I have put on the

outside. If I have that kind of control, I have usually spaced the color line half way between those two wells.

Q Do you have anything else you would like to add with regard to this exhibit?

A No.

(Whereupon, a discussion was held off the record.)

BY MR. TOM KELLAHIN:

Q Would you please refer to what has been marked as Applicant's Exhibit No. 4 and identify it and explain what information it contains?

A This is a cross section of roughly east-west through the Catclaw Draw Field. The course of the cross section is shown on this index map. The guide log which I submitted earlier is this one, the Hannigan No. 1 Nan-Bet. It appears on the plain map here. It is circled in red on that right there. This is this one. It is here on the plat. It is shown on there, just sketching, here and then due west and then into Section 15.

This Section is hung on a correlation point so that there is no attempt to show structure here. I have marked the more obvious correlations on here, and I have shown the porous zones with red. I have not

attempted to lead your eye across and show the continuation of the porous zones, but I believe you can see them well enough. This cross section, I think you can see, demonstrates some of these sands do extend quite far. This is the most western well. This is the most eastern well, approximately three miles across there. The porous zones are marked in red, you can see, are continuous over a fair sized area. This is no more than a cross section to substantiate the construction of this map with the colored lines on it.

Q Would you please refer to Exhibit No. 5 and identify it?

A This is a north-south cross section through the Catclaw Draw Field running along the eastern boundary of the Field. Again, we are tied into the guide log, the Nan-Bet No. 1. The course of the cross section is shown on this map that is attached.

Q Would you please identify each of the wells that you picked in this cross section that you can't quite see?

A The most northern well lies in Section 18, 21, 26 and it is Inexco No. 1 McMillan State. Moving south, it is the Hannigan No. 1 Nan-Bet in Section 19,

21, 26. Moving south, it is the Hannigan No. 5, Catclaw Draw Unit in Section 25 of 21 South, 25 East. Moving south to the most southerly well, it is the Hannigan Catclaw Draw Unit No. 3 in Section 36, 21 South, 25 East. This Section, again, is hung in the same way. It is hung on a correlation point, and the vertical scale is 2½ inches equals 100 feet and there is no horizontal scale. Neither of these sections are scaled horizontally.

Once more, I have shown the more obvious correlations on here, and again, I have marked the porosity on the logs in red-orange.

Once more you can see that the sands do carry over greater than a mile, certainly, and the porosity zones can be seen to cover a good area.

Q Based upon your study of this particular area, do you have a geological opinion with regard to whether one well would be able to drain a 640 acre spacing unit as designated in the Application of Inexco?

A I feel that one well will drain a 640 acre spacing unit.

Q Do you have a geological opinion with regard to whether we can reasonably believe that the acreage involved is productive?

A Yes, I feel that it is.

Q I show you what has been marked as Applicant's Exhibit No. 6 and ask you to identify that?

A This is a letter addressed to Inexco Oil Company from Atlantic Richfield Oil Company submitting to us an AFE to join in the drilling of a 640 acre unit in Section 9, Township 21 South, Range 26 East.

Q Did ARCO have any proposal with regard to the acreage dedication as to that well?

A They propose a 640 acre operating agreement for the drilling of that well.

Q Is there anything else you want to add?

A No.

MR. KELLAHIN: That concludes our direct examination of this witness.

(Whereupon, a discussion was held off the record.)

MR. STAMETS: Are there any questions of this witness?

MR. BUELL: Yes, sir.

MR. STAMETS: Mr. Buell?

CROSS EXAMINATION

BY MR. BUELL:

Q Mr. Fluellen, I noticed in the Application that you say that Inexco is operator of the well in Section 3.

A That is obviously an error.

Q You are not the operator?

A No, sir.

Q In fact, you are a party to an operating agreement covering about 2800 acres, are you not?

A Yes.

Q And in there you designate David Fasken as the operator?

A That is correct.

Q In that operating agreement, do you know what percentage interest Inexco has?

A 5.73. Is that close enough?

Q That's close enough. In other words, 5 percent interest?

A Yes.

Q Was there an amendment to that operating agreement?

A I couldn't tell you.

Q Now, the area in which you have presented logs and these maps, this area is approximately five miles or four miles from the subject well location, is it not?

A Yes, sir.

Q I notice that although you have drawn the Catclaw Draw Field on your Exhibit No. 1, you have not put the outline of the Burton Flat Field on here. Are you aware of the spacing of the Burton Flat Field?

A I have been told it is 320.

Q Do you know that it abuts right up against the proposed area that is subject to the operating agreement?

A No, I do not have any information on the outline of that field.

MR. STEVENS: Mr. Examiner?

MR. STAMETS: Mr. Stevens?

CROSS EXAMINATION

BY MR. STEVENS:

Q Do you have any geology, Mr. Fluellen, of the eastern part of this Township, the northern part of which you propose to space 640 acres?

A No. I don't know for sure if I understand what you mean by, "Do I have any geology"?

Q Do you have any prepared to submit to this Commission?

A No, sir. I have looked at some of the material over there, but we did not prepare any exhibits in that area.

FLUELLEN-CROSS

Q How about the subject well? It isn't included in any of your cross sections. Do you have any geology to submit to this Commission on the subject well to substantiate your Application?

A No, sir, we did not prepare an exhibit including that.

Q Are there any wells in the eastern part of the proposed Township area, spaced area, that would have geology that might aid in determining whether to grant or deny your Application?

A I haven't looked at it in enough detail to answer that.

Q Yet you propose to space that area without having looked at it in detail, is that correct?

A In the east, yes.

Q What is the area covered by the area you have looked at in detail?

A Catclaw Draw Field.

Q How far is that away from the proposed area?

A Three miles, or adjacent. It depends on, if Coquina is considered within the Catclaw Draw Field, that is if Section 8 falls within it, then it is within a mile.

Q Do you have any information on the Coquina Well?

FLUELLEN-CROSS

A No, sir.

Q Do you know that a log has been released on it?

A I have been told it has been released, but I could not obtain a copy.

Q You propose, then, to set up 640-acre spacing in an area in which you have given the Commission no information on any of the wells around it except one field three miles southwest, is that correct?

A I have presented information on the Catclaw Draw Field area, yes, sir.

Q That field is already spaced at 640-acre spacing?

A Yes.

Q This area is not spaced according to your Application?

A No, sir.

Q What is the basis of your statement that you believe one well will drain 640-acre spacing? I believe you gave a basis.

A The fact that I can trace porous zones over an area greater than 640 acres.

Q Have you any pressure information to substantiate this?

A Possibly the engineers do. I do not.

Q Your cross section didn't cover this area, did it?

A No. You can see where my cross section goes right there.

Q Therefore, the porous zones, as I understand it, you say are continuous, but are not continuous through this area according to any information that you have presented to the Commission?

A I haven't presented anything on those wells at all.

Q Your Map 3, or Exhibit No. 3, I believe you stated that generally the lines weren't definite as to how far those porosity zones might go, but you definitely did not include at least the eastern three-quarters of your area. Do you contend that these porosity zones do cover the area to the east?

A I am not contending that the porous zones that we see in Catclaw Draw are necessarily continuous out to there. I am showing an example here of how widespread the porous zones are in a nearby area, and what can be expected to be found in this area.

Q You state the engineers might be able to determine whether one well will drain 640 acres or not. Do you plan to put on engineering testimony?

A I believe that is scheduled, yes.

Q Can you give us expiration dates of most of the Atlantic leases in the area proposed to be spaced?

A I don't have that information with me. The land maps that I have, I wouldn't trust the dates on them. Furthermore, they are so poor, I don't believe I could read them.

Q Do you have any information or an opinion, a guess, as to whether they would expire soon or late as compared with Inexco's?

A I can read numbers off of here.

Q I just wondered if you know generally speaking?

A No, sir.

Q Do you know if in fact Atlantic's leases do expire earlier, and if in fact your leases expire later, and does this have anything to do with your request in this Hearing?

A Inasmuch as I don't know when those leases expire, no, sir.

Q Do you know anyone else in your Company who might have that as a consideration for this Application?

A If they do, I am not aware of it.

MR. STEVENS: Could I see Exhibit No. 1 for a minute?

FLUELLEN-CROSS

BY MR. STEVENS:

Q Are you familiar with the location requested by Antweil in Section 4 of the proposed spaced area?

A Yes, they have submitted a letter to us on the drilling of that well.

Q Are you aware that a location has been approved by the New Mexico Oil Conservation Commission?

A No, sir.

Q Have you filed a request for a well to be drilled in Section 4, or has Inexco?

A Yes, sir.

Q Could you give us the acreage amount and the description?

A We asked for 640 acres for that well.

Q Has that acreage been spaced for 640 acres at this point?

A No, sir.

Q Did you ask for a hearing on that well?

A That section is included in the hearing today.

Q Are you aware that a 320-acre spacing has been approved by the New Mexico Oil Conservation Commission for the Antweil group covering 80 acres of the acreage which you requested in your well spacing?

A No, sir.

MR. STEVENS: I have no further questions.

MR. STAMETS: At this time we will recess the hearing until 1:15.

(Whereupon, the Hearing was recessed.)

MR. STAMETS: At this time we will resume Case 5226. Mr. Fluellen is still on the stand and is available for any additional questions.

Mr. Eaton?

CROSS EXAMINATION

BY MR. EATON:

Q Mr. Fluellen, referring to your Exhibit No. 1, if you would, please, on that exhibit you have outlined certain areas. Now, would you state again what areas you have outlined, sir?

A The limits of Catclaw Draw Field are shown in the orange-red.

Q Yes, sir.

A And the areas that we have asked to be spaced is shown in red and green.

Q Why, may I ask, did you not show the outline of the Burton Flat Field?

A We felt that this is the way to do it. We want to show what is here in the Catclaw Draw.

Q And not show what is in Burton Flat?

A We elected to go this way, yes.

Q Now, you had information on Burton Flat, did you not, at the time you prepared the exhibit?

A Yes.

Q Now, refer, please, to Exhibit No. 3. Again, Mr. Fluellen, what was the purpose of Exhibit No. 3?

A To show the aerial extent of the porous zones in the Morrow Sand.

Q And on the exhibit you have in different colors various lines, is that correct?

A Correct.

Q And those lines depict the boundaries of the porous zones of Sand A through D, according to your color code, is that correct?

A Yes.

Q I notice some --

A (Interrupting) But as I pointed out, the wells inside of those lines have porosity. In some cases, wells outside of those lines also have porosity.

Q As to the wells outside of the lines having porosity, why didn't you then extend your lines to include those wells?

A I didn't have one of them where I am sure there is porosity. For instance, The Coquina or Arco Federal in Section 8.

Q Well, as I understand, you do not have any

information with respect to that well?

A I do not have a log.

Q And since you do not have any information, you chose not to extend your line beyond that well, is that correct?

A Right.

Q I notice some of the lines appear to have dashes. They are not a solid line, is that correct?

A That is correct.

Q What is the reason for a dashed line?

A There is no meaning attached to them. These were prepared hurridly and I didn't check them carefully. The draftsman turned them into dashes.

Q Sometimes on maps, as I understand it, dash lines may indicate a lack of control and consequently, the location of the dash line just suggests the draftsman's interpretation of where that line should be, is that correct?

A Yes, but that is not true here.

Q That is not true here. Any dash lines are supposed to be solid lines?

A The point is, I am trying to show that wells in these colored boundaries are porous in those zones.

Q Now, looking at Township 21 South, 26 East, what well control did you have, sir?

A There is a well in Section 30.

Q Yes, sir.

A And in 19.

Q That is the Nan-Bet Well, correct?

A Correct. And in Section 20. In Section 18.

Q Okay.

A Section 7 and indirect evidence in Section 8. That is, we have drilled some test information and production rates from depths that indicate Morrow production.

Q As to the well in Section 7, that is a well where, in the southwest quarter?

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

Q What information did you have with respect to that well?

A I would have to look at my notes to answer that factually.

Q Do you have your notes with you?

A I am not sure. Now, would you ask me again?

Q What information did you have with respect to that well in the southwest quarter of Section 7?

A I have a log on that well.

Q Is it on the basis of that log that you do your contour lines in that general area?

A That's right.

Q What did the log show?

A It showed porosity in the Morrow.

Q When you are talking about porosity, what degree of porosity are you talking about?

A Are you asking for the porosity percent?

Q Yes, sir.

A I don't have it. I don't have that information with me.

Q When you talk about porous Morrow Sands, what are you talking about?

A Porosity greater than 7 percent.

Q You are aware that well in Section 7 was a dry hole?

A Yes, sir. But this is a map showing porosity, not net pay.

Q All right. Now, moving up to Section 1 in 21 South 25 East, there is a well in the southeast quarter, northeast quarter of that big Section?

A Yes.

Q Did you take that well into consideration?

A Yes, sir.

Q Are you aware that that well is producing or making about 50 MCF per day?

A I don't have any idea what the rate is.

Q Your map shows that all of Sections -- referring to Township 21 South, 26 East -- all of Sections 1, 2, 3, 4, 10, 11 and 12 to be outside of the porous zones, outside the boundaries of the porous zones as you believe those zones lie, correct?

A No, sir, that is not what this map is intended to show. This map shows the wells included in here and limited only to the Catclaw Draw Field area. It does not express any opinion as to the Fasken Well or Wells in those sections that you mentioned.

Q Well, the exhibit, as I understand, is an exhibit portraying the aerial extent of porous Morrow Sand, isn't that correct, sir?

A Yes. It doesn't cover a wide area. I limited this work to the Catclaw Draw Field.

Q Likewise, a considerable part of Sections 9 and 5 and smaller parts of 6 and 8 are outside of the limits shown on your exhibit, is that correct?

A Yes.

Q Taking a look, for example, at the B-Sand which is the blue line, on what basis did you contour it as you have in the northwestern portion of Township 21 South, 26 East?

A I used the control that we just spoke of in those wells and where the zones were porous, I put the blue line outside of them.

Q Now, again, as I understand, the control up in that area would be the well in the southwest quarter of Section 7 and the well in the northeast quarter of Section 1 in the adjoining Township?

A Yes.

Q On the basis of the information that you had on those two wells, you felt that you were able to nose the B-Sand out in the fashion that you have done so on your exhibit?

A Yes, sir.

Q Did I hear you testify that the Morrow section is lenticular and that its porosity is discontinuous?

A Yes, I said the sands are lenticular and the porosity within the sand is discontinuous.

Q By "discontinuous," what do you mean, sir?

A Well, it does not extend over a township,

certainly. The sands themselves probably are more widespread than the porous zones within the sands.

Q But by "discontinuous porosity," exactly what do you mean?

A That any one particular porosity zone is not necessarily present everywhere in the county.

Q That's a very big area?

A That's right. That is discontinuous, is it not?

Q I suppose, then, that the same opinion could be given with respect to just about any sand, could it not?

A I believe so.

Q Actually, the Morrow Sands are very discontinuous in porosity, are they not, in that you may find porosity in one location and not find it in an adjoining well location?

A Yes.

Q And as I understood your answer to one of the other questions, you did not study the east side of this proposed pool at all, is that correct?

A I did not study it in the detail that I did here.

Q At the same time you were aware of the well information and data in the Burton Flat?

A Yes, sir.

MR. EATON: That's all.

MR. STAMETS: Are there any other questions of the witness?

MR. BUELL: Mr. Examiner, if I may have one question.

MR. STAMETS: Mr. Buell.

CROSS EXAMINATION

BY MR. BUELL:

Q Mr. Fluellen, how many wells has Inexco drilled in Eddy County, Morrow Wells, based upon your geologic evaluation and recommendations?

A None.

MR. BUELL: That's all I have.

MR. STAMETS: Are there any other questions? Mr. Stevens?

CROSS EXAMINATION

BY MR. STEVENS:

Q I don't know which exhibit it is, but the one you were just testifying to?

A Exhibit 3.

Q I understand you haven't testified as to the aerial extent of porous Morrow Sand under the majority of the area proposed to be put under 640-acre spacing,

and that you are limiting testimony to the Catclaw Draw. I would like to ask you a couple of questions about this Catclaw Draw area that you are testifying about. For example, in Section 11, Township 21 South, Range 25 East, did you say that the well in Section 11 will drain all of the Morrow Sand as depicted on this exhibit?

A I believe I will let the engineers answer that question.

Q Could you give us your geological opinion as opposed to an engineering opinion as to whether the well in Section 11 will drain all of the Morrow Sand as depicted in this exhibit?

A I am not real sure I understand what you are asking me.

Q Perhaps I can rephrase it. That well is located in the northeast and southwest quarter of Section 11. Don't you have a red line going south of that well?

A Yes, sir.

Q Meaning, I understand, that D-Sand is presently in a section to the south of that well, but not in the well nor north of that well. In your opinion, would that well drain the D-Sand porosity?

A No, sir.

FLUELLEN-CROSS

Q In your opinion, would there be a greater chance of that D-Sand porosity being drained if there were two wells drilled in that section as opposed to one?

A In other words, if you drill to the north of that well, you are not going to drain the D-Sand.

Q Suppose you drill in the southeast quarter?

A Probably.

Q If you had the choice of drilling another well in that section and determined that the reserves were sufficient to justify another well, would you drill a well in the southeast quarter of Section 11 in order that you might get that D-Sand?

A Speaking strictly geologically, I think, yes, but I would have to look at the economics.

Q That was part of my question, if it was economically feasible. On that basis, then, would you say that if this field was drilled on 320-acre spacing as opposed to 640-acre spacing, more gas would be recovered?

A I again leave that to the engineers to determine.

Q You cannot make that determination as a petroleum engineer?

A No, sir.

Q As a geologist, I am sorry.

A Right.

Q How do you determine on what basis a well is drilled as a geologist, if you can't determine from this field whether more or less number of wells would be drilled on 320 or 640-acre spacing?

A I still rely on them to provide that information.

Q You did testify that you thought one well would drain 640-acre spacing, didn't you?

A Yes, sir, in my geological opinion.

Q Is that in conformance with what you just stated in Section 11?

A I think so.

Q As I understood, you stated that this one well would not drain the D-Sand and another well might if it is located in the southeast corner.

A We didn't deal with these one at a time. I am talking about the field.

Q But you won't give an opinion, as a geologist?

A In what respect.

Q That two wells might drain more gas as opposed to one well per section?

A No, sir. Again, I am leaving that to the

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engineers.

MR. STEVENS: I have no further questions.

MR. STAMETS: Mr. Fluellen, you have asked that your Application be amended to delete Section 8 of Township 21 South, 26 East, and in considering, when we looked at your Exhibit No. 3 and see these Morrow Sands coming out of the Catclaw Draw area to include Sections 7 and 6 in that same Township as well or whether or not you still wish these two sections to be continued in this proposed pool.

MR. JASON KELLAHIN: If the Examiner please, it is Inexco's position, in that connection, that there is a well in Section 8, which under the rules of the Commission, would automatically go into the Catclaw Draw-Morris Pool. These other sections are not so situated. What we are talking about is attempting to space the balance of this area in conformance with the Catclaw Draw rather than with the Burton Flats. That is really the problem involved in this hearing.

MR. STAMETS: There is another problem, Mr. Kellahin, that the well would be subsequently completed in Section 6 or Section 7, that it would not be prorated because no proration has been proposed here,

whereas, if they were not in a pool, the might well come under the Catclaw Draw formula which then calls for proration.

MR. JASON KELLAHIN: We have no objection to their deletion, assuming they would be included in the Catclaw Draw.

MR. STAMETS: Do you have any evidence, Mr. Fluellen to indicate the productive limits of the Morrow Sand under the well in question here in Section 3?

THE WITNESS: No, sir. I believe possibly our engineering testimony would deal with that.

MR. STAMETS: Geologically, you don't have any evidence to indicate that it is productive on 160 acres, 320, 640 or 900?

THE WITNESS: No, sir.

MR. STAMETS: Referring to your Exhibit No. 3, you show a number of different porosity outlines. Are these big blanket sands or separate sands?

THE WITNESS: Well, on the cross section, you can see what I am dealing with, and on the display I gave out there, No. 2 I believe it is that is displayed, the log of the Hannigan, where those sands are defined and that is the definition I am using on Display No. 3.

MR. STAMETS: This would be sand zones that the individual sand bodies might not be connected to the well?

THE WITNESS: That is true. They can be subdivided more so than shown on that display, on that guide log, but on this display, I have used that terminology.

MR. STAMETS: For instance, referring to your Exhibit No. 5, if we take the Hannigan and Catclaw Draw No. 5 Well and starting from the bottom -- let me point it out here -- this porosity zone, you showed approximately just above 10,800 feet?

THE WITNESS: Yes.

MR. STAMETS: That does not appear to be productive in any of these other wells, and actually, it appears to be shaled out in some of them?

THE WITNESS: Yes.

MR. STAMETS: So this is the sort of situation that you have?

THE WITNESS: Right.

MR. STAMETS: An isolated change you may not find in any other well?

THE WITNESS: That's true.

On the other hand, let me point out that toward the base of the three logs on this end, those porous zones do continue.

MR. STAMETS: Do you have evidence to indicate that in each of these cases that you have shown here, that sand is physically connected well-to-well?

THE WITNESS: No.

MR. STAMETS: Is it possible, knowing the Morrow formation, that although these are in the same horizon that they are not any of them connected well-to-well?

THE WITNESS: It is possible, yes, sir. In this particular case, I have the feeling that they are continuous.

MR. STAMETS: Now, I believe you mentioned the Morrow's 400 feet of interbedded lenticular discontinuous sands. Do you know if there are any channels in the Morrow?

THE WITNESS: I don't recognize any. There well could be, but I couldn't point to one.

MR. STAMETS: Mr. Fluellen, to get the most gas out of the Morrow Sand, not considering economics or the present time, would it be better to develop the

Morrow Sand on 640 or 320?

THE WITNESS: I would still like to refer that question to the engineers.

MR. STAMETS: Geologically?

THE WITNESS: No, sir.

MR. STAMETS: To contact all the gas you originally had in the Morrow formation, are you more apt to do this on close spacing or wide spacing?

THE WITNESS: I feel, geologically, if the porosity is continuous, it can be drained by one well.

MR. STAMETS: If the porosity is continuous?

THE WITNESS: But now this is, as I say, you have forced me to say that, and I do it reluctantly because I feel that is engineering testimony.

MR. STAMETS: In the Morrow formation geologically, do you feel that the porosity is continuous most of the time in the Morrow formation or discontinuous most of the time?

THE WITNESS: I think, as you can see on those cross sections, there are histories that can be demonstrated where the porosity in the Morrow is continuous.

