NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10766

IN THE MATTER OF:

The Application of David H. Arrington Oil & Gas, Inc., for an Unorthodox Gas Well Location and a Nonstandard Gas Spacing Unit, Lea County, New Mexico.

BEFORE:

MICHAEL E. STOGNER

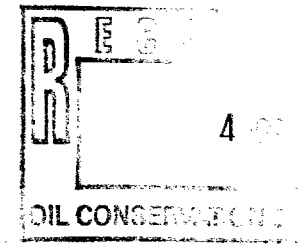
Hearing Examiner

State Land Office Building

Thursday, September 23, 1993

REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Court Reporter
for the State of New Mexico



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I N D E X

E X H I B I T S

EXAMINER STOGNER: At this time, I'll call Case No. 10766.

MR. STOVALL: Application of David H. Arrington Oil & Gas, Inc., for an unorthodox gas well location and nonstandard spacing unit, Lea County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge & Sheridan. We represent David H. Arrington Oil & Gas, Inc., and I have one witness.

EXAMINER STOGNER: Any other appearances?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing on behalf of Conoco, Inc., and I have one witness to be sworn.

EXAMINER CATANACH: Are there any other appearances in this matter?

Will the witnesses please stand at this time to be sworn?

[And the witnesses were duly sworn.]

KEITH LOGAN

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Will you state your name for the record, please.

A. Keith Logan.

Q. Where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. I am retained as a consulting petroleum engineer by David Arrington.

Q. Have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that prior testimony, were your credentials as a petroleum engineer accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the application filed in this case on behalf of Mr. Arrington?

A. Yes, I am.

Q. Are you familiar with the proposed well, the offsetting development in the Eumont Gas pool, and the reasons for the proposed

unorthodox well location?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER STOGNER: Are there any objections?

MR. KELLAHIN: None.

EXAMINER STOGNER: So qualified.

Q. Mr. Logan, would you briefly state what Mr. Arrington seeks with this application?

A. Mr. Arrington is seeking approval for a nonstandard proration unit in the Eumont Gas pool, consisting of the southeast quarter of the northwest quarter, the south half of the northeast quarter, and the northwest quarter of the southeast quarter of Section 11, Township 21 South, Range 36 East, Lea County, New Mexico.

Q. Is Mr. Arrington also seeking approval of an unorthodox well location?

A. Yes.

Q. What is that location?

A. Location would be drilled 1980 feet from the north line and 1830 feet from the west line.

Q. What are the well spacing requirements

for wells drilled in the Eumont Gas pool on 160-acre units?

A. That no well shall be drilled closer than 660 feet from the outer boundary of that proration unit.

Q. So the proposed well is too close to the western boundary of the proposed unit?

A. Correct.

Q. It's how many feet from the boundary?

A. It's 150 feet too close.

Q. So it's 510 feet from the boundary?

A. Correct.

Q. Let's go to what has been marked as David H. Arrington Exhibit No. 1. I'd ask you first to identify this, and then review it for Mr. Stogner.

A. Exhibit No. 1 is a plat showing both the proposed proration unit, as you can see outlined, the acreage that I previously described. It also is showing cumulative production and current rate from existing or plugged Eumont gas producers.

The "A" that I've shown here is cumulative production in million cubic feet, and "B" is current rate in Mcfd, or current status,

whether the well has been plugged and abandoned or, in the case of the well in the south, part of the proposed proration unit is now an injection well in the Grayburg-San Andres.

Q. Is all the acreage in Section 11, other than the proposed spacing unit, dedicated to a Eumont unit?

A. Yes.

Q. Could you review the Eumont spacing units in this section for the Examiner, please?

A. Yes. The acreage west and southwest, comprising 200 acres that is outlined, shows Conoco has a proration unit there.

Due south of the acreage is a 40-acre tract that Hendrix operates. The east half of the southeast quarter is an 80-acre tract dedicated to the Burleson well, producing in the southeast to the southeast quarter.

The north half of the northeast quarter is an 80-acre lay-down--the producing well is the Hendrix well in the northwest of the northeast quarter, and then the acreage in the north half of the northwest quarter is dedicated to a 320-acre proration unit that continues into Section 2, to the north.

Q. That's operated by Chevron?

A. Right.

Q. All right. Let's go to Exhibit No. 2. Would you identify and review that, please?

A. Exhibit No. 2 is a cross-section. I want to explain, really, my nomenclature in this matter, what we're looking for, so I've got some intervals colored.

