STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING THE APPLICATION OF NEARBURG PRODUCING COMPANY FOR DIRECTIONAL DRILLING AND AN UNORTHODOX LOCATION, LEA COUNTY, NEW MEXICO

Case No. 10166

PRE-HEARING STATEMENT

This Pre-Hearing Statement is submitted on behalf of BTA Oil Producers as required by the Oil Conservation Division.

APPEARANCES OF PARTIES

Opponent: BTA Oil Producers

Contact Person:
Keith Logan
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Attorney:
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OPPONENT'S STATEMENT OF OPPOSITION

BTA Oil Producers is a party interested in this action as an offsetting land owner. Opponent BTA Oil Producers believes that authorization of this directional drilling and unorthodox location application would damage BTA's correlative rights. BTA requests that the application be denied or in the alternative that a substantial penalty be imposed upon any production from such well.

OPPONENT'S PROPOSED EVIDENCE

Opponent expects to call one witness, Keith Logan, who will present testimony and exhibits in opposition to this application. At this time, opponent expects to present five or fewer exhibits.

PROCEDURAL MATTERS

Opponent BTA Oil Producers is not aware of any procedural matters which need to be resolved prior to the hearing of this case.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By _____
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[WPP/163]

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF:	
APPLICATION OF NEARBURG PRODUCING COMPANY FOR DIRECTIONAL DRILLING AND AN UNORTHODOX GAS WELL LOCATION, LEA COUNTY, NEW MEXICO.	CASE NO. 10166

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: JIM MORROW, Hearing Examiner

November 28, 1990
12:15 p.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on November 28, 1990, at 12:15 p.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Deborah LaVine, RPR, Certified Shorthand Reporter No. 252 and Notary Public, in and for the County of Santa Fe, State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: DEBORAH LAVINE, RPR
Certified Shorthand Reporter

I N D E X

November 28, 1990
Examiner Hearing
Case No. 10166

** ** ** **

A P P E A R A N C E S

BEFORE: JIM MORROW, Hearing Examiner

FOR THE DIVISION:
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FOR THE APPLICANT:
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FOR BTA OIL PRODUCERS:
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** * **

EXAMINER MORROW: We'll call case 10166. This is the application of Nearburg Producing Company for directional drilling and an unorthodox gas well location in Lea County, New Mexico. Call for appearances.

MR. COOTER: Mr. Morrow, my name is Paul Cooter. I'm with the Rodey law firm here in Santa Fe. And I'll call two witnesses.

EXAMINER MORROW: All right, sir.

MR. PEARCE: If it please the examiner, I'm W. Perry Pearce of the law firm of Montgomery & Andrews in Santa Fe, appearing in the matter on behalf of BTA Oil Producers, and I have one witness.

EXAMINER MORROW: Will the witnesses please stand and be sworn at this time.

Mr. Cooter, go ahead.

MR. COOTER: My first witness is Mark Nearburg.

MARK K. NEARBURG

the witness herein, having been first duly sworn by the Notary Public was examined and testified as follows:

DIRECT EXAMINATION

BY MR. COOTER:

Q. Would you state your name for the record, please, sir.

A. Mark Nearburg.

Q. By whom are you employed?

A. Nearburg Producing Company.

Q. And in what capacity, Mr. Nearburg?

A. Vice-president and land manager.

Q. Would you relate briefly your education for Mr. Morrow.

A. I received an undergraduate degree in 1977 in economics from Texas A&M University and a master's degree from the University of Texas in 1981 and, thereafter, went to work in the oil and gas business as a landman and was trained in the field and through further education before that.

Q. And you have continued in that work since then?

A. Continuously since September of 1981.

Q. Relate what Nearburg Producing Company seeks by this application, please, sir.

A. I'd first state that although the application reads a gas well, it's an application for an oil well. We seek to directionally drill a dry hole that was drilled in September of this year to a bottom hole location 1980 feet from the north line and 2,300 feet from the west line of Section 17, Township 16 South, Range 37 East in Lea County.

Q. It may help the examiner to state at this point that that would be a standard location from the north line, north and south lines?

A. That's correct.

Q. But that that proposed location would crowd the

east line by approximately 170 feet?

A. That's correct.

(Applicant's Exhibit No. 1 was marked for identification.)

Q. Those are from the rules, the special pool rules set forth in order number R3816 as thereafter amended. Let me direct your attention, Mr. Nearburg, to Exhibit Number 1, what has been marked as Nearburg Exhibit Number 1, and ask you to identify and explain that.

A. This is a land plat that shows the proration units for existing wells. Also it shows the existing wells, BTA wells that are currently producing from the Strawn are indicated by the pink arrows. Proration units for those wells are surrounded in pink. Shown in green are the proration units which Nearburg has drilled and desires to do further drilling upon. The northernmost green arrow is our Maddux Number 1 well, which is currently producing from the Strawn.

The southernmost green arrow is the Western 17-F State Number 1, which was drilled on state land in September of this year and was a dry hole in the Strawn. The middle green arrow indicates the proposed bottom hole location where we would like to directionally drill under this application.

Q. Is that proration unit, being the south half of the northwest quarter, a state lease?

A. Yes, it is. It's state lease VB -- well, let's

see -- 364, purchased about this time last year at a state sale.

(Applicant's Exhibit No. 2 was marked for identification.)

Q. Let's go next to Exhibit Number 2 and ask you to identify that, if you would, sir.

A. This is an AFE that I directed our drilling manager to prepare for sidetracking the original Western 17-F State Number 1 well. This AFE was prepared in conjunction with the company that would be doing the sidetrack operation, which was Scientific Drilling International. It has a casing point cost, additional cost, over and above the dry hole cost we've previously spent of $220,125. If we were to attempt a completion, the completion costs would be $264,755 for a total additional cost of $484,880.

Q. You stated that these costs are in addition to the costs that you have heretofore incurred for the drilling of your Western States 17-F well?