MR. STAMETS: I believe you indicated you don't have any geologic evidence to indicate that the --

THE WITNESS: (Interrupting) I did say that in my opinion I feel that it is.

MR. STAMETS: Okay. Are there any other questions of this witness?

REDIRECT EXAMINATION

BY MR. TOM KELLAHIN:

Q Mr. Fluellen, let me talk to you in terms of the proposed rules that Inexco is desiring here. You indicated in the Application that you initially wanted a spacing of 640 acres. It is conceivable in a year or so that geological testimony may be developed by drilling of additional wells or further development of existing wells to a point where, in fact, we may come back in and show that in order to properly develop the acreage we can go to 320 acres, is that correct?

A That is correct.

Q At this point in time, with the present geology that you have, are you in a position to say that it would be better to drill this on 320 and preclude the possibility that this area can be developed on 640?

A I would prefer to drill on 640 and fill in later.

Q What period of time are you asking that this 640 spacing be allowed?

A One year.

Q Let me go back now to something that Mr. Eaton asked you. Mr. Eaton asked you about the number of sections which are outside the porosity development as shown on your Exhibit No. 3. Does that mean that there is no porosity development outside those areas or in the sections that he named?

A No, sir.

MR. TOM KELLAHIN: We have nothing further on redirect examination.

MR. STAMETS: If there are no additional questions, the witness may be excused.

(Witness dismissed.)

KEN SOBKOWICH

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

DIRECT EXAMINATION

BY MR. TOM KELLAHIN:

Q Would you please state your name, by whom you are employed and in what capacity?

A I am Ken Sobkowich. I am employed by Inexco Oil Company as a petroleum engineer.

Q Have you previously testified before this

Commission?

A No, I have not.

Q Would you briefly relate for the benefit of the Examiner and the participants here what the extent of your educational background has been?

A I received a Bachelor of Science degree in Petroleum Engineering in 1961 from the University of Alberta, Canada. I was employed by Pan American Petroleum Corporation for three years as a reservoir engineer, for five years with the Canadian Independent Company as drilling and production engineer. I have been with Inexco Oil Company for the past five years.

Q What is your present capacity with Inexco Oil Company?

A I am in the Reservoir Engineering Department in Houston.

Q What, if any, responsibilities do you have with regard to the area in question here in Eddy County, New Mexico?

A It was assigned to me at the time the hearing came up, approximately three weeks ago.

Q As a petroleum engineer, have you made a study of the facts surrounding this particular Application?

A Yes, I have.

Q What general experience have you had as a petroleum engineer with regard to the southern part of New Mexico, and particularly, Eddy County, New Mexico?

A Not until three weeks ago.

Q Have you had experience as a petroleum engineer in other similar areas, either in Texas or elsewhere? That is, similar to the Catclaw Draw or other Morrow pools and formations?

A The experience has been with other sandstone reservoirs, not necessarily the same as Catclaw Draw.

MR. TOM KELLAHIN: We tender the witness as a qualified petroleum engineer.

MR. STAMETS: Any objections? One thing I missed, Mr. Sobkowich, what was the date of your degree?

THE WITNESS: 1961.

MR. STAMETS: The witness is qualified.

BY MR. TOM KELLAHIN:

Q Would you please refer to what has been marked as Applicant's Exhibit No. 7, and would you identify that, please?

A It is a summary of reserves and estimated drainage area.

Q You indicated that this is a summary. What information went into compiling this summary? What facts did you draw upon?

A I would like to go into that. It is all attached to the exhibit in subsequent pages. The first page just being a summary of the reserves and the reserves and the estimated drainage area. The second page being a summary of rock properties by zone of six wells in the Catclaw Draw Field from which average properties of the zones were obtained and the calculation of gas-in-place in the MCF per acre-foot was made, and a calculation of the recoverable gas-in-place in MCF per acre-foot to an abandoned pressure of approximately 750 pounds. The next six pages of Exhibit 7 are plots of reservoir pressure over the compressibility factor versus the accumulative production for those six wells and these six wells were selected because they had pressure build-up surveys taken in February of 1974 and provide the most recent information and probably the most accurate determination of recoverable reserves we have from those wells based on the production history of each one of these. The first page, under "Recoverable Reserves" column was obtained from each of these curves. Using

the recoverable reserves from the well, we know the average recoverable gas-in-place and MCF per acre-foot. We can estimate the net pay over a 640-acre spacing unit and calculate the drainage area that this well would have to drain to cover the accumulative reserves that the curve was showing. And, in case of the drainage areas varying in all of the six wells, some are draining more and some a little less, but what this exhibit is intended to show is that on the average of these six wells, they are draining 702 acres.

Q Let me ask you to refer to the summary on the first page of the exhibit and indicate for me how you arrived, or what basis you used to arrive at your average net pay for each one of these wells?

A The net pay was a sum of the zones that were completed in that well and totaled an average with net pay that was apparent in the four surrounding wells. This is strictly arithmetic average of five well-bore net pays.

Q How did you calculate the drainage area indicated in the last column on the far right?

A You know the recoverable reserves from the curve and the recoverable reserve is equal to the gas-in-place, the recoverable gas-in-place times the net pay times the

drainage area. The drainage area is the only unknown you have in that equation, so you solve for area.

Q Based on this exhibit, do you have an opinion with regard to whether one well will effectively drain an area of 640 acres?

A I believe one well would efficiently drain 640 acres.

Q Please refer to what has been marked as Applicant's Exhibit No. 8 and identify it?

A Exhibit No. 8 is, again, a calculation of the drainage area using a different field in Eddy County, New Mexico. In this case you are taking the Rock Tank Field which produces from the lower Morrow. I refer you to the second page of the Exhibit which is, again, a bottom-hole pressure over compressibility plot versus cumulative production for this field. The source of this data was taken from the New Mexico Oil and Gas Engineering Committee Annual Reports, and I have to rely on it as being accurate, but it does demonstrate that the Rock Tank Field should produce 44-billion cubic feet of reserves. I refer you back to Page 1, we again made an estimate of the recoverable gas in place down to the same down-hole pressure that was used for the Catclaw Draw,

and we used average parameters for the Catclaw Draw mainly because the information on the Rock Tank Field wasn't available to me. I did confirm that the original reservoir pressure is in the order of 4400 pounds because it is about the same depth as the Catclaw Draw. I did check the porosity in one log and that averaged out to 11 percent, therefore, I used 11 percent. Gas saturation, I used from the Catclaw Draw. Reservoir temperature at that depth is reasonable. The recoverable gas-in-place, then, is 640 MCF per acre-foot. Using the average lower Morrow net pay for the four wells producing this field, we determined it was 23 feet, and again, to calculate the area, this field would have to drain to produce 44 billion feet of reserves, and it looks like 2989 acres. We make the assumption that the average -- each well is draining its proportional share of reserves -- and the average drainage area per well works out to 747 acres.

Q Are you aware of what the spacing is in the Rock Tank Field?

A I believe it is 640.

Q Based upon your studies of the Rock Tank and the Catclaw Draw Pools, have you been able to reach any conclusion or opinion concerning the acreage and its

drainability with regard to this particular Application?

A Well, we have very little evidence of extensive Morrow production in the area that we asked to be spaced. Obviously, there are two wells drilled by Fasken in which Inexco has an interest which are capable of production from the Morrow. There is the Monsanto Well in Section 7, Township 21 South, Range 28 East which reportedly has production from the Morrow, and there is the Coquina Well in Section 8, Township 21 South, Range 27 East, which apparently has production from the Morrow.

It is Inexco's intention that until we learn more about the extent and quality of the Reservoir in the Morrow here, that it should be developed on the widest spacing possible, and at a later date when we gather sufficient information to determine whether 320 acres is the proper spacing and can be infilled.

Q With regard to your Application, I note that certain of the sections to be included under your proposed pool rules are less than 640 acres. Would you explain for me why that has occurred?

A In sections?

Q I am sorry. More than 640. Some of the sections within the area involved in the Application contain more

than 640 acres?

A I am afraid I can't answer that because I am not familiar with 960 acre sections.

Q Understanding the fact that there are some oversized sections in this area, how would you propose to handle that problem?

A I propose to split them in half and have drilling units of 480 acres each. In the event that proration became necessary, we assume it would be done on an acreage basis.

Q With regard to well locations, the specific location of particular wells to be drilled in this area, do you have any proposals with regard to a rule on well locations?

A We would propose that they conform to 320 acre requirements that would permit them drilling at a later date.

Q From your present knowledge and study of the area, do you believe that the acreage can be drained by wells spaced on 640 acres?

A Yes, I do.

Q In your opinion, will wells drilled presently upon less than 640 acres constitute waste?

A In my opinion, it would constitute economic waste and it would be drilling unnecessary wells.

Q With regard to economics, I would like to direct your attention to that fact and have you summarize for me the present economics for drilling a well on 640-acre spacing?

A Inexco Oil Company has stated that the cost of the Morrow well in this area is $370,000. If you are to develop a section, or 640 acres with one well, your investment would be $370,000 and you would operate one well over the life of the one-section field. Controversly, if you developed it on 320-acre spacing, you would drill two wells costing $740,000 and your operating cost would naturally be doubled. The returns or the net income from the section would be the same since you would recover the same amount of gas. So, the only difference being the cost of the additional well and the operating cost and we determined this at, say, a ten-foot well, the difference between the two cases would be about $400,000.

Q Do you have any flow data concerning the Coquina and the Monsanto Well?

A Yes, we have.

Q Please refer to those and tell me what information

you have?

A Based on information that we have received in the office,the Coquina Well in Section 8, Township 21 South, Range 27 East flowed at a rate of 11.4 million cubic feet a day on a half-inch choke with a flowing tubing pressure of 2000 pounds. A second flow rate was 8½ million a day on a 20-64 choke at 2500 pounds. In the case of the Monsanto Well, the information that we have is that the well flowed 10.3 million cubic feet a day on a one-half inch choke at a flowing tubing pressure of 1800 pounds and 7.2 million cubic feet a day on a 24-64th choke at 2250 pounds.

Q What does this indicate to you as to the quality of the reservoir?

A To me, it indicates that the wells would have excellent deliverability, and in order to have that, I would probably connect it to a good reservoir. That's really about all you can say about it right now.

Q From that information, what would you anticipate to be the drainage area for those wells?

A It is difficult to determine what the drainage area would be on the basis of this information, but with that type of productivity, they would have to be connected

to a good quality reservoir.

Q Would you anticipate that it would be able to drain 640 acres?

A It is impossible to tell right now with the current information.

Q With production data over a period of a year or so, do you think you would be able to determine whether it could drain 640 acres or not?

A Yes, we could. We would be able to construct the pressure production decline curve and extrapolate the reserves for the well.

Q How long a period of time do you think it would take before you would have that kind of information?

A Within a one-year period, providing enough pressure surveys were taken to determine that.

Q In your opinion, will approval of this Application be in the best interest of conservation and prevention of waste and protection of correlative rights of others?

A That's my opinion.

Q Were Exhibits 7 and 8 prepared by you or under your direction and supervision?

A Yes, they were.

MR. TOM KELLAHIN: That concludes our direct examination.

MR. STAMETS: Are there questions of this witness?

Mr. Buell?

CROSS EXAMINATION

BY MR. BUELL:

Q Did you review the history of the Fasken El Paso Federal No. 2 located in Section 2 in your study?

A I briefly reviewed the daily drilling reports during the completion of the well.

Q And you have not done any other work on that well or reviewed any other history?

A No, I have not.

Q Do you have that information with you?

A No, I have not.

Q Have you reviewed the history of the Fasken El Paso Federal No. 1 in Section 3?

A Again, I briefly reviewed that and I don't have that information with me.

Q Just a review of the drilling reports?

A Just the daily drilling reports which indicate to me they had perforated the Morrow Zone.

Q And you know nothing about it since then?

A No, I do not.

Q Do you know that the Fasken Federal No. 2 in Section 2 is completed in the Morrow Zone?

A Yes, I do. Again, having read the daily drilling reports, I seem to recall it was also perforated in the Morrow.

Q Do you know if it is produced in the Morrow?

A I have no production information on the well at all.

Q Would it make any difference to your testimony and your opinion if I told you that the No. 2 well in Section 2 produced only for 10 days from the Morrow Zone and then the pressure was depleted? Let me ask it this way: Does that sound like that well was draining 640 acres?

A It sounds like the well was draining the reservoir.

Q Or else the reservoir was very very small?

A That's what I am saying, it was very very small, yes.

Q Do you know if production has been obtained from Fasken No. 3 in Section 3?

A I am not aware of any production history from

shown that the Morrow is lenticular. Had you drilled that well on 320 or 640 and depleted it in 10 days, it is an uneconomic well regardless of the spacing.

Q And it did not drain 640 and probably didn't drain 320 either?

A It drained the reservoir.

Q Would you want to estimate in your opinion how big that reservoir is?

A I have no idea. I am just going by what you tell me.

Q From the evidence concerning the Rock Tank Field, again I see no conclusion could be drawn from that other than the fact that the Commission was correct when they spaced it at 640. It is one mile away from the area we have under consideration?

A That's true. It was also prepared to demonstrate that a Morrow well is capable of drilling 640 acres, and we don't know enough about the area we are talking about to say anything else, so, let's start at 640 and if we determine that is the proper spacing, we have done the right thing.

Q But in the meantime, some of the leases there that are presently being developed on 320 acres are

going to be broken up, is that so?

A How do you mean "broken up"?

Q Well, the acreage that has been dedicated to them and the work they have been doing on 320 in the area?

A I am not aware of any.

Q You don't know?

A I don't know about them, no.

Q What type of studies have you made of the area under consideration? Not Catclaw Draw or Rock Tank, up there in Sections 1 through 12?

A There is very little information that has been available to us. The extent of study has been that Morrow production was obtained from the two Fasken wells, Morrow production has been obtained from the Coquina Well and Morrow production has been obtained from the Monsanto Well. There is a lot of drilling activity planned for this area which will provide more information, but there just isn't that much information available to study.

Q So, without the information, you don't know whether it can drain 640 or 320 in the area under consideration?

A I am not sure what the drainage area would be in the area under consideration and nobody will know until

we get some production history.

Q You don't know at this time?

A I don't know at this time, but the optimum way to go about it is to start with larger spacing and then fill in later if you have to. It is difficult to undrill a well.

Q Have you isopached all of the indicated productive sand and made a pore-volume estimate of the reserves, and if so, does the pressure over "C" versus accumulative production indicate that all sands are contributing and producing? Obviously, I didn't make that one out.

A It was a long one. Could you repeat it?

(Whereupon, the witness read the question.)

A No, I have not.

MR. BUELL: Thank you. I have nothing else.

MR. STAMETS: Mr. Stevens?

CROSS EXAMINATION

BY MR. STEVENS:

Q Mr. Sobkowich, referring to what I believe is Exhibit 7, the Catclaw Draw on the Morrow, could you turn over to Page 3 and could you give us the bottom-hole pressure as shown on that exhibit on Page 3 on the

Catclaw Draw Unit No. 1-Y and the date of completion, and to speed things up, continue in order and give us the original bottom-hole pressure of each of these wells as shown in the exhibit in order.

A You want the original bottom-hole pressure?

Q Yes, sir.

A And the latest?

Q And the date. Just the original and the date of completion.

A It is on the exhibit.

Q It is shown, but I would like you to run through it if you will and compare it with each other as to how much it varies.

A In dealing with the Catclaw Draw Unit No. 1-Y, the date is May, 1971, and the bottom-hole pressure was 43-92. Unit No. 2, the date is November of '71, the bottom-hole pressure is 43-97. August of '72 the bottom-hole is -- this is Catclaw Draw No. 4 -- August of '72, the bottom-hole pressure was 44-34. October of '72 for Catclaw Draw No. 6, the bottom-hole pressure was 44-28. Catclaw Draw Unit No. 7, November '72, the bottom-hole pressure was 42-80. And the Catclaw Draw-Nan-Bet No. 1, in February of '73, the bottom-hole

pressure was 44-72.

Q Does that indicate to you in your opinion any communication in the reservoir in the almost two-year period from the first stage of completion to the last stage of completion?

A Could you repeat your question?

Q Does that indicate, the date of completions and the bottom-hole pressures, do they indicate any drainage between wells?

A Are you referring to the high bottom-hole pressure in the Catclaw Draw/Nan-Bet No. 1?

Q I am referring to all of them, the range or lack of range of the bottom-hole pressures versus the time in which the wells were drilled and completed?

A No production was taken from the field. I would have to rely on Fred VanMeter for this. I am not too sure just what date this field did go on production.

Q Do you know when the field went on production?

A No, I do not.

Q Was there any production between the first well here and the last well here?

A Between the first well and the last well, there was production.

Q But you didn't see any correlation between production and drop in bottom-hole pressure in subsequently completed wells?

A No.

Q By your exhibit, was there any communication between wells?

A Not between zones. If you will look on the second page of that exhibit, you will note that the Nan-Bet No. 1 Well which you are referring to that has the high bottom-hole pressure, it is completed in the B-Zone. The only other well completed in the B-Zone is the Catclaw Draw Unit No. 1-Y.

Q Well, referring to that Nan-Bet Well that is in the B-Zone, there is a greater possibility in finding this B-Zone that is not present in 1-Y, 2, 4, 6 and 7, according to your exhibit. Is there a greater possibility of finding that in 320-acre spacing or 640-acre spacing?

A It is not completed in those wells. It is present and it has been included in the determination of the net, average net pay that is used on the first page of that exhibit.

Q The drill stem test is proving that those wells will produce in those other zones?

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A I am not aware of any. I haven't looked at any.

Q Isn't there a greater chance of finding those zones that are not completed in the other wells and the zones in the Nan-Bet No. 1 if this field had been developed on 320-acre spacing as opposed to 640-acre spacing?

A Could you repeat that, please?

Q Is there a greater possibility of finding the Nan-Bet Zone and the other uncompleted zones in the other wells by having this drilled on 320-acre spacing or 640-acre spacing, in your opinion?

A No, I wouldn't say that there is.

Q In other words, in your opinion, if you drill on 640-acre spacing as opposed to 320-acre spacing, you will get just as much gas out of all zones that might be present in that field?

A That's right.

Q You testified, I believe, that you presumed 640-acre spacing would drain and get as much gas as 320-acre spacing?

A Yes, I did.

Q On that basis, then, with one hole drilled on 640-acre spacing, you would have to find every zone that

that the ones with two holes drilled on 320-acre spacing would find, is that correct?

A You could run into the same situation on 320.

Q Well, then, why don't you have a greater likelihood of finding more zones on 320 than on 640? Based on previous testimony, this zone is lenticular.

A Of finding more zones?

Q For zones producing gas?

A You would, but whether they would be commercial or not -- because you can -- if you drill a well on 640-acre spacing and you assume that sanding is going to cover 640 acres, your investment in this section is only half of what your investment is in the section if you drill it on 320. So, you wouldn't abandon the well with four feet of pay if it was drilled on 640 acres, whereas, a well drilled on 320 with four feet of pay would be uneconomic or non-commercial and wouldn't be completed.

Q Shouldn't the operator be allowed to determine that as opposed to what you are proposing?

A We feel that our rule, which is going to be of a temporary nature, will allow us time to determine what is the proper spacing.

Q Suppose you drilled on 640 acres as you propose

here and then in a year you will be completing part of these reserves under the tract, is that correct?

A Yes.

Q That will mean there will be less dollars recoverable under that 640-acre tract at the end of one year, correct?

A What you are saying, then, is that the well is going to drain more than 320 acres.

Q I am merely asking a question. At the end of one year of production on 640 acres, will you have less gas in the ground, less to produce?

A In those zones that you completed, yes.

Q And if you then change the spacing to 320-acre spacing --

A (Interrupting) Yes.

Q Then wouldn't it be less economic to drill on 320-acre spacing since much of the gas and oil would have already been produced on the 640-acre spacing?

A It certainly would be a factor in any in-fill drilling program.

Q Based on your previous testimony that you would find more gas on 320 as opposed to 640, wouldn't this inhibit subsequent drilling on 320-acre spacing

as you propose in this order?

A Would you repeat that again?

Q I understand you want 640 spacing for one year and then at the end of that year you might determine that you want to go to 320, is that correct?

A That's right. Or we probably might determine that one well will drain 640 acres.

Q Suppose we determine that one well would drain 320 and then we have a problem of deciding the economics of drilling on 320 after you have produced the well on 640 for one year?

A If it is only going to drain 320, you haven't affected the other 320 acres, and therefore, the reserves aren't less than the other 320 acres.

Q How about the discounted dollar. You stated the reserves would be the same on 320 and 640. If you drilled two wells on 640 as opposed to one and you discount the dollar there, wouldn't it be an economic waste to drill just on 640 and discount the dollar back to its present worth, in that you will be getting 320-acre spacing twice as much and twice as fast?

A Not if you use surface acres to prorate the well.

Q Do you consider the value of the discounted

dollar when you figure your economics?

A We discounted the cash flow from one section of development.

Q Did you do the same --

A (Interrupting) However, we took the gas from the section at the same rate -- the two 320 wells at the same rate that a one 640 well gets and the difference then is only $400,000.

Q Is that a valid method of doing this? Shouldn't you consider that you had two wells on a section and you are going to get a greater rate of return than one?

A What do you mean by "rate of return"?

Q If you had two wells on a 640, wouldn't you make more gas during the first year of producing than one well on a 640?

A We did not --

Q (Interrupting) I am not talking about ultimate reserves, we are talking about one year's production.

A We did not do a rate time prediction between the two cases.

Q Therefore, your suggestions as to the value of 640-acre economics as opposed to 320 acres will not hold up since you did not discount that dollar and the

high rate of return.

A It will hold up to some degree. I am not too sure what the difference would be, and I didn't figure it out.

Q You stated the Nan-Bet was in separate sand lands and that that Nan-Bet zone is present in other Catclaw wells?

A I believe it is from what I recall of determining those average pays from surrounding wells that it is present in surrounding wells.

Q But this Nan-Bet is the closest well you have in the Catclaw Draw to the proposed spaced area?

A No, that is not true. The No. 6 is also up there. It is in Section 13, Township 21 South, Range 25 East which is a little bit closer.

Q None of the wells you used in your example cover the spaced area in question?

A No, we don't have a well in this spaced area. We don't have any data on it.

Q How about the wells in Sections 1 and 2?

A We don't have any information on those wells, any current pressure information.

Q Is that data available?

A I am not aware of any being available or where it is.

MR. STAMETS: Are there other questions of this witness?

Mr. Eaton?

CROSS EXAMINATION

BY MR. EATON:

Q I am not going to ask any technical questions because I don't understand that area.