This is, essentially, a west to east cross-section. It goes from the Conoco Well to the southwest of the proposed location, and ends at the well in the south part of the proposed proration unit.

What I've colored in here in orange, at the very top, is a correlation point within the Seven Rivers. The intervals below, that I've colored in green, are still within the Seven Rivers, as I call it, and they are strictly shown here as correlation points.

When you get down to the red formation, I'm referring to that as Queen, and then the yellow I'm calling Penrose.

Q. What are the primary objectives in the proposed well?

A. Really, the Queen-Penrose.

Q. And where, on this cross section, would the proposed well be located?

A. It would be located between Well No. 2 and 3.

Q. Let's go down to Exhibit No. 3. Would you identify that, please?

A. Okay. Exhibit No. 3 is a structure map on the top of the Queen formation. The red one, as I described on the cross-section, not a lot of structural change in here.

Yes, the proposed location would be high to some of the acreage on the eastern part of the proration unit. I don't think that has, really, any bearing on it. We are still, on the Queen formation, high to the Conoco Well, to the southwest.

Q. All right. Let's move to Exhibit 4, your isopach.

A. Okay. The main thing I'm showing here, this is thickness of the Queen sand; again, the red, if you want to refer to your cross-section.

What I'm showing here, at the proposed location or a standard location, going due west, there is significant difference between there and the well due west. As you can see, at the

660/660 location on the proposed proration unit, I show 30 feet of Queen sand thickness; whereas, when you go west, it thickens to 95 feet. So, definitely, there's a major change going west.

I didn't see this occur in the Penrose. The Penrose, I'm not seeing a lot of change in thickness in the sand, like I do in the Queen. In our proposed location, we're trying to have as thick of a Queen sand as we possibly can, to adequately recover reserves.

Q. Your isopach map, basically, shows a substantial thickening of the Queen as you move to the west, is that correct?

A. That's correct.

Q. If you drilled at a standard location there, there in fact is a well at the standard location, is that right?

A. Yes, there is.

Q. If you move further off to the east, what impact would that have on the ability of Mr. Arrington to go forward with that project?

A. Well, that would definitely increase the risk of being commercial.

Q. In your opinion, would anything to the east of the standard location be an acceptable

place to place a well to encounter the Queen formation?

A. No.

Q. Now, let's go to your Exhibit No. 5, and I would ask you to review this, and review for the Examiner what penalty Mr. Arrington would recommend be imposed on the well if, in fact, the Division determines that it is appropriate to penalize this well because of its location.

A. What I've done here is, I've taken and plotted, on graph paper, a standard location, which is 660 from both boundaries, the south and the west boundary, and the distance from that point to Conoco's No. 16 well, to the southwest. And I've calculated that distance as X.

I've also on here put down the proposed location, which is 150 feet towards the west boundary of the proration unit, and I've calculated that distance and called it Y.

And, from that, I got a ratio between X and Y showing that Y is just 94 percent of X, which tells me that we're actually only moving six percent closer to Conoco's well at the proposed location.

Q. So you're recommending a six percent

penalty?

A. Yes.

Q. Against what should that penalty be applied?

A. Against the allowable in the Eumont gas pool.

Q. If the Division should decide to impose a penalty based on the amount of encroachment on the offsetting tract, have you also considered what that penalty might be?

A. Yes, I have.

Q. How do you calculate that penalty, using that approach?

A. Well, I calculate it to be 10.6 percent.

Q. That 10.6 percent figure, how did you determine that?

A. Well, same way here, instead of going to their well, I went to the corner of the tracts, since we are moving--I mean, their well is southwest, so I just did it to the southwest corner.

Q. If you use the same approach but don't use the Conoco well, but just calculate the percentage encroachment between your proposed

location and the standard location to the corner of your tract, you came up, in that circumstance, with a 10.6 percent penalty?

A. Correct.

Q. Have you considered what kind of a penalty might be imposed if, in fact, you used the amount of encroachment between this well anc the western boundary of the unit?

A. The proposed location is 22.7 percent closer to the west boundary, but is standard to the south.

Q. If that approach is utilized, what percentage penalty would you recommend be applied?

A. Roughly 11.5 percent.

Q. How do you get that?

A. By just taking an arithmetic average of two numbers.

Q. Could you identify what has been marked as Arrington Exhibit No. 6?

A. Yes. Exhibit No. 6 are affidavits of mailing, notifying the offset operators to this proposed location.

Q. It also provides notice of the hearing?

A. Yes.

Q. Enclosed in this exhibit are return receipts showing that, in fact, the notice reached the designated parties?

A. Yes.

Q. In your opinion, will approval of this application and the drilling of the well at the proposed location, result in the recovery of hydrocarbons that otherwise will not be recovered?