A. Yes.

Q. Do you have knowledge, personal knowledge, of an approximate sum of what those costs were?

A. Yes. Those costs were approximated $436,700 to date.

(Applicant's Exhibit No. 3 was marked for identification.)

Q. Then let's go to Exhibit Number 3 and ask you to identify that, if you will.

A. Exhibit Number 3 was also prepared at my direction by Mr. Ken Harbin who is our drilling manager. This was also done in conjunction with Scientific Drilling International. It's fairly self-explanatory. It shows the existing hole, existing plugs that would be drilled out. We would reenter the well to approximately 10,000. Well, the existing plug is set from 9,678 feet to 9,578 feet. We would then set a new 200 site plug from 10,000 feet to 10,600 feet, then dress the plug and kick off at approximately 10,000 feet to the proposed bottom hole location.

Q. And once again, that proposed bottom hole location would crowd the east line of the drilling unit by approximately 170 feet?

A. That's right. It would be 170 feet east of the allowed -- well, a better way to put it would be the standard pool. The pool rules in effect for the Lovington northeast Penn require you to be 510 feet from the outer boundary of your lease line, which in this case is the east line of the proration unit. So we're 170 feet closer to BTA than we would otherwise be. Also I'd like to point out that we've also proposed to drill this well north to crowd our well, the Maddux well, up in the north half, northwest quarter also.

Q. Because of that unorthodox location of the bottom

hole, do you believe that some penalty may be appropriate?

A. Yes, we believe the standard commission rules regarding unorthodox well locations is applicable in this case. If you took 170 feet over 510 feet, you would come up with about a one-third or 30-percent penalty against the allowable for these wells. However, because we are not moving due east, we're also moving north, we feel that a 25 percent penalty against the allowable for these wells is appropriate given the risk that we're taking.

Q. So while Nearburg Producing Company would be crowding the east line by some 170 feet, that's not 170 feet closer to the BTA well?

A. It's also 150 feet north toward our Maddux well.

Q. The BTA well is on a location approximately due east in the northeast quarter of the section, about due east of your 17-F well?

A. Yes, the number 1 well indicated on the map with the pink arrow.

Q. Now you've talked about a penalty on a top allowable well?

A. Uh-huh.

Q. If your proposed 17-F well is not a top allowable well, do you have an opinion as to what the penalty should be?

A. We feel that both the economic and geologic risk associated with sidetracking this well is in itself a penalty,

that there's an effective penalty because of the amount of the reservoir that we have a chance to encounter is relatively small. If the well's initial potential is less than 25 percent of the allowable for these wells, we do not feel there should be a penalty imposed.

Q. Has your company had experience with other sidetracked or deviated holes to the Strawn --

A. Yes, we've drilled --

Q. -- in this area?

A. Yes, we've drilled numerous Strawn wells in this area. More specifically about four or five miles southeast, we've drilled three wells to the Strawn that did not encounter the porosity in the Strawn. They were the Criese Family 1-I Number 1 well in Section 1 of 17 south, 37 east; the Stilling 7-D Federal Com well in Section 7 of Township 17 South, Range 38 East; and the Honstein Number 1 well in Section 12, 17 south, 37 east, all of which were originally drilled to the Strawn and then sidetracked in an effort to obtain Strawn porosity. None of these sidetrack efforts were successful and indicate the risk associated with trying to sidetrack a well into porosity.

Q. So even if the commission or the division granted the application, from your past experience or the experience you've encountered with your company, there are certainly risks inherent in the sidetrack effort?

A. Very much so, economic as well as geological.

Q. In your opinion, would the approval of your company's application enable it to produce hydrocarbons that would otherwise not be produced?

A. Yes. We feel that denial of this application or imposition of a penalty in excess of what I've described will make it uneconomical to drill the well, that waste will occur, and that reserves will be left in the ground that otherwise would not have been recovered by Nearburg.

Q. So assuming or presuming that your reentry effort would be successful, with the penalty that you have suggested, would that protect correlative rights?

A. Yes.

Q. And be in the best interests of conservation?

A. Yes.

Q. Were Exhibits Numbers 1, 2, and 3 either prepared by you or under your direction and supervision?

A. Yes, they were.

MR. COOTER: We offer those three exhibits, Mr. Morrow.

EXAMINER MORROW: Thank you. We'll accept those into evidence, 1, 2, and 3.

(Applicant's Exhibits 1, 2, and 3 were admitted into evidence.)

MR. COOTER: That concludes my direct examination of this witness.

EXAMINER MORROW: We'll pass the witness. At the beginning, we neglected to accept you as a qualified witness. I believe you have testified here before the OCD before, have you not?

THE WITNESS: Yes, sir, numerous times.

EXAMINER MORROW: Qualifications accepted, if Mr. Pearce has no objections.

MR. PEARCE: I do not, Mr. Examiner

EXAMINER MORROW: Go ahead.

CROSS-EXAMINATION

BY MR. PEARCE:

Q. Mr. Nearburg, let's look very briefly at Exhibit Number 1, please.

A. Uh-huh.

Q. To the east of the BTA acreage in section 16 --

A. Yes.

Q. -- I notice a well shown as apparently the Pennzoil Number 4. Do you know if there is another Strawn well now in that section?

A. That's not concerned with this hearing, so I have not looked at it.

Q. I'm sorry?

A. Our geologic witness may --

Q. I'm not trying to be cute. You don't know whether there's another well?

A. I don't know the answer.

Q. All right, fine, thank you, sir. Mr. Nearburg, you spoke about the effect of too high a penalty making this venture uneconomic. And your Exhibit Number 2 is an AFE for completion of that well which shows total well completed as $484,000; is that right?