Mr. Sobkowich, out of curiosity, and referring to your Exhibit 7, why did you pick those specific wells?

A Those were the six wells that had reservoir pressure taken on them for which the data was available which was the best information we had that was most current to enable us to determine the best estimate of recoverable reserves.

Q Were there other wells that had the same information which you could have used?

A To my knowledge, there were not.

Q What did you do to pick out these wells?

A I wasn't instrumental in picking out those wells. The data from those wells was provided to me.

Q So, at the consequence, you don't necessarily

know that there is not similar information from other wells?

A There may be. I would expect that the pressure information is probably nine months old.

Q Anyhow, as I understand it, these wells are on your exhibit because someone gave you the information for those wells and no other wells?

A The pressure information was obtained on those wells in February and it was given to me.

Q And with the data and figures and information that was given to you, then, you constructed this exhibit, is that correct?

A That's true.

Q This column, "Average Net Pay Foot Over Spacing Unit" --

A (Interrupting) Yes.

Q I am sure you understand it. I don't understand it. What does that mean? How did you arrive at that information?

A When you drill a well and determine net pay, the only information you have available is what you see right in the well bore.

Q Yes, sir.

A And what you see in the well bores in the surrounding wells.

Q Yes, sir.

A And these aren't necessarily the same. So, to assume that the net pay in the well bore under question is uniform under the entire drainage area is wrong. So, in order to refine this and try to determine what the average would be -- and that's what we mean by "average net pay over the spacing" -- is taking the well bore net pay and the well in question and the well bore net pay in the four wells surrounding and average that.

Q In doing so, is it necessary to prepare -- what do you call it -- an isopack map or anything like that?

A That would be a further refinement, but it is not necessary.

Q Was that done in this case?

A No.

Q Then, from the information from the well in question plus the four surrounding wells, somehow you come up with an average net pay over the entire spacing unit, is that correct?

A Just as an average number, what you might speak

of as an average pay over the section.

Q And that, I guess, assumes that the pay zone extends over the entire section?

A It would have to, yes.

Q Does the question of porosity have any bearing on this matter?

A Yes, it does, but the porosity factor is in the average recoverable gas-in-place in MCF per-acre foot. Porosity is part of the formula in calculating gas-in-place.

Q And is that part of the average net pay?

A Net pay is determined using porosity.

Q Okay. Now, if the porosity is discontinuous, what bearing does that have on whatever we are talking about?

A None.

Q None?

A No. We see porosity in the well in question. We see porosity in the four off-set wells. We average the two and we assume it is continuous between the two.

Q If there is not porosity in one or two of the off-set wells, what do you do?

A Assign it a zero value.

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Q You mentioned the Coquina Well, or someone did. Did that well have a drop in pressure during the DST?

A I have not looked at the DST on the well.

Q I thought someone testified or stated that you did have available to you the drill stem tests on that well?

A I believe we were talking about the Fasken Well at which time I reviewed the daily reports.

Q If there were a drop in pressure, some 300 to 400 pounds on the DST in the Coquina Well, should that factor be considered in determining whether that well could drain 640 acres?

A Not whether it could drain 640 acres, but it would concern whether the reservoir was 640 acres.

Q Is it of interest to you that there are apparently a number of operators in the area, of your company's interest, who are willing to drill on a 320-acre spacing?

A We are also involved in the area and we are not willing to drill on 320-acre spacing and this is the whole question before the Commission.

MR. EATON: That's all.

MR. BUELL: Mr. Examiner?

MR. STAMETS: Yes, Mr. Buell.

CROSS EXAMINATION

BY MR. BUELL:

Q On your exhibit showing the reserves and estimated drainage area of the Catclaw Draw area, the second column from the right is "Average Net Pay in Feet." What was the actual net pay in each one of those wells?

A That is on the second page of the exhibit? You mean just total up the net pay in each of the zones that were completed?

Q Yes. So that the acreage could be in different zones, the drained acreage could be in different zones?

A That's true, because all of the zones that are open to the well bore are contributing to the cumulative production which we rely on to provide us with the ultimate reserves. There is no way of distinguishing what the drainage area is in the individual zones until you isolate them and isolate the production.

Q And those -- you were not open to all zones in all wells?

A No, the second page of that exhibit does indicate the zones are open in each of the well bores.

MR. BUELL: Thank you.

MR. STAMETS: Mr. Sobkowich, does Inexco plan

to drill any wells in this area in the near future?

THE WITNESS: I think we introduced earlier testimony that we had received a proposal from Atlantic Richfield to drill a well.

MR. STAMETS: Inexco will do the drilling?

THE WITNESS: I will have to rely on -- we will join in the Arco Well, but we will not be the operator. We do intend to drill a well in Section 17, Township 21 South, Range 26 East, which will be a south off-set to the Coquino Well.

MR. STAMETS: And this acreage has not been proposed to be in your new pool?

THE WITNESS: No, it has not because it would come under the rules of the Catclaw Draw being that it is within a mile of this spaced area.

We have also proposed a well in Section 12, Township 21 South, Range 27 East, and it is within the area that we requested.

MR. STAMETS: It would be 26 East, would it not?

THE WITNESS: No, 27 East. Pardon me. 26 East.

MR. STAMETS: On your Exhibit No. 7 on the second page, there is a designation,"NEP feet." What is that?

THE WITNESS: Which is the net pay determined after applying the 7 percent porosity cut-off.

MR. STAMETS: I believe Mr. Eaton has already indicated that your exhibit here only included six wells within this pool. I believe your other exhibits show that there is something like 14 wells in this pool. Do you know if anybody with Inexco attempted to get this data on any of the other wells besides what is shown here?

THE WITNESS: I believe the pressure survey of February was taken at our request. It is not the annual pressure survey which is required by the State. That would be taken again in the fall, in August. This was in addition to the annual.

MR. STAMETS: Were these the only wells surveyed?

THE WITNESS: These were the only ones surveyed.

MR. STAMETS: Do you know why these wells were selected?

THE WITNESS: As I testified before, they were handed to me. I don't know why they were selected. So, they are a cross section of the wells of the Catclaw Draw. There are three good wells and three mediocre wells.

MR. STAMETS: Is it possible that if this

information had been taken in all of these wells that we might have found some that weren't draining 640 acres?

THE WITNESS: It is possible, but I have no way of knowing that that is the case.

MR. STAMETS: Now, you heard Mr. Fluellen's testimony about the nature of the Morrow formation. If indeed these wells are draining on the average of 702 acres, is there any way of predicting in what direction this is draining? In a lenticular reservoir, and one made up of possibly sand bars or long sand body, will we have radial drainage?

THE WITNESS: You would have to initially assume radial drainage. Whether it is or not, you have no way of knowing.

MR. STAMETS: Is it possible that one of these wells could be draining 640 acres, but no other well in the pool was?

THE WITNESS: It is possible.

MR. STAMETS: It could be draining a long channel that might extend over two or three sections?

THE WITNESS: It is possible.

MR. STAMETS: It might be draining in a couple of these different things coming in from different

directions. Is that possible?

THE WITNESS: If it is, I have no way of knowing. It is all possible, but I have no way of knowing what the actual case is.

MR. STAMETS: If these wells were effectively draining 640 acres, would we see that reflected in the bottom-hole pressure?

THE WITNESS: I am not sure I follow your question.

MR. STAMETS: These wells are all relatively close together?

THE WITNESS: Yes.

MR. STAMETS: If they are effectively draining 640 acres, would we see the bottom-hole pressure in one well reflected in an off-set well?

THE WITNESS: If they are both completed in the same zone, you should.

I refer back to the second page of the table and look at Wells 2, 4 --

MR. STAMETS: (Interrupting) Let's just take a look at Wells 2 and 4 first.

THE WITNESS: All right.

MR. STAMETS: According to the second page,

those are completed in roughly the same zones?

THE WITNESS: Yes.

MR. STAMETS: Looking further back, I believe your exhibit shows the No. 2 bottom-hole pressure is 2952 pounds?

THE WITNESS: Yes.

MR. STAMETS: No. 4, 3238 which is nearly 300 pounds pressure differential. Does that to you indicate communication or lack of communication?

THE WITNESS: I would say there is communication, probably to some extent. The accumulative production from the No. 4 Well is 3.1 billion. The accumulative production from the No. 2 Well is 3.9 billion. You have nearly 1 billion cubic feet of gas out of the lower pressured well and you would expect the pressure to be lower.

MR. STAMETS: Okay, what about No. 7? That is another well that is completed in this same interval?

THE WITNESS: No. 7?

MR. STAMETS: Is that not what the second page of your exhibit shows?

THE WITNESS: That is true.

MR. STAMETS: And that has a bottom-hole pressure

of 2737 pounds, some 500 pounds difference with a minimum amount of production.

THE WITNESS: Which two wells were you comparing again now?

MR. STAMETS: 7 and 4.

THE WITNESS: 7 and 4. It is probably a reflection of the drainage area. Maybe the entire -- myself, I thought there was pretty good agreement on the bottom-hole pressure of all the wells that were taken that are completed in the same zones.

MR. STAMETS: The net offect of feet of pay which you show on your second page of Exhibit No. 7, may be pay which is not perforated?

THE WITNESS: No. On that page of the exhibit it is net effective pay. Now, whether it is perforated or not, I am not too sure. I would have to check the perforated interval. I would say that a portion of that zone is open to the well bore.

MR. STAMETS: Now, referring back to Mr. Fluellen's Exhibit No. 3, and the porosity lines that he has drawn on there, he has left Zone C out altogether, I believe, under No. 7. I was just wondering how it can be contributing any net effective feet of porosity if it doesn't have any?

THE WITNESS: It shows that the exhibits were prepared independently.

MR. JASON KELLAHIN: If the Examiner please, Mr. Fluellen testified to the effect that the exhibit was not intended to show the full extent of the porosity, but only to show that porosity was present at least in those, but his testimony was very explicit to the effect that it didn't necessarily mean it did not extend beyond that. In that sense, the exhibits are not inconsistent.

MR. STAMETS: We will take about a 15-minute recess.

(Whereupon, a recess was held.)

MR. STAMETS: The Hearing will come to order, please. I would ask your cooperation for the sake of the Reporter to kind of hold the conversation down along the walls so that we can hear the witness.

I would also like to point out that the Examiner was in error in asking the last question. I had mislocated Well No. 7 on Exhibit No. 3 and that whole part of the record should be stricken.

Mr. Sobkowich, have you made any estimates of the length of time until pay-out of the well in this case?

THE WITNESS: Of any well?

MR. STAMETS: Of the subject well in Section 3 of 21 South, 26 East?

THE WITNESS: No, I have not.

MR. STAMETS: What is the potential on that well?

THE WITNESS: Those are the Fasken Wells you are speaking of in Section 3?

MR. STAMETS: Yes, in Section 3.

THE WITNESS: I think they are being potentialed now and I have no information on what the potential is.

MR. STAMETS: This would certainly have some bearing on the pay-out, right?

THE WITNESS: It depends on what kind of a gas price you negotiate and the contract would determine or alter the length of pay-out.

MR. STAMETS: All of these things would have an effect on the economics of the situation?

THE WITNESS: Yes.

MR. STAMETS: A highly productive well with a good gas price would make the pay-out very rapid?

THE WITNESS: Yes, it would.

MR. STAMETS: Are there any other questions of this witness? Mr. Buell?

CROSS EXAMINATION (Continued)

BY MR. BUELL:

Q When I asked you earlier where you got this figure for the average net pay feet, you referred me to the second page of the exhibit?

A Yes.

Q In going through that, I noticed that the figures come out differently.

A That is the average pay in the well bore of the well in question. Then that figure was averaged with the four wells surrounding it.

Q I see. Now, taking the wells right in question that you listed here and not taking the four wells surrounding it and looking at the net pay that you list on the second page of the exhibit, for 1-Y, my figures total 41 feet of net pay, and for Well No. 2, 26 feet of net pay, and for Well No. 4, 30 feet of net pay, Well No. 6, 14 feet of net pay, Well No. 7, 18 feet of net pay -- or 19 feet of net pay -- and for Well No. -- the Nan-Bet No. 1, 14 feet of net pay. Is that correct?

A With the exception of the first one, 1-Y. I think the total is 48 feet rather than 41.

MR. STAMETS: Excuse me. What did you have for

Well No. 2, please?

THE WITNESS: No. 2 was 26 feet.

MR. STAMETS: Thank you.

(Whereupon, a discussion was held off the record.)

BY MR. BUELL:

Q Starting with Well No. 2, then, and using the actual well bore information and calculate that, the area drained would not be 1148 acres, but 706 acres?

A True.

Q And for Well No. 4, the acreage drained would not be 937 acres, but 625 acres?

A True.

Q And for Well No. 6, it would not be 428 acres, but 459 acres?

A I haven't checked the figures, but that --

Q (Interrupting) Does that sound about right?

A It probably is. I will take your word for it.

Q Well No. 7, rather than 519 acres would be 355 acres. The Nan-Bet No. 1, rather than 714 acres, it would be 357 acres?

A I will accept your figures.

Q So that the actual average drained area is

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more like in the vicinity of 500 acres, is it not, rather than the average that you have shown?

A By the way you have calculated, if that is the way it works out to you.

Q So, what you have done here essentially with these off-setting wells, you have thinned down this sand by putting them in an average that you used on your exhibit, is that correct?

A Yes.

Q And, therefore, using the reservoir data that you have makes it appear that this drains a large thin area rather than a somewhat smaller thick area?

A In view of the cross sections that are being presented, do you think it is a valid assumption that the well bore net pay is continuous over the entire 640 acres or whatever the drainage is?

Q I am not on the stand.

A Well, we didn't think it was a valid assumption, and for that reason, we tried to refine the calculations by going to the off-setting wells and averaging more than just a well bore pay out of one well, but five wells. And, as I testified earlier, a further refinement would be to contour it and planimeter it.

Q But that information was not available?

A No, we didn't do that.

MR. BUELL: I have nothing else.

MR. STAMETS: Mr. Stevens?

CROSS EXAMINATION

BY MR. STEVENS:

Q Mr. Sobkowich, I believe you testified that you planned a well in Section 12 in the Township in question,is that correct?

A That's true, yes.

Q What was the spacing you used on that well? How many acres did you dedicate to it?

A 640.

Q 640 acres? Is that what you filed on the Notice of Intention to Drill to the New Mexico Oil Conservation Commission?

A I don't believe the plans are far enough along to where we filed with the State yet.

Q Have you contacted any of the other lease owners in that section to join you or farm out or anything?

A Can Mr. Fluellen answer that?

Q Sure.

MR. FLUELLEN: We have approached our Land

Department and began contacting the other lease owners. I cannot answer whether they have carried that along or not.

BY MR. STEVENS:

Q Mr. Sobkowich, presuming your figures to be correct as opposed to those determined by Mr. Fasken's representative, I note your Wells 6 and 7 on Exhibit 1 -- two of those wells are below 640 acres in drainage area even with your figures, is that correct?

A That's correct.

Q Does that tend to show to you that perhaps the well should be drilled on 320, or developed on 320 acres instead of 640? Excuse me a moment. I think there are three wells below 640 acres according to your figures and three wells above 640 acres drainage according to your figures. Won't gas be left in the ground in those three wells if it isn't developed on 320-acre spacing?

A The 2 and the 4 are directly south of the 6 and the 7. Those two are draining more than 640 and are possibly draining gas from the 6 and 7.

Q Do you presume, then, it is draining only from 6 and 7 and not --

A (Interruoting) I have no idea what the shape of the drainage area is. The calculation and the

reservoir doesn't recognize the section lines that are drawn on this map.

Q Would that correctly protect the correlative rights of the owners under these various 320-acre tracts?

A The same thing is true with 320-acre drilling. We have no idea what the shape of the drainage area is.

Q But you do have three of your six wells as an example showing they will not drain 640-acre spacing?

A Possibly because those wells are draining more than 640 acres are affecting those wells. I have no way of knowing.

Q It is possible that they are also not, though?

A It could be possible, yes.

MR. STAMETS: Any other questions of this witness? You may be excused.

(Witness dismissed.)

MR. STAMETS: Do you have anything further in this case?

MR. TOM KELLAHIN: We have nothing further. We offer Exhibits 1 through 8 in evidence.

MR. STAMETS: Any objection to the admittance of Exhibits 1 through 8? They will be admitted into evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 7 were marked for identification and admitted into evidence.)

MR. STAMETS: Mr. Buell, would you like to proceed at this time?

MR. STEVENS: Mr. Examiner, may I make a Motion at this time?

MR. STAMETS: Yes, Mr. Stevens.

MR. STEVENS: I would move that this Application be dismissed on the basis that no evidence has been submitted covering the area in question. We have heard considerable evidence about the Catclaw Draw, a little bit of evidence about Rock Tank, and the only well that has been completed in the proposed spaced area that was talked about has been taken out of the spaced area at the request of the Applicant. I would agree that the Commission should determine this by hearing all of the evidence if the Applicant has made any case, and he has the burden of proof to show that his Application should be granted, but as regards solely the area in question, he has shown nothing -- only areas outside the area proposed to be spaced. Therefore, we think it would be a waste of the Commission's time and the time of everyone

here to go ahead with what might be considered as a charade since there is no evidence to support the decision in favor of the Application.

MR. BUELL: I would like the record to show that David Fasken joins in Mr. Stevens' well-phrased Motion.

MR. EATON: Monsanto also.

MR. JASON KELLAHIN: If the Examiner please, in the first place, I don't think the Motion is well taken. This is an Examiner Hearing and I seriously question the control of the Examiner to the extent or the point of dismissing a case without submitting his recommendations to the Oil Conservation Commission. In the second place, the testimony that has been presented on behalf of the Applicant in this case is necessarily related to adjacent areas simply because, as the witnesses have testified, the necessary information in the area to be affected is not available, and the recommendation is a temporary one-year period during which period of time this information can become available.

Now, this Commission, on numerous occasions has spaced and adopted pool rules on the basis of comparable reservoirs in other areas, sometimes at great distances,

as long as there seems to be some reasonable relation to the area which is under consideration at the time. All of the testimony that has been offered in this case at the present time is quite pertinent to the subject area. As we say, we just don't have this information in this area and we seriously doubt that the opponents have the information, but if they have, bring it in and put it on.

MR. EATON: In connection with Mr. Stevens' Motion and Mr. Kellahin's statement, I am sorry, I wasn't listening too closely, Mr. Kellahin, but I thought you in effect said that there was not any evidence with respect to this area in question today. That being true, Mr. Examiner, in the absence of evidence, I would suggest that this proposed pool be spaced on the basis of the standard spacing of the Commission for pools of Permian age or older.

MR. STAMETS: Your Motion will be denied, Mr. Stevens.

Mr. Buell, are you prepared to proceed?

(Whereupon, Mr. Carr entered the room.)

MR. BUELL: Mr. Examiner, I have discussed with Mr. Kellahin, and subject to the Examiner's approval, although we would not like to consolidate the two cases,

if it is agreeable with the Commission, why, the rebuttal testimony in this case can also be considered as direct evidence in the 320 case.

(Whereupon, a discussion was held off the record.)

MR. STAMETS: Mr. Buell, if you will proceed, and then we will entertain that Motion when Case 5228 is called.

JAMES B. HENRY

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

DIRECT EXAMINATION

BY MR. BUELL:

Q Would you state your name, please?

A James B. Henry.

Q By whom are you employed, in what capacity, and where, Mr. Henry?

A I am Consulting Engineer of Henry Engineering, Midland, Texas on a retainer to Mr. David Fasken to present his engineering work to the Commission or such other engineering work as is required and I also operate and manage the drilling and production wells that Mr. Fasken operates in the Permian Basin.

Q Have you previously testified before the Commission and had your qualifications accepted as a matter of record?

A Yes, I have.

Q Are you familiar with what is sought in Case 5226 and 5228?

A Yes, sir.

MR. BUELL: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

BY MR. BUELL:

Q I hand you what has been marked for identification as Fasken Exhibit "A" in Case 5226 and 5228 and ask you to identify it please?

A This is a land map of the area between the Catclaw Draw Field and the Burton Flat Field on which is superimposed a structural contour map, contoured on the top of the Morrow Clastic. The area outlined in green is the area in the subject case that was advertised as being the area than Inexco proposes to space to 640-acre spacing. As I read their Application, this is different from their exhibit.

The green line encompasses those 13 sections

that the notice I received showed to be the subject of this Hearing.

The red line on the west end of this area shows the presently defined boundary of the Catclaw Draw area as it is contiguous to the proposed area to be spaced here today.

The red line on the east ened of this area is the presently defined limits of the Burton Flat Field and shows where it is contiguous to the area of Inexco's Application.

In this area, there are certain drilling and spacing units outlined in yellow. These are recently completed, presently drilling, and applied-for wells with the acreage encompassed by the yellow lines being the communitized spacing units assigned to those wells per their Application to the Commission for a drilling permit.

The general blue area is Mr. Fasken's Avalon working interest unit which he is operator for a number of working interest owners that share in that unit, as to the working interest only. It is not a unit with respect to the other interests.

There is in Section 3 of Township 21, 26, a completed Morrow well which is the only completed

Morrow well in the blue area and is the second completed well inside the green line encompassing the Application of Inexco. That 320 drilling and spacing unit includes Lots 9 through 16, inclusive, of Section 3, Township 21 South, Range 26 East and is an unorthodox location necessitated by the Bureau of Reclamation's rules for the Avalon Reservoir that all oil and gas wells must be located 300 feet outside of the 3180-foot contour which is two feet above the spillway of Avalon Dam.

Now, many of the wells in this area, the key wells that have drilled to Morrow depth have been highlighted. There is a legend at the lower part of the map in which the red circles with the dry-hole symbol on them represent those wells which are non-productive in the Morrow, but are drilled through and tested in it. The circles colored yellow are Morrow-producing wells as of the date of this exhibit. The green colored circles denote those wells that are currently drilling or where approved permits to drill have been filed or have been filed and approved and in which dirt work is going on and in which things are in various stages of completion.

Q If I read this exhibit correctly, in the general area of the Inexco proposal, there are approximately

eight wells presently drilling to the Morrow on 320 spacing, is that correct?

A There are nine wells inside and directly off-set in that area drilling on 320-acre spacing units. There is one well on 640 spacing and that was necessitated by its being within one mile of the Catclaw which required preliminarily to have a 640-acre communitized tract in order to receive a drilling permit.

Q I hand you what has been marked for identification as Fasken Exhibit "B" and ask you to show what is on there?