A. Yes.

Q. In your opinion, will approval of this application and adoption of your recommended penalty be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 1 through 6 prepared by you?

A. Yes, they were.

MR. CARR: At this time, we would move the admission of Arrington Exhibits 1 through 6.

EXAMINER STOGNER: Exhibits 1 through 6 will be admitted into evidence.

MR. CARR: That concludes my direct examination of Mr. Logan.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Logan, when were you retained by Mr. Arrington to make a study of this particular case for him?

A. Several months ago. I don't know the exact point.

Q. Were you hired before or after Mr. Arrington made his initial proposal to Conoco to place this well 330 from the western boundary of your spacing unit?

A. Oh, I was involved with it at that time, yes.

Q. Did Mr. Arrington give you any criteria for determining where to locate this Eumont well in his proposed spacing unit?

A. Just at the most favorable location.

EXAMINER STOGNER: I'm sorry, what?

A. The place he felt like he could recover the most reserves.

Q. Did he describe to you any desire to position yourself as closely as you could to the Conoco State D No. 16 well in the offsetting spacing unit?

A. No.

Q. What was the reason the well was moved back from 330 to 510?

A. Well, it was mainly because there was a chance of a severe penalty.

Q. Have you examined the types of penalties used by the Division for Eumont gas wells, that are located at unorthodox gas well locations?

A. I can't say that I've examined them. I'm somewhat aware of what has taken place.

Q. Are you familiar with any footage encroachment penalty adopted by the Division concerning Eumont gas wells?

A. I can't say that I know of any specific, no, Mr. Kellahin.

Q. Okay. When you look at the Eumont pool, the top most productive interval in that pool is that zone above the Seven Rivers, until you get to the Yates? Is that the way it's described?

A. Could you repeat that? I'm trying to understand what you said.

Q. Let's take the Eumont pool. From the surface down, what is the first producing interval in the Eumont pool that you get to?

A. The Yates.

Q. Have you mapped the Yates' potential in your spacing unit for production out of the pool?

A. I have not mapped the Yates.

Q. The next lower level of production in the pool is the Seven Rivers, isn't it?

A. Correct.

Q. Have you prepared an isopach on that interval to determine the potential production within your spacing unit for that formation?

A. I did look at the interval from my Seven Rivers marker down to what I'm calling the top of the Queen.

Q. The interval that you chose to present to the Hearing Examiner is the Queen interval?

A. Correct.

Q. Show us the thickness, in terms of the vertical interval that you're mapping, when you look at a cross-section or a type log.

A. Right. What I'm trying to say here is, in my study, of course, what I'm calling the Queen--and I know that nomenclature could be a problem in here--but what I'm calling the Queen is what I've colored as a sand, and I've colored it in red on the cross-section.

Q. Let me take a moment to understand. When you prepared your Queen isopach, did you use a porosity cutoff value?

A. I used a sand thickness, is what I used.

Q. So, we're looking at a gross isopach of the Queen interval on your map?

A. Well, I'm looking at a gross isopach, but when you get right on the acreage, what I'm seeing, if you go from Well No. 2 to Well No. 3, what I'm seeing is, you go from quite a bit of sand, to some sand with a very tight, appears to be carbonate rock below it, in between it and the Penrose. What I'm saying there, it doesn't have the potential. It's not reservoir quality rock.

Q. I want to make sure I understand the interval that's being contoured on the isopach. When I look at the No. 2 well on the cross-section, that area shaded in the pink or the red represents the totals interval that you're trying to map?

A. Yes.

Q. You've not applied a porosity cutoff value to shrink that thickness in that well?

A. Well, no, I haven't, because you

definitely go from a lot of sand to getting quite thin, but it's still perforated and did produce on the proposed proration unit.

Q. Did you prepare an isopach map of the Penrose member of the pool?

A. I have done a Penrose.

Q. Your conclusion was that it didn't make a difference?

A. That the changes were not nearly as dramatic as what I'm seeing in the Queen. The Queen, by far--my map explains production quite well, in that the best well in this happens to be the thickest well in the Queen.