A. Yes, sir.

Q. And have you done a set of economic projections for various production rates in order to make that $485,000 investment --

A. Yes, we have.

Q. -- an economic risk that Nearburg would take?

A. Uh-huh.

Q. Could you outline Nearburg's economic criteria for me, please?

A. Well, we ran through numerous scenarios. The one that we ended up with to decide if we would continue this well, we looked at BTA's number 1 well, and we looked at our Maddux well. And based on our experience with various qualities of Strawn wells in the Lovington northeast field, we believed the BTA well number 1 is an exceptional well. And we thought that 450 to 500,000 barrels of oil out of that well would be appropriate.

We looked at our well, the fact that it's obvious from the geologic testimony that will be presented that we do

not have full radius of drainage around our well bore if we find the Strawn. Therefore, we allocated approximately 200,000 barrels to our well if we in fact encounter the porosity. If you look at a 30 percent penalty on 200,000 barrels, that leaves you with 140,000 barrels of oil at $15 a barrel is approximately $2,100,000. If there are no problems mechanically in doing what we want here in sidetracking this well, we estimate the total cost to be approximately $921,580. That's a rate of return of about two to one. If you discount that for present value, you can see the 30 percent penalty is about the most that could be accepted. I think from an economic standpoint for a two to one rate of return. That's as marginal as we would get.

Q. And as I understood what you just outlined for me, you're using $15 oil?

A. Yes.

Q. What is oil today? Do you know?

A. Oil today is $30 a barrel. I can tell you previously this year, it was about 15. We don't know what it'll be next year. There are extremely high operating costs on these wells. So you have to factor that in in addition to royalty costs and taxes. And I think $15 is accepted by all the financial institutions and prudent people as a good cost.

Q. And in order to arrive at the $928,000 figure, you included costs that are now attributed to a dry hole; is that

correct?

A. That's correct.

Q. The additional costs for the application under consideration today is the 484,880 reflected on the AFE?

A. That's correct.

MR. PEARCE: Mr. Examiner, I have nothing further of this witness at this time. Thank you.

EXAMINATION

BY EXAMINER MORROW:

Q. The bottom green arrow on your Exhibit Number 1, is that the location of the 17-F one? I believe you've said that, but I want to make sure.

A. Right. That's the schematic. That's the well bore that is Exhibit 3, I believe, the schematic that we would reenter and deviate from.

Q. And that's the bottom green arrow on Exhibit 1; correct?

A. Yes, sir.

Q. Now did you say that Nearburg did drill that well, or did someone else drill it?

A. No, sir, we drilled it.

Q. And when was it drilled?

A. In September of this year. I believe it reached total depth in the first -- well, it reached total depth in the last week of September and was temporarily plugged in the

first week of October.

Q. When you plugged it, did you anticipate a reentry?

A. Yes, we did.

Q. Looks like you plugged it pretty well for a reentry.

A. Well, we were very uncertain as to what we would do. And as the geologic testimony will indicate, we had some scientific analysis after that that --

Q. The rules for this, let's see, it's the northeast Lovington Penn pool?

A. Yes, sir.

Q. They require what, 660 from the line or what?

A. No. They require a well to be -- they're 80-acre proration units, and they require a well to be drilled within 150 foot radius of the center of one of the quarter quarter sections in the 80-acre unit. What that does is, of course, as you go around the arc, the footage changes, but if you looked at the compass north, south, east, west directions, that ends up being a point 510 feet from what would be the outer boundary of a quarter quarter section.

Q. So at this bottom hole location, you should be 510 feet away from the --

A. To be standard, yes, sir.

Q. -- east line of your --

A. And we will be approximately 340 feet, which is the

170 feet that we're encroaching.

Q. Tell me again how you calculated that 30 percent penalty.

A. Well, in the past and other hearings we've been involved in, you take the amount that you're encroaching over the standard set back.

Q. So it would be 170 over --

A. 510.

Q. -- 510?

A. Yes, sir.

Q. And that equals about 30 percent?

A. Yes, sir, should be exactly 30 percent.

Q. What is the rate of production and the allowable of that BTA number 1? Do you know that?

A. The allowable here is 6.67 barrels per acre in the proration unit.

Q. 6 point what?

A. 6.67. And on an 80-acre unit, that's 533 barrels per day. They have instituted special rules for this pool.

Q. Do you think --

A. I believe they're producing at or close -- to finish the answer, I think they're producing at or close to the allowable.

Q. The sidetrack wells you talked about are -- they weren't shown on this exhibit.

A. Well, they're not on that map. They're just off the bottom edge of that map in the next township and range south.

Q. And how many were there that you talked about, two or three?

A. Three of those.

Q. Three?

A. Yes, sir.

Q. And all were unsuccessful?

A. Yes, sir.

Q. For what reasons now?

A. In one case, we encountered the structure but no -- in all cases, we failed to encounter the porosity that we were looking for. Structurally they were successful, but the porosity was not present.

Q. As far as the mechanics of your directional drilling, did you have any problems with that?

A. No, sir, we used a downhole motor, and they will constantly have a readout on the surface of where they are and which way they're going. And they'll use the motor to steer the hole to where we want it.

Q. So the reason they were unsuccessful was geological rather than mechanical?

A. Yes, sir. Yes, sir.

Q. And you'd expect this well, I believe you answered

Mr. Pearce to recover this question you'd expect it to recover 200,000 barrels if it were not penalized; is that correct?

A. No, I said 200,000 barrels would be the recovery, is what we think would be the ultimate recovery of the well without a penalty.

Q. And with a --

A. And with a penalty --

Q. -- 25 percent penalty, it might be slightly less than that, I guess.

A. Well, I just used a 30 percent penalty. That would take away 60,000 barrels and leave us with 140,000 barrels

Q. But that --

A. Odds are it won't be a well that good, but that's a case we have to look at.

Q. Now the penalty you propose though would be, I believe, in answer to Mr. Cooter's question, against top allowable rather than against the --

A. Productive ability of the well.

Q. -- potential of the well?

A. Yes. We feel that because of the risk involved in what we're doing that we're already effectively penalized by the reservoir or the lack of reservoir and that therefore if the consequences of drainage against BTA are probably going to be pretty slim, unless we have a top allowable well. Therefore, you see what I was trying to say.

