STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

27 February 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Pennzoil Company for an unorthodox gas well location, Lea County, New Mexico.

CASE 8498 & 8499

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

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MR. STOGNER: The hearing will come to order.

We will call now Case Number 8498, which is the application of Pennzoil Company for an unorthodox gas well location, Lea County, New Mexico.

We will now call for appearances.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant.

MR. BRUCE: Mr. Examiner, my name is Jim Bruce from the Hinkle Firm in Santa Fe, appearing on behalf of Exxon.

MR. KELLAHIN: Mr. Examiner, in order to expedite the hearing process, we would request that you, for purposes of testimony, also call Division Case 8499.

MR. STOGNER: Are there any objections?

At this time we will now call Case Number 8499, which is also the application of Pennzoil Company for an unorthodox gas well location in Lea County, New Mexico.

Mr. Bruce, do you also wish to file an appearance in this matter?

MR. BRUCE: Yes, I do.

MR. STOGNER: Are there any other appearances in either case?

Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, I have one witness to be sworn.

MR. BRUCE: Mr. Examiner, I have two witnesses to be sworn.

MR. STOGNER: Will all witnesses please stand at this time? Raise your right hand.

(Witnesses sworn.)

MR. KELLAHIN: Mr. Examiner, we have previously furnished Mr. Bruce a set of our exhibits and I'll now give you an exhibit set.

MR. STOGNER: Thank you, sir.

GREGORY L. HAIR,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Hair, will you please state your name and occupation?

A Gregory L. Hair, District Geologist, Pennzoil Company, Midland, Texas.

Q Mr. Hair, would you describe for the Examiner when and where you got your degree in geology?

A I got a Bachelor of Science degree in geology from Illinois State University in 1974; Master of Science in geology and geophysics, University of Texas, El Paso, 1976.

Q Subsequent to obtaining your various degrees, Mr. Hair, would you summarize for us what has been your experience in the field of petroleum geology?

A I have worked with Pennzoil Company for approximately 8-1/2 years, both in their Marine Division in Houston and for the past 5-1/2 years, almost 6 years, in their Midland District, working primarily in southeast New Mexico.

Q With regards to the two applications for unorthodox well locations in Lea County, New Mexico, would you describe for us, Mr. Hair, what is your responsibility to Pennzoil Company?

A Yes. I prepared this particular drilling prospect, did the geology on the prospect, and coordinated the geophysical work on the prospect, which will be shown in a short while.

MR. KELLAHIN: If the Examiner please, we tender Mr. Hair as an expert geologist.

MR. STOGNER: If there are no objections, he is so qualified.

Q So that we might orient the Examiner to

the specifics of the ownership arrangement in the area and to what Pennzoil seeks to accomplish, Mr. Hair, I show you what I have marked for introduction as Pennzoil's Exhibit One-A, which is simply a landman's plat.

For Case 8498, it's an application by Pennzoil for an unorthodox location in the east half of 35, would you direct our attention to that plat in the east half of 35 and identify for us what the footage location will be for that well?

A Yes, we propose to drill 990 feet from the south line, 660 feet from the east line of Section 35.

Q With regards to that location, what is to be the spacing and proration unit assigned to that well?

A We propose a 320-acre proration unit, that unit being the east half of Section 35.

Q Within the east half of Section 35, Mr. Hair, would you describe what working interest owners are involved in this well?

A Under the east half there are numerous interests down to, I believe, 9000 feet, which we are not -- we have no interest in that.

Below 9000 feet, which is all we are interested in in this case, the acreage is 100 percent Pennzoil.

Q Let's look a the proposed location now for Case 8499, which is an application for an unorthodox gas well location in the west half of 36.

Within that spacing and proration unit, Mr. Hair, would you identify for us what the footage location will be for the well?

A Yes. 990 feet from the south line and 660 feet from the west line of Section 36.

Q Within that spacing and proration unit for Pennsylvanian age formation gas, would you describe for us what are the principal working interest owners?

A Yes, the proration unit would be the west half of 36. Pennzoil has a 75 percent interest under the west half of 36 and I believe Atlantic Richfield Company has a 25 percent working interest.

Q As best you know, Mr. Hair, are -- is all the working interest ownership committed to this well?

A We have not had an okay from ARCO. No, we have not.

Q The interests in the west half of 36 do not include any interest owned by Exxon?

A No.

Q Let me take you to the Section 1 to the south of Section 36, now, and have you describe for us whether or not within Section 1 there are any existing spacing or proration units for wells in the deep gas formation?

A Yes. The east half of Section 1 is allocated to a well that I believe is 990 feet from the south and 990 feet from the east of Section 1. It's the Shell 1-VI State.

Q Would you give the Examiner some of the historical background, as you know it, Mr. Hair, with regards to Pennzoil's efforts to locate, drill, and form a spacing and proration unit for the testing of either the Morrow or the Atoka sands in the area?

A Yes. Approximately a year and a half ago we approached Exxon Company and proposed a well in the southwest quarter of Section 36. We asked them to join us by forming a south half of Section 36 proration unit, using their acreage which lies in the southeast quarter.

We were told that Exxon was not interested in drilling that well; however, they would be interested in drilling in Section 1 to the south, forming a west half proration unit.

We put forth the effort to put together that unit. It was pooled, I believe, last October, and under the terms of the pooling, Shell Oil Company, who was another working interest partner in there, decided that they did not want to participate and elected to go nonconsent on that well.

Q We have discussed a pooling. What type of pooling order are you talking about?

A Compulsory pooling.

Q Before the Oil Conservation Division?

A Yes.

Q All right.

A At the point that Shell made their elec-

tion to go nonconsent, it was no longer economically feasible for Pennzoil to drill that well, in our opinion. We did not feel that we could make a go of the well with picking up Shell's interest under the penalty.

What we did at that point was re-evaluate our prospect, went back in and said, "We would like to back and drill a well in Section 36, which we had wanted to drill in the first place," meaning we wanted to go back to our preferred location, which is the nonstandard location we are proposing.

Since Exxon had already turned us down in Section 1, we decided we will stand up the proration unit in the west half and contact ARCO, and we have contacted ARCO but we have not heard back from them.

Q With regards to the forced pooling order entered by the Commission that you referred to in October of '84, I show you a copy of Division Order R-7719 and ask you if that is the order to which you refer?

A Yes, it is.

MR. KELLAHIN: Mr. Examiner, I show you a copy of Division Order R-7719.

MR. STOGNER: Thank you, sir. We'll take administrative notice of this order.

Q Mr. Hair, lead me through that process again, now. Subsequent to the entry of the forced pooling order with regards to the west half of Section 1, Shell went

nonconsent?

A Yes.

Q And then what happened?

A We made a decision at that time not to drill the well, based on economics.

Q What was your understanding of Exxon's position with regards to its interests in the west half of 1 for that well?