Q. Let's look at the Penrose, for a moment. When you look at the data on the Penrose member, what is the east/west orientation of the thickness? In which direction do we go to get the greater thickness on the Penrose?

A. From a percentage standpoint, I'm just not seeing what I would call significant changes in the Penrose and that's why, I think, I believe any isopach ought to explain what's happening, from a production standpoint, and that's why I happened the Queen.

Q. When you map the Penrose interval, and

you don't see a significant change in thickness--
A. No, I don't.
Q. --what constitutes, in your mind, the definition of "thickness" and "significant"?
A. I'm just saying a sand-- I mean, I've got it colored in yellow, and I'll just say right here, I don't see a lot of change from west to east.
Q. When we look at the Queen now, the proposed unorthodox location, it is your conclusion that is 30 feet of Queen?
A. Correct.
Q. The standard location is where there's an existing well in another pool, right?
A. Right. That's Grayburg-San Andres.
Q. That's one of those EMSU unit wells?
A. That's right.
Q. When we look at a whole spacing unit, there is not a Eumont well yet that's producing for your spacing unit, right?
A. The one in the south part of that was perforated across the Queen.
Q. It's not an injector well in the unit?
A. The one in the--it's now an injection well. I'm just saying it had capacity to have

produced from the Queen, because it made 1.5 Bcf.

Q. Looking at the spacing unit now, the 160 acres, there is no producing Eumont gas well on that spacing unit?

A. No, there's not.

Q. So you have the opportunity and the flexibility to locate that well anywhere you want within the spacing unit?

A. Well, that is correct.

Q. The standard location closest to the unorthodox location is another 150 feet to the east, and it's at the black dot on the isopach?

A. Correct.

Q. If you move another--what's the minimum distance you have away from that wellbore that you would want to maintain?

A. I would say 50 feet minimum.

Q. Okay. If we go from the 510, and you move to 610, which is the 50-foot difference between the existing wellbore, tell me the footage distance difference between the 510 and the 610 location.

A. Oh, there might be 10 feet.

Q. If you move to the eastern side of the existing wellbore and are 50 feet farther east,

what is going to be the thickness on your isopach at that point?

A. Well, from the way I've got it mapped, not much at all.

Q. How much is not enough to make a difference as to well locations, Mr. Logan?

A. Well, I'll just go back. I see the dramatic change going west, due west. That's where you are getting the Queen changing dramatically, and the fact that you have made 12 Bcf out of that, both the No. 1 and 16 well to the southwest.

Q. Have you analyzed the reservoir to determine for us, as a reservoir engineer, what is the minimum thickness in the Queen for the Eumont pool, that you need for a commercial well?

A. I haven't done that, but I do know that the well in the south part of the proration unit made 1.5 Bcf.

Q. If the location you're proposing is 30 feet--are you with me?

A. Yes.

Q. --if you follow that contour line over to the west, that's a 40-foot thickness line, isn't it?

A. Right.

Q. Follow that contour line south of the location, taking it east, you can eventually get to a comparable thickness in the Queen interval of the pool, and be at a standard well location within your spacing unit, can't you?

A. I would much rather move in the direction of a control point. In that case, I don't feel like I am.

Q. Your control point is the Conoco-operated State D 16 well?

A. No, I'm talking about the one due west, the one that I show as 95 feet.

Q. The 95-foot point on your isopach is now an EMSU unit well, isn't it?

A. Yes, it is.

Q. It's been completed out of the pool and it's now one of those unit wells?

A. Right.

Q. Did that well ever produce in the Eumont?

A. No, but it's a good control point.

Q. With 95 feet of Queen sand interval, that control point was completed out of the Queen formation for another pool, and never produced

out of the Queen?

A. Well, no. Conoco had the No. 1 well. That's all one proration unit there.

Q. You're allowed to have multiple gas wells in a proration unit in this pool, aren't you?

A. Yes, you are.

Q. What would be the maximum allowable for a spacing unit of your size containing a single Eumont gas well? What can you produce?

A. 600 Mcf a day.

Q. And with what, a six percent penalty, what do you get to produce if the Examiner accepts the six percent penalty solution?

A. 564.

Q. Now, 600 Mcf a day in the Eumont is a minimum gas allowable, isn't it?

A. Yes.

Q. What do you think is the true potential of a well at this location?

A. Oh, I think it has the capability of making up to a million a day.

Q. Any other criteria, Mr. Logan, for deciding where to put the gas well, except for your testimony about the Queen, as shown on

Exhibit No. 4?