EXAMINER MORROW: I don't have any further questions. Mr. Cooter, do you have anything more?

MR. COOTER: I have nothing further.

MR. PEARCE: May I very briefly, Mr. Examiner?

RECROSS-EXAMINATION

BY MR. PEARCE:

Q. Mr. Nearburg, the penalty that we're talking about operates against a producing rate rather than against ultimate recovery, does it not?

A. Which penalty are you talking about?

Q. Well, you're proposing somewhere between a third and a 25 percent penalty, and I'm sure you won't be surprised to hear that I'm going to suggest a higher one.

A. Uh-huh.

Q. But that is a penalty against producing rate, is it not?

A. I've normally seen it as a penalty against the allowable.

Q. Rather than --

A. Or if you're on a prorated pool, you know, it would be whatever volume you're allowed to produce.

Q. Rather than operating as a cap on the ultimate recovery you are allowed?

A. That's correct.

Q. So that in fact if there were 200,000 barrels under

the productive acreage on your tract, it might take you longer to recover that. But it would not be lost, would it?

A. It depends on the effect of the BTA number 1 well, I believe. I think that well is capable of draining our acreage. It's of high enough quality. And given enough time, I think it would drain it.

MR. PEARCE: Thank you.

FURTHER EXAMINATION

BY EXAMINER MORROW:

Q. As I understand that, assume you had a top allowable too of 533 barrels, the 25 percent that you proposed would affect you until you got down to 75 percent of 533. And then it would no longer affect your well, as you propose it.

A. That's correct.

Q. Is that correct?

A. Yes.

EXAMINER MORROW: Mr. Cooter, anything further?

MR. COOTER: Nothing further.

EXAMINER MORROW: The witness may be excused.

MR. COOTER: Let me have you trade spots, if you would. The name of this witness is Jerry Elger, E-l-g-e-r.

JERRY ELGER

the witness herein, having been first duly sworn by the Notary Public, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. COOTER:

Q. State your name for the record.

A. Jerry Elger.

Q. And by whom are you employed, Mr. Elger?

A. I'm employed by Nearburg Producing Company.

Q. And what's your position with the company?

A. I'm senior geologist.

Q. Would you relate briefly your education and professional experience for Mr. Morrow.

A. I received a bachelor's and master's degrees from the University of Wisconsin at Madison in 1974. I moved to Midland, Texas, where I've been employed as an exploration geologist in the oil and gas business, principally focusing on the Permian Basin in southeastern New Mexico.

Q. When did you commence that work?

A. 1974.

Q. And have you continued in that capacity since 1974?

A. Yes.

Q. For various companies and last for Nearburg Producing Company?

A. That's correct.

MR. COOTER: Are the witness's qualifications acceptable to the examiner?

EXAMINER MORROW: I think so. Let me ask just a couple questions. The BS and MS were in geology; is that what you

said?

THE WITNESS: Yes, sir.

EXAMINER MORROW: And have you testified here before?

THE WITNESS: Yes, I have.

EXAMINER MORROW: The qualifications are acceptable.

(Applicant's Exhibit No. 6 was marked for identification.)

Q. (By Mr. Cooter:) Mr. Elger, let me direct your attention first to what has been marked as Exhibit Number 6. I'm taking one out of order. But let's skip 5 for the moment and go to number 6. Would you identify and explain that exhibit for Mr. Morrow.

A. This is a map that I prepared for this hearing which shows various things. It's a map focusing on Section 17, particularly the north half of Section 17, which is the area in question, on a 1:1000 scale. You'll see various color codes by the well symbols, the purple indicating wells that were drilled in the north half of Section 17 that were dry holes, the green indicating wells that were either drilled and operated by Nearburg Producing Company, and the red indicating wells that were drilled holes by BTA Oil Producers.

Q. Locate the well in question, this 17-F well number 1?

A. It's located in the southeast quarter of the northwest quarter of Section 17. It has a dry hole symbol

with two colors on it. The northwest part of the coloring is purple, indicating that it was a dry hole. And the southeast part of the coloring is green indicating it was drilled by Nearburg.

Q. Just to the northeast appears another green circle. What is that?

A. That's the proposed bottom hole location for the side track of the Western 17-F number 1 which is the application we're under discussion here.

Q. Identify the blue part of that.

A. The blue part is that area which contains porosity and is productive in the Strawn. And its limits are identified by, first of all, the well control that exists in the north half of Section 17 and, secondly, by the seismic information which the seismic lines are indicated on this presentation by the orange lines. The orange lines are the seismic information that has been collected by Nearburg Producing Company to identify or help us to identify the limits of the porosity development in the Strawn.

(Applicant's Exhibit No. 5 was marked for identification.)

Q. Now while we have Exhibit Number 6 in front of us, let's also go to what has been marked as Exhibit Number 5. Identify that for us and explain, please.

A. Exhibit Number 5 is an exhibit that I prepared that

shows the two -- what we feel are the two key wells that are germane to this testimony here, the BTA Oil Producers' Lovington number 1 on the right-hand side of the cross section at A prime and the Nearburg Maddux 17-C Number 1 located on the left-hand side of the cross section. And then in the center, the Nearburg Western 17-F State Number 1, which is the dry hole that Nearburg drilled. This cross section was constructed in such a manner that it runs from the Nearburg Maddux 17-C well to the south to the Western 17 State F Number 1. It also shows the proposed sidetrack hole and then runs off to the BTA Lovington Number 1 to the east.

Q. From your seismic lines that are indicated on Exhibit 6, are the parameters to this particular reservoir well established?