A Exhibit "B" is a land map plat showing the area between the Catclaw Field and Burton Flat and showing on it the wells that have penetrated Strawn formation. Now, in the center of this exhibit, there is a yellow and red hatchured tract of land, being the same tract of land described in the other exhibit, attributed to the David Fasken El Paso 3 Federal No. 1 located in Section 3 of Township 21 South, Range 26 East. This well is productive in the Strawn formation, an absolute open-flow potential of 37 million cubic feet of gas per day, and in this Application we are seeking a 320-acre drilling and spaced unit for that Strawn Field with the designation

of Avalon-Strawn.

MR. JASON KELLAHIN: If the Examiner please, I object to this line of testimony as not being pertinent to the case before the Commission at this time. We are talking about the Morrow and not the Strawn and this is just a matter of cluttering up the record and it is not pertinent.

MR. BUELL: Well, Mr. Examiner, it was my understanding that I was to make a Motion when 5228 was called to adopt the testimony in this case into that case and part of 5228 is the consideration of the creation of the Strawn Field and dual completion and we will not take much time with the Strawn here, and I don't think we will consume a lot of everybody's attention.

MR. JASON KELLAHIN: If the Examiner please, counsel does not see fit to consolidate the two cases, although we are willing to do so. Now, to bring the Strawn into the Morrow case which has not been consolidated is improper. If he wants to consolidate the cases at this point, we have no objection, but if he doesn't want to consolidate them, let's keep them separate. If he wants to go into the Strawn, when we finish this case, he can call his witnesses for the next case.

HENRY-DIRECT

MR. BUELL: Just to clarify things, then, we will just repeat all of the testimony and go ahead as a rebuttal case.

MR. STAMETS: The objection is sustained.

MR. BUELL: I would ask permission to withdraw Exhibit "B" then.

MR. STAMETS: It will be withdrawn.

MR. BUELL: Mr. Examiner, Exhibit "A" was marked as an exhibit in both cases and it needs to be corrected.

BY MR. BUELL:

Q I hand you what has been marked as Fasken Exhibit "B" and ask you if you would put that up on the wall, please?

MR. JASON KELLAHIN: Mr. Examiner, I don't want to be misunderstood. We have no objection to Mr. Buell moving to consolidate this testimony in the next case. My objection is merely directed to bringing Strawn testimony into the case.

(Whereupon, a discussion was held off the record.)

BY MR. BUELL:

Q I hand you what has been marked for identification

as Exhibit "B". Would you please go through that and explain what it is and also tie it in with Exhibit "A"?

A Exhibit "B" is a log correlation chart. It is not represented as a cross section, but as a log correlation chart of nine wells in and adjacent to the area of Inexco's Application. The top of this correlation chart starts in the top of the Upper Bend Limestone. I have folded it to cover up the Strawn and show the Morrow zone at the bottom.

Q Am I correct that this is in the area on which Inexco said there was no information on the well?

A Yes, sir, this was my testimony.

I might refer to Exhibit "A" beginning in the Catclaw Draw Field with the David Fasken Avalon-Federal No. 1 in Section 1 of Township 21, 25, originally drilled in the log shows Monsanto. The well was taken over by David Fasken who had a part interest in the well at the casing point, and it proceeds from that well through the cross section generally from east to west -- excuse me -- west to east. The second well in here is a Texaco-Levers Federal in Section 12, a Catclaw Draw producing well again. The third well is the David Fasken Avalon State in Section 7 of 21, 26, a dry hole. The fourth

well is the Atlantic Richfield State B.O. No. 1 in Section 15 of Township 21, 26 which is an off-set to the area proposed to be spaced. The fifth well, coming from left to right is a David Fasken El Paso 2, Federal No. 2 in Section 2 of Township 21, 26. The sixth well is the David Fasken El Paso 3, Federal No. 1 in Section 3 which is a completed well producing 4 million feet of gas per day out of the Morrow, actual flow test. It has not had a completion test, absolute open flow test and is the subject of this hearing as we understand it. The next well is the Ralph Lowe Hanson Federal No. 1 in Section 34 of Township 20 South, Range 27 East which is immediately off-set the area to be spaced by Inexco or proposed to be spaced by Inexco. The eighth well on the cross section or on the log correlation chart is the nearly completed Monsanto Avalon Hills No. 1 located in Section 7 of Township 21, 26, being the yellow colored circle on Exhibit "A" near the south line, 660 feet from the south line and 1980 or approximately that from the west line -- I believe 200-odd feet from the west line. I believe that would be Range 27 instead of 26.

MR. STAMETS: The Avalon, right, 21, 27 on the Avalon Hills.

THE WITNESS: 21, 26 is for the other wells.

The last well on the log correlation on the righthand side is the Mobil Oil Corporation Q. Q. Federal No. 1 in Section 8 of 21, 27 which is a Burton Flat Morrow gas well.

The heavy green line that is shown on the exhibit depicts the base of the Middle Morrow Shale which is the only correlative time line that I have found consistently occurring in the Morrow zone which can be used for a widespread correlation point. Now, below this green line is what is commonly called C-Zone. This is not the same C-Zone which is on the Inexco exhibit, but the area below there is the C-Zone from the original drilling and development in the Atoka Field area extending south. The Middle Morrow Shale which is colored green on this map is an interval of shale with occasional sand in it, which we believe to be comparable to the B-Sand of the older developed Morrow areas. The B-Zone is the series of sands that occur above that shale and up to a carbonate section that marks the bottom of the A-Zone by the system of nomenclature that we here adopted. This is sometimes called Middle Morrow, the upper zone being the A-Zone or what we have in the Indian Basin field

called Indian Hills sand. It is the first sand in the Morrow Clastic interval and overlies the carbonate section that varies from 30 to 40 feet thick.

The red correlation points that are heavily inscribed in the log are the points that are contoured on Exhibit A and represent the contours showing the gentle nosing across the area with a plunge to the east.

The continuity of these sands have been very disappointing in the area where you studied. I would like to begin with the sub-zones within each of these general areas that I described as A, B and C Zones. In the David Fasken Avalon Federal No. 1, the lowermost sand in that interval -- and by the way, this lower blue line is the approximate Morrow Barnett contact, although it may be possible that some of this Barnett is reworked Barnett material -- but it is the bottom of the major sand development in the Morrow. This well produced water in the David Fasken Avalon Federal No. 1. The zone above it was tight. The Texaco Levers Federal was a very good well in the Catclaw Draw Field producing out of two zones of porosity in the C-Zone of the Morrow, plus some other zones above that we will talk about later.

The third well in the C-Zone on here, the

Fasken Avalon State No. 1 has the same lower Morrow sand and it would appear to be the productive interval in the Catclaw Field as depicted on the Texaco Levers Federal. It was above the then known water contact in the lower Morrow and Catclaw Field. The drill stem test produced water. The well was abandoned because there were no other zones in it that were commercially productive. It was an anomalous well in that it was higher than the Inexco-Mc Millan State to the south which produced gas and it produced water, indicating the discontinuity between the sands in here, although the electric logs, they appear to be continuous.

The next well, being the Arco State B.O. No. 1 had a very large development of sand in the lower Morrow, all of which were water productive.

The next well on the cross section was structurally high to the Atlantic Well in a northerly direction being the Fasken El Paso 2, Federal No. 2. It had a large thick section of type sand, but did not produce anything, gas or water.

The El Paso 3, Federal No. 1 of Mr. Fasken's had some limited sand development which produced gas too small to measure on drill stem tests and was non-

commercial in the lower C-Zone.

The next well here, being the Hanson Federal No. 1 of Ralph Lowe, again in the lower Morrow was non-productive, being very tight sands, and by "tight," I mean they had no permeability to produce at commercial rates and usual porosities less than 7 percent.

The next well from the cross section being -- or on the log correlation chart -- being the Monsanto Avalon Hills, a very nice development of sand in the lower Morrow immediately on top of the Barnett shale. This appears to be somewhat equivalent to producing intervals in the Burton Flat Field. It and another additional zone made a very nice potential, something on the order of 24 million absolute open flow.

The next and last well on there, the Mobil Q. Q. No. 1 had two sands perforated in the very bottom of the C-Zone and one in the top. In my judgement, those three sands were probably not commercially productive by the criteria that we use in evaluating the electric logs and were found to be reliable for the Morrow, but we nevertheless perforated probably a small amount of gas.

Now, back up to the Middle Morrow Shale, there is an occurrence of sand within this shale which locally

has been called the Nan-Bet Zone and it is the same Nan-Bet Zone referred to in the Catclaw Draw Field by the Inexco testimony. This zone appears in two wells on this log correlation: The David Fasken 2, Federal No. 2 and the Mobil Federal Q. Q. No. 1. They both produce gas out of these zones. The Fasken Well produced 2½ million feet of gas on drill stem test with flow and top-hole pressure around 1300 pounds. It was put on production through perforations. The well never came back up to that standard. We fraced the well and it did come back up to that flow rate, but with each succeeding flow rate there was a large drop in reservoir pressure. The shut-in reservoir pressure and the extrapolations applied to it indicated that this was a limited reservoir. We continued to test it and with each succeeding test this was confirmed. A bridge plug was set, or a plug was set into a packer above this zone to form a bridge plug, and it was completed in another zone, not in the Morrow.

The Mobil Well was completed in this same zone, and on these logs, the zones appear very much alike and would appear to be the same zone, however, we know from the limited continuity of this zone, they

in fact are not interconnected. These wells are located some four miles apart.

Immediately above the Middle Morrow Shale is a zone that the David Fasken El Paso 3, Federal No. 1 is producing out of and is the subject of a request for new field designation in a subsequent hearing here today. This zone flowed at rates up to 4 million feet per day. I think that represents about the capacity of the well to deliver gas. We have colored in red perforations that we think are gas productive sands. The center tract of the log has been colored blue in those areas where we think there are water productive sands. The only other comparable sand to this one is in the Monsanto Avalon Hills No. 1 and made a very prolific well out of under and lower sands. I do not have any information as to the relative flow rates out of each of those two sands, but that again is approximately three miles removed from the David Fasken Well and there is an intervening dry hole directly between them being the David Fasken El Paso 2, Federal No. 2 which had a very limited manifestation of that sand, less than one foot for sand. We had a one-foot drilling break and that is the closest thing that could be called equivalent to this zone.

Now, in the El Paso 3, Federal drilled first; we had a dip-meter trend indicating a thicker sand south and east and we moved in that direction and drilled a No. 2 and, obviously, we were completely out of that sand lens. I will step out on the order of 4400 feet.

The upper part of the B-Zone or Middle Morrow is, we think, water productive in the Avalon Hills Well of Monsanto. We calculate the high water saturation as very poor, judging on a drill stem test on a portion of this. There was no gas recovery of any consequence for commercial value and very little water, very little of anything, but it does calculate to be water productive.

The only other well that showed any substantial production from that on initial completion was the David Fasken Avalon Federal No. 1. The drill stem test was in excess of one million cubic feet per day and had a large amount of draw-down on the drill stem test. We completed the well. We had a large potential, but with a very limited reservoir, it immediately declined and we are now producing 50 MCF per day and over the past two years it has produced an accumulative total of 100,000 MCF. It now produces 50 MCF per day. It is a very marginal well.

The off-setting Texaco Well perforated a

similar interval. There was no individual test of it. The log analysis, again, is below the cut-off porosity except for two or three feet in that zone.

The David Fasken Avalon State No. 1 tested gas out of these intervals to a small measure. It is an indication on the density log here of a very large amount of porosity. If you will check, you will note that that is affected by a very large washout on the caliper log and is a false indication of porosity.

The Atlantic State B.O. No. 1 had had a very large thick section of very tight sand and drill stem tested, but no recovery of gas and no water recovery.

The Mobil Well has perforated some upper sands, probably contributing to a minor amount of gas to the well with no individual tests of those zones. The log analysis would indicate again that the Nan-Bet was the big producer in that well.

The upper A-Zone in this area is very poorly developed in the east. It is somewhat better developed as we approach the Catclaw. The zones are very low porosity until we get to the David Fasken Avalon State No. 1 which has very specific sand and it unfortunately was full of

water and I believe it is the only well I have ever Drill stem tested in Eddy County that there wasn't any gas in the drill pipe. There was 7500 feet of salt water.

The Texaco Well to the west of it has a remnant of this sand and it does caclulate to be gas productive, but it is structurally higher. It is consistent with the structural position in the dip meter trend to those sands.

The exhibit here, I think, shows the multiplicity of those sands. It shows that the sands look alike in wells substantially removed from one another and are not necessarily connected. We have found in working this area for the past ten years that very often to find correlative logs, you have to go pretty far afield from the off-sets to find a similar sand deposit, a similar sand depositional environment, and these repeat and appear to correlate are, in fact, separate and discrete accumulations of sand and separate and discrete accumulations of gas in them.

BY MR. BUELL:

Q Would it be a fair statement to say, based upon your examination of the area in question, that the occurrence of producing zones almost occur in a random

A They occur in a sequence and there is, we believe, somewhat of a pattern to their appearance, but "random" probably is a little too harsh to describe them.

Q Do you feel that based upon your knowledge of the area in question, and not an area three or four miles away, that at the present time with all this information available, you can say that one well can effectively and efficiently drain 320 acres?

A That remains to be proven; I believe, that the statewide spacing orders are adequate for development as witnessed by the fact that development is proceeding at a very rapid rate and very orderly rate with the nine wells that are drilling in and off-setting this area on statewide spacing. These sands, I believe, are many times their length with respect to width. You find several fold of difference in the length of the sand with respect to width, and that they are thin, that the B-Zone is rarely ever continuous over a very wide interval. The upper Morrow and lower Morrow in certain fields have been shown to drain wider areas than 320, but in this particular area, I see no evidence of that occurring, and the area seems to be very broken and very discontinuous.

Q By the way, would you relate to the Examiner

your experience in working with the Morrow formation in Eddy County?

A I have been working with the Morrow, drilling and completing wells since 1965 and I have completed for our client, Mr. Fasken, 35 Morrow wells.

Q Do you believe that the granting of the Application of Inexco would protect correlative rights and prevent waste or would it probably leave hydrocarbons in place and unrecovery?

A I think it would leave hydrocarbons unrecoverable. I think it would contribute to waste. I think the correlative rights would be damaged. I would like to say that from our experience, we started ten years ago with the premise that Inexco has voiced here today of drilling on 640-acre spacing and later in-fill drilling it. In a highly idealized reservoir, this is a very sound approach. The Morrow is not a continuous reservoir. It is a series of sands that trend many and diverse directions. The exploration in A, B and C-Zones must be carried on independently and cannot be lumped together in picking locations. They are separate and discrete exploration problems. It is unlikely that the - and indeed fortuitous-- when all three occur in a particular location, and in

stepping out one-mile step-outs, you are exceeding the control necessary to make an off-set well. This has led in many cases to a request for unorthodox locations and quite a large number of those have been presented to this Commission and they have been in a greater number of cases granted them to alleviate these situations. We believe, or I believe that the dry-hole risk is far greater in stepping out a mile than it is drilling an unnecessary well on the closest spacing.

Q Were Exhibits "A" and "B" prepared by you or under your supervision?

A Yes, they were.

MR. BUELL: I would move the introduction of these exhibits at this time.

MR. STAMETS: Are there any objections to the introduction of the exhibits?

They will be so admitted.

(Whereupon, Exhibits "A" and "B" were marked for identification and admitted into evidence.)

MR. BUELL: We have nothing further of Mr. Henry.

MR. STAMETS: Are there any questions of this witness?

Mr. Kellahin?

CROSS EXAMINATION

BY MR. JASON KELLAHIN:

Q Mr. Henry, in connection with Exhibit "A", you say it is contoured on top of the Morrow Clastic. Actually, structure has very little to do with the productivity as long as the sand is present, does it?

A That is true, if there is not a water problem. As shown in the log correlations, there are a number of zones that are very thick, very productive of water, and there are probably up-dip locations where these sands will contain gas traps.

Q Are the water zones generally lower structually? Is that what you are saying?

A Not necessarily. They are just separate water contacts in each of these sands.

Q I am referring to your structure map here. Actually, does the structure map have anything to do with production other than indicating that the Morrow formation is continuous at those areas?

A It shows that the Morrow Clastic sand and shale interval is there. It shows roughly the top of it, and when we talk about whether or not it has significance,

again, it depends on whether or not there is any water included in the sand lands under discussion. If there is, then structures have a factor, because obviously you wouldn't want to go down-dip for sand that has water in it.

Q Well, I just asked you if that is the case and I might have misunderstood your answer. I said, "Is water generally found down-dip," and I think you said, "No." Am I wrong?

A Generally, it is found down-dip.

Q Is that true in this water?

A It is true in this area with respect, I think, to certain sands.

Q In what sand?

A The C-Sand.

Q In other words, the lower sand?

A That's right. And there are some water sands in the A and in the B-Zone.

Q With production below that, is that correct?

A There are structually lower areas that are productive.

Q Now, in connection with this exhibit, you show a well in Section 12, and I believe that is the one you said you had to get a special well location for?

A Section 12?

Q Yes, sir.

A Of which Township?

Q I can't tell you. It is right by Avalon Lake there.

A The well in Section 12 is Mobil Oil Corporation.

Q Whose well is that, Mobil's?

A Yes, sir.

Q Do you know whose lease it is on?

A No, sir, but Mobil advises me that they are putting together a communitized unit for it.

Q Do you know whether that has been done or not?

A No. I have their engineer's representation to me that it had.

Q That it had been communitized?

A That it was in the process of being communitized. They have filed an application to drill on that communitized tract.

Q Do you know whether the well is drilling yet or not?

A To my knowledge, it wasn't six days ago.

Q Now, on your Exhibit "B", as I understand your exhibit, you have taken two wells in the Catclaw

Draw which are right -- I mean left -- and both are producing wells, is that correct?

A Yes, sir.

Q Then you moved from there to 1, 2, 3 dry holes?

A Yes, sir.

Q Then you moved to a producer up in Section 13?

A Three.

Q I am sorry, 3. And that is you David Fasken --

A (Interrupting) El Paso 3, Federal No. 1.

Q Is that presently producing?

A It is a subject of this Application. We are producing from the Strawn and we have an application here today for approval of dual completion to allow us to produce from the Morrow.

Q You are not yet producing from the Morrow?

A No, sir.

Q Is this the only producing well you have in the area? I mean, wells capable of producing from the Morrow?

A In which area?

Q In what you have denominated, I believe, as Avalon area, that area between Burton Flats and the Catclaw Draw.

A That is the only one we have currently producing out of the Morrow, capable of producing in the Morrow.

Q Do you have any production history on it?

A We have the completion history and some well testing before we set a plug in the packer and came back to complete the Morrow.

Q That merely determined that the well was capable of producing?

A Yes, sir. The well produced 368 MCF a day on Drill stem test. We perforated and fracked it and the last flow rate we had on it was 4000 MCF a day or 4 million cubic feet per day and we put a plug in the packer and came up to dually complete it in the Strawn.

Q I misunderstood somewhere along the line. I was under the impression you had two Morrow producers in this area, two wells capable of producing in the Morrow, is that incorrect?

A That is incorrect.

Q You only have the one?

A Yes, sir.

Q And you have never, then, conducted any reservoir limit tests to determine what the area of drainage is on the well, have you?

A Yes, sir.

Q You have? How did you conduct that test?

A Bottom-hole pressure bomb, flow in the well, pressure build-up test.

Q What period of time did you flow the well?

A I might say this, Mr. Kellahin, before we get into the exact flow time on it: The well is very tight, very low permeability, and it took a frac job to bring it to commercial producing. The pressure trends in the behavior of the well and the low permeability is very slow in arriving at a reservoir limit because the pressure transit moves very slowly to the low permeable zone, and we did not see any limits in the length of time that we tested in the El Paso 3 Federal No. 1.

Q This was the purpose of my question. I wanted to see if you did see any reservoir limits?

A I did not.

Q Now, if you have not had any tests which show any reservoir limits, how can you determine what areas are being drained?

A The area at this time we know did not extend 4400 feet to the east.

Q How do you know this?

A There is a dry hole drilled there, the El Paso 2, Federal No. 2. It did not have this particular sand zone in it.

Q I thought you said the zone was present in that well?

A No, sir, not the same zone. Another zone, the Nan-Bet zone is in there and this is an upper B-Sand.

Q Now, the fact that the zone is not present in that particular well wouldn't necessarily indicate that that was the limit of the reservoir, would it?

A Yes, sir.

Q Would it go north, west, south?

A The well to the northeast is a dry hole in that zone, located less than a mile, approximately one-half mile of Ralph Lowe Hanson Federal No. 1, a dry hole in this zone. The dip meter data suggests that the well thins very sharply to the northwest, so we moved in the southeasterly direction to make use of the maximum indicated thickness of that sand and we apparently moved too far and we moved completely out of the sand lens.

Q Now, Mr. Henry, that could happen anywhere in that reservoir, couldn't it?

A I don't know.

Q Would you describe the Morrow sands as lenticular and irregular throughout the area?

A I would describe them that way, yes.

Q So, anytime you move, you might miss it, no matter which way you move?

A Well, there are certain directions you can move and for sure miss it. There probably is a direction that you could move and enhance your position.

Q And the purpose is to find what direction that is?

A Yes, sir.

Q But merely the fact that you missed it, doesn't necessarily mean that the zone is completely absent in the entire area?

A No, sir. As I testified earlier, the sands are generally several fold greater in length than in width.

Q But you don't know necessarily which direction they are running, would that be a fair statement?

A Well, I think I know, yes, sir.

Q But you missed on this one?

A That's true. That was one of the lessons I learned. Don't ever move in thickness. Stay with strike.

Q I don't quite understand all of the pretty

colors you've got up here. The yellow zone is merely the presence of the sand, regardless of its quality, is that correct?

A That's the major sand zones regardless of quality.

Q So, on the basis of just sand present, it would appear to be continuous across the entire area, wouldn't it?

A No, sir.

Q No, sir? You've got an awful lot of yellow on there, it seems to me, that goes across the entire exhibit, but you say that doesn't mean the sand is there?

A It means the sand is there in that particular well where I depicted it, but it doesn't necessarily mean the look alikes on the log are necessarily continuous between wells as evidenced by the El Paso 2, Federal No. 2, Mr. Faskens, who has a look alike Nan-Bet zone with the Mobil Q.Q. No. 1 and depleted indicating a reservoir of ten acres. They are obviously not continuous even though they are look alikes on the log.

Q I am just talking about the sand present. The sand is present across the entire area? I am not talking about the quality. I am talking about the presence.

A There are some sands there. Now, the Middle

Morrow B-Zone is, I think a deltaic-plain-type deposit. The sands are deposited very thickly and very quickly and very erratically from side to side and the time lines or geological time lines are not necessarily parallel to other geologic time lines in the B-Zones. They are more or less so in the A-Zone and they are somewhat so in the lower occasional channels cutting them in the C-Zone.