A I believe that we had a verbal commitment but we never did receive a signed AFE or operating agreement back from Exxon.

Q Can you identify for us what was the proposed location for the well to be drilled pursuant to that pooling order?

A I believe it was 1320 feet from the north line and 1980 feet from the west line.

Q Once Pennzoil determined that the carried working interest share with Shell going nonconsent was too large to justify Pennzoil drilling that well, what then did Pennzoil do?

A Re-evaluated our prospect; went back in and said, we now feel we should drill our best location, which we feel is in the southwest quarter of Secion 36 at 990 feet from the south line and 660 feet from the west line.

Q Mr. Hair, let me direct your attention to Exhibit Number One, which I believe is identified as a

structure map prepared by you?

A Prepared with my assistance.

Q All right.

A It was prepared by someone else.

Q Would you identify Exhibit Number One and tell us what it is?

A Yes. It is a seismic structure map done on the top of the Pennsylvanian Morrow. It covers four sections, Sections 1 and 2 in 17 South, 34 East, and Sections 35 and 36 in 16 south, 34 East.

Q When we look at the are defined in part by the red lines, we are looking at quarter section lines, are we not?

A No, those are actually seismic lines. I --

Q I'm sorry, the red lines running across the map.

A That is by coincidence. That does not define quarter sections.

Q All right, those are seismic lines.

A Yes, they are seismic lines.

Q Was this exhibit prepared under your supervision and direction?

A Yes.

Q Have you independently examined the data upon which this exhibit was prepared and satisfied yourself that it is true and accurate based upon that data?

A Yes.

Q Is this an exhibit that is similar to the exhibit that you used and testified from at the forced pooling hearing back in October?

A Yes, it is.

Q Would you describe generally what information is contained on the exhibit and what conclusions you draw from that information?

A All right. First of all, just to go through the various colors, the red lines are seismic lines by which this map was made.

Yellow on here is Pennzoil acreage. Solid yellow is 100 percent Pennzoil acreage and the outlined yellow is something less than 100 percent.

The purple on here are faults which are mapped according to the seismic and we have our proposed location marked on here.

What this is intended to show is what the surface looked like, what the topography looked like, and looks like now, what the Atoka sands, which is our primary target, were deposited on, and basically it shows that you go down dip to the north. The south end of the map is generally up dip and the north end of the map is generally down dip.

Q All right, sir. With regards to locating the optimum location within each of the proposed spacing and proration units, what, if any, significance does structure

have in determining that location?

A Yes. As you climb structurally, if you look at the south half of this map, we feel that the sands that we are looking for are not present there because the strain was too high structurally. It was an area that was possibly exposed; there was no deposition went on there.

We feel that the faults that are shown here, while they do not cut the sands we're looking for, they do not displace them, they do have some bearing upon their deposition and we feel that proximity to those faults helps locate the sand package that we are looking for.

Q Is it fair to conclude from your testimony, Mr. Hair, that the structural -- that structure controls the deposition that we are about to see as mapped in the Atoka sand?

A Yes, it does.

Q Let's go, then, to the next exhibit, which is Exhibit Number Two, and have you identify the sand deposition in the Morrow.

A Okay. The Morrow is the secondary target. It lies directly below the Atoka in this area, and this is a Morrow porosity Isopach. It is part of a larger map and I have taken out the area of interest only, and what it shows, basically, is that there are Morrow sands over practically the whole area, and we feel that, you know, we have a good chance of hitting the Morrow sands at either location.

Q We've talked about the primary target being the Atoka sand.

Would you now turn to Exhibit Number Three and show us, in your opinion, what you believe to be the deposition and extent of the Atoka sand?

A Yes. The Atoka sands in this area lie directly above the Morrow and we're primarily talking about one sand, which is mapped on Exhibit Number Three, and we feel that the faults shown in Exhibit Number One help control the deposition of this sand. It lies pretty much adjacent to the northern fault on that map.

We feel it cuts across the area, basically, from southeast to northwest. Again, because we're trying to locate what we consider a channel sand, what we're trying to do is get as close to the axis of that sand body as we can because as you move away from the axis, the risk is much, much higher.

Q If we isolated the Atoka sand map, the Isopach, without consider of the structure for a moment, would you compare the advantage or disadvantage between the standard and the unorthodox location in each well?

A Yes. In Section 36 the unorthodox location, I have approximately -- I have approximated that there may be 50 feet of sand at the unorthodox location.

At the standard location that drops down to between 25 and 30 feet of sand, cutting that thickness in half, which is a considerable risk.

In Section 35 it really at this point, and the way we have this map drawn, there's little difference.

Q When we talk about the closest standard location we are referring to what footage location?

A I refer to 1980 feet from the south line and 660 feet from the east in 35, and 660 feet from the west in 36.

Q Now when we take into consideration the Atoka as you've mapped it on the Isopach and integrate it with the information you have derived from an analysis of the structure, what conclusions do you reach in terms of the standard versus the unorthodox location for each well?

A Yes. We, when we look at the total picture, we -- what we feel, especially on seismic data, is that this channel hugs very close to this fault that is shown on Exhibit Number One, the northern fault closest to our location.

It's a fairly thin channel. We can document that thickness by other production in the area. One standard location away is a dry hole with no sand at all, and that is well documented in this area.

And we feel that because that sand was deposited very close to that fault, that you have to be very close to it, also, in order to minimize your risk in finding that sand.

Q Could you approximate for us the differ-

ence in elevation in the structure between the Pennzoil locations as we would find them in those two sections and what might be encountered should Exxon drill a well in the west half of Section 1?

A I estimate that we would be somewhere in -- around 250 feet to 350 feet down dip from Section 1.

Q What is the significance to you as an expert geologist, Mr. Hair, of that vertical difference in structure between the two properties?

A It mainly shows that if sand is present in Section 1 a well drilled in Section 1 can drain Section 35, Section 36, whereas, the down dip wells would not be able to drain a well in Section 1.

Q Do you have an understanding of what Exxon's proposed plan of operation is for a well in the west half of Section 1?

A I have been in telephone contact with Exxon. They have told me that they are interested in drilling a well in Section 1 at this time, and they now tell me they would like to operate such well and that they are willing to take all of Shell's nonconsent interest, should that come about again, as we feel it will, since it has already.

Q In the event Exxon drills a well in the west half of section 1, will the Pennzoil properties in Section 35 and 36 be subject to drainage in the absence of the approval of your two wells at the proposed unorthodox locations?

A Yes, a certain amount of that acreage will, yes.

Q Mr. Hair, does -- in your opinion does Pennzoil gain any advantage over Exxon as a result of having wells located at the proposed unorthodox location?

A I do not think so.

Q Upon what reasons do you base that opinion?

A Primarily on Exxon's structural advantage to Pennzoil when you move into Section 1; moving that far up dip there is not advantage we could gain in the small amount that we move south.