A. We think they are. You know, there are limits to the seismic -- to the quality and extent to which the actual, you know, concrete defined limits of the porosity can be determined at this particular depth utilizing seismic as a tool. But we think that they are correct.

Q. So even if the division granted the application, it's no sure sense as to what's going to be at the bottom of that hole?

A. No, it's not.

Q. What type of reservoir is this, Mr. Elger?

A. This is a reservoir that consists of limestone,

porous limestone rock. The porosity, which is primarily vuggy in nature and inner crystaline in nature. And the drive mechanism for the reservoir appears to be a solution gas. The typical porosity in this area for productive reservoir rock appears to be around 8 to 9 percent.

Q. Is porosity important to a successful completion?

A. Yes, it is, very important.

(Applicant's Exhibit No. 7 was marked for identification.)

Q. Let me lay out on top of Exhibit 5 and ask you to look at Exhibit 7. Identify and explain that, please, sir.

A. Exhibit 7 contains three different panels. And basically what it is is a east/west seismic line from the BTA Lovington Number 1 through the Nearburg Western 17-F Number 1 through the Harvey Yates or Hayco Number 2 East Lovington state well and finally the Pennzoil Number 1 state well. And it's the bottom east/west orange line that's indicated on Exhibit 6.

The top panel shows basically, is basically a small scale cross section which shows the BTA location on the far right with the porosity interval as indicated on Exhibit 5 with 114 feet of Strawn porosity, to the Nearburg Western 17-F which is the straight hole, the second from the right, and the porosity pinching out right at or very close to that well bore and then no porosity in the Harvey Yates Number 2 East

Lovington well and the Pennzoil well off to the west. The second panel or middle panel is a seismic model that was constructed using the Strawn porosity figures that I quoted earlier at 114 feet as evidenced in the BTA Lovington Number 1 and zero porosity in the other three wells to the west, showing what the above geological model shows, that the porosity pinches out very close to the Nearburg's Western 17-F State Number 1 well. The little slanted red hole shows where the proposed side track would occur into what we're hoping is some porosity that's pinching out very close to the original straight hole.

The bottom panel is the actual seismic line. That was purchased and reprocessed by Nearburg, the east/west seismic line. Again, the bottom east/west orange line on Exhibit 6 showing the actual seismic response and what we think or we're interpreting as the porosity pinchout event very close to the Nearburg Western 17 State F Number 1. And it matches very close the models that were presented in panels 1 and 2 where the porosity event pinches out very close to that well bore.

Q. Mr. Elger, were exhibits which have been marked as Nearburg Exhibits Numbers 5, 6, and 7 prepared by you or under your direction and supervision?

A. Yes, they were.

Q. Based upon your testimony and those exhibits and

recognizing that there is some judgment used in the preparation of those, were the division to deny the application in this case, in your opinion, would production be left in the ground under -- Strawn production be left in the ground under the south half of the northeast quarter of Section 17?

A. Yes, I believe it would.

Q. And if the application were granted but the penalty attached were such that that well could not economically be drilled, those reserves would remain in the ground and be lost?

A. I believe they would.

Q. Yes, I made a mistake. I think I used the description the south half of the northeast quarter. And I obviously was looking at the south half of the northwest quarter. In your opinion, Mr. Elger, would the granting of the application be in the best interests of conservation?

A. Yes, it would.

Q. And you've heard Mr. Nearburg's testimony. Would the attachment of such a penalty protect correlative rights?

A. Yes, it would.

MR. COOTER: Mr. Morrow, I offer Exhibits 5, 6, and 7.

EXAMINER MORROW: Exhibits 5, 6, and 7 will be accepted into evidence.

(Applicant's Exhibits 5, 6, and 7

were admitted into evidence.)

MR. COOTER: That concludes my direct examination of the witness.

EXAMINER MORROW: Mr. Pearce.

MR. PEARCE: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. PEARCE:

Q. Mr. Elger, let's begin by looking at Exhibit Number 6, please.

A. (Witness complies.)

Q. And I want to ask you about the data used to construct particularly the shaded area and define the limits of that blue shaded area. I notice that with regard to the Lovington, BTA Lovington well number 2 --

A. Yes.

Q. -- you show the productive limit as being just to the east of that well. On what did you draw that limit in that place?

A. That limit, well, obviously where you have more well control, you can better define the limits. And where you have more seismic control, you can better define the limits. As you can see, the east/west seismic line we have runs south of that BTA Lovington well. The only other well control you have is the dry hole in the northeast of the northeast of 17. And I know that's tight reservoir rock. Therefore, the limits

run between those two wells. And exactly where it's defined, I did the best I could with the data I had.

Q. If you could get Exhibit Number 7 in front of you, keep 6 out where you can see it, I notice that the schematic data you're presenting, the Lovington well number 1 is the most easterly point of seismic data presented. Is that the limit of the seismic data you purchased from others?

A. No, it's not.

Q. How far east does your seismic data go?

A. Several miles, I believe. I don't have the shot form base in front of me.

Q. If you could get what was previously marked as Nearburg Exhibit Number 1 in front of you, and I would ask you a question that I asked Mr. Nearburg. Are you aware that there is another Strawn well in Section 16 that is not reflected on that map?

A. I believe there is another well on that map. This land map was outdated and did not reflect that recent well.

Q. Do I gather from that answer that you don't have much information at all about that well?

A. I don't have a log. I don't believe a log has been released by the operator. To my knowledge, it hasn't been.

Q. You have therefore no opinion as to whether or not that well is in communication with the BTA wells in --

A. No.

Q. With regard to the blue shaded area in the 80-acre Nearburg tract under consideration, can you tell me how much acreage in that 80-acre tract is shaded?