Q Where would the B-Zone lie, immediately above your green line?

A Yes, sir.

Q Then the blue line above that is --

A (Interrupting) Is the top of that zone.

Q Is the A-Zone?

A Yes, sir.

Q So, your B-Zone, generally, is the most prolific producer? I mean, if we have a prolific producer?

A It is the only --

Q (Interrupting) In this pool.

A (Continuing) Producer in the area that is proposed to be spaced. The Monsanto lower zone over there is producing out of the lower C-Sand, and of course, the Catclaw is out of a multiplicity of sands.

Q Well, the little red lines inside your center

column are perforations?

A Yes, sir. They are gas productive and those that are continuously across there are those in which log interpretations suggested that they are gas productive, but they have not been perforated.

Q When you talk about your log interpreations, is that indicated by the orange to the right side of the log?

A That is those little areas that indicate some porosity above 7 percent.

Q Above 7 percent?

A Yes, sir. No judgement on the permeability.

Q What factor is it that controls the productivity from the Morrow Sand, the porosity, the permeability or both?

A Both.

Q And that is what is really erratic, and not necessarily the sand, is it?

A I think the sand lens themselves completely go out.

Q Are they interlaced with clays?

A That's right.

Q Isn't this typical Morrow Pool?

A Yes, sir.

Q As I understand your testimony, you say there isn't any connection between those zones?

A That's right.

Q Is that your testimony?

A Between some of the zones.

Q Would you recommend to this Commission that they make a separate pool out of each one of these zones?

A No, sir.

Q Isn't that what the Commission is supposed to be dealing with here, a common source of supply?

A Yes, sir.

Q What does a common source of supply mean to you?

A It means a separate discrete accumulation of gas plus such other accumulations of gas that are not commercially developable by themselves and as a separate exploration venture.

Q Well, I believe your testimony was that A, B and C-Zones are separate discrete sources of supply?

A No, sir. They are generally separated and there are some correlative things between them. I doubt that there is any vertical communication across the Middle Morrow Shale.

Q Any vertical communication?

A Yes, sir.

Q That would be apt to make them separate common sources of supply, wouldn't it?

A Yes, sir.

Q Would you find separate pressures and pressure differentials in those zones?

A Yes, sir.

Q And do you?

A Yes, sir.

Q But you still don't recommend the Commission make separate pools out of that?

A No, sir.

Q Then we have to treat the whole area as though it were one pool?

A Yes, sir.

Q Regardless of the fact that these sands go across it?

A I think as a practical matter of development, this is the case. They would never be commercially developed otherwise.

Q Now, I believe you testified that -- if I am misquoting you, please correct me -- but the question as to whether you drain 640 acres, I believe you said, "That

remains to be proven," didn't you?

A In regard to what area?

Q In regard to the area we are talking about. All of my questions are directed to this area, Mr. Henry.

A Are you talking about the spaced area? There has been a lot of Catclaw and Burton Flat put in and I want to be sure I am talking --

Q (Interrupting) You tell me what you meant. I understood you to say that whether a well could drain 640 acres remained to be proven.

MR. STAMETS: Mr. Kellahin, I didn't understand the question that way when it was asked. I understood the question to be asked, would the area in question drain 320 acres.

THE WITNESS: That's the way I remember it.

MR. BUELL: That is what my notes reflect.

BY MR. KELLAHIN:

Q That remains to be proven, is that what you are saying?

A Yes, sir.

Q Well, I misunderstood you. I thought you said 640.

You mentioned some area -- and I didn't get it --

where the upper zone that has been proved that it will drain in excess of 320. Where was that?

A In Indian Basin Morrow Gas Pool.

Q Do you agree that one well will drain in excess of 320 in the Catclaw?

A I don't know. I have not studied that.

Q How about the Burton Flats. Have you investigated that?

A I have not made a study of Burton Flat except for an interpretation of the logs and I have not had access to any reservoir data in Burton Flat.

Q Mr. Henry, isn't that the only reservoir data immediately available adjacent to the area under consideration here on Catclaw Draw and Burton Flats?

A Well, plus the area under consideration, yes. It has got one well.

Q In the area under consideration, you've got one well completed in the Morrow, but it has never been produced except on test?

A That's correct.

Q And that is the basis of your interpretation that one well will only drain 320 acres?

A No, sir.

Q No, sir? What do you base the rest of it on, just this information here?

A I am taking the 35 wells I drilled and completed for Mr. Fasken in Eddy County, plus a study of the logs and completion intervals of all wells that have been drilled in the Morrow except for the six weeks I am behind on looking at them.

Q Mr. Henry, you haven't presented any of that information here, though?

A Well, I would like --

MR. BUELL: (Interrupting) Excuse me. I would like to object. The man's qualifications as an expert have been admitted by the Examiner, and he is entitled to testify as to his opinion before this Commission and its Examiner.

MR. KELLAHIN: I quite agree that he is entitled to testify as to his opinion, but he also has to testify as to the basis of his opinion when you inquire as to what he basis it on. And, that is what I am trying to find out is exactly what he did base it on, and if he is basing it on matters which are not before the Commission, I think the Commission is entitled to know this.

MR. STAMETS: The objection is overruled.

BY MR. KELLAHIN:

Q Now, you haven't offered any testimony in regard to the other 35 wells you drilled for Mr. Fasken?

A In other matters and other hearings, I have, and they are available for the record, in Indian Basin, Morrow and the West Atoka Morrow, and for all those areas that I have, and I would offer those.

Q But you say Indian Basin will drain 640?

A I am saying that there is one sand member that runs from 4 to 18 feet thickness and there is continuous over more than 640 acres. It is the very uppermost Morrow Clastic zone, and within that field, there are a number of other sands that are now being developed in the B-Zone that are not continuous over 640 acres in width. They are not one mile wide. They are more than a mile long.

Q You don't know whether that situation is here, do you?

A I see a great analogy between the development of the B-Sand in a lot of areas and it is becoming more and more widespread. As I said, we started out on 640 spacing and we have since abandoned that by the cold hard reality of the dry-hole ratios and cost of developing gas reserves and we find it much improved on the 320 scheme

over the 640, not only from our wells, but from the statistical sampling of other wells in Eddy County.

Q You don't know whether one well in the Catclaw Draw will drain 640 or not? I believe you testified to that, didn't you?

A I testified that I had not made a study of the Catclaw Field.

MR. KELLAHIN: That's all. Thank you, Mr. Examiner.

MR. BUELL: I have a few questions.

REDIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Kellahin asked you a question, something of the nature that you made your opinion based upon one completion that is capable of producing. As I understand it, your opinion is based upon a number of wells that have been completed in the Morrow and logs run on them and information gathered?

A Yes, sir. There are nine wells immediately adjacent here that are presented on the log correlation chart, plus I have had access to the Coquina log in Section 8 and it, again, was used in arriving at this judgement as a well that has the same zone as the dry hole

in Section 7. It is 274 feet low and produced gas at the rate of 20 million feet a day.

Q So your opinion that 640 spacing is not proper is based upon a lot more than just one well?

A Yes, sir.

MR. BUELL: I have nothing further.

MR. STAMETS: Mr. Stevens?

RECROSS EXAMINATION

BY MR. STEVENS:

Q Mr. Henry, this field that was developed on 640-acre spacing, would there be a possibility that there might be many of these continuous zones that might never be developed?

A Yes, sir.

Q Conversely, if they were developed on a 320-acre spacing, isn't there a greater probability that more of the discontinuous zones might be produced?

A Yes, sir.

Q Would this tend to protect correlative rights, in your opinion?

A Yes, sir, because many times, as I pointed out, the optimum location for all sands that are productive in an off-setting well is not at the prescribed location on

640 spacing, nor is it necessarily so on 320 spacing.

Q Do you have a greater latitude of spacing on 320 as opposed to 640?

A Yes, sir.

Q Suppose this field were developed on 640 acres and one year later it was determined that you might want to develop it on 320 acre-spacing for the reasons we have gone through. Wouldn't this type of rule tend to inhibit in-field drilling in that part of the reserves would already have been produced under this 640 spacing, making subsequent drilling less economic?

A Well, I think if it were done within one year, it would be minimal.

Q Suppose the data weren't ready in one year and it took two years to determine that. Would the risk be greater?

A Well, it would be greater. I think the biggest thing, if I might elaborate on this, if you go with 640 spacing, wide spacing, wider spacing, then your chances of developing and staying with a long narrow sand accumulation that is filled with gas and tracing it out and pursuing to protect the correlative rights of all the tracts that this sand crosses, is greatly enhanced

on the closer spacing. On the wide spacing you may completely miss this, and to come back and arbitrarily place these things in there, I think that we need greater latitude in well location spacing than is now available even on state-wide.

Q You made an economic analysis of 640-acre spacing with one well and 320-acre spacing with two wells. Would you include discount rate of return to determine the economics on the one well as opposed to the two wells?

A It would depend on what my client required.

Q Generally speaking --

A (Interrupting) This is something that I think depends on the particular client's financing, and it would be different for a major company than for an independent operator and for a drilling fund of another person.

Q Presume the client might have to pay interest on its money?

A Then it would be a consideration.

Q Then, in your opinion, would such a comparison of 640-acre spacing as opposed to 320-acre spacing be invalid if that were not included?

A Probably. However, there are greater risks in Morrow development than the discounted cash flow. The

Morrow development has -- the dry holes are so prevailing that I think there are others in academic refinement of the data because there are other uncertainties that becloud this, that this is almost minor.

Q Your conclusion then would be that the risk is higher on 640 and on 320?

A Yes, sir.

MR. STEVENS: I have no further questions.

MR. JASON KELLAHIN: I have one other question.

MR. STAMETS: Yes, Mr. Kellahin.

(Whereupon, a discussion was held off the record.)

RECROSS EXAMINATION

BY MR. JASON KELLAHIN:

Q Mr. Henry, I believe you testified in response to a question by Mr. Stevens that the 640-acre spacing would remove the flexibility on well locations that follow on the same body. Did I understand you correctly?

A Yes, sir.

Q Did you understand the Application of Inexco in this case proposes standard 320 locations although the pool would be spaced on 640 acres?

A I did not understand that.

Q Well, if you assume that is the case, then that particular objection would be removed, would it not?

A That is a speculation. I don't believe I care to -- it would be purely speculation on whatever came about. I know of no case where this has ever been a reality.

Q Well, assume this is what is proposed -- you had exactly the same spacing of the well locations that would be available to you on 320?

A Well, sir, what I testified to earlier, I believe even on 320 spacing, we need additional flexibility.

Q I think that is beyond the scope of the hearing, but I wouldn't disagree.

MR. KELLAHIN: That's all. Thank you.

MR. STAMETS: Mr. Henry, referring to your Exhibit "A", you mentioned a number of wells drilling inside the green boundary. I believe, if I interpret the exhibit properly, at this time each of those wells are located on a single section?

THE WITNESS: That's true. Inside the green boundary are two sections with drilling wells and locations or completed wells immediately off-setting the sections, being Sections 7, Township 21, 27 and Section 13 of Township 21, 26. The well in the north half of Section 13

is drilling and a location is being made up, I understand, in the south half of 13 and the Application to Drill has been approved.

MR. STAMETS: And those two sections would abut against the proposed new pool?

THE WITNESS: Yes, sir. I might point out also that the Mobil Oil Company well in the north end of Section 6 of 21, 26 is being drilled on a 277-acre lease. The well is drilling, and to my knowledge, does not have anymore acreage in that section other than the Lots 1 through 8, inclusive, on which the well is being drilled.

MR. STAMETS: Mr. Henry, has the David Fasken Well in question here in Section 3, in your opinion, discovered a separate common source of supply in the Morrow formation?

THE WITNESS: Yes, sir.

MR. STAMETS: And if the Application of Inexco for the creation of this particular Morrow pool should be denied, would you recommend the creation of a Morrow pool to take in the acreage you have outlined in yellow and red around the well on your Exhibit "A"?

THE WITNESS: Yes, 320 acres for the Avalon Morrow Field.

MR. STAMETS: Is that the name that you would propose, the Avalon Morrow?

(No response.)

MR. STAMETS: You have mentioned a number of reasons why 640-acre spacing is bad in your opinion. I wish you would reiterate if you did say what it was that would be inappropriate or not good about temporary 640-acre spacing?

THE WITNESS: On the temporary 640 spacing with conventional field rules which I assume would be 1650 feet from the outer boundary of each section, this does not give enough flexibility to stay with the long narrow sand bars that go through the B-Zone particularly of the Morrow formation. Now, these things are very delicate to determine on the logs, on the dip meter logs, and to pursue these things, you need all the flexibility that we can get to stay with them. These Morrow sands are generally, many times greater in length than in width, and I do not know of anyplace where there are B-Zone wells that are substantially productive over a one-mile width.

MR. STAMETS: Does David Fasken have any Morrow wells located in Morrow pools that are spaced on 640 acres that in your opinion 320-acre spacing might be better in part or in all of the pools?

THE WITNESS: Yes, sir, where it would be better in part.

MR. STAMETS: Are there problems associated in going back into the pools now and changing the spacing to 320?

THE WITNESS: Yes, sir. On 320-acre spacing of a 640-acre communitized unit, there are certain vested rights in the area and in the well that various interests own. There is overriding royalty owners and mineral owners have imputed to them by communitization of a large tract, and to come in and disrupt that and add back a 320-acre spacing unit poses some problems of equity in those particular things. That is a little out of my line, but that is as I see it.

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

MR. BUELL: I would like to point out, Mr. Examiner, that Paragraph 3 of the Application, as I understand it, requests 640-acre spacing and proration unit -- not 320 spacing.

MR. STAMETS: Is there anything further of this witness?

He may be excused.

(Witness dismissed.)

MR. BUELL: I have nothing further in rebuttal.

MR. STAMETS: Is there anybody else who wishes to present testimony?

Mr. Eaton?

ED SCHOLL

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

DIRECT EXAMINATION

BY MR. EATON:

Q Would you state your name, please, your residence and by whom you are employed?

A My name is Ed Scholl. I am employed by Monsanto Company, and I live in Midland, Texas.

Q What are your duties with Monsanto Company?

A I am District Engineer.

Q Are you familiar with the Application in this case?

A Yes, I am.

Q Are you familiar with the general area?

A Yes.

Q Are you familiar with the Burton Flat Field?

A Yes, I am.

Q Would you please refer to what has been marked as Monsanto's Exhibit No. 1 and state what this exhibit portrays?

A Exhibit No. 1 is a plat of the Catclaw, Avalon and entire Burton Flat area. I wanted to present this exhibit because it includes all of Burton Flat. It shows a glimpse of the Russo area which is abutting Burton Flat and also part of the Winchester. Heretofore, we have seen many in 21 and 26. The area outlined in red is the present boundaries of Burton Flat. The dotted lines are the ones that are up for extensions which I might add that Section 7 of 21, 27 is up for approval as a Burton Flat extension. We also have the south half of Section 27 in 20, 28, and the west half of 35 in 20, 28, and all of Section 11, I believe it is in 21, 27.

Q By saying "the area outlined in red," you are referring to the area lying east of the area of the Inexco Application?

A That's right. And, of course, the dotted line which is abutting part of the Inexco Application which includes Section 6, 21, 27. There is Section 12 in 21, 26 is abutted by the requested approval of the extension to Burton Flat.

The other area is Catclaw which has been talked of at great length. I don't see any need to say anymore about Catclaw.

Q But that is also outlined in red on your exhibit, is that correct?

A Yes.

Q Would you please direct your attention to the wells in the Burton Flat pool, Mr. Scholl, and give us an explanation of the history of those wells?

A I wanted to point out that Burton Flat is on 320-acre spacing. We also have the mile-and-a-half sections along the north here of 21, 27 which we have completely developed Section 3 which has three wells on it and we are very pleased with the results in that section.

Section 34 is the most interesting, and I would like to point out to you the advantages of the 320-acre spacing in Section 34. As we drilled this --

Q (Interrupting) Now, that is in Section 34 of 20 South, 28 East?

A Right. When we drilled this, we started out in Section 3 with the Burton Flats No. 1, and it was a very prolific well. We then drilled the No. 2 in Section 2 and then we came back down to Section 3 with No. 3, and

then we drilled the Miller Federal in the north part of Section 3, and here is what we learned: First, in No. 1, we had the Morrow, a single-completed well capable of producing over 20 million a day. We drilled the No. 2 which had a little water in it, but it was still a very capable well, and it too was a single well. We came down to No. 3 and we found the Strawn and the Morrow in Section 3 and it was a very pleasant surprise.

Q You did not find that Strawn in the No. 1 Well?

A No, we didn't.

Then we came up in Section 3 to the Miller Federal and up popped Atoka which was -- in the Morrow Zone. Again, we can't quite correlate these zones, but the main point is, in Section 34 we drilled the No. 4 Well and got the most prolific Strawn well I have ever seen, capable of 20 million a day, about 45 barrels per million, and a mediocre Morrow well in the lower part of the Morrow. It had an absolute open flow of about two million in the Morrow Zone.

Then, had we been on 640-acre spacing, we would not have drilled the No. 6 well on the north half of 34. Well, we got a stray zone in that well that eclipses the No. 1 Well or any well we have seen in there.

It had an absolute open flow of something like 50 million. We can very easily produce 25 million out of the well if we had the capability of equipment. We had a very little drawdown on the flowing pressure.

Then we came north in Section 27 and we drilled No. 8 which didn't have the No. 6 zone. It was a mediocre well, about 2 to 3 million a day in one of the Morrow Zones. I don't know which one, merely because I don't know how to correlate it.

Now, just yesterday, we ran casing on No. 11 which it appears from the log that we found another dandy well in one of the lower zones. I don't want to guess at this point how good it is, but it does look to be like a very good sand body. I don't know what the capability of the well is going to be. My point being that the No. 6 well would not have been drilled and we would have lost out on a very good well. We don't have any pressure decline. It is flat now.

Now, moving southward, south of Section 3 three in 10, Gulf drilled a **Cerf** Federal which found a Morrow and a Strawn which there you do have two Strawn wells and two Morrow wells, but whether or not they are the same Morrow Zone, I don't know. Then down in the

south part of the section you have the Coquina Well which is a dual Strawn and Morrow well. Then you go over to Section 11 and here we have three zones. We have a triple completion in the Wolfcamp, Strawn and Morrow. Coquina found the same example, three of them, but I don't believe it was completed particularly. I believe they are completing the Wolfcamp and will later do the Strawn and Morrow.

That's about all I wanted to say except that Monsanto was very pleased and all our eight partners are very pleased with the development in Burton Flats. Some of the activity also is that we just recently -- and it is not on screen -- the Avalon Hills No. 1 which is in Section 7 of 21, 27 which is a, as Mr. Henry pointed out, is a very good well from all indications from deliverability tests or back pressure tests. Here too we have seen no depletion, yet we have very capable productivity. By "capable productivity," we have produced about 15 million a day and have seen something like a 200 pound drop in shut-in pressure. We did this: We moved the rig to Section 13 of 21, 26 and have dedicated 320 acres to this well which we call the Arco No. 2 which is a farm-out from Atlantic Richfield on 320-acre spacing which they seem to like. We have just staked a

well in the south half of Section 13 under an Arco farm-out, and we have also staked a well in the north half of 7 of 21, 27 which we plan to use this rig to develop this portion of the Burton Flat Reservoir.

Also, from Arco we have accepted a 320-acre farm-out, and our Pecos No. 1 in Section 5 -- and this well is permitted -- we are moving the rig from Burton Flat No. 11 which I just talked about to drill this well.

Q By "Section 5," are you referring to Section 5 in the area of the Inexco Application?

A That's right. In 21, 26. I also wanted to point out, as Mr. Henry pointed out, the activity in the area is predominately 320-acre spacing.

I want to end, really, by saying that suppose that you miss a 10-foot section of some stray Morrow zone and in my opinion the recover is in the order of something like 500 MCF per acre-foot, and say the zone did extend to 320 acres, the lost recovery by not penetrating that zone is 1.6 billion cubic feet. You can imagine what that means to you at 52¢ at the present rate now.

That's about all I can say.

Q I take it, then, Mr. Scholl, that it is the position of Monsanto that the area in question in this

case should not be developed on the basis of 640-acre spacing and proration unit?

A Very definitely not. It should not be developed.

MR. EATON: We offer Monsanto's Exhibit No. 1 into evidence.

MR. STAMETS: Without objection, the exhibit will be admitted.

(Whereupon, Monsanto's Exhibit No. 1 was marked for identification and admitted in evidence.)

MR. EATON: Mr. Examiner, Monsanto would also ask the Commission to either take administrative notice of or incorporate into the record of this case the record established in Case No. 5109 which dealt with the Catclaw Draw Pool and Case Nos. 5111 and 5112 which established pool rules for the Burton Flat, Morrow and Strawn Pools. We specifically would like the Commission to take notice of the testimony of Carl Ulvog and Dan Nutter in those respective cases, and the Commission's Exhibits 2, 3 and 4 in Case No. 5109 and its Exhibit No. 3 in Case Nos. 5111 and 5112.

MR. JASON KELLAHIN: I may have misunderstood you, but did you say 5019 or 5109?

MR. EATON: 5109

MR. STAMETS: The Examiner will take administrative notice of the cases, the testimony and the exhibits which you have requested.

MR. EATON: We have nothing further, Mr. Examiner.

MR. STAMETS: Mr. Scholl, as I understand your testimony, you are saying that the Commission should not only take into consideration the Morrow formation when we are establishing spacing, but we should give some weight to the potential other zones which might be found on closer spacing of wells?

THE WITNESS: In my opinion, you should.

MR. STAMETS: In the Wolfcamp and other Pennsylvanian zones?

THE WITNESS: You should.

MR. STAMETS: Monsanto is an operator in the Rock Tank Morrow Pool, and I believe they are the ones that asked for 640-acre spacing. That has been a number of years ago. Was economics a consideration at the time that you --

THE WITNESS: (Interrupting) At the time, presently, it is 16¢ gas, but let me relate some geology, if I may. I have been told that Rock Tank is a little

different cookie. We call it the Rock Tank Zone in Rock Tank. It is a body right above the Barnett section. It is correlatable. It is a very nice looking zone in the wells, what I reviewed of them, and it lends itself to a very good depletion on 640-acre spacing. Now, this is after the fact. Now, what went into determining the 640-acre spacing way back then, I don't know. There is only one zone we have dually completed a well. We have separated the upper Morrow from the lower Morrow in Rock Tank. We didn't find the upper zone in a number of the wells, but it is a very poor zone.