A. No, because I think my Queen isopach explains production, and, to me, that's very important.

MR. KELLAHIN: No further questions, thank you.

EXAMINER STOGNER: Mr. Carr, any redirect?

MR. CARR: No redirect.

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Logan, was this 160-acre configuration, that you're proposing today, was that what was dedicated to that previous well that's now an injector?

A. No. This was an old--I know David Arrington has purchased interest out here and put this acreage together. Well, it was the only acreage within this section not dedicated to the Eumont gas well, and it does comprise 160 acres.

Q. Okay. As far as that previous well that's now an injector, do you know when that proration unit became nonexistent?

A. I'm really not sure, but I can check that out.

Q. Then you don't know the acreage dedicated to that well?

A. No, I do not.

Q. Is this all one lease, the David Arrington oil?

A. No, there's more than one lease involved.

Q. How many?

A. Looks like there are two leases. In looking at that, it appears that the southeast of the northeast, the tract that you were talking about, the 40 that had the Eumont gas well, plus the tract north of there, so the 120 acres on the east end of this proration unit, was a wiser quarter lease, and then the 40 acres on the west side was part of Chevron's lease.

Q. But those proration units, in the first part of your testimony, those are the existing Eumont-dedicated acreages now, and the 160 acres that are the subject of this case is acreage that is not presently dedicated, is that correct?

A. Correct.

Q. That is a Chevron Eunice Monument well that is at that standard location 1980 from the north and west lines?

A. Yes, it is.

Q. Are there any plans on putting another well in that proration unit, regardless of what occurs today?

A. Not at this time.

Q. The 320-acre dedication that the north half of the northwest quarter is dedicated to Chevron, or you have it shown as a portion of a Chevron 320-acre proration unit, where are those wells located?

A. They're located up in Section 2.

Q. How far north in Section 2?

A. What it will be, it's 320 acres, and it's--

Q. I understand that. What is the dedicated acreage, and how far?

A. It would be the southwest quarter of Section 2.

Q. So that's 160 acres plus 80 acres. Where's the other 80 acres?

A. Well, I know it's a complete stand-up, so, you know, just 80, 80. If you just continue north, it would be the southwest quarter and the south half of the northwest quarter.

Q. Do you know how many wells are

dedicated to that 320?

A. I believe there's two or three producing.

Q. None of them are down in Section 11?

A. No.

EXAMINER STOGNER: Any other questions of Mr. Logan? If not, he may be excused.

Mr. Carr, do you have anything further.

MR. CARR: We have nothing further.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, we would call Susan Haycock.

EXAMINER STOGNER: Ms. Haycock, I would remind you that you are still under oath from the previous case today.

And, if there are no objections, Mr. Carr, I will show that she is still qualified.

MR. CARR: No objection.

SUSAN HAYCOCK

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Ms. Haycock, is it Conoco's position

that the Division Examiner should deny the Arrington-requested unorthodox well location?

A. Yes.

Q. Have you participated in the technical case presented by your company in order to reach that conclusion?

A. Yes, I have.

Q. Why is Conoco recommending to the Examiner that the Arrington request for this well location be denied?

A. Well, besides the fact it's in an unorthodox location, we have geological evidence to show that there is no reason to drill this well at this location. We see plenty of opportunity within their 160-acre proration unit to drill a successful Eumont well.

Q. Let's turn now to Exhibit No. 1. Would you identify and describe that display for us?

A. Yes. Exhibit No. 1 is a little proration and production plat. The acreage shaded in the stippled blue area is Arrington's 160-acre proration unit. The area shaded in solid yellow is Conoco's State D acreage.

The purpose of this map is to show

current and past Eumont producers, and to show that the Arrington lease is surrounded by current and past Eumont procedures, not just only on the western boundary.

Q. Take a moment and go to the bottom of the display, and show us how you have tabulated information within the cross-hatch, and what is shown?

A. In each of the little cross-hatchered areas, the top portion is cumulative protection through 1992. In the upper left is the cumulative gas. In the upper right is the cumulative oil. In the lower left is the current average daily production for April of 1993, and then the average oil production in the lower right, in which case there is none.

The cumulative production is in MMcf, and the daily rate is in Mcf per day.

Q. Let's turn to the structure map, Exhibit No. 2. Does this exhibit and the rest of the geologic exhibits, Ms. Haycock, represent your personal work?