A. What do you want, a percentage or --

Q. If you haven't measured it, give me a rough guess of your estimate of percentage.

A. The portion of it is, I'd say, roughly 15, 20 percent.

Q. Did you consider doing the directional drilling of the 17-F well in a northerly direction, due north?

A. Did we consider it?

Q. Yes.

A. I didn't consider it. Was it considered by Nearburg? Is that what your question is?

Q. Well, do you know if anyone considered doing it?

A. We talked about it.

Q. And why did you decide not to go due north?

A. Because we felt like -- well, it's kind of a crap shoot whether we're going to hit the porosity in the first place. And we felt like the odds were best in our favor for encountering porosity by directing the bottom hole location at a mutually exclusive or mutually beneficial -- mutually advantageous position between the Nearburg well and the BTA well.

In other words, well, let me also say that the

proposed bottom hole location, if you look at the southern limits of the blue shaded area, you'll see that the proposed bottom hole location is almost perpendicular to what we're interpreting as that boundary, porosity limit. And we would rather drill perpendicular to that boundary than at some oblique angle to that boundary. It would have caused us to drill the well farther.

Q. I'm sorry. Can I get you to go back and walk me through that again more slowly? I really just didn't understand what you just said to me.

A. Okay. As you can see, the boundary outlining what we're interpreting as the limits of the mound or the porosity runs basically northwest/southeast. We felt like by directing our bottom hole location 90 degrees towards that boundary, we would minimize our drilling costs and increase our odds of encountering porosity.

Q. Thank you. You mentioned that you were showing 140 feet, I think you said --

A. 114.

Q. I'm sorry. 114 feet of porosity in the Lovington 1 well?

A. Yes.

Q. What was the porosity cutoff you used?

A. Eight percent.

Q. Mr. Elger, do you have seismic data available to

you today to the east of the data that you have?

A. I do not.

MR. PEARCE: Just so I can get it on the record, I'm interested in what that seismic shows about what you show as a porosity pinch out just east of the Lovington number 2 well. I have nothing further at this time, Mr. Examiner. Thank you, Mr. Elger, I appreciate it.

EXAMINATION

BY EXAMINER MORROW:

Q. A little more on how the limits were established there. Did you do any mapping, any contour maps or thickness maps?

A. The general prospecting for these porous Strawn algal mounds is primarily seismic prospecting. Of course, you do incorporate what little well control you have, but there's generally no indication that we've been able to determine how rapidly you go from tight reservoir rock into porous reservoir rock. It apparently can occur fairly rapidly. And the limits exactly where it is is almost entirely a geophysical plane.

Everybody that's prospecting in this township and range and in the township and ranges to the south in the knolls and ship areas are utilizing seismic to try and determine the limits of the mounds, of course, to incorporate what well control you have.

Q. Well, there's a series of these mounds then that

you look for; is that right?

A. Yes.

Q. And what does that mean, algal mound?

A. Algal mound? Algae were an invertebrate creature that lived on the sea floor that when they died, their skeletal remains were conducive to the formation of porosity. And where these things just lived on the sea floor, they lived in little communities. In other words, the sea floor was not totally covered with these little critters, but they lived in selective little communities. And that's what we're looking at the fossilized record of in these prospects.

Q. Is this a three-well field at the present time?

A. To my knowledge, it is.

Q. How much oil do you estimate would go unrecovered if this well is not drilled?

A. I don't know if I could answer that. If I'm qualified to answer that. That's kind of a reservoir engineering type question, but I could speculate.

Q. Do you want to or not?

A. I'd prefer not to.

Q. All right. If this well is not drilled, in your opinion, would BTA recover part of the oil?

A. The would probably recover some of the oil.

Q. Some of it?

A. Uh-huh.

Q. Do you know where in section 16 the well is that you and Mr. Pearce discussed?

A. I'm not exactly sure of the footage location, but I think it's some somewhere towards the end of the -- if you look on Exhibit 1 -- the pink arrow, towards the back of that pink arrow, somewhere around in there.

Q. Right at the east end of that pink arrow?

A. Right.

EXAMINER MORROW: Mr. Cooter, I don't have anything further. Did you have any more questions?

MR. COOTER: No, sir.

MR. PEARCE: No, sir, thank you.

EXAMINER MORROW: The witness may be excused.

MR. COOTER: Mr. Morrow, we have no Exhibit Number 4. We have 1 through 3 and 5 through 7. Exhibit Number 4 was originally planned to be the notice given to BTA. But since BTA filed their prehearing statement and appeared today, we thought that was moot.

EXAMINER MORROW: All right, sir.

MR. COOTER: That concludes our case, sir.

EXAMINER MORROW: Go ahead, Mr. Pearce.

KEITH LOGAN

the witness herein, having been first duly sworn by the Notary Public, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PEARCE:

Q. For the record, would you please state your name and where you reside.

A. Keith Logan. I reside in Midland, Texas.

Q. Mr. Logan, by whom are you employed?

A. BTA Oil Producers.

Q. In what capacity?

A. As a reservoir engineer.

Q. Mr. Logan, have you previously appeared before the New Mexico Oil Conservation Division or Commission and had your credentials as an expert in the field of reservoir engineering accepted and made a matter of record?

A. Yes, I have.

Q. And are you familiar with the matter under consideration today, the application filed by Nearburg?

A. Yes, I am.

MR. PEARCE: Mr. Examiner, I would ask at this time that the witness be qualified as an expert in the field of reservoir engineering.

EXAMINER MORROW: So qualified.

Q. (By Mr. Pearce:) Let's begin, if we may, Mr. Logan with clarifying some questions addressed by the examiner a few moments ago, if you'll look at Nearburg Exhibit Number 1.

A. I've got it.

Q. And I would direct your attention to Section 16 of

16 South, 37 East. They show a Pennzoil Number 4 well on that map. Do you have see that well?

A. Yes.

Q. Is there than additional Strawn well in that section now?

A. Yes, Pennzoil approximately three months ago drilled the 16 number 5 well in that section at a location 2310 from the south, 900 from the west. Initial drill stem test information showed approximately 3,000 pounds bottom hole pressure, which is very similar to what we saw on our wells. And in turn, we felt like that well was also in communication with the reservoir that both our wells are producing from and what the Nearburg well is producing from. They had primary cementing problems. They kicked the well approximately 50 feet north. And that has just been recent, and the pressure has been drawn down another 300 pounds which, again, there's been quite a bit of oil taken out of that reservoir in that period of time, and it doesn't suprise me it's been drawn down some.