MR. STAMETS: Let me get back to the question.

THE WITNESS: All right.

MR. STAMETS: Economics were substantially different at that time?

THE WITNESS: Yes, sir, they were.

MR. STAMETS: Are economics much improved today?

THE WITNESS: Not at Rock Tank.

MR. STAMETS: In the gas industry in general?

THE WITNESS: Oh, yes, if you can change your contract.

MR. STAMETS: In your opinion, if the Rock Tank Pool was discovered today, would Monsanto ask for 640-acre

spacing or would they develop on 320?

THE WITNESS: I believe they would develop on 320.

MR. STAMETS: Are there other questions of this witness?

CROSS EXAMINATION

BY MR. JASON KELLAHIN:

Q Have you considered developing it on 320 at this time?

A Not at 16¢. As you pointed out, it has produced 22 billion cubic feet out of 44, and incidently, it appears like it might be a little more than 44.

Q I believe you testified that you agreed with Mr. Henry that this area had been predominately developed on 320 acres, is that what you said?

A We are pleased with the 320-acre spacing at Burton Flat. I agree --

Q (Interrupting) Is that the area you are talking about when you say "predominately developed on 320"?

A I don't remember saying "predominately." We are not through yet.

Q Certainly the Catclaw Draw hasn't been developed

on 320?

A You bet.

Q Catclaw Draw is developed on 320?

A You said it wasn't.

Q Yes.

A I agree with you. You bet. I would develop it on 320 if it was me.

Q Would you recommend that all Morrow pools be developed on 320?

A I wouldn't go so far as to say that. I think a lot of things have to be included into it. The individual area has to be considered.

Q What objection would you have to a temporary order for a period of one year?

A I would object very strenuously on the basis of economics, on the basis of current income, on profitability. You see, these wells pay out, Mr. Kellahin, on about -- if you get a 5 million well, you spend close to $400,000 or maybe $430,000, depending on the trouble that you have in them, and you pay out that well in something like six months which is a very good economic venture. That is based on 52¢ gas with a BTU adjustment.

Q Are you selling your gas for 52¢?

A You bet.

Q That is sold intrastate, isn't that correct?

A That's right. No, a lot of people -- we've got three strings. Some of it is 60¢ interstate on 180-day emergency. Some of it is 55¢. Now, Strawn gas gets up into the 60's after you adjust the BTU.

MR. STAMETS: Speak up, Mr. Scholl, so the Reporter can hear you.

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

MR. STAMETS: Are there other questions of this witness?

Mr. Stevens?

CROSS EXAMINATION

BY MR. STEVENS:

Q Mr. Scholl, you said you had a weel staked to drill on Section 5. Is that on the Arco farm-out?

A Yes, sir.

Q We had an Arco letter submitted into evidence, and I think they concurred in 640-acre spacing. Did they ask for 640-acre spacing on your farm-out?

A No, they wouldn't let us go 640.

Q What did they want you to drill it on, Mr. Scholl?

A I think somebody doesn't know what one end is

SCHOLL-CROSS

doing over there.

Incidentally, all of our stuff is from Arco in the Avalon Hills No. 1 which they insisted on 320 acres.

MR. STEVENS: No further questions.

MR. STAMETS: Are there any other questions of this witness? He may be excused.

(Witness dismissed.)

MR. STAMETS: Is there anybody else to testify in this case?

I would like to clarify a couple of points for the Applicant. I don't know that it is necessary for anybody to take the stand. Perhaps Mr. Kellahin can answer these two questions. I don't believe that a pool name has been proposed for this pool.

MR. KELLAHIN: Avalon would be perfectly satisfactory.

MR. STAMETS: Avalon Morrow, okay. You have requested 640-acre spacing unit and this spacing to be on 320 acres. This would appear to necessitate the designation of one half of a section to a particular well, so that the state-wide spacing rules could apply.

MR. JASON KELLAHIN: That is correct.

MR. STAMETS: And this you would wish to be

included in your order?

MR. JASON KELLAHIN: That is correct.

MR. STAMETS: Are there statements in this case? Please just state your name and who you are with.

MR. BEVERIDGE: My name is Dick Beveridge. I am a geologist with Western Reserve Oil Company in Midland, Texas.

Western Reserve owns in excess of 7 percent in the Fasken 2876-acre unit which was earlier described, and we own approximately 535 non-producing acres of leases within the unit proposed by Inexco. Further, we will have a substantial interest in the well to be drilled by Morris Antweil in Section 4 of 21, 26, and because of these important interests to us, and our belief in the 320-acre development which we are willing to invest in, we urge the Commission to deny Inexco's Application.

MR. HEINSCH: Clifford Heinsch, and we concur in opposing the Application of Inexco.

MR. SEEREY: John Seerey with Mobil. Mobil is an operator working interest owner of wells in the Burton Flat Field and the area just west of the Burton Flat Field. We concur with the recommendation of Monsanto and David Fasken. We think it should be developed on

320-acre spacing. We agree that the horizontal limits of the Burton Flat-Morrow-Strawn pools have not yet been defined as evidenced by the continued drilling on 320-acre units. We believe that the pay zones are non-contiguous, non-continuous stringers that vary from one 320-acre unit to another and therefore cannot be properly developed on 640 acres without causing reduced recovery and waste. We believe the Burton Flats production has demonstrated development in this area on 320 acres is economically feasible and necessary. We recommend that the application for 640-acre spacing be denied.

MR. STAMETS: Mr. Stevens?

MR. STEVENS: Mr. Examiner, the burden of proof is on the Applicant here for 640-acre spacing. He hasn't presented any evidence on the proposed spaced area, as we have previously talked about. On that basis alone, we think the Application should be denied, however, based upon the evidence that he has submitted, we believe it should be denied. There were raw conclusions that there was drainage between tracts on 640-acre spacing. There was no evidence, or substantial evidence submitted that bottom-hole pressures tended to indicate otherwise. There were economic assumptions and presumptions made that

320-acre and 640-acre spacing would result in the same recovery, and yet the Applicant's witnesses admitted, or at least one of them did, that more gas would be recovered on 320-acre spacing. The economics did not consider the value of the discounted dollar and that you would get more money back faster on 320-acre spacing.

In summary, the Applicant has no evidence in the acreage in question and the economic considerations, we consider to be invalid, and accordingly, the Application should be denied.

MR. STAMETS: Mr. Buell?

MR. BUELL: Mr. Examiner, I believe it has all been said. I would like to point out that the people who are familiar with Morrow production in Eddy County have joined forces here to oppose this Application. The witnesses for the Applicant have not demonstrated any experience in the area. I think that should be a very very serious consideration of the Examiner and the Commission.

MR. STAMETS: Mr. Eaton?

MR. EATON: We have nothing further to add beyond what has been added all day long. We will let the evidence speak for itself.

MR. STAMETS: We have a piece of correspondence here?

MR. CARR: We have received a written statement from Atlantic Richfield. This statement reads as follows:

(Reading) Atlantic Richfield Company, as an operator and lease owner in the area being considered under the subject case respectfully submits that it may be somewhat premature to establish spacing units over the entire area to be considered under Inexco Oil Company's Application. However, in the event a new Morrow Pool is established and spacing units provided for, it is our opinion that Coquina Oil Corporation's recent Morrow completion in its Arco Federal No. 1 in the southwest quarter of the northeast quarter of Section 8, Township 21 South, Range 26 East is an extention of the Catclaw Draw-Morrow Gas Pool and should be included in that pool which has 640-acre spacing. Therefore, we believe that Sections 7, 8 and 9 as well as the south 640 acres of Sections 4, 5 and 6, all in Township 21 South, Range 26 East should be 640-acre spacing units and be considered for eventual inclusion in the Catclaw Draw-Morrow Pool. Atlantic Richfield Company. (End of reading.)

MR. STAMETS: Mr. Kellahin?

MR. JASON KELLAHIN: If the Examiner please, I think the last statement really indicates what our problem is here. The Coquina Well clearly is under the state-wide rules within a mile of the outer boundaries of the Catclaw Draw Reservoir and should be spaced at 640 acres. Now, it was shown by Fasken's exhibits that two additional wells are being drilled in the vicinity of the Catclaw Draw. If the Coquina Well is in the Catclaw Draw, then, those two would automatically go into the Catclaw Draw under the rules. In other words, we've the problems here that you've got elsewhere in the southeastern part of New Mexico. You've got 640-acre spacing merging with 320-acre spacing and the Commission is going to have to determine just exactly how it is going to handle it in an equitable manner.

For that reason, we feel that 640-acre spacing in the area we have been talking about will result in a far quicker definition of the pool and a determination of its extent. Certainly nobody has come up with any sound reason that a temporary 640-acre order for a period of one year wouldn't do any harm. The pool definition would be quicker, certainly, as we said, and particularly in these times of steel shortage and the difficulty in

obtaining drilling rigs, if we have this on 320-acre spacing and proration units, we are going to end up with a much smaller pool at the end of the year than we would with 640.

Now, I think one of the attorneys pointed out that the Burton Flat Pool has not yet been defined on 320 acres, and we would agree, certainly they are offsetting the Burton Flat with new wells, but by the same token, the Catclaw Draw Pool has not been defined on 640-acre spacing, but if we are going to bring the question of pool delineation into the matter -- and I think we should -- then 640-acre spacing is the way to do it.

Now, Mr. Stevens made some mention of the lack of evidence regarding this particular area. The only evidence that is available in this particular area is that on the dry holes which were shown by David Fasken and their one producing well. For that reason, you have to look elsewhere in other Morrow formations to determine what one well will drain and develop and that is what we attempted to do here. There is no production in this area on which you can make any such determination. The bottom-hole pressures in the Catclaw Draw certainly do, in our opinion, show communication, although Mr. Stevens

disagrees.

I believe our exhibit will speak for itself in that regard, and that is over an area of 640-acre spacing. The rules or the statutes of the State of New Mexico requires that the Commission approve and create units which shall be the area that one well can economically and efficiently drain and develop.

At this point, I feel we have shown that one well -- at least the evidence does indicate -- that one well will efficiently and economically drain and develop 640 acres. Now, a temporary order of one year, we would be able to determine on the basis of additional evidence whether this be true or not. Now, when we get into the question of additional horizons that might be discovered on 320 acres, this is certainly true in the Morrow formation. We can't dispute it. But, by the same token, you can say you would encounter additional zones if you drill it on 160 acres or maybe even on 80. The Commission is quite familiar with the nature of the Morrow formations. These sand stringers do come and go and they are very difficult to follow, and we come back to the question of economics and the more rapid development of the area, and we submit that a temporary order for a period of one year

is in the best interest of the conservation and the development of this pool.

MR. STAMETS: If there is nothing further, I will take the case under advisement.

STATE OF NEW MEXICO)
) SS.
COUNTY OF SANTA FE)

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Richard L. Nye
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5226 heard by me on April 25, 1974.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

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May 21, 1974

Mr. Tom Kellahin
Kellahin & Fox
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Santa Fe, New Mexico

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Santa Fe, New Mexico

Re: CASE NO. 5226
ORDER NO. R-4788

Applicant:

Inexco Oil Company

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.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. Sumner Buell, Mr. Paul Eaton, Mr. John Seerey, Mr. Don Stevens, Mr. Richard Beveridge

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. 5226
Order No. R-4788

APPLICATION OF INEXCO OIL COMPANY
FOR POOL CREATION AND SPECIAL POOL
RULES, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 25, 1974, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 21st day of May, 1974, 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 David Fasken has drilled and completed his El Paso 3 Federal Well No. 1, located 2724 feet from the North line and 2870 feet from the East line of Section 3, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, as a dual completion capable of gas production from the Strawn and Morrow formations.

(3) That the applicant, Inexco Oil Company, has an approximate 5.73 percent working interest in said El Paso 3 Federal Well No. 1.

(4) That the applicant seeks the creation of a new Morrow gas pool for said El Paso 3 Federal Well No. 1 which, as amended, would include therein:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 1 through 7: All
Section 9 through 12: All

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 6 and 7: All

(5) That the applicant further seeks the adoption of temporary special pool rules for said proposed Morrow gas pool including provisions for 640-acre spacing, certain 480-acre non-standard spacing units, and special well location requirements.

(6) That the evidence presently available does not establish that the El Paso 3 Federal Well can efficiently and economically drain 640 acres or 480 acres.

(7) That the evidence presented indicates that, though the Morrow formation should be considered as a single unit geologically for the creation of pools for Morrow production, the Morrow formation is composed vertically of a number of zones which exhibit substantial differences in depositional environment with resulting differences between zones in porosity and permeability both as to relative values and geographical trends.

(8) That the productive sands in the Morrow formation and zones of the Morrow formation are made up of many separate stringers which vary greatly in areal extent and in porosity, permeability and thickness both within individual stringers and between stringers.

(9) That the character of some Morrow sands may be such as to permit the drainage of a 640-acre tract by a well but that there may be other Morrow sands producible in the same wellbore which will drain much less than a 640-acre tract.

(10) That closer well spacing in the Morrow formation permits better evaluation of geological, geophysical, and engineering information aiding in the determination of Morrow sand trends which should result in the drilling of fewer dry holes and the recovery of a greater volume of gas from such sands.

(11) That a number of other formations including the Wolfcamp, Upper Pennsylvanian, Strawn, and Atoka overlie the Morrow formation.

(12) That the formation set out in finding No. 11 produce significant quantities of gas in Eddy County, New Mexico, and are often produced dually or multiply with the Morrow formation in the same wellbore.

(13) That pools found in the Wolfcamp, Upper Pennsylvanian, Strawn, and Atoka formations in Eddy County, New Mexico are often small or narrow areally and would be subject to remaining undiscovered in areas with wide Morrow spacing patterns.

(14) That the operator of the El Paso 3 Federal Well No. 1, David Fasken, opposes the creation of the proposed Morrow gas pool and the adoption of the proposed special pool rules.

(15) That in order to prevent the reduced recovery occasioned by the drilling of an insufficient number of wells, and to otherwise prevent waste and protect correlative rights, the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Inexco Oil Company in the subject case is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

ALEX J. ARMIJO, Member

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

S E A L

jr/

(Case 5221 continued from Page 1)

said well having been projected as an oil well at a standard location for Delaware oil wells. Applicant further seeks approval of a 201.34-acre non-standard gas proration unit for said well comprising the NE/4 of said Section 4.

CASE 5222: Application of Amoco Production Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Pavo Mesa Unit Area comprising 2,560 acres, more or less, of State and Federal lands in Township 16 South, Range 28 East, Eddy County, New Mexico.

CASE 5223: Application of Continental Oil Company for a 320-acre non-standard gas proration unit, simultaneous dedication of acreage, and reinstatement of cancelled underproduction, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard gas proration unit comprising the N/2 of Section 17, Township 24 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its Jack B-17 Wells Nos. 3 and 4 located 990 feet from the North and East lines and 990 feet from the North line and 1980 feet from the West line, respectively, of said Section 17. Applicant further seeks the reinstatement of the underproduction which was cancelled November 1, 1973, when the aforesaid proration unit was reclassified to marginal status.

CASE 5224: Application of Phillips Petroleum Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its James "E" Well No. 1 located in Unit G of Section 11, Township 22 South, Range 30 East, Cabin Lake Field, Eddy County, New Mexico, in such a manner as to produce gas from the Strawn and Morrow formations through parallel strings of tubing.

CASE 5225: Application of Fluid Power Pump Company, Petro Lewis Corporation, and Partnership Properties Company for compulsory pooling, Sandoval County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all mineral interests in the Media-Entrada Oil Pool underlying the NW/4 of Section 22, Township 19 North, Range 3 West, Sandoval County, New Mexico, to be dedicated to the Fluid Power Pump Company Well No. 5 located in Unit C of said Section 22.

CASE 5226: Application of Inexco Oil Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Morrow gas pool for its Fasken El Paso Federal Well No. 1 located in the SW/4 NW/4 of Section 3, Township 21 South, Range 26 East, Eddy County, New Mexico, and the promulgation of special pool rules therefor, including a provision for 640-acre spacing units for Sections 7 through 12, Township 21 South, Range 26 East, and the adoption of 480-acre non-standard spacing units comprising either the N/2 or S/2 of Sections 1 through 6, Township 21 South, Range 26 East, and Section 7, Township 21 South, Range 27 East.

Docket No. 11-74

DOCKET: EXAMINER HEARING - THURSDAY - APRIL 25, 1974

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 5206: (Continued from the April 10, 1974, Examiner Hearing)

Application of Continental Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle West Warren-Blinebry and East Skaggs-Drinkard production in the wellbore of its SEMU Burger Well No. 21 located in Unit O of Section 19, Township 20 South, Range 38 East, Lea County, New Mexico.

CASE 5209: (Continued from the April 10, 1974, Examiner Hearing)

Application of Union Oil Company of California for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Estacado Unit Area comprising 1280 acres, more or less, of State and fee lands in Township 14 South, Range 35 East, Lea County, New Mexico.

CASE 5219: Application of Midwest Oil Corporation for pool creation, discovery allowable, and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Wolfcamp production for its South Empire Deep Unit Well No. 4 located in Unit G of Section 32, Township 17 South, Range 29 East, Eddy County, New Mexico, and for the promulgation of special pool rules therefor, including a provision for 80-acre spacing. Applicant further seeks the assignment of approximately 42,245 barrels of oil discovery allowable to the aforesaid well.

CASE 5220: Application of Atlantic Richfield Company for an unorthodox gas well location and non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its McDonald State WN Well No. 24 located 1780 feet from the North line and 660 feet from the West line of Section 25, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to a 320-acre non-standard gas proration unit comprising the N/2 of said Section 25.

CASE 5221: Application of Black River Corporation for an unorthodox gas well location and a non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its BR 4 Federal Well No. 3 located 1986 feet from the North line and 330 feet from the East line of Section 4, Township 26 South, Range 24 East, undesignated Delaware gas pool, Eddy County, New Mexico,

CASE 5227: Application of Morris R. Antwell for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying Lots 9 through 16 of Section 4, Township 21 South, Range 26 East, Eddy County, New Mexico, to form a standard 320-acre gas proration unit to be dedicated to a well to be drilled at a standard location for said unit. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5228: Application of David Fasken for the creation of two pools and a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a Strawn gas pool and a Morrow gas pool for his El Paso 3 Federal Well No. 1 located 2724 feet from the North line and 2870 feet from the East line of Section 3, Township 21 South, Range 26 East, Eddy County, New Mexico. Applicant further seeks approval for the dual completion of said well to produce gas from the Strawn and Morrow formations through parallel strings of tubing.

CASE 5207: (Continued from the April 10, 1974, Examiner Hearing)

Application of Craig Folson for a non-standard proration unit and compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying a non-standard oil proration unit comprising the SW/4 NE/4 SE/4, NW/4 SE/4 SE/4, NE/4 SW/4 SE/4, and the SE/4 NW/4 SE/4 of Section 12, Township 13 South, Range 31 East, Caprock-Queen Pool, Chaves County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 1340 feet from the South line and 1300 feet from the East line of said Section 12, said location having been previously been approved by Order No. R-4750. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5208: (Continued from the April 10, 1974, Examiner Hearing)

Application of S. P. Yates for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks, as an exception to Order No. R-3221, as amended, authority to dispose of produced salt water in an unlined surface pit on its Federal LC 065598 lease in the SW/4 SW/4 of Section 4, and the NE/4 of Section 5, Township 17 South, Range 30 East, Square Lake Pool, Eddy County, New Mexico.

Memo: New Mexico Oil Conservation Commission
Attention: Mr. A. L. (Pete) Porter

In re: Docket No. 5228
David Fasken In re: Docket
No. 5226, Inexco Oil Company

Gentlemen:

R. M. Moran of Hobbs, New Mexico supports David Fasken in Docket No. 5228 and opposes Inexco's application in Docket No. 5226.

R. M. Moran holds leasehold and overriding royalty interests affected by the captioned applications, consisting of a 2.25% overriding royalty interest under Federal Oil & Gas Lease No. NMA15461, covering T21S, R26E, Section 3, lots 13,14, NE/4 SW/4, NW/4 SE/4, S/2 SE/4 Section 4, Lots 2, 7, 8, 9, Section 10, NE/4 NE/4, Section 11, N/2 N/2, Section 12, W/2 W/2, SE/4 NW/4, and the leasehold interest under Federal Oil & Gas Lease No. NM14467 insofar as same covers T21S, R26E, Section 12, NE/4 NW/4.

Insofar as the above defined interests affect acreage in T21S, R26E, Section 3, the leasehold interest is committed to a working interest agreement dated March 12, 1973, under which David Fasken is operator and by virtue of which David Fasken drilled and completed in the Morrow and Strawn formations, his Fasken - El Paso "3" Federal No. 1 Well, situated in Lots 11, 2723.9 FNL and 2780 FEL of slad Section 3. Insofar as relates to the David Fasken application aboved captioned for field designation for Morrow and Strawn formations and for dual completion of said well, R. M. Moran joins in and seeks the approval of Fasken application, because same is consistent with the understanding of the parties to said working interest unit agreement and

is made pursuant to the authority granted to David Fasken as operator under the terms of said agreement.

Referring further to the application of Inexco Oil Company, R. M. Moran strongly opposed such application because no experience is available from which to conclude that the Fasken well above described will effectively and efficiently drain an area of 640 acres there being no offset wells and no pressure history. R. M. Moran further opposed said Inexco application because same covers an arbitrary area of land defined solely in land terms and totally unsupported by any evidence that same serves to define a common accumulation of hydrocarbons. The area of 13 sections proposed to be regulated under the Inexco application includes four (4) wells which have penetrated the Morrow formation. The Fasken well above described, in Section 3, has been completed in the Morrow and Strawn formations and is now rigging up for production but is without production history. David Fasken - El Paso "2" Federal No. 2 in T21S, R26E, Section 2, Lot 13, penetrated the entire Morrow formation and was tested unsuccessfully in both the Morrow and Strawn formations and subsequently plugged back and completed for production of gas in the Canyon formation. Such well lies between the subject well in Section 3 and five (5) of thirteen sections of land which are the subject of the Inexco application. David Fasken - Avalon State No. 1, in the SW/4 of Section 7, T21S, R26E, was tested unsuccessfully in the Morrow formation. Coquina - Atlantic Federal, situated in the NE/4 of Section 8, T21S, R26E, is reported testing from the Morrow formation and is expected to be completed for production therefrom but is presently without production history. Under the circumstances stated, field rules should not be applied to any area farther than one mile from the two apparently successful

Morrow completions above described and each of such wells should be considered on its own merits under separate applications since same are more than one mile apart.