A. Yes, they do.

Q. This is your interpretation based upon the data available to you?

A. Yes, it is.

Q. Let's look at the structure map. What is your conclusion?

A. Basically, we find that the structure here in this area has very little to do with it. This is part of an overall, very large, anticlinal feature, and throughout the entire mapped area the Eumont is gas productive and there's no indication of any type of water influx, so it doesn't really matter--doesn't really make sense to try and get updip a little bit. It's not going to help. And I believe in their exhibits they also show the same thing.

Q. What has been your involvement in studying the geology of the Eumont pool?

A. We have done some reservoir studies in this area, and, more recently, have recompleted in the Eumont in a couple of wells within this mapped area.

Q. Let's look down in the southeast corner of the map, and there's the Lockhart B. Conoco operates properties down there?

A. Yes.

Q. Do you have a Eumont gas well down there?

A. Yes, we do, the Lockhart B No. 11 well.

Q. Did you provide testimony before the Division concerning that well, sometime earlier?

A. Yes, I did.

Q. When we look at the structure map, there is a line of cross-section?

A. Yes.

Q. What is the purpose of orienting your line of cross-section in that direction?

A. Okay. The cross-section goes from west to east and shows data that we have for net pay in the Eumont section, for the wells to the east of Arrington's location, as well as to the west. And I can talk more specifically about that cross-section when we get to it.

Q. Let's do it right now.

A. Okay. On Exhibit No. 3 is this west to east cross-section. It also has the proposed location of Arrington Oil & Gas's Eumont well.

What you see here, shaded in yellow, is porosity greater than six percent. Basically, on this cross-section, we're showing from the Yates down to the top of the Grayburg. Historically, in this area, most of the production has come from the Queen and Penrose interval; however, we

see opportunities as well in the upper part of the Seven Rivers.

Q. Let's look at the relationship between the EMSU 306 and the proposed Arrington location.

A. Okay.

Q. Were you present when Mr. Logan testified that his location criteria was to move west to get greater thickness in the Queen, as represented by a control point being a log of the EMSU 306 well?

A. Yes.

Q. If that is his strategy, what is your opinion about the success of that strategy, wher you look at the Queen?

A. Okay, we have a couple of exhibits that we will talk about here in a moment, the net pay isopach maps for the Queen-Penrose, as well as the Upper Seven Rivers. But sticking to the Queen-Penrose right now, we agree that the Queen porosity pinches out as you go to the east. However, looking at this cross-section, you can see that the Penrose increases in an easterly direction.

Q. Let's go back and look at the Queen

interval in the EMSU 306 well. That is Mr. Logan's strategy. He's looking for better Queen with his well location.

Do you have information on that EMSU 306 well, in terms of whether it was productive out of the Queen interval in that well?

A. No, it never was productive out of the Queen interval.

Q. As you analyze the reservoir potential for any of these sand zones in the pool, what is your ultimate conclusion about the opportunity to produce this spacing unit at this unorthodox location, over a standard location?

A. I don't see any benefit by moving to the west. He can easily move to the east and pick up maybe a little less Queen pay, but more Penrose pay.

Q. Let's look at the Penrose relationship, okay? On your cross-section again, if you move over to the McQuatters Com 4, do you see that within his spacing unit?

A. Yes.

Q. Go down the log and find us the Penrose interval, okay?

A. Okay.

Q. That are portion above the top of the Grayburg and the Penrose, is that what you're looking at?

A. Yes.

Q. What does that tell you about moving this well location in an easterly direction if you want to access the Penrose potential?

A. That he would have more pay in the Penrose by moving to the east.

Q. You have prepared some isopachs?

A. Yes, I have.

Q. Let's turn to Exhibit 4. What is the interval you've mapped and what is the criteria for the mapping?

A. Exhibit No. 4 is a net pay isopach map of the Queen-Penrose interval. What we used for a cutoff here was porosity greater than six percent. We didn't just count the sand thickness itself, but the actual porosity contained within that sand.

You can see, over in our State D 16, we have 198 feet of net-effected pay there, and as you go to the east, that pay does drop off.

Now, going to the north, there's still a substantial amount of Queen-Penrose pay, but

this is grouped in both the Queen and Penrose, and not individually, so as you can see going to the east, you may pick up some Penrose where the Queen pinches out, and going to the west, vice versa. So, it's both the Queen and Penrose on this map.