Q. Based on --

A. So another indication that we feel that reservoir does extend into the edge of Section 16.

(Intervenor's Exhibit No. 1 was marked for identification.)

Q. You got to what I was going to ask you about.

Thank you. I would refer your attention to what we have marked as BTA Exhibit Number 1 at this time, please. And I'd ask you to look at that, and let's talk about some information reflected on that, some of which is duplicative of information previously submitted. What is the area outlined in red?

A. That is BTA's state lease.

Q. The area outlined in blue?

A. That is the proration unit for the applicant's well.

Q. In that blue outlined area, I notice there are four well symbols. The 1, the 2, and the 17-F. What was the initial result of each of those three wells?

A. Well, they were all dry holes.

Q. Those are all dry hole symbols?

A. Yes.

Q. And the fourth well spot on that is the proposed bottom hole location that we're considering today; is that correct?

A. Correct.

Q. Looking at the BTA wells in the northeast quarter of Section 17 --

A. Yes.

Q. -- could you just briefly outline the information reflected under topics A, B, C and D for each of those wells and the other wells.

A. Well, that's just giving completion date. Our two wells are both top allowable wells. They were at the time this map was made or through the date this map was made. And they currently are still top allowable wells.

Q. Were you present just a few moments ago when Mr. Nearburg and Mr. Elger testified?

A. Yes, I was.

Q. I'd like for you, if you have one with you, to get out a calculator and do a sample payout calculation for me, please.

A. (Witness complies.)

Q. I want to assume some parameters. First of all, when I asked Mr. Elger the percentage of area shaded blue in the Nearburg 80-acre tract under consideration, he said between 15 and 20 percent. I'd ask you for purposes of sample to assume 17 and a half percent the 80-acre tract is shown on on exhibit as being productive. Okay?

A. Okay.

Q. And I understood the testimony to be that the top allowable in this pool is 534 barrels of oil per day; is that correct?

A. 533 was -- I've always understood 534 barrels.

Q. If the testimony was 533, let's use that. And would you tell me what 17 and a half percent of 533 barrels is.

A. It's 93 barrels a day.

Q. And were you present when the testimony indicated that the allowable for this pool was 6.67 barrels per acre?

A. Yes.

Q. And that would have come out with about that same number, would it not?

A. Yeah, I'm sure it would.

Q. Just to check ourselves, let's do 17 and a half percent times 80 acres.

A. Okay.

Q. Times 6.67 barrels per acre.

A. Okay. It's 93.4.

Q. Now let's do a payout calculation, if we could, assuming a 94 barrel per day producing rate, $585,000 cost.

A. Was that four?

Q. I'm sorry. 485, thank you. And $25 per barrel oil.

A. I'm getting about 9.8 months.

Q. If a top allowable well were encountered and was subject to that restriction, the well would still pay out in 9.8 months according to that calculation; is that right?

A. Correct.

Q. Mr. Logan, do you believe that in order to protect the correlative rights of BTA to produce the reserves underlying its tract of land it is necessary to impose a

severe penalty upon the proposed deviated hole?

A. Yes, I do.

Q. And do you believe that utilizing the 17-and-a-half-percent figure which applicant's exhibit shows to be productive acreage is an appropriate way of determining a penalty?

A. Yes, I do.

Q. And that would result in a penalty of about 82 and a half percent?

A. Right.

Q. And do you believe that if a well is penalized at a rate of 82 and a half percent and pays out in 9.8 months that that is probably an economic venture?

A. It appears to me to be so.

MR. PEARCE: Thank you. I have nothing further of this witness at this time. I would move, if I may, the admission of Exhibit 1.

EXAMINER MORROW: Exhibit Number 1 is accepted into evidence.

(Intervener's Exhibit 1 was admitted into evidence.)

EXAMINATION

BY EXAMINER MORROW:

Q. Mr. Logan, have you or could you quickly make some calculations on how much oil you think could be recovered from

this tract by the proposed Nearburg well.

A. Well, it would be difficult.

Q. Let me try it again. How much recoverable oil do you believe is under the Nearburg tract?

A. Well, it's difficult to do because you don't know what the pay quality will be when they get into the mound. And, I mean, I realize we had a very exceptional well in our number 1, and I'll grant that. But just getting into the edge of the mound, you know, these things can come and go very quickly. And not knowing the pay quality, it would be very difficult to estimate what kind of reserves I would expect them to recover from that location.

Q. Do you know or have knowledge right now of any recoveries per acre that BTA is using for recoverable reserves under your tracts?

A. We don't have any volumetrics. We may have done some initially. I'd like to be able to do declined curve analysis, but they've been top allowable wells since inception. So I really at this time, I think they're going to be well above average in this Lovington Penn northeast field. And I would estimate -- I have no problem with what Mark said, 500,000 barrels. I think that's a very reasonable number.

Q. For your wells?

A. For our wells, yes.

Q. What did you say the bottom hole location is for

the Pennzoil well that you talked about?

A. It was originally 2310 from the south, 900 from the west line.

Q. Of the section?

A. Of the section, right. And then the sidetrack bottom hole location is approximately 50 feet north, slightly west of that location.

Q. And the penalty you propose is 82 and a half percent; was that what you testified?

A. Well, as their map is showing, you've got three dry holes on the tract and they're showing very little of it to be productive.

EXAMINER MORROW: That's all the questions I have. Mr. Cooter.

CROSS-EXAMINATION

BY MR. COOTER:

Q. Mr. Logan, do you have any logs or seismic data to show that the BTA number 2 and the Pennzoil well are in communication with one another?