Q Are you familiar with the methods and how the Division calculates penalty factors for unorthodox well locations?

A Yes, I am.

Q In your opinion is the imposition of the Division's unorthodox penalty provisions appropriate in either one of these cases?

A I don't believe it is.

Q Were Exhibits One, Two and Three prepared by you or compiled under your direction and supervision?

A Yes, they were.

Q All right, sir.

MR. KELLAHIN: We move the introduction of Exhibits One-A, One, Two, and Three.

MR. STOGNER: Is there any ob-

jection?

Exhibits One-A, One, Two, Three will be admitted into evidence.

MR. KELLAHIN: That concludes my examination of Mr. Hair.

MR. STOGNER: Mr. Bruce, your witness.

CROSS EXAMINATION

BY MR. BRUCE:

Q Mr. Hair, you said the Atoka is the primary zone, I believe, is correct --

A Yes, that's correct.

Q -- and the Morrow is the secondary.

A Yes, it is.

Q Just looking strictly now at Exhibit Number Two, if you move to the nearest standard location, that would -- just looking at the Isopach, that would be favorable, is that correct?

A On the Morrow, yes.

Q On the Morrow.

And looking at Exhibit Three, which is the Atoka, moving -- with respect to Section 35, moving to the nearest standard location would really have little or no effect?

A As we have it mapped, yes, that is correct.

Q And in Section 36 there might be some.

A We estimate approximately half the amount of sand.

Q Is the 50-foot line, that's just an estimate, right?

A Absolutely.

Q Was strictly seismic used to construct these two maps or was it well control?

A Okay. These maps are part of a larger regional map and the regional map was done strictly off subsurface control.

Our estimates as to sand thickness and sand character were made from seismic.

Q Okay. Was the same data which you used to construct Exhibit Numbers Two and Three also used to construct your Exhibits for Case 8394, which was heard last fall?

A Yes.

MR. BRUCE: I have no further questions of the witness.

MR. STOGNER: Thank you, Mr. Bruce.

I have no questions of this witness at this time.

MR. KELLAHIN: I have a couple of questions based upon what Mr. Bruce has asked.

MR. STOGNER: Mr. Kellahin.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Subsequent to the last hearing in Case 8394, Mr. Hair, are you aware of any geologic information, well control data, or other factors that would cause you to change the -- either the data base or the conclusions that you've reached today?

A No.

Q Have there, in fact, been wells drilled upon which you could make a re-evaluation of this prospect?

A No.

Q As an expert geologist, Mr. Hair, would you recommend to your management that you disregard structure in this situation and drill a well based only upon seismic -- based only upon Isopach information?

A Yes, that is what it's been done on. We have to look at seismic, though, because there is no well control in this immediate area.

Original data was Isopach and it is enhanced by the seismic.

Q I didn't make myself clear. My question was whether or not you would recommend to your management that you can and should disregard structure and rely upon solely the Isopach of the Atoka upon which to locate and risk your money for drilling this well.

A No.

Q Why can you not do that?

A Because structure in this case controls the deposition of the sand. It controls the drainage of the reservoir, and I think as much structure as there is here, it always comes into play.

MR. KELLAHIN: Nothing further.

MR. STOGNER: Are there any further questions of Mr. Hair?

If not, he may be excused at this time.

Mr. Kellahin, you only had one witness, is that right?

MR. KELLAHIN: Yes, sir, that completes our presentation, Mr. Examiner.

MR. STOGNER: Mr. Bruce?

MR. BRUCE: Okay.

MARK R. RIGGLE,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. BRUCE:

Q Would you please state your name, city of residence, occupation, and employer?

A My name is Mark Riggle. I live at 309 Southwest 8th Street in Andrews, Texas. I am a production

geologist for Exxon Company, U.S.A., located in Andrews, Texas.

Q And have you previously testified before the New Mexico OCD and had your credentials as a geologist made a matter of record?

A Yes, sir.

Q And are you familiar with Cases 8498 and 8499 and the geological matters involved in those cases?

A Yes.

MR. BRUCE: At this time I tender Mr. Riggle as an expert witness.

MR. STOGNER: If there is no objection, he is so qualified.

Q Mr. Riggle, would you please first refer to Exxon's Exhibit Number One and briefly describe that for Mr. Stogner?

A Yes, sir. Exhibit Number One is a land plat showing the ownership of leases in the area in question; also the two red dots on the map show the proposed unorthodox location Pennzoil seeks for a well in Section 35 and a well in Section 36.

The maps have been color coded. Pennzoil's acreage. or acreage that they have their farmouts or controlling interest in are colored green.

Exxon acreage is colored yellow and Shell acreage is colored blue.

The, as I stated, for the two unorthodox

locations are -- are placed on this map at 990 feet from the south line and 660 from the west line of Section 36, and 990 from the south and 660 from the east for the Section 35 well.

As was stated, no well has been drilled presently in the west half of Section 1 and also as was stated, Exxon is in negotiations and talking to Pennzoil and Shell trying to work something out that would be acceptable to all parties to be able to drill this well.

Q What is the basic reason that Exxon opposes these two applications, Mr. Riggle?

A We believe the two proposed unorthodox locations would drain Exxon acreage if an Atoka sand completion was attempted for the sand in the Atoka that was testified to in -- by the Pennzoil geologist.

Q And the Atoka sand is the primary formation of interest in this area, is that correct?

A Yes, sir. That would be the pay sand, or main pay, of a well in the west half of Section 1 that we're negotiating now.

Q Would you please now move on to Exhibit Number Two and describe that?

A Exhibit Number Two is an Atoka sand pay gross Isopach, showing thickness of the Atoka sand in this area. It was made from well control data and the two proposed unorthodox locations are marked on this map in red, and the two, two of the several orthodox, possible orthodox

locations are marked in green.

In Section 35, for instance, the Pennzoil unorthodox proposed location would have, as we have it mapped, approximately 30+ feet of sand and conversely, the orthodox location, being 900 and -- 1980, excuse, me, 1980 from the south line, 660 from the east line, would also have approximately 30+ feet of sand for the Section 35 well.

The Section 36 well at Pennzoil's proposed unorthodox location would have approximately 25 feet of sand thickness and at an orthodox location, 1980 from the south and 660 from the west, would have approximately 21 feet of sand thickness.

Q Would you please now move on to Exhibit Number Three and briefly describe that?

A Exhibit Number Three is the Atoka pay sand Isopach map of porosity greater than 6 percent that Pennzoil used in a previous case, being Case Number 8394.

Again, on this map I have the orange dots being the unorthodox locations proposed and the green dots being an orthodox, or regular location.

Again for the Section 35 well we have approximately 10 foot of sand at the orthodox -- or at the unorthodox, excuse me, location in Section 35, and at the orthodox location, 1980 from the south, 660 from the east, we have approximately 15 feet of sand.