I sincerely thank the Commission for allowing me to submit this letter. Further, Mr. K. D. McPeters of Hobbs should be present at these hearings and if you wish may be questioned in my behalf.

Sincerely yours,

R. M. Moran

RMM/d

Read into record

STATEMENT OF ATLANTIC RICHFIELD COMPANY TO NEW MEXICO OIL CONSERVATION COMMISSION IN CONNECTION WITH CASE No. 5226, APPLICATION OF INEXCO OIL COMPANY FOR POOL CREATION AND SPECIAL POOL RULES, EDDY COUNTY, NEW MEXICO.

Atlantic Richfield Company, as an operator and lease owner in the area being considered under subject case, respectfully submits that it may be somewhat premature to establish spacing units over the entire area to be considered under Inexco Oil Company's application. However, in the event a new Morrow pool is established and spacing units provided for, it is our opinion that Coquina Oil Corporation's recent Morrow completion in its ARCO Federal No. 1 well, SW¼ of NE¼ of Section 8, Township 21 South, Range 26 East is an extension of the Catclaw Draw Morrow Gas Pool and should be included in that pool which has 640 acre spacing. Therefore, we believe that Sections 7, 8, and 9, as well as the south 640 acres of Sections 4, 5, and 6, all in Township 21 South, Range 26 East, should be 640 acre spacing units and be considered for eventual inclusion in the Catclaw Draw Morrow Pool.

ATLANTIC RICHFIELD COMPANY
April 25, 1974

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF INEXCO OIL COMPANY FOR ADOPTION
OF POOL RULES, EDDY COUNTY,
NEW MEXICO

Case 5226

A P P L I C A T I O N

COMES NOW INEXCO OIL COMPANY and applies to the Oil Conservation Commission of New Mexico for the adoption of pool rules for an undesignated Morrow Gas Pool, including a provision for 640 acre spacing and proration units, and a provision for accommodating over sized sections, and in support thereof would show the Commission:

1. That Applicant is the operator of the discovery well named the Fasken El Paso No. 1 Federal located in the SW/4 NW/4 of Section 3, Township 21 South, Range 26 East, N.M.P.M., Eddy County, New Mexico, in an undesignated Morrow Gas Pool.

2. Present information available indicates that one well will economically and efficiently drain and develop a proration unit of not less than 640 acres, and in order to property evaluate the formation, and to prevent waste, spacing and proration units of 640 acres should be adopted by the Commission for this pool for a temporary period of one year.

3. That in connection therewith, applicant proposes that the 640 acre spacing and proration unit provision be applied to Sections 7 through 12, Township 21 South, Range 26

East, N.M.P.M., Eddy County, New Mexico.

4. That in order to take care of certain oversized sections within the horizontal limits of this pool, the applicant requests the adoption of spacing and proration units of 480 acres consisting of either the North-Half or the South-Half of Sections 1 through 6, Township 21 South, Range 26 East, and Section 6, Township 21 South, Range 27 East, N.M.P.M., Eddy County, New Mexico.

WHEREFORE Applicant requests that this application be set for hearing before the Commission's duly appointed examiner, and that after notice and hearing as required by law, the Commission enter its order approving the application as requested.

RESPECTFULLY SUBMITTED:

INEXCO OIL COMPANY

By W. T. Kellahin

KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

DRAFT

jr/

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. 5226

Order No. R-4788

APPLICATION OF INEXCO OIL COMPANY
FOR POOL CREATION AND SPECIAL POOL
RULES, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 25, 1974, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of May, 1974 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 David Fasken has drilled and completed his El Paso 3 Federal Well No. 1, located 2724 feet from the North line and 2870 feet from the East line of Section 3, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, as a dual completion capable of gas production from the Strawn and Morrow formations.

(3) That the applicant, Inexco Oil ~~Corporation~~ Company, has an approximate 5.73 percent working interest in said El Paso 3 Federal Well No. 1.

(4) That the applicant seeks the creation of a new Morrow gas pool for said El Paso 3 Federal Well No. 1 which, as amended, would include therein:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 1 through 7: All
Section 9 through 12: All

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 6 and 7: All

(5) That the applicant further seeks the adoption of temporary special pool rules for said proposed Morrow gas pool including provisions for 640-acre spacing, certain 480-acre non-standard spacing units, and special well location requirements.

(6) That the evidence presently available does not establish that the El Paso 3 Federal Well can efficiently and economically drain 640 acres or 480 acres.

(7) That the evidence presented indicates that, though the Morrow formation should be considered as a single unit geologically for the creation of pools for Morrow production, the Morrow formation is composed vertically of a number of ~~vertical~~ zones which exhibit substantial differences in depositional environment with resulting differences between zones in porosity and permeability both as to relative values and geographical trends.

(8) That the productive sands in the Morrow formation and zones of the Morrow formation are made up of many separate stringers which vary greatly in areal extent and in porosity, permeability, and and thickness both within individual stringers and between stringers.

(9) That the character of some Morrow sands may be such as to permit the drainage of a 640 tract by a well but that there may be other ~~p[illegible]g~~ Morrow sands ~~in the same vertical location~~ producible in the same well bore which will drain much less than a 640 acre tract.

(10) That closer well spacing in the Morrow formation permits better evaluation of geological, geophysical, and engineering information aiding in the determination of Morrow sand trends which should result in the drilling of fewer dry holes ~~to the Morrow~~ and the recovery of a greater volume of gas from such sands.

(11) That a number of other formations including the Wolfcamp, Upper Pennsylvanian, Strawn, and Atoka ~~formations~~ overlie the Morrow formation.

(12) That the formations in finding No. 11 produce significant quantities of gas in Eddy County, New Mexico, and are often produced dually or multiply with the Morrow formation in the same well bore.

(13) That pools found in the Wolfcamp, Upper Pennsylvanian, Strawn, and Atoka formations in Eddy County, New Mexico are often small or narrow and ~~are~~ subject to remaining undiscovered in areas with wide Morrow spacing patterns.

(14) That the operator of the El Paso 3 Federal Well No. 1, David Fasken, opposes the creation of the proposed Morrow gas pool and the adoption of the proposed special pool rules.

(15) That in order to prevent the reduced recovery occasioned by the drilling of an insufficient number of wells, and to otherwise prevent waste and protect correlative rights, the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Inexco Oil Company in the subject case is hereby denied.

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

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

Atlantic Richfield Company
North American Producing Division
Permian District
Post Office Box 1610
Midland, Texas 79701
Telephone 915 682 8631

C. H. McClure
District Land Manager

April 2, 1974

Cities Service Oil Company
800 Vaughn Building
Midland, Texas 79701
Attention: Mr. John W. Young

The Wiser Oil Company
Gihls Tower East
Midland, Texas 79701

Inexco Oil Company
Suite 1900
1100 Milam Building
Houston, Texas 77002

Re: Proposed Operating Agreement
Section 9, T-21-S, R-26-E
Eddy County, New Mexico
NM-3878; S-NM-306

Gentlemen:

Atlantic Richfield Company proposes to form a 640 acre operating agreement and communitization covering all of Section 9, T-21-S, R-26-E, for the drilling of an 11,150 foot Morrow test in the SE/4 NW/4 of Section 9. We further propose that Atlantic Richfield Company operate.

We estimate a dry hole will cost $223,400 and a producer $323,800 which includes $25,000 for surface equipment.

According to our information, Section 9 is owned as follows:

Atlantic Richfield Company	200 acres	31.25%
The Wiser Oil Company	280 acres	43.75%
Cities Service Oil Company	120 acres	18.75%
Inexco Oil Company	40 acres	6.25%

We ask that you please let us have your response to this proposal as soon as possible inasmuch as Atlantic Richfield Company's lease will expire June 1, 1974. To expedite paper work, we enclose the proposed operating agreement, communitization agreement and our AFE.

Very truly yours,

M. James Walker

M. James Walker
Area Landman

MJW:jrb
Enclosure

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
INEXCO EXHIBIT NO. 6
CASE NO. 5226

Atlantic Richfield Company — Authorization for Expenditure

Title: State RQ #1 - Drill & Equip

[X] Original authorization [ ] Revision number

Location: SE/4 of NW/4 of Section 9, T-21S, R-26E, Eddy County, New Mexico

Purpose of authorization
[X] Drilling - New [ ] Recompletion [ ] Workover [ ] Other
[ ] Drill old well deeper
[X] Development ____ %*
[ ] Exploratory ____ %*
* Show percent of total cost applicable to each.
[X] Single [ ] Dual [ ] Three or more

Primary objective of drilling
[ ] Oil only [X] Gas only [ ] Oil and/or gas

Signed (Dist. Eng. and/or Explor. group)

Reason for drilling
[X] Develop reserves [ ] Secondary recovery
[ ] Rate [ ] Replacement
[ ] Comb. reserve & rate [ ] Service
____ % rate

See reverse side

Budget information
Budget (1) 103 Amt. 93,375
Item (2) 423 Amt. 7,813

Capital instabudget dated 10-26-73

[ ] Named on instabudget.
Amount capital differs from instabudget $ ____ Over/(under)

[ ] Substituted for ____
Amount capital differs from instabudget $ ____ Over/(under)

[X] Addition to instabudget.

Current year capital differs from instabudget current year by $ ____ Over/(under)

Originated by: Larry Knight
AFE number:
District: Permian-West
Project identifier:
Field name:
Lease record number:
Expl. project no.:
Field code:
Subject to production payment: [ ] Yes [X] No
Property code(s):
Co-owner operator AFE No(s).:

Component AFE No(s)	Description and justification	Account codes	Amounts—In whole dollars only. On hand	Capital	Expense	Total
	Justification Furnished Separately					
	Tangibles	031		76,800		76,800
	Intangibles	037		222,000		222,000
	Total Drilling			298,800		298,800
	Equip To Produce	038		25,000		25,000
	ARCO Share Of Drilling $93,375					
	ARCO Share Of Equip 7,813					
Operator: ARCO		Gross totals		323,800		323,800
Atlantic Richfield ownership decimal: 0.312500		Net Atlantic Richfield share		101,188		101,188

Use reverse side if needed

Payout (years)	% Return (AFIT)	Start date	Completion date	$ Prior year	$ Curr. year 1974	$ Thereafter
1.2	55.6	5/74	7/74	Capital ____ Expense ____	Capital 101,188 Expense ____	Capital ____ Expense ____

Technical audits (check those required)
[X] Engineering [X] Exploration [ ] Dallas Budget [ ] Evaluation [ ] Other [ ] Procedural audits

[ ] Co-owner approval (District use only)
Signature
Company

Approvals (check highest level required) — Authorized expenditure limit table no. ____

	Date		Date
[ ] District		[ ] Senior vice-president	
[ ] Other		[ ] Executive vice president	
[X] Regional		[ ] President	

AR3B-382-D

Subject: State BQ No. 1 | Date: 3/8/74

Authorization number:

District:

Location:

Section 9, T-21S, R-26E, Eddy County, New Mexico

Project:

To test: Morrow formation

Depth: 11,150'

Approved	Contract footage	Daywork depth
	10,000'	11,150'

Casing program:

Surface casing

13-3/8" 48# H-40 ST&C o-500' Circ. cmt.

Protective string

8-5/8" 24# K-55 ST&C 0-2500' Circ. cmt.

Oil string

5-½" 15.5# K-55 LT&C 0-4000'

5-½" 17# N-80 LT&C 4000-11,150' Cmt. w/800 sx.

Liner

Casinghead

13-3/8" x 8-5/8" 900 Series; 8-5/8" x 5-½" 900 Series; Tbghead 5000# WP

Estimated formation tops

Delaware	2350	Strawn	9650
Bone Spring	4380	Atoka	10150
Dean	7850	Morrow	10550
Wolfcamp	8650		
Cisco	9250		

Mud program

0-500	Spud mud
500-2500	Fresh wtr. LCM as needed. Dry drill if necessary.
2500-8600	Fresh wtr., lime & paper, LCM.
8600-TD	Low solids gel mud wt = 9.2#/gal. Vis. 33-35 sec. Water loss 20 cc to 10,500'; 10 cc @ 10,500'; ph 9.0 - 9.5.

Surveys

DLL,BHC Neutron over zones of interest.
GR-Density 0 - TD.

Coring

Core priority

Drill stem tests

7 Anticipated: 1 in Wolfcamp, Cisco, Strawn, & Atoka
3 in Morrow

Samples

10' from surface to TD

Fluid samples

2 quarts of any water from prod. tests.
Analyze locally.

Mud logging

One-man unit from 8000' to TD.

Elevations

Type completion

Single gas

Completion equipment

2-3/8" tbg. & pkr.

Signed (District Drilling Supervisor)

Endorsed

District Production and Drilling Superintendent	Date
[signature]	3/25/72
District engineer [signature]	Date 3/25/72
District Explorationist (geologist)	Date

Approved

District Manager	Date

AtlanticRichfieldCompany — Drilling Cost Estimate – Page 1

[X] Original [ ] Supplement

Well name: State BQ No. 1 | T.D.: 11,150'

Location: Section 9, T-21S, R-26E, Eddy County, New Mexico

Region | District | Field

Objective: Morrow @ 10,550 ft. | @ ft.

[ ] Development [ ] Single
[ ] Exploratory [ ] Dual
[ ] Completion [ ] Multiple

Data Processing Information

Trans. Ident. 1	2	3	4	5	A.F.E. Number 6	7	8	9	10	11
A	F	E	E							

Update code: 1 = Delete, 3 = Add

Original/Revision Indicator: 1 = Original, 2 = Revision

Tangible costs	Dry hole	Completion costs	Detail code 12 13 14	Total gross dollars 15 16 17 18 19 20 21 22	Major account 23 24 25	26
1. Tubular goods	4350					
13-3/8 " OD from 0 ' to 500 '						
8-5/8 " OD from 0 ' to 2500 '	12250					
" OD from ' to '						
5-½ " OD from ' to 11150 '		39300				
" OD from ' to '						
2-3/8 " OD from ' to 11150 '		11200				
" OD from ' to '						
" OD from ' to '						
2. Casinghead and Christmas tree	2500	6000	5 0 4			
3. Tubing accessories		1200	5 0 6			
4. Artificial lift accessories			5 0 7			
5. Unclassified materials			5 0 8			
Total tangibles	19100	57700				
Intangible costs						
6. Testing tubular goods			5 6 9			
7. Trucking tubular goods	1200	1800	5 0 9			
8. Casing accessories	600	500	5 1 2			
9. Site preparation, maint., clean up	5000		5 1 4			
10. Permits, insurance, damages	500		5 1 5			
11. Moving expense			5 1 7			
12. Boat & barge rental			5 1 8			
13. Camp & catering			5 2 2			
14. Boiler			5 2 5			
15. Roads, airstrips & maintenance			5 5 6			
16. Air freight & air transportation			5 2 8			
17. Contract footage drilling						
10,000 ft @ $ 9.50 / ft.	95000		5 3 2			
Contract daywork (items 18 through 24)						
18. Drilling 12 days @ $ 2150 /day	25800		5 3 3			
19. Casing ____ days @ $ ____ /day			5 3 4			
20. Fishing ____ days @ $ ____ /day			5 3 6			
21. Lost circ. & flows 2 days @ $ 2150 /day	4300		5 3 7			
22 Log test & core 10 days @ $ 2150 /day	21500		5 3 8			
23. Shut down time ____ days @ $ ____ /day			5 3 9			
24. Completion or plugging ____ days @ $ ____ /day			5 4 1			
25. Completion unit daywork 7 days @ $ 6 /day		4200	5 4 2			
26 Rental: DP, DC, & related tools			5 4 3			
27. Well control equipment	1600		5 4 7			
28. Drill bits = ____ size			5 4 8			
= ____ size						
= ____ size						
= ____ size						

AtlanticRichfieldCompany

Drilling Cost Estimate – Page 2

Well name: State BQ No. 1

Estimated by: H. Bernard

Date: 3/8/74

Data Processing Information

Tran. Ident.: 1 2 3 4 = A F E E

5

A.F.E. number: 6 7 8 9 10 11

Update code: 1 = delete, 3 = add

Original/revision indicator: 1 = Original, 2 = Revision

Intangible cost (continued)	Dry hole	Completion costs	Detail code (12 13 14)	Total gross dollars (15 16 17 18 19 20 21 22)	Major accou.. (23 24 25)	(26)
29. Fuel, fresh water & drayage			549			
30. Drilling mud materials & drayage	15000		551			
31. Drilling mud equipment			552			
32. Air compressor rental or gas cost			553			
33. Air or gas drlg. accessories & drayage			554			
34. Open hole surveys DLL			557			
BHC, Neutron, Density	8000					
35. Data recording services			558			
36. Wireline formation tester			559			
37. Mud log	3000		560			
38. Cased hole surveys			561			
39. Perforating fees		1500	562			
40. Sidewall coring #			563			
41. Conv. diamond or wireline coring ft.			563			
42. Drill stem tests #	8800		572			
43. ☒ Acidize ☐ Fracture ____ gal. ____ lbs		4000	577			
44. Cement & fees for casing						
13-3/8 " OD 800 sacks	2500					
8-5/8 " OD 1500 sacks	4500					
" OD ____ sacks						
5-1/2 " OD 600 sacks		5000				
" OD ____ sacks						
" OD ____ sacks						
45. Cement & fees for squeezes or plugs			578			
46. Fishing tool rental & drayage			580			
47. Directional drlg. tool rental & drayage			581			
48. Operations - prorate			590			
49. Unclassified tool rental & drayage	1000		587			
50. Unclassified drayage & supplies	1000		594			
51. Unclassified services & material losses			589			
52. Overhead	1000		592			
53. Supervision by contract personnel			105			
54. Supervision by A.R.Co. personnel	4000	700	106			
Total intangibles	204300	17700				
Total cost (tangibles & intangibles)	223,400	75400				
Completed well cost (dry hole & comp.)	298,800					

AR3B-153-1-A

Black figures
Summer Buels figures

W/4 surrounding Wells

CATCLAW DRAW FIELD (MORROW)

T21S - Rge. 25&26E

EDDY COUNTY, NEW MEXICO

SUMMARY OF RESERVES & ESTIMATED DRAINAGE AREA

Well No.	Sec. Location	Recoverable Res. MMCF	Avg. Rec. G.I.P. MCF/Ac-ft	Avg. Net Pay-ft Over Spacing Unit		Drainage Area Acres	
#1-Y	26	12.05	610	35'	48	564	
2	23	11.25	612	16'	26	1148	706
4	24	11.40	608	20'	30	937	625
6	13	3.95	615	15'	14	428	459
7	14	4.10	608	13'	19	519	355
Nan-Bet #1	19	3.40	680	7'	14	714	357
	TOTALS...	46.15	622	17.6'		4215.7	

AVERAGE DRAINAGE AREA PER WELL = 702 Acres.

500

Stamets

BEFORE EXAMINER ~~NUTTER~~
OIL CONSERVATION COMMISSION
Amoco EXHIBIT NO. 9
CASE NO. 5226

Net effective Pay 7% cutoff

CATCLAW DRAW FIELD (MORROW)

T21S - Rge. 25&26E

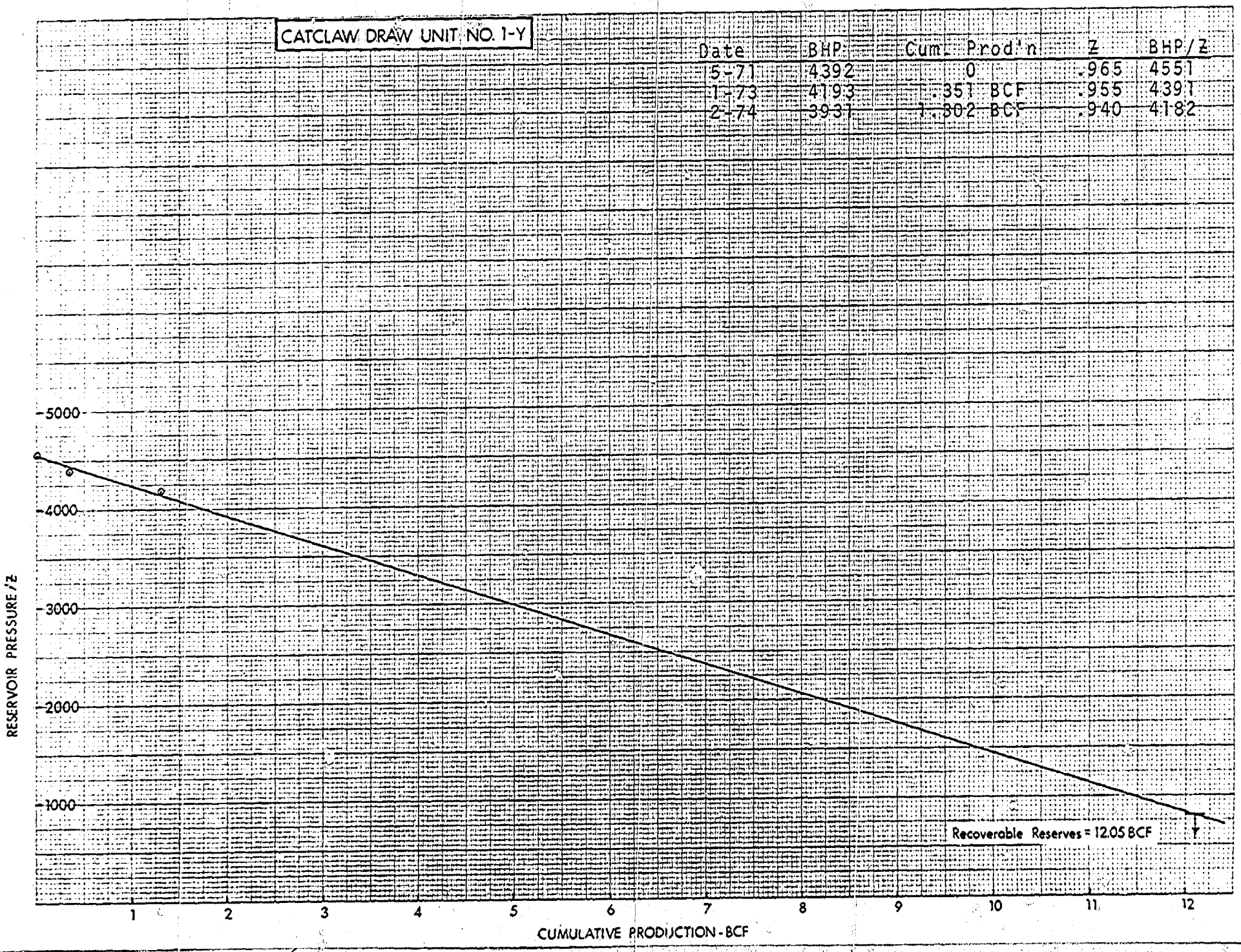
EDDY COUNTY, NEW MEXICO

SUMMARY OF ROCK PROPERTIES BY ZONE

Well No.	Perforated Zone "A" Ø %	"A" Nep ft	"A" Sw %	"B" Ø %	"B" Nep ft	"B" Sw %	"C" Ø %	"C" Nep ft	"C" Sw %	"D" Ø %	"D" Nep ft	"D" Sw %
#1-Y	10	7	40	14	10	34	13	8	35	10	23	40
#2							12	14	34.7	11.3	12	35.5
#4							11	10	32	12	20	27
#6							73	9	36	8	5	39
#7							8.5	6	30	9	13	40
Nan-Bet #1				12	14	45						
Average Properties	10	7	40	12.8	12	40	10.6	9.5	33.8	10.4	14.5	35
Gas-In-Place MCF/Ac-ft	650			835			765			738		
Rec. Gas-In-Place MCF/Ac-ft (to Pa/Za = 800 psig)	529			680			623			601		