A. I'm not a geophysicist. I'm sure we've got seismic data going across there. But as far as the interpretation, I really don't know. Are you talking about the 16-5?

Q. Yes, that Pennzoil well, the 16-5. Well, let me ask my question again. You assume so, but do you know? Do you have any logs or seismic data that shows communication

between those two wells, and let me add a little bit to that, that would indicate that the Pennzoil 5 well is not a separate or a different mound?

A. Well, I don't have the seismic information. But I'm dealing what I feel with is real numbers in the pressures. And they are in pressure communication. I cannot rightfully say that they are not in separate anomalies. I can't say that.

Q. Thank you. I appreciate your straightforwardness on that. Mr. Pearce's economic assumptions were based on $25 oil. Is there anyone here in the room that could really tell us that that will prove to be a reality six months or a year from now?

A. Well, I'm sure there isn't.

Q. Right. Let me ask you one other question. If the shoe was on the other foot, would you recommend to your management that the well be drilled with an 82 and a half percent penalty?

A. With the additional cost that they're incurring, we feel as our, I'm speaking as BTA, that the seismic interpretation of this type of a reservoir, we feel very confident with. And if we felt we were on the edge of the anomaly, I believe we would based on the numbers I'm seeing.

Q. Well, there are still some very basic risks in drilling, even without a penalty, are there not?

A. Well, sure, there's always a risk.

Q. It's just a question of interpretation as you've gone over the Exhibits 6 and 7 this morning?

A. Right.

Q. Before we get away from that $25 a barrel oil, could you tell me what figure BTA uses in its economic projections?

A. Well, it's really not for public information, but it is greater than 15. It's less than 25.

Q. Again, I thank you for your --

MR. COOTER: May I have just one short minute?

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

Q. (By Mr. Cooter:) If the proposed deviated hole were not drilled by Nearburg Producing Company, in your opinion, is there production under that south half northwest quarter proration unit that would either be drained by BTA from its A well or the number 1 well or left under the ground?

A. I believe it's possible that either case could occur.

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

MR. PEARCE: If I may get very briefly back into this.

EXAMINER MORROW: Sure.

REDIRECT EXAMINATION

BY MR. PEARCE:

Q. Is it possible, Mr. Logan, that if the well is not

deviated as proposed, there are reserves under that tract which might in fact be drained by the Maddux well to the due north?

A. That is also very possible.

MR. PEARCE: Thank you, sir.

EXAMINER MORROW: The witness may be excused.

MR. PEARCE: If I may, do you have --

MR. COOTER: I might recall Mr. Nearburg.

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

MR. COOTER: That's all. Thanks. Nothing further.

MR. PEARCE: Mr. Pearce.

MR. PEARCE: Very briefly, Mr. Examiner, I'd like to highlight a couple of items for your attention in closing. First of all, we have devoted a significant amount of discussion to the applicant's shading of its believed productive area in the south half of the northwest quarter of Section 17. Nobody's measured that, but the guesses were that that was between 15 and 20 percent of the 80-acre tract that was expected to be productive on a surface acreage basis.

If you look at what was marked as Exhibit Number 7 to this proceeding, which was the seismic display, and look at the geologic model on the top of that exhibit, you will notice that applicant indicates that the productive zone is thinning to the west so that even the surface acreage basis in terms of net feet of pay is probably overly optimistic. Applicant has

a well to the north of this location which may recover some of these reserves.

It seems to us that an 82-and-a-half-percent penalty on a top allowable well is not an unreasonable request. In fact, if he gets a top allowable well by deviating this hole, that well will pay out the $485,000 cost of the directional drilling project. The witnesses testified that that is not an obviously uneconomic risk for a producer to take, that an 83-barrel-a-day well is likely to pay out a $485,000 investment and that if they are confident of their geology, that might be a risk that they would take.

We therefore request that the division apply that penalty in order to protect the correlative rights of the BTA properties. It's obvious that they are trying to get as close as possible to the BTA acreage. BTA has got some very good properties out there. And although it may be reasonable to allow someone to crowd a boundary to recover reserves, that production needs to be penalized to protect the party who's being encroached upon. Thank you.

EXAMINER MORROW: Mr. Cooter?

MR. COOTER: Mr. Morrow, I wish this were a black-and-white case that we were presenting to you. We have, through Mr. Elger, endeavored to show as best we can what the limits of that mound are. We don't ask that you go back in and penalize BTA number 1 well because that mound doesn't

underlie all of that west half unit. So obviously you've got to look at something a little bit more than that. Their well is an excellent well, and we recognize that if we do crowd their property that that should not go unnoticed.

But we submit that if the deviated hole is not drilled, there will be recoverable reserves under lands not included in the BTA lease or, in the alternative, that those reserves will be drained by the BTA well. And the well cannot be justified economically with anything like an 82-and-a-half-percent penalty. And if the economic penalty is such that the well cannot be drilled, then it's just as easy just to deny the application. But we've got to be a little bit realistic about it. And if the application is denied, then there are reserves there under this state lease that will be left in the ground or drained by BTA, one of the two.

EXAMINER MORROW: Okay.

MR. COOTER: Thank you, sir.

EXAMINER MORROW: Thank you. Anything else anybody wants to say in this case? All right. Case number 10166 will be taken under advisement. And that concludes today's hearing. Thank all of you.

(The foregoing hearing was adjourned at the approximate hour of 1:30 p.m.)

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

REPORTER'S CERTIFICATE

I, DEBORAH LAVINE, RPR, a Certified Shorthand Reporter and Notary Public, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 21st of December, 1990.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10,166 heard by me on November 28, 1990.

Oil Conservation Division

Deborah L. Lavine

DEBORAH LAVINE, RPR
Certified Shorthand Reporter
CSR No. 252, Notary Public

My Commission Expires:
August 6th, 1993