For the Section 36 well at an unorthodox location, being the red dot, we have approximately 38 feet

of sand and an orthodox location, being 1980 from the south and 660 from the west, would be approximately 40+, 42 feet of sand, approximately.

Q Thank you. Would you please now refer to Exxon Exhibit Number Four and describe that?

A Exxon Exhibit Four is a structure map, structure contour map, made on the top of the Morrow formation. It's 100-foot contour interval and it generally shows the Morrow dipping to the north or the top of the map; in other words, the north end of the map is generally lower than a southern location.

The two unorthodox locations are again spotted on this -- on this map.

Q And would you please refer to Exhibit Number Five?

A Exhibit Number Five is also a Pennzoil map used in a previous case, being Case Number 8394. It is also a structure map on top of the Pennsylvanian Morrow. It is, however, contour interval in time and as was testified, I believe this is a seismic map, whereas Exxon Exhibit Number Four is a structure map made with well control data, or tops of formations from well logs.

Both maps, Exhibit Four and Exhibit Five, are in general agreement. Exhibit Five shows a little different placement of the fault and a biforcation in the fault, which may be due to the different source of data, there being seismic versus well control.

Q But would you agree, Mr. Riggle, that geology of both companies essentially agrees?

A Yes.

Q What is the drive mechanism in the Atoka formation?

A I don't have sufficient data to really evaluate the drive mechanism for a gas reservoir in the Atoka at present.

Q If it was a gas drive, would an up dip well drain a down dip location?

A If it's a gas drive? I don't believe it would.

Q Therefore, in your opinion, the drilling of the Atoka well at a standard location would yield an equal or better result than drilling at a nonstandard location.

A According to the way we have mapped the sand thickness, it would.

Q And in your opinion would the Exxon acreage in Section 1 be drained by both wells?

A Yes.

Q Is it your opinion, then, that these two applications should be denied?

A Yes.

Q If the applications are granted, should a penalty be assessed against Pennzoil for both wells, or on both wells?

A Yes, sir.

Q A couple more questions. Now, in connection with these unorthodox locations, would the drill bit, while the well was being drilled, have a tendency to wander in any certain direction while the well was being drilled?

A From my experience and general knowledge, deviations of a drill well are always possible and from, again from my experience and general knowledge, usually those deviations occur in an up dip direction; in other words, the drill bit walks up dip, and as shown on these structure maps previously, up dip direction would be towards Exxon, the Exxon lease, or lease lines, and would be to the south of -- in a southerly direction, and therefore the bottom hole location could be possibly closer to the line than the surface location.

Q In other words, clsoer to the Exxon acreage.

A Yes.

Q In your opinion would the granting of these applications be in the interest of conservation, the protection of correlative rights?

A No, sir.

Q Were Exhibits One, Two, and Four prepared by you or under your direction?

A Yes, sir.

MR. BRUCE: At this time, Mr. Examiner, I'd move the exhibits of -- move the admission of

Exhibits One through Five, and I would like to state that Exhibits Three and Five were presented in Case 8394 and accepted as evidence, so I would ask you take administrative notice of those exhibits.

MR. KELLAHIN: No objection.

MR. STOGNER: How about Exhibit Number Six?

MR. BRUCE: My next witness will testify to that.

MR. STOGNER: Exhibits One through Five will be admitted into evidence.

MR. BRUCE: I have no further questions of this witness at this time, Mr. Examiner.

MR. STOGNER: Mr. Kellahin, your witness.

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Riggle, you identified yourself as a production geologist for Exxon?

A That's correct.

Q Would you describe for me what that means?

A Basically, I do proposed well -- drill well proposals on gas and oil wells in and around existing

production, I'll say within a mile and a half to two miles of existing production normally, would be called a production well, and I'm responsibile for mapping thickness maps, Isopach maps, structure maps, and production, monitoring production.

Q Does Exxon draw a distinction between a production geologist and any other kind of geologist in your organization?

A Yes.

Q Do you have an exploration geologist?

A Yes, sir, we do. We have -- employ exploration geologists and they work areas where there is less well control and would -- would use more, probably, geophysical techniques than we do in production.

Q Where is the closest established Atoka production in this area?

A I believe it's the Shell well in Section 1, Shell "BI" -- or 1-BI State, located, I believe it's in southeast quarter of Section 1.

Q Are there any other Atoka producing wells that are shown on any of your exhibits?

A I believe there are a couple in Section 7, being the Mobil 1-UU and Marathon State No. 1, I believe are also completed in the Atoka sand in question.

I believe that's all that's shown on this -- this map here.

Q You indicated you'd previously testified

before the Division, Mr. Riggle. What -- when and where did you obtain your degree in geology?

A I obtained my Bachelor of Science in geology from Wright State University, located in Dayton, Ohio, in 1976, and subsequently returned to school at Wright State University and received a Master of Science in geology in 1980.

Q How long have you been employed as a production geologist for Exxon?

A Since September of 1980, approximately 4-1/2 years.

Q You said that Exxon does in fact have plans and is pursuing discussions about drilling a well for Atoka in the west half of Section 1.

A That's right.

Q How long have you been involved as a geologist for your company in this project?

A In the west half of Section 1?

Q Yes, sir.

A Or in this area?

Q In the west half of Section 1?

A Several months now. It -- the original proposal, because of the acreage situation, was -- was sent to a group at Exxon, our Joint Interest Group, that handles a lot of work that will not Exxon-operated, will be operated by others, wherein Exxon has a percent but will not operate a well, will not drill it or operate it, but will be a part-

ner, and that's not --

Q Do you participate in that group?

A No, sir.

Q Were you the geologist involved in evaluating Shell's -- Exxon's participation in the well in the west half of 1 that was the subject of Pennzoil's forced pooling case back in October?

A Yes, sir.

Q That would -- you were involved in that?

A Yes, sir.

Q To what extent, sir, were you involved?

A I had mapped the Atoka sand and was interested in -- thought it was good prospect, and we were approached and, as Mr. Hair stated, we were in verbal agreement to drill a well there, and I believe he is right about the AFE was not signed or returned, but to the best of my knowledge we did verbally agree with a well in the west half of Section 1.

Q Did you have a proposed location in the west half of Section 1 for a well to be drilled in that proration unit?

A Our, according to our maps, or my maps, a standard location, that being 1980 from the north and 1980 from the west, with the west half, again, being the proration unit, would be an acceptable location to Exxon; however, in conversations between Exxon and Pennzoil, we have tentatively agreed to review the additional information that

Pennzoil has that says the unorthodox location would be preferable; in other words, 1320 feet from the north and 1980 from the west, which I believe was the original proposal for the well in the west half.