Q. Now, part of the challenge for a geologist is to take the combination of both of those members and pick your best opportunity, isn't it?

A. Right. So, you pick out the best opportunity for both, not just for one or the other.

Q. Using that exploitation strategy, tell us, within the Arrington spacing unit, where you would put this well?

A. It looks to me that closest to the EMSU 308 well, or just south of it at McQuatters Com No. 4 would be the best place for Arrington to drill a well for Queen-Penrose.

Q. What do you gain at that location that you don't obtain at the proposed unorthodox location?

A. Basically, you get better Penrose development.

Q. How much better?

A. Well, you can see here that the well right next to Arrington's proposed location, there's 91 feet of pay at the Queen-Penrose at the McQuatters Com No. 4, there's 111 feet of pay, so that's about 20 feet gain in the net effect of pay.

Q. Let's turn now to Exhibit 5. Identify and describe what you're doing there.

A. Okay. Exhibit No. 5 is a net pay isopach map for the Upper Seven Rivers. Conoco has had success in developing the upper portion of the Seven Rivers. This map shows that Arrington would have this same opportunity as well, on his lease, and that there is no reason to crowd the western boundary, that this opportunity exists in many locations within his proration unit.

Q. In your opinion, Ms. Haycock, is approval of this location and putting some kind of production penalty limitation on it, an appropriate solution for this specific case?

A. No. We have not really even considered a penalty because we feel there are many places to drill on his 160-acre proration unit, that

there's no reason at all to drill this well at the location he's proposing.

Q. As part of the examination, did Conoco inspect the surface of the Arrington spacing unit to determine if there were any surface limitations, restrictions, or other impediments to locating a Eumont gas well at a standard well location?

A. Yes, we did.

Q. Let's turn to Exhibit 6. Did individuals until your control or direction make a visual inspection of the surface?

A. Yes, they did.

Q. Was there any surface limitation that was reported back to you from this?

A. No, none at all.

Q. Do you see on the topo map any reason why a well could not be located at a standard well location?

A. No, I do not.

Q. What do you recommend the Examiner do, Ms. Haycock?

A. I think that they should have Arrington Oil & Gas place their well at a standard location.

MR. KELLAHIN: We move the introduction of Exhibits 1 through 6.

EXAMINER STOGNER: Exhibits 1 through 6 will be admitted into evidence. Mr. Carr, your witness.

EXAMINATION

BY MR. CARR:

Q. Ms. Haycock, when did you first become aware of the Arrington proposed unorthodox well?

A. The first time they sent a letter out, when they were proposing to drill at 330 feet from our lease, from our proration unit.

Q. Did that letter come to you?

A. No, it did not.

Q. How were you advised of this location?

A. I was advised--well, basically, we have a division within our office, and Jerry Hoover handles that and he's here today. And the letter went to him, and he brought it to the engineer, Mark McClelland, and myself.

Q. At that time, what were you asked to do?

A. I was asked to look at this location and see if we thought that there was any reason that he should drill this nonstandard location.

Q. Were you, at that time, trying to determine whether or not you should oppose that application?

A. Pardon me?

Q. Was the question on the table whether or not you should oppose the application, or had that matter been decided?

A. The question was, is there any reason to oppose this.

Q. Now, if we go to your Exhibit No. 1, this is basically a production map, is that correct?

A. Yes, That's correct.

Q. If I look at it, the Conoco well on your spacing unit, and I guess there have been two wells there, is that correct? One is a replacement to the other?

A. Right.

Q. And that figure is total production from the two wells?

A. No, there are two figures there. One figure for the State D 1, which is now in the EMSU waterflood for the Grayburg-San Andres, that shows a cumulative production of 11.8 Bcf. The other, State D 16, which is just a north twin to

that well, shows some other numbers above it that associates with that well.

Q. So that was a replacement to the original well?

A. Right.

Q. That is obviously the best well in this area?

A. Yes, it is.

Q. Do you have any further development plans for your spacing unit?

A. No, we don't.

Q. Now, if we go to Exhibit No. 2, that's your Queen structure map?

A. Yes.

Q. In the wells, incidentally, that have produced from this spacing unit, the two Conoco wells, are they producing from the Queen?

A. Currently, no. On the production plat that you saw, that one million a day, that's currently from the Upper Seven Rivers only. That does not include production from the Queen or Penrose at this time.