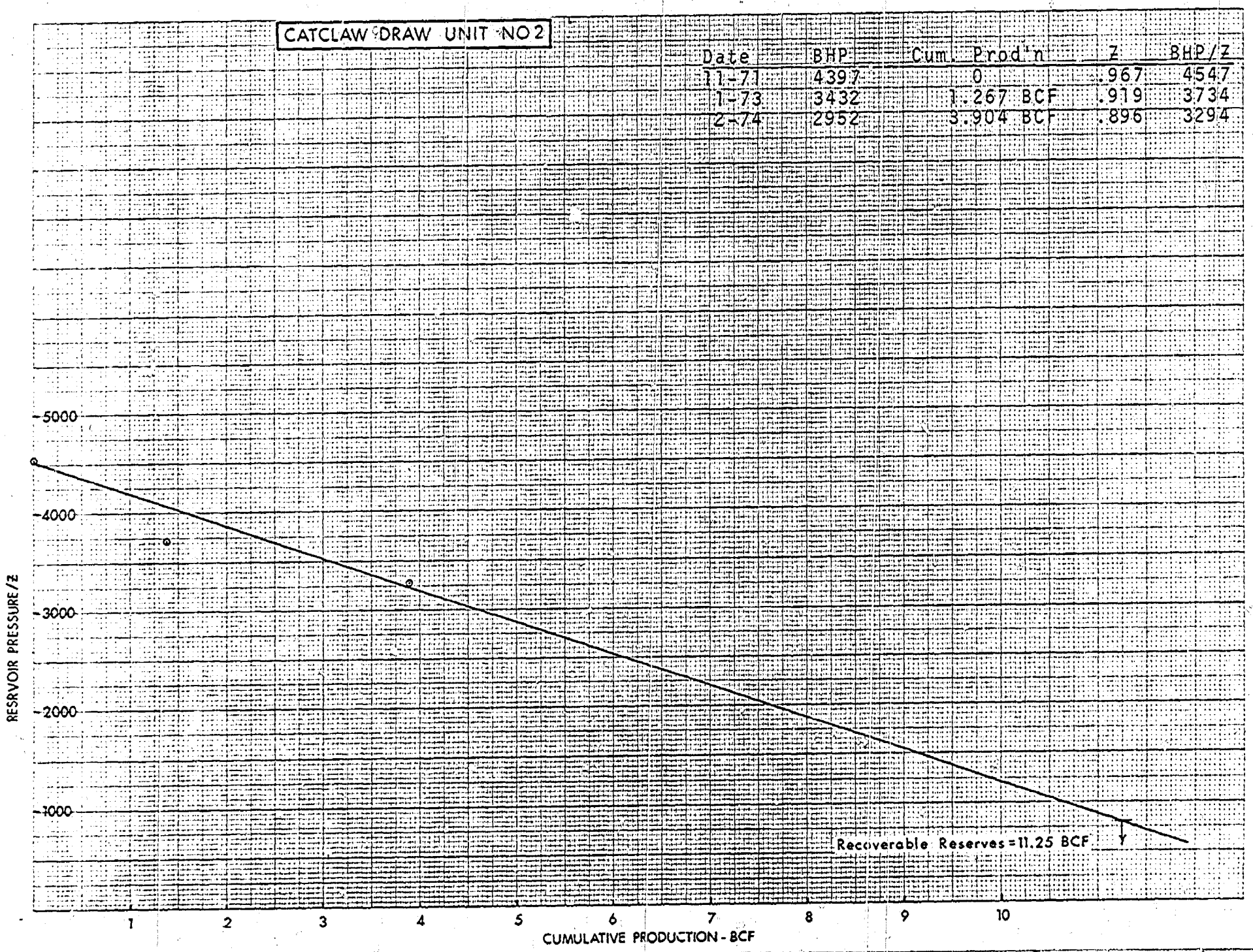
CATCLAW DRAW UNIT NO. 1-Y

Date	BHP	Cum. Prod'n	Z	BHP/Z
5-71	4392	0	.965	4551
1-73	4193	.351 BCF	.955	4391
2-74	3931	1.302 BCF	.940	4182



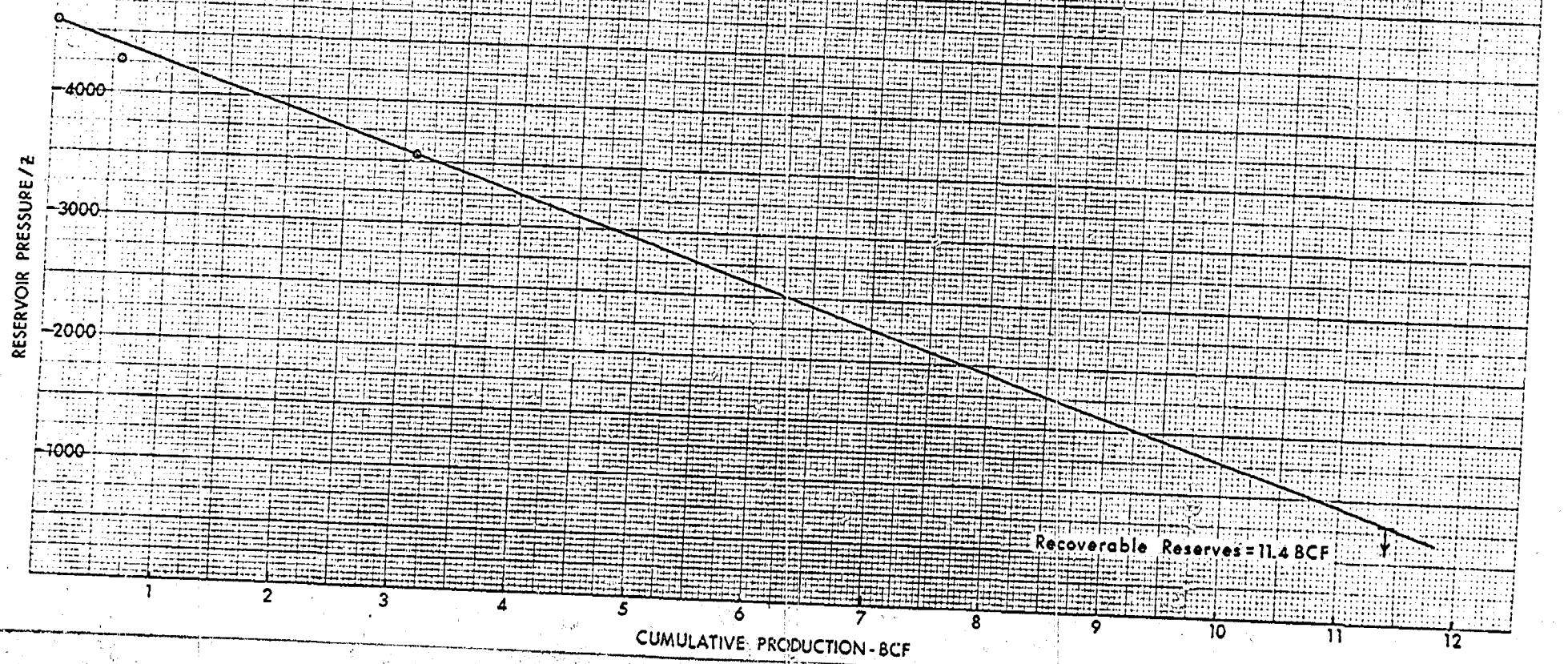
CATCLAW DRAW UNIT NO 2

Date	BHP	Cum. Prod'n	Z	BHP/Z
11-71	4397	0	.967	4547
1-73	3432	1.267 BCF	.919	3734
2-74	2952	3.904 BCF	.896	3294



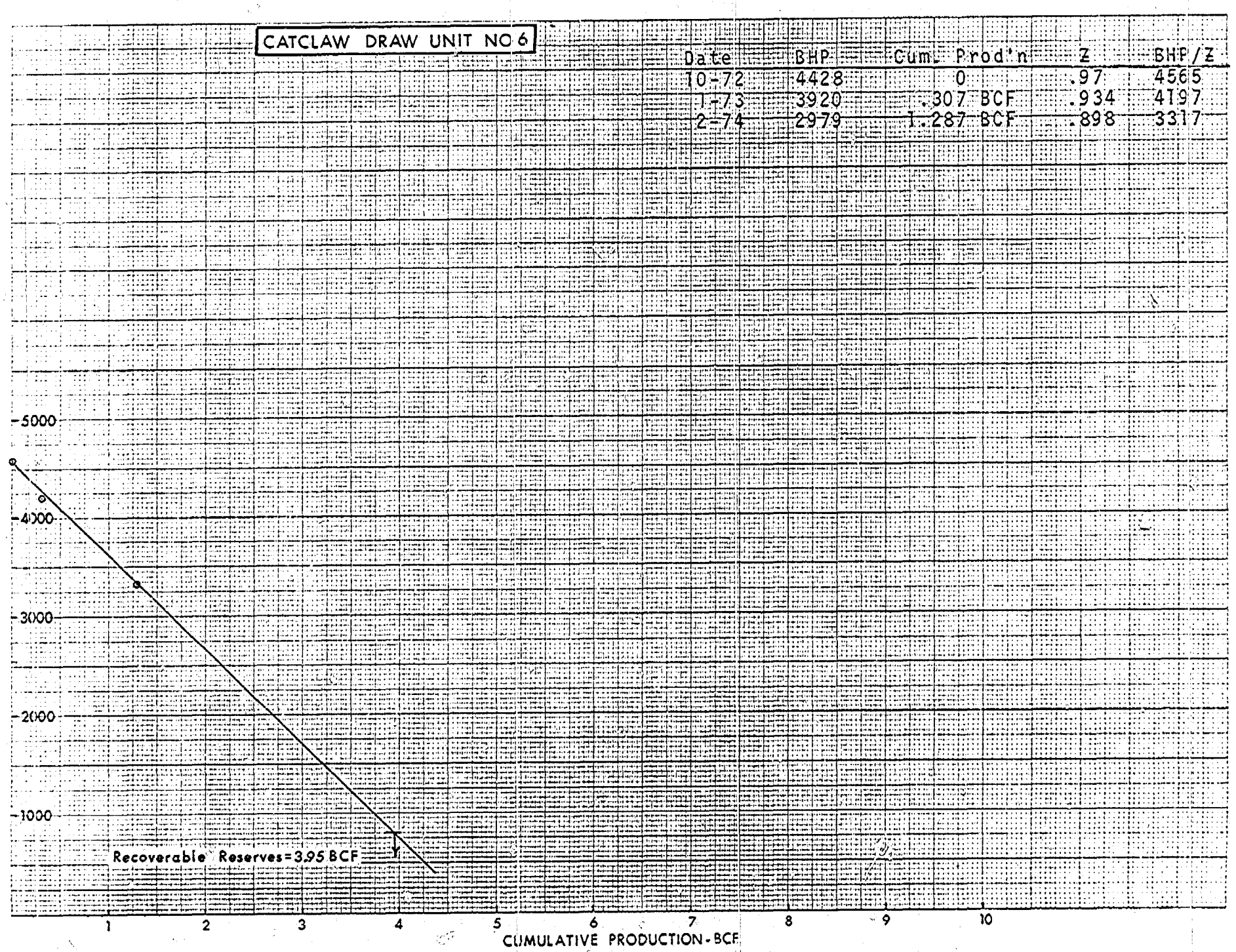
CATCLAW DRAW UNIT NO 4

Date	BHP	Cum Prod'n	Z	BHP/Z
8-72	4434	0	.97	4571
1-73	3978	.634 BCF	.934	4259
2-74	3238	3.115 BCF	.906	3574



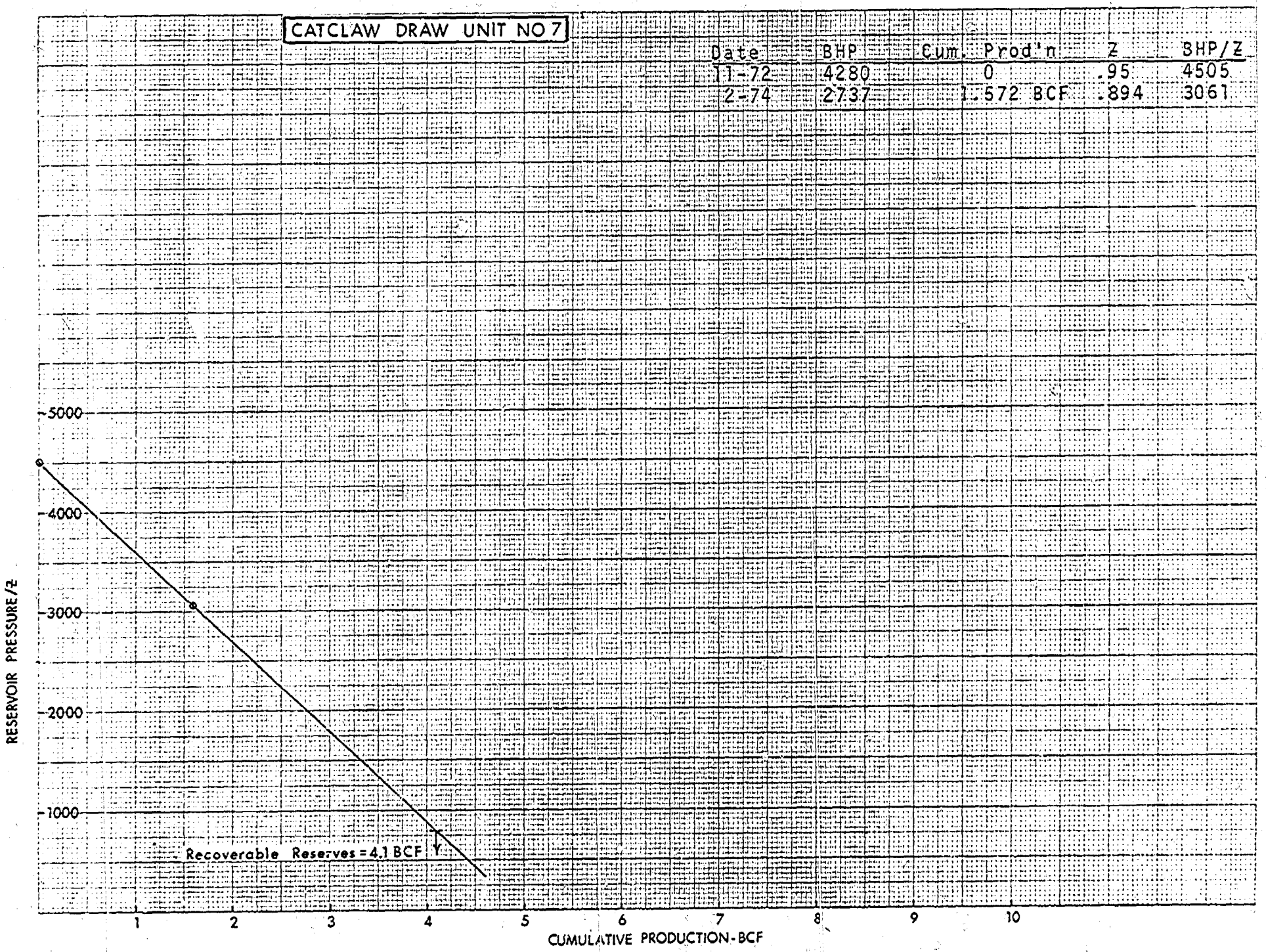
CATCLAW DRAW UNIT NO 6

Date	BHP	Cum. Prod'n	Z	BHP/Z
10-72	4428	0	.97	4565
1-73	3920	.307 BCF	.934	4197
2-74	2979	1.287 BCF	.898	3317



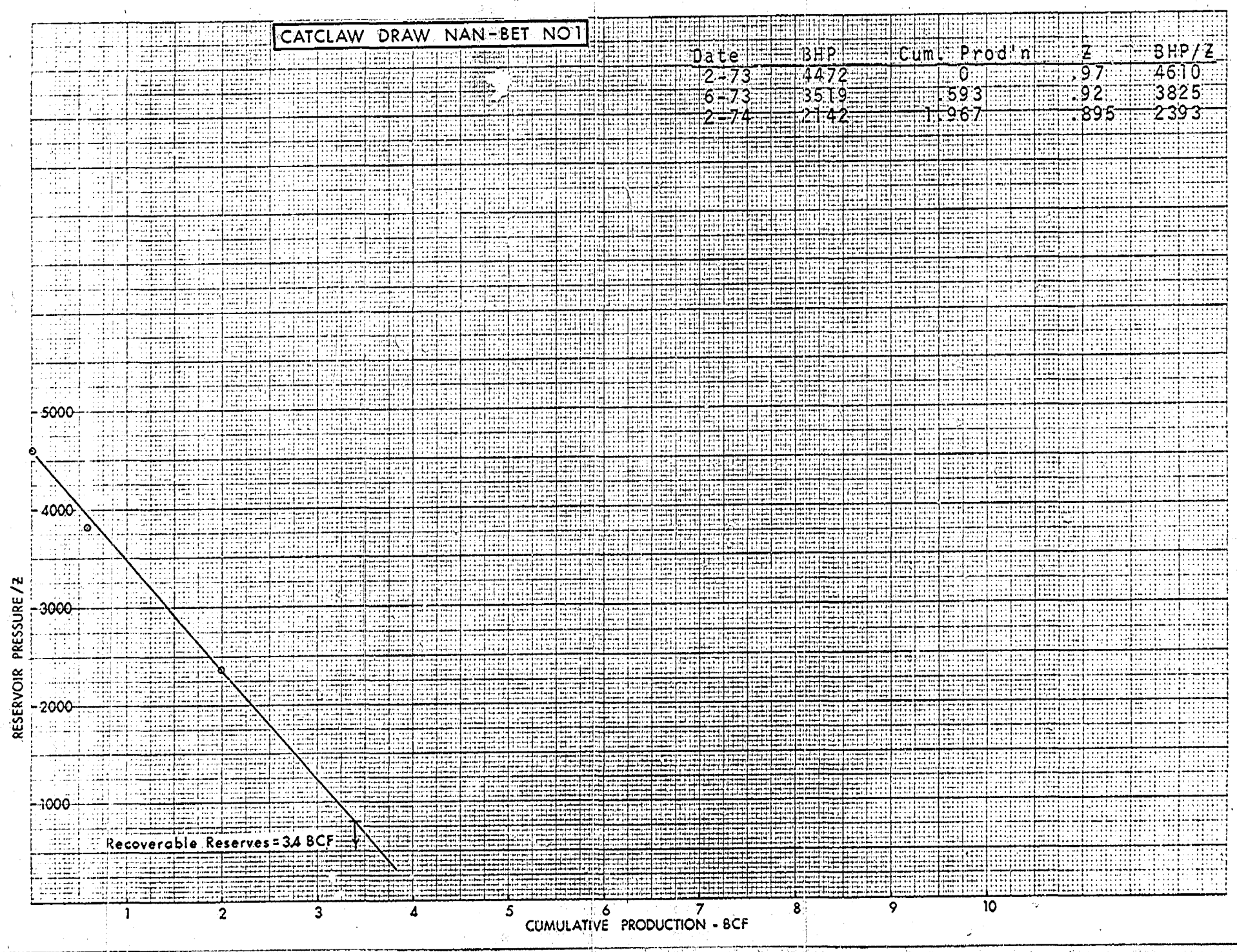
CATCLAW DRAW UNIT NO 7

Date	BHP	Cum. Prod'n	Z	BHP/Z
11-72	4280	0	.95	4505
2-74	2737	1.572 BCF	.894	3061



CATCLAW DRAW NAN-BET NO 1

Date	BHP	Cum. Prod'n	Z	BHP/Z
2-73	4472	0	.97	4610
6-73	3519	.593	.92	3825
2-74	2142	1.967	.895	2393



INEXCO OIL COMPANY

ROCK TANK FIELD (LOWER MORROW)

T23S - R24&25E

EDDY COUNTY, NEW MEXICO

Calculation of Drainage Area

Recoverable reserves - 44 BCF
(taken from BHP/Z vs. cumulative production curve)

Rec. Gas-In-Place (MCF/Acft.) = 1541 Sg Ø/Tp $(P_o/Z_o - P_a/Z_a)$

Using average parameters from Catclaw Draw

Sg = 65%	Po = 4400 psig
Ø = 11%	Z = 0.968
Tf = 185°F	Pa/Za = 800

Rec. Gas-In-Place = 1541 x 0.65 x 0.11/645 (4400/.968 - 800)

= 640 MCF/Ac-Ft

Average Lower Morrow Net pay = 23'

Reserves = MCF/Ac-Ft x h x A

∴ A = 44,000,000/23 x 640

A = 2989 Acres

Average Drainage area/well = 2989/4 = 747 Acres

Stamets

BEFORE EXAMINER ~~NUTTER~~
OIL CONSERVATION COMMISSION
Inexco EXHIBIT NO. 8
CASE NO. 5226

1100 MILAM BUILDING • SUITE 1900 • HOUSTON, TEXAS 77002 • (713) 237-3300

ROCK TANK FIELD (LOWER MORROW)
T 23S R24 & 25E
EDDY COUNTY NEW MEXICO

Date	BHP	Cum. Prod'n	Z	BHP/Z
9-69	3265	1.549 BCF	.908	3596
12-70	2934	5.803 BCF	.896	3274
12-71	2580	13.198 BCF	.890	2899
12-72	2018	22.953 BCF	.896	2252

Pressure Production Figures Taken From New Mexico Oil & Gas Engineering Committee Annual Reports