Q If we look at your Exhibit Number Two, which is the gross Isopach on the Atoka, and if you were to prepare a net pay Isopach map from that gross Isopach, would it be materially different than the Isopach shown as Exxon's Exhibit Three?

A It could be slightly different. It would probably be a little more pessimistic, and that being what I have mapped on Exhibit Two is the total thickness of a sand that is there, if there is a sand there.

On Exhibit Number Three, the Atoka pay sand with porosity greater than 6 percent, this map excludes sand that has porosity less than 6 percent, as noted on the map, and therefore high grades it a little bit, that being the difference.

Q What, in preparing a net pay Isopach map as an expert, would you use a porosity cutoff of 6 percent? Or in that range?

A 6 percent, or around there, would be reasonable, yes.

Q In looking at Exxon Exhibit Three, then, do you have any material difference in how you would map the net pay Isopach for the Atoka?

A You mean would I map it differently --

Q Yes.

A -- than it is now mapped here?

The basic mapping would be similar; the interpretation of the subtleties of exactly where the contours are placed could be different. The only control point for my mapping is the -- or the closest control point, not the only control point, the closest control point is the Shell well in the southeast of Section 1.

Q If we drill a well in the west half of Section 1 using the net pay Isopach in the Atoka as a guide, where would your standard location 1980 from the north and 1980 from the west place you on that Isopach?

A You've talking about Exhibit Three, now?

Q Yes, sir.

A That would place the well at approximately a position where it would penetrate about five foot of sand according to the Pennzoil Atoka pay map.

Q And if you move to a location that is 1320 from the north line and 1980 from the west line, which is the unorthodox location that Pennzoil obtained approval from the Division last year, where would that place you on the Isopach?

A I believe it's the location of 1320 from the north and 1980 from the west is marked on the map and it looks like it would be approximately 20 foot contour, 25 feet of sand penetration greater than 6 percent porosity.

Q Okay. Are not the thicknesses comparable

on this map?

A Excuse me, yes. I might have made a mistake when I said 25 feet on that. They could be quite similar, although the location in Section 1 at 1320 from the north looked like it may have 2 or 3 feet less sand than the unorthodox requested in Section 36.

I'm sorry.

Q When we look at the requested location in the east half of 35, is not the possible unorthodox location for Exxon in the west half of 1 a location on the Isopach that gives it greater Atoka thickness than Pennzoil can expect as mapped?

A And the 35, Section 35 well?

Q 35 comparison.

A Yes, sir, according to the map.

Q When we look at the structure map that you have prepared using the well control data, which is your Exhibit Number Four, if we look at the west half of 1 at an unorthodox location 1320 from the north and 1980 from the west, where will that place you, approximately, on that structure?

A Approximately at a structure of a -8050 feet.

Q And if we look at Exxon -- Pennzoil's location in the west half of 36, that approximate location is -8250.

A Yes, sir.

Q All right. What would be the vertical displacement, then, in structure between the Pennzoil location in 36 and an unorthodox location for Exxon as we've discussed in the west half of 1?

A Approximately 200 feet. The 36 -- Section 36 well would be approximately 200 feet low to the unorthodox location in Section 31.

Q Based upon the exhibits and presentations that you've made here, Mr. Riggle, can we conclude that Exxon can protect itself from drainage by placing itself at an unorthodox well location 1320 from the north line, as we've discussed?

A I'm not sure I can make that distinction because I don't have, first of all, any reservoir data as to porosity, permeability, or water saturation, gas/water contact, et cetera, to say for sure whether that's true or not.

Q Does Exxon propose to wait until Pennzoil drills either one or both of the wells in 35 or 36 before it commences a well in Section 1?

A I believe in talking to my supervisor that he is in favor of drilling the west half of 31 before the other two locations, and using them, using the additional information gained by the west half, by drilling the well in the west half of 1 to aid in determining whether unorthodox locations are called for in Sections 35 and 36.

Q Would it not give Exxon an advantage to allow Pennzoil to undertake the risk of both of its unortho-

dox locations, derive the reservoir data and information that results from that operation, and then locate its well in the west half of Section 1 at a point that minimizes or balances any possible drainage?

A I'm not sure how to answer that question. I don't know for sure.

Q You said that you thought the Pennzoil locations ought to be penalized. Are you familiar with the penalty formulas used by the Oil Conservation Division in assessing a penalty against an unorthodox location?

A Well, I've read them but Mr. William Duncan is more familiar and will testify to a penalty.

Q All right, sir.

MR. KELLAHIN: Nothing further, thank you.

MR. STOGNER: Any redirect?

MR. BRUCE: A couple of questions, Mr. Examiner.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q First of all, Mr. Riggle, any well that may be drilled in the west half of Section 1 by Exxon or Pennzoil, or whoever, that location has not yet been determined, is that correct?

A That is correct.

Q And if the -- in your previous testimony

you said that in your opinion unorthodox location wells in Sections 35 and 36 would drain the Exxon acreage in the west half of Section 1, is that correct?

A Yes, sir.

Q Therefore, if Exxon waited for the two Pennzoil Wells to be drilled, if they are approved in this application, they would suffer even more drainage while waiting to see what that information is and then proceeding to drill their well, is that correct?

A I believe so, sir, yes.

MR. BRUCE: No further questions.

MR. STOGNER: I have no questions of this witness at this time.

Are there any other questions of Mr. Riggle?

If not, he may be excused.

WILLIAM T. DUNCAN, JR.,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. BRUCE:

Q Would you please state your name, city of residence, occupation, and employer?

A My name is William T. Duncan, Junior. I

live in Midland, Texas, and I'm employed by Exxon Corporation.

Q Have you previously testified before the New Mexico OCD?

A No, I have not.

Q Would you please give a brief summary of your educational background?

A I graduated from Texas A & M University in 1980 with a BS degree in mechanical engineering.

I then went to work in May for Exxon Corporation as a reservoir engineer in the Midland Production District.

After two years I was re-assigned to the MidContinent Division Joint Interest Group, where I continued reservoir work and economic evaluations for another two years.

I went to my present engineering assignment in our MidContinent Division Regulatory Affairs Group, where I have worked for about one year, primarily involved with Exxon's hearings before State oil and gas regulatory agencies in Oklahoma, Texas, Arkansas, and New Mexico, Montana and Wyoming.

Q And are you familiar with the two cases being heard today, namely 8498 and 8499?

A Yes, I am.

MR. BRUCE: At this time, Mr. Examiner, I would present the witness as a reservoir --

qualified reservoir engineer.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No, sir.

MR. STOGNER: Mr. Duncan is so qualified.

Q Mr. Duncan, as far as you have been able to determine, is this a prorated field?

A No, it is not, or no, it will not be when the well is completed.

Q In either the Atoka or the Morrow formations?

A That's correct.

Q In your opinion should a penalty be assessed against Pennzoil if these two applications, unorthodox well applications, are granted?

