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:

APPLICATION OF READ AND STEVENS, INC., FOR AN UNORTHODOX INFILL GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, CHAVES COUNTY, NEW MEXICO

CASE NO. 11,514

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 16th, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, May 16th, 1996, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

May 16th, 1996
Examiner Hearing
CASE NO. 11,514

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E X H I B I T S

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A P P E A R A N C E S

FOR THE APPLICANT:

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By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 12:10 p.m.:

EXAMINER CATANACH: Call Case 11,514, which is the Application of Read and Stevens, Inc., for an unorthodox infill gas well location and simultaneous dedication, Chaves County, New Mexico.

Call for appearances.

MR. PADILLA: Mr. Examiner, Ernest L. Padilla, Padilla Law Firm, P.A., for the Applicant in this case.

I have two witnesses to be sworn.

MR. BRUCE: Mr. Examiner, Jim Bruce from the Hinkle law firm in Santa Fe, representing UMC Petroleum Corporation.

I have one witness.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan.

We represent Matador Petroleum Company in this matter, in support of Read and Stevens. I have no witnesses.

EXAMINER CATANACH: Okay, will the witnesses please stand to be sworn at this time?

(Thereupon, the witnesses were sworn.)

MR. PADILLA: Mr. Examiner, I've placed two sets of exhibits at your table up there, and at this time we

call Jim Brannigan.

JAMES P. BRANNIGAN,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Brannigan, please state your full name.

A. James Patrick Brannigan.

Q. Where do you reside?

A. Roswell, New Mexico.

Q. Are you a consulting geologist for the Applicant?

A. Yes, I am.

Q. Mr. Brannigan, have you previously had your credentials accepted as a matter of record before the Oil Conservation Division --

A. Yes, I have.

Q. -- as a petroleum geologist?

A. Yes.

Q. Mr. Brannigan, have you made a study of the geologic area in question here today?

A. Yes, I have.

MR. PADILLA: Mr. Examiner, we tender Mr. Brannigan as an expert petroleum geologist.

EXAMINER CATANACH: Any objection?

MR. BRUCE: No, sir.

EXAMINER CATANACH: Mr. Brannigan is so qualified.

Q. (By Mr. Padilla) Mr. Brannigan, would you tell the Examiner briefly what this Application is about from a geologic standpoint?

A. From a geological standpoint, Read and Stevens would like to drill a location in the south half of Section 26 of 15 South, 27 East, in the Buffalo Valley field.

Field rules call for wells to be drilled in the northwest quarter and the southeast quarter. One well was drilled in the southeast quarter; it did not encounter economic amounts of sand. And doing more geology, we find that we have a thicker channel to be drilled in the southwest quarter of Section 26.

Q. Mr. Brannigan, have you prepared exhibits for introduction at this hearing?

A. Yes, I have. I put exhibits together and also worked with Bill Bradshaw putting together the cross-sections.

Q. You have two exhibits; is that right?

A. Yes, I do.

Q. And what are they?

A. Exhibit 1 is a -- actually two cross-sections, A-A', which is an east-west cross-section, going through the proposed location, and also cross-section B-B', which

is a north-south cross-section.

Q. Let's turn to Exhibit Number 1 and have you identify that, please.

A. Well, the A-A' cross-section, which is an east-west cross-section, is a cross-section that shows the channels -- Actually what it is, it's crossing the channels. The B-B' cross-section goes down the axis of the channel. The sands for the most part in the Buffalo Valley run in a north-south direction.

One thing I want to add too is, there's several fields that are in this geographical area, but they don't have any geological reason -- there is no geological reason for the differentiation of the Springer Basin field in 14-27, the Buffalo Valley field in 15-27, the Diamond Mound field in 15-27, 16-27, and the Duffield field in 16-27. There are four or five different fields in this area, all producing out of the lower Pennsylvanian clastics.

Q. UMC Petroleum operates a well in the Diamondback -- Diamond Mound Pool, immediately to south of the proposed location; is that right?

A. That's correct.

Q. Mr. Brannigan, is the Buffalo Valley-Penn Pool prorated??

A. Yes, it is.

Q. Is the Diamond Mound prorated?

A. To the best of my knowledge, it is not.

Q. Mr. Brannigan, let's get back to the cross-section. I want you to explain to the Examiner from this cross-section whether or not the Diamond Mound and the area of the proposed location in the Buffalo Valley Pennsylvanian Gas Pool is a common source of supply.

A. Okay, you can see from the -- especially the B-B' cross-section, you can see the well, the Read and Stevens well, the Number 8 Harris, which is the well on the left side of the B-B' cross-section -- you can see that what we're calling the main pay in the Atoka channel is the same interval, even though that's in the Buffalo Valley field, when you come down through the proposed location to the UMC well, the Number 2 White State, you can see that even though it's in a different field, it's in the Diamond Mound field, it's actually producing out of the same channel.

Q. Mr. Brannigan, the logs shown on this cross-section have -- or the wells shown on the cross-section have cumulative production, do they not?

A. Yes, they do.

Q. What is the cumulative production shown on Exhibit 1 for the wells that are shown on there?

A. Okay, if you refer to cross-section A-A', the well on the very left side of the cross-section, which is

in Section 27 -- it's the Number 3 Harris Federal that Read and Stevens drilled -- that well never produced any gas at all. It's -- right now, I believe it's just -- I don't know if it's a shut-in gas well or what the status of that well is, but it's never produced even one MCF of gas. The importance of that is that it shows that it's outside the limits of the proposed channel we're trying to hit.

The Read and Stevens Number 8 Harris has currently made over 5.3 BCF.