Q. You've actually set some sort of a plug and opened upper horizons, is that correct?

A. Yes.

Q. If I look at your structure map, and correct me, I thought you stated that structure didn't play a very major role in determining whether or not you would make a good well, is that right?

A. That's right. This is part of a very large feature that covers an enormous area, and the Queen-Penrose is generally productive throughout the entire structure.

Q. Am I reading this right? Aren't your wells, on your spacing unit, shaded in yellow, the highest structural wells that are shown on this exhibit?

A. Yes, some of them are.

Q. And aren't they also the very best gas wells? Didn't you state that?

A. Yes, and I don't believe that has to do with their structural position, but the reason that State D 1 produced for many, many years. It was a Bradenhead completion. It was completed from the Yates all the way to the Penrose, and made over 11.8 Bcf.

The State D 16 well, the reason it's such a good well is because we tapped into a very good pressure zone in that Upper Seven Rivers

that has not been produced before.

Q. If I look at your cross-section, your Exhibit 3, I think you indicated that the 306 had never been productive in the Queen?

A. Not based on the information I have.

Q. Was it ever tested? Was there ever an effort to complete that well in the Queen?

A. Not that I know of.

Q. So, then, it would't be protective in the Queen, would it?

A. No, that's right.

Q. Now, if we look at the McQuatter No. 4 well, do you know if there was an effort to produce that well in the Queen or the Penrose?

A. No, this well is just producing from a deeper horizon.

Q. So, if we look at the Penrose section there, we could say it has never produced, either, has it?

A. Right. It has never produced.

Q. It would be kind of like the Queen?

A. That's true.

Q. Basically what we have here is, you have a difference of opinion as to where this well should be located, isn't that fair to say,

with Mr. Logan?

A. Well, I'm basing my opinion on all the evidence that we have. We do know that the Penrose is productive to the east. We have our Lockhart B 11 that was making 380 Mcf a day from the Penrose, alone.

Q. But between you and Mr. Logan, you're not in agreement on where a well should be placed on that spacing unit, isn't that right?

A. That's correct.

Q. And yet, you're not the one that's going to be paying any of the costs for developing that tract, would you?

A. No, I will not.

EXAMINER STOGNER: Are you through, Mr. Carr?

MR. CARR: Yes, I am.

EXAMINER STOGNER: Mr. Kellahin, any redirect?

MR. KELLAHIN: No, sir.

EXAMINATION

BY EXAMINER STOGNER:

Q. What's the footage on that location, on the No. 16?

A. On the No. 16? Okay. I have a well

history on that.

Q. And I'm going to ask a similar question on that other one, the State D No. 1?

MR. KELLAHIN: Mr. Examiner, the record indicates that State D No. 16 is 2080 from the south, 660 from the west. I think those wells are about a hundred feet apart.

Q. What is the allowable on that No. 16 well?

A. We have the 160 acres there, plus that 40 acres on top, and I believe it is 1,200, I believe. 1.2 million.

Q. Do you know what the acreage factor would be?

A. I'm not sure what your question is.

Q. If 160 acres carries an acreage factor of 1, what would this be?

MR. STOVALL: Are you familiar with the proration schedule?

THE WITNESS: No, I'm not.

EXAMINER STOGNER: You're not?

MR. KELLAHIN: Mr. Examiner, if it would help you, I have brought my proration engineer here. The geologist won't be doing those calculations.

EXAMINER STOGNER: Has he been sworn in?

MR. KELLAHIN: Mr. McClelland has testified today already. It would be his testimony, if he were called, that it would be an acreage factor of 1.25.

EXAMINER STOGNER: That's a part of the record, is it not, Mr. Kellahin, in the Division records?

MR. KELLAHIN: Yes, that's correct, it is. Should you need to do so, Mr. McClelland is our proration engineer and we could call him.

EXAMINER STOGNER: I'll just take administrative notice of any records we may have, and also the proration rules and regs under R-8170, as amended.

MR. KELLAHIN: Yes. No objection.

EXAMINER STOGNER: Through whatever letter we're at these days.

MR. STOVALL: "H"?

EXAMINER STOGNER: Is there anything further at this point?

MR. KELLAHIN: No, sir.

MR. CARR: No, sir.

EXAMINER STOGNER: Okay. With that,

Case No. 10766 will be taken under advisement.

(And the proceedings concluded.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10766, heard by me on 23 Sept. 1993.

Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL September 30, 1993.

CARLA DIANE RODRIGUEZ, RPR
CCR No. 4