A Yes, I believe there should be a penalty assessed to Pennzoil in order to protect the correlative rights of the proration unit in Section 1, which Exxon will be a party to.

Q And if Pennzoil's applications are granted, do you have any opinion as to the penalty which should be assessed against each well?

A Yes, I do.

Q Would you please now refer to what is marked as Exhibit Number Six and describe your opinion as to

the penalty?

A If the Division chooses to grant Pennzoil's request, Exxon proposes a 50 percent penalty based on the well's actual distance from the proration unit boundary as compared to the permitted distance from that boundary.

You can see in Exhibit Six that that's 990 feet compared to 1980 feet, which is the 50 percent penalty. This type of penalty is used most often in Arkansas and that's where I became familiar with it.

Q Would you please -- if a penalty is granted in these cases, how would such a penalty be assessed against Pennzoil on a continuing basis?

A To accomplish this penalty we'd recommend that the wells be limited to one-half of their demonstrated deliverability capability.

One way this can be calculated would be for Pennzoil to be required to submit to the NMOCD a record of seven consecutive days production which occurred during the previous quarter.

For simplicity, these quarters may be set to coincide with the three-month classification periods for prorated gas wells in the state.

These seven consecutive days production, selected by Pennzoil, could then be used to calculate an average daily producing rate, or what I refer to as a demonstrated deliverability capability.

Pennzoil's wells would then be limited

during the next classification period to a total gas production equal to the product of one-half of this daily rate or capability times the number of days in the next classification period.

Q Just to make it clear what you're seeking, would you explain that last part again?

A The very last part?

Q Yeah.

A Pennzoil's wells would be limited during the next three month classification period to a total gas production equal to the product of one-half, or 50 percent, of this daily rate or capability times the number of days in the next classification period.

Q What are the advantages of this method of penalty assessment, in your opinion?

A Well, the main advantage is simplicity. It would allow Pennzoil to choose the time when they wanted to test their well for seven consecutive days. They would be free to pick a time when they could anticipate the highest demands from their purchaser, and it would also prevent the anomalies which might be caused by shutting the well in for, say, a week and then opening it up to produce it for one or two days. This would allow any anomalous production to be evened out over a seven consecutive day period.

Q Are you also familiar with other methods the OCD uses to assess penalties on wells, specifically what is commonly referred to as the double circle method?

What is your reason for seeking the penalty method you have suggested rather than seeking the double circle method of a penalty?

A The reason for seeking this type of a penalty that we propose, because in the double circle method with these two locations being so close to the corner, so close to the proration unit that Exxon would participate in, the circles outside of Pennzoil's proration units would actually overlap, so in effect you would have or you would need more of a penalty than the individual double circle method would give each well.

Q And do you believe that some effective penalty is needed to limit production in a nonprorated well in order to make it a meaningful penalty?

A Yes, I do.

Q In your opinion, if Pennzoil's applications are granted with no penalty, would Exxon's correlative rights be adversely affected?

A Yes, I believe that.

Q And was Exhibit Number Six prepared by you?

A Yes, it was.

MR. BRUCE: At this time I move the admission of Exhibit Number Six and I have no further questions of the witness at this time.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: Yes, Mr. Examiner.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Duncan, are you aware of either the New Mexico Oil Conservation Division or Commission ever having previously used the proposed penalty method that you are proposing today?

A No, I'm not aware of that.

Q Are you familiar with the method that the Division has used in establishing an allowable based upon deliverability for an unorthodox gas well in a nonprorated gas pool?

A No, I am not.

Q Have you attempted to use the Division double circle penalty to come up with under that penalty formula what would be the penalty in that situation?

A Yes, I have.

Q Have you used any other method or calculation to determine a possible penalty?

A No, I have not.

Q Did you have any involvement in the selection of a well location in the west half of Section 1 for Exxon?

A No, I did not.

MR. KELLAHIN: I have nothing

further.

MR. STOGNER: Okay. Mr. Kellahin, are there any objections to Exhibit Six?

MR. KELLAHIN: No, sir.

MR. STOGNER: Okay, I'll admit those into evidence and you've cross examined. We will now go back to Mr. Bruce for any redirect.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Duncan, do you feel that both the proposed Pennzoil wells would drain Exxon acreage?

A Yes, I do believe that.

Q And that is one of the reasons that you are seeking this stiff, if you will, penalty method?

A That's correct, and I believe that based upon drawing two 320-acre circles or radial drainage areas around the proposed wells and in the proposed unorthodox locations, both of those circles cut substantially into the west half of Section 1.

Q Thank you.

MR. BRUCE: I have no further questions of the witness.

MR. KELLAHIN: Mr. Examiner, I have one further question.

MR. STOGNER: Mr. Kellahin.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Duncan, cannot Exxon minimize or balance any possible advantage gained by Pennzoil by drilling a well at a similar unorthodox location in the west half of Section 1?

A It may be possible to minimize and/or protect the lease line to a degree but only, for instance, to half a degree.

One wellbore can only effectively drain its one drainage radius. If there are two affected drainage areas that contribute to two wellbores, one wellbore cannot adequately protect it.

Q If both of these proration units in Sections 36 and 35 are laydown proration units, then each of those locations would be standard locations as they affect Exxon's acreage, would they not?

A As they affect Exxon's acreage, I -- I have trouble with what you just said.

If you're talking about laydown proration units in 35 and 36, then the standard, the orthodox location in Section 35 would be 1980 feet back from the lease line and since -- and because of that -- from the section line. Because of that, its 320-acre drainage radius would barely, if any, cut into the west half of Section 1.

Now, to address the laydown 320 in Section 36, an orthodox location for that unit would in fact

cut into the west half of Section 1, you're correct.

But then it would not conflict so much with the orthodox location in Section 35.

MR. KELLAHIN: Nothing further.

MR. STOGNER: Thank you, Mr. Kellahin.

Mr. Bruce?

MR. BRUCE: No further questions, Mr. Examiner.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Duncan, in Exhibit Number Six do you propose that the 50 percent penalty be imposed on both wells?

A That's correct.

Q Okay, and is this for all zones or just the Atoka?

A It probably should be for any zone which included a 320-acre proration unit, and that's what I would propose.

Q Mr. Duncan, are you opposed more so for the unorthodox location in Section 36, more so than the one in Section 35?

A That's hard to answer in that if the location in Section 36 became a laydown and the location in Section -- Section 35, excuse me, the proration unit in Sec-

tion 35 remained a stand-up, then you would still find me opposed to the unorthodox location in Section 35 because it would still cut significantly into the west half of Section 1.

Q Well, regardless if it's a laydown or a stand-up, you're still going to get the same sort of a drainage radius, are you not, regardless of what the proration unit is?

A You would have a different location for the orthodox well if it's a stand-up or a laydown.

Q Well, let me rephrase my question.

A Perhaps I didn't understand.

Q Okay. Obviously, you're opposed to both unorthodox locations.

A That's correct.

Q Are you more so opposed to the unorthodox lcoation in Section 36 more than the one in Section 35?

A Assuming that one did not affect the other as far as we could be opposed to one and having nothing, no opposition at all to the other, the one in Section 36 would drain more of Section -- of the west half of Section 1 than the proposed location in Section 35. In that way, yes.

Q If Exxon -- if Pennzoil wasn't planning on drilling a well in 36, would you still be here opposing and asking for a 50 percent penalty factor in the well in Section 35?

A Since that's not the situation, I really don't know if I could answer it. The reason that we are here opposing it, is because they propose two location exceptions in that particular place.

Q Ah, that's what I'm saying. If they were just having one, would you still be here opposing it?

A It really depends upon whether the Andrews District has been as upset about one, and I can't answer that.

They were the ones that, you know, they decided whether we would be opposed to a location.

Q Okay. Since we have two unorthodox locations, though, Exxon is here opposing that, obviously.

A That's correct. I'm not trying to be ambiguous or elusive. It's just that in my particular job, I get the job of opposing once the decision's been made because of the situation.

Q Right, I --

A If the situation changes, I don't know whether I'd be told to oppose it.

Q Thank you, Mr. Duncan. It's my job to set here and listen to opposition.

A Thank you.

MR. STOGNER: I have no further questions of this witness.

Are there any other questions of Mr. Duncan?

MR. TAYLOR: Yeah, Mr. Examiner, I'd like to ask a question.

CROSS EXAMINATION

BY MR. TAYLOR:

Q You said you looked at the OCD's method of determining penalties and rejected that.

Under that method what would the penalty be? Did you figure that out?

A Excuse me, I did look under the double circle method. I'm not quite sure which one you're talking about when you say OCD.

Q Under the double circle method that you looked at --

A Yes, I did.

Q -- what did you determine the method -- or penalty to be?

A 78 percent.

Q 78 percent.

MR. KELLAHIN: For which well?

A For both wells.

MR. KELLAHIN: Is that the allowable or the penalty?

A That's the penalty. Excuse me, that is one minus the penalty.

MR. KELLAHIN: Yes, sir, so 78 percent is the allowable.

A I guess I'm hesitant about allowables.

MR. BRUCE: I'll agree with Mr. Kellahin's statement.

A Not knowing --

Q Under your penalty method that you use, did you look at any penalties less than 50 percent to determine whether or not they would result in no effect on Exxon wells?

Do you understand that question or is that --

A I'm sorry.

Q Did you look at any penalties less than your 50 percent to determine whether that penalty applied to the well would result in no drainage to the Exxon property?

A I haven't done a reservoir study and without knowing a little more about the wells and, in fact, having them depleted, it's hard to determine whether they would in fact drain.

Assuming a 320-acre drainage radius, or a 320-acre radial drainage area, both of these locations would cut into the proration unit in the west half of Section 1; however, that in itself is not -- not bad. A radial drainage area will cut into the surrounding proration units.

So, no, I don't know whether -- whether Exxon will be protected.

Q (Not clearly understood.)

A That's correct.

Q Okay. Thank you.

MR. STOGNER: Are there any other questions of Mr. Duncan?

MR. KELLAHIN: Yes, sir, Mr. Examiner.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Based upon Mr. Taylor's eliciting from you the penalty calculation, let's go through the calculations so that we understand how you do it.

Using the double circle method, you drew a circle around the closest standard location.

A That's correct.

Q And what radius did you use for that circle, approximately?

A 2106 feet.

Q All right, sir. You drew the first circle and then you take the same radius and you draw a second circle. The -- one point of the radius is at the proposed unorthodox location and you draw the second circle using the same radius, right?

A That's correct.

Q What was the area that you planimetered or otherwise calculated to be the area in which the second circle exceeded the first circle?

A In which the second circle exceeded the

first circle?

Q Yes, sir.

A 47 acres.

Q All right. 47.

A Excuse me, the first circle exceeded the second. Oh, wait a minute, I --

Q The first circle we drew was at the standard location.

A Excuse me, I completely answered that wrong.

Q All right.

A In fact, let me -- let me try and help me out, if you don't mind.

Could I introduce this exhibit, or at least use it to explain what I'm trying to say?

Q I don't mind you referring to your notes to help you answer my question, and if that aids you, let's have you look at that.

A All right.

Q When we calculate the formula that is often used by the Division, it is a three part formula, is it not?

A That formula is.

Q Yes, sir, that's the one I want to discuss with you.

A That is not the one that I used.

Q All right. When Mr. Taylor and Mr. Bruce

talked to you, and I talked to you, about the double circle method --

A That was a different method than I used.

Q All right. That's what I'm trying to understand, what you have used when you calculated a double circle method.

A What I -- what I -- would you like for me to --

Q Yes, sir, please explain it to me.

A If you take the circle around the nearest orthodox location and determine the area within that 320-acre area circle that also falls within the 320-acre stand-up proration unit, it gives you an area, that area being 219 acres. That is the area that normally falls within the stand-up proration unit at the unorthodox location.

Excuse me, at the orthodox location nearest to the unorthodox proposed location.

If you draw another circle around the proposed unorthodox location and determine the area within that circle that is also within the 320-acre proration unit, you come up with an area of 172 acres. That is the drainage area within the proration unit for the requested location.

Therefore, a well in the requested unorthodox location would have a calculated area of drainage which extends 47 acres outside the proration unit more than a well located in a standard location.

Q All right.

A And the determination of the 78 percent penalty is simply taking the 172 acres that would actually fall within the proration unit for the unorthodox location and dividing that by the 219 acres that would normally fall within the proration unit; therefore you would get 79 percent.

Q Did you attempt to delete from the difference in acreage that acreage that is not controlled by Exxon within the 47 acres? Is that 47 acres entirely contained within leasehold interests controlled by Exxon?

A No, it is not.

Q What would be the net acres out of the 47 that would equate to Exxon's acreage?

A I have not calculated that.

Q Does your calculation under the double circle method take into consideration the distance -- strike that.

The method of determining the double circle allowable took only into consideration what you've described for us you did in using the two circles.

A That's correct.

Q All right.

MR. KELLAHIN: Nothing further.

MR. STOGNER: Mr. Bruce?

REDIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Duncan, the 78 percent figure you used, the 78 percent figure is not penalty but 100 minus 78, or 22 percent would be the penalty, is that correct?

A That's correct.

Q Mr. Kellahin also referred to a three part OCD formula. If, indeed, you used that formula would the penalty be more severe than the 22 percent?

A I don't recall. I did work through it but at this point I don't remember whether it was 2 percent more or less. And it was very close, mainly because the unorthodox location is not -- is not substantially moved in any but one direction, and the OCD formula takes into account the movement of the location toward the boundary lines of the proration unit.

Q The penalty would come out about approximately the same.

A It's very close but it's not exact.

MR. BRUCE: No further questions.

MR. STOGNER: Any more questions of Mr. Duncan?

MR. KELLAHIN: No, sir.

MR. STOGNER: If not, he may be excused.

I, at this time, would like to

recall Mr. Hair to the stand. I have a couple of questions.

GREGORY L. HAIR,

being recalled as a witness and being still sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. STOGNER:

Q Mr. Hair, which well does Pennzoil propose to drill first?

A Section 36.

Q Will the drilling of the second well in Section 35 depend upon the resulting tests on the first well?

A Yes, it will.

Q May I assume that if all zones are dry in the first well that the second well not be drilled?

A In all probability, yes.

Q Does Pennzoil have some producing wells out here at present?

A Are you talking about on this plat, in this general area?

Q In this general area we do have some production, yes.

Q Who's the purchaser of gas?

A I do not know.

Q Okay.

MR. STOGNER: I have no further questions of this witness. He may be excused.

MR. BRUCE: I have one question.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No, sir.

MR. STOGNER: Mr. Bruce.

RECROSS EXAMINATION

BY MR. BRUCE:

Q What is the drive mechanism in the Atoka formation?

A I'm not positive that I know.

MR. BRUCE: No further questions.

MR. STOGNER: Mr. Kellahin.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Hair, are you familiar with the formula used by the Division which consists of three parts?

A Yes, I am.

Q The formula that the Division uses on occasion to come up with a penalty or an allowable as a result of a well being at an unorthodox well location?

A Yes, I am.

Q Will you describe generally what the three parts of the formula is?

A The first factor is based on the amount of acreage that is intruded into on your opposing person's proration unit, on -- under his lease. That is strictly an acreage factor.

Q And that is characterized as the F-1 factor?

A The F-1, yes.

Q All right, sir, and what are the other parts?

A The F-2 is the amount of deviation from a standard location in an east/west direction.

F-3 is the amount of deviation from a standard location in a north/south direction.

Q Does the Division have a method by which it establishes an allowable based upon deliverability in a nonprorated gas pool upon which a penalty is assessed?

A Yes. I believe it's based on a 72-hour production test, which is supervised by the Commission.

Q Mr. Hair, have you calculated for Section 36, using the three part method of the Division, what would be the allowable for the well in 36?

A Yes. As to the acreage controlled by Exxon which is effected, and as to the other two factors in the formula, it works out to be an allowable of 80-1/2 percent.

Q Have you worked through that formula to determine what the allowable would be if we used that method for the well located in Section 35?

A Yes, I have.

Q And what is that percentage?

A As to the acreage being controlled by Exxon in Section 1 it works out to 81-1/2 percent.

MR. KELLAHIN: I have nothing further.

RECROSS EXAMINATION

BY MR. STOGNER:

Q One more question, Mr. Hair.

If, for instance, your first well that you're going to drill is in Section 36, if it had a penalty of 50 percent would Pennzoil drill it?

A I can only give you my best judgment and I would say no.

Q Thank you, Mr. Hair.

MR. STOGNER: Any other questions of this witness?

MR. KELLAHIN: No, sir.

MR. STOGNER: If not, he may be excused.

We're now ready for closing statements, if there are no more witnesses to be called.

MR. KELLAHIN: I have no fur

ther.

MR. STOGNER: Mr. --

MR. BRUCE: No further witnesses.

MR. STOGNER: Mr. Bruce, you may go first. Mr. Kellahin, you may finish up.

MR. BRUCE: Mr. Examiner, I believe that the geological evidence shows that drilling at orthodox locations as to both applications is at least as favorable, if not better, than drilling at the proposed unorthodox locations.

Furthermore, both wells will drain the Exxon acreage in Section 1. Therefore, we would urge that both applications should be denied.

However, if the applications are granted, we believe a penalty should be assessed against Pennzoil on both wells because of their non-standard locations and because of their drainage of the Exxon acreage.

And although this is not a prorated field, Exxon believes that the penalty method suggested by it is a fair method to assess a meaningful against Pennzoil so that its correlative rights will not be affected.

MR. STOGNER: Thank you, Mr. Bruce.

Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, I

disagree with the way in which Mr. Bruce has characterized the geology.

I think the--both geologic experts were in agreement about the basic essential facts upon which you would make a decision in this case.

Foremost and most importantly, I think it's essential to know that Exxon's in the position, the best possible position anyone could be. We are not dealing with a situation where Exxon has committed its funds and resources to a well at a standard location and thereby is exposed to drainage by operators offsetting that property for which it cannot compensate itself by counterdrainage.

They have the best possible world because their geologic opinions have been reconfirmed for them by our expert, who's demonstrated knowledge and expertise that you seldom see in this hearing room.

They also have the advantage of waiting for the Pennzoil to undertake and expose themselves to the substantial risk of drilling these wells, and thereby locate a well in the west half of Section 1 that will minimize or obviate the necessity for any type of penalty.

What Mr. Bruce has done is he's simply isolated the Isopachs and our expert witness says that you cannot do that, that the structural control of the deposition in the Atoka is critical and when you look at the structural control you know that the advantage is to Exxon by some 250 feet.

We believe that there is substantial evidence in this case for you to approve these unorthodox locations without any penalty at all and leave it up to Exxon to expend their resources and to locate their well then at an unorthodox location which optimizes any potential for drainage.

We have elicited from their expert the fact that the unorthodox location 1320 from the north line is the location that puts them at an advantage over us, notwithstanding our location.

Be that as it may, if you decide that it's appropriate to assess a penalty, we suggest that there's no evidence in this case to suggest that the use of the method long established by the Division to assess a penalty in this type of situation is unreasonable or unwarranted.

You may use, if you desire, and if you think the evidence supports that conclusion which I disagree, but if use that penalty the calculations are as we contend Mr. Hair has calculated them to be. We will provide you with a proposed order that shows you how that calculation was made if you desire, but in each instance the allowable allowed for this well ought to be in the range of 80 percent.

MR. STOGNER: Thank you, Mr. Kellahin.

I'm going to ask something un-

usual of both Mr. Kellahin and Mr. Bruce.

If I asked you right now to provide me with a rough I would assume that you would provide me one with a 50 percent penalty on both wells and you would provide me one with no penalty on either well. So be it; that's fine.

However, I would like from both of you an order with some sort of penalty, whether it be done with the double circle method or an ingenious method. I would like that also from both of you within 13 days.

Anything further in Case No. 8498 or 8499?

If not, both of these cases will be held open pending the additional information and the rough drafts--I mean the rough drafts within 13 days.

Thank you.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the New Mexico Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case Nos. 8498 & 8499 heard by me on 27 February 1985.

Michael E. Stogner, Examiner
Oil Conservation Division