The well on the east end of A-A', which is the Number 4 Harris, that well has made a little over a half a BCF and encountered just a very skinny part of the eastern edge of the channel.

The --

Q. Is that -- Is there supposed to be a decimal place on that cumulative production on that exhibit? My --

A. No, it's actually -- It's 577 MMCF.

Q. Okay, very good.

A. It's approximately a half a BCF, a little more than half a B.

And then the UMC well, which is the Number 2 White State, has currently made about 5.3 billion cubic feet, also.

Q. And which wells are operated by Read and Stevens?

A. Currently, all the wells on both cross-sections

are operated by Read and Stevens, except for the UMC Number 2 White State well, which is the easternmost -- or the southernmost well on the B-B' cross-section.

Q. What are the producing characteristics of the well located in the existing proration unit for which you want an infill well? What is the well producing at this rate today?

A. You mean current production?

Q. Its current production.

A. I believe the UMC well is about 700 MCF a day, and the Read and Stevens well is about a million.

Q. So --

A. But I'm just guessing at that.

Q. Does our next witness know those figures?

A. Yes, he does.

Q. Do you have anything else on the cross-section?

A. Well, I think the importance of the cross-section is that when you refer to A-A', what it's showing you is that when you run an east-west cross-section through the proposed location, what you have is a great-looking sand in the Number 8 Harris Federal that Read and Stevens has drilled. When you go to the left or the west and the Number 3 Harris Federal, you don't have that sand at all. And when you go farther to the east, the Number 4, what you're catching is actually the eastern edge of that

particular channel system.

So what we're seeing, for all intents and purposes, the middle well or the Number 8 Harris in the northwest quarter of Section 26, is right in the thickest part of the channel.

Now, what happens when you go over to the B-B' cross-section, which is the north-south cross-section, what you have then is both the UMC well and also the Read and Stevens Number 8 Harris, right down the axis of the channel, and you can see on that cross-section the characteristics that both wells are about the same and actually the production is about the same too.

Q. Does your next exhibit show sand thickness?

A. Yes, it does, Exhibit Number 2 is a map that I put together. It's on what I'm calling the lower Pennsylvanian clastics which, for all intents and purposes, is the main-pay Atoka channel sand that's referred to on the cross-section A-A' and B-B'.

And what it's showing out here is that, again what we talked about before, the general geometry of the channel sands in the Buffalo Valley are north and south.

And what this is also showing is that the A-A' cross-section, where the Number 3 Harris is out of the channel essentially, then you come over to the guts of the channel in the Number 8, and then over to the Number 4,

which is on the eastern edge of the channel system.

Now, when you go to B-B', what it's showing you is that you go from the Number 8 Harris to the proposed location, down to the Number 2 White State well that UMC operates, and again you're in the thickest part of that channel system.

Q. How would you characterize the sands in general terms, between where the existing location is and the proposed location --

A. Well --

Q. -- in terms of --

A. -- in terms of -- we expect to be -- When we drill our well, we expect to be in the axis, or the middle of this north-south-trending channel. So we expect when we drill our well to have as much porosity as both -- and as much pay as both the Number 8 Harris and Number 2 White State.

Q. In your opinion, would a well at the proposed location allow Read and Stevens to obtain its fair share of the underlying reserves in the south half of Section 26?

A. Yes, and the reason I say that is because the well that's currently producing in the south half of Section 26, the Number 4 Harris, was a very poor well. The average production in the Buffalo Valley is about -- and this takes in all 80-some wells -- about 2.5 BCF. And this

well has only made about 500 -- a little over half a BCF.

Q. Mr. Brannigan, do you have anything further on Exhibit Number 2?

A. No, I sure don't.

Q. Mr. Brannigan, in your opinion, would approval of this Application be in the best interests of conservation of oil and gas?

A. In my opinion, I believe that there's going to be reserves that are going to be left in the ground if Read and Stevens is not allowed to drill in the southwest corner of Section 26.

MR. PADILLA: Mr. Examiner, we tender Exhibits 1 and 2 and pass the witness at this time.

EXAMINER CATANACH: Exhibits 1 and 2 will be admitted as evidence.

Mr. Bruce?

MR. BRUCE: Mr. Carr, do you have any questions?

MR. CARR: I have no questions of this witness.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Just a couple, Mr. Brannigan. I just want to clarify on your Exhibit 1, you are expecting the proposed location to produce from basically the exact same interval as the existing Read and Stevens -- What is it? Harris Fed Number 8 to the north, and the UMC White State Number 4 to

the south?

A. Exactly.

Q. In looking at your Exhibit 2, you're hoping to get, you know, roughly 30 feet of net sand?

A. About 32 feet, we expect, right.

Q. Okay. Now, looking at this, couldn't you drill a well on the western edge of the southeast quarter and still get about 30 feet of net sand?

A. There's a possibility that we could do that.

Q. Okay. So you could probably get the same thing by drilling in the southwest quarter as you get in the southeast quarter?

A. Except that we would experience more drainage from the half a BCF that's already been completed out of the Number 4 Harris.

MR. BRUCE: I don't have any further questions, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Brannigan, by moving the well north to a standard location, what would you be losing in terms of the net sand?

A. Well, actually by moving it to the north, we would still be unorthodox. The Buffalo Valley rules call to be drilled in the northwest quarter and the southeast

quarter of the sections.

So essentially what we'd have to do is -- We're in Unit N right now. We would have to move into Unit O in order to be, I believe, orthodox.

MR. PADILLA: Mr. Examiner, in looking at the advertisement, I neglected to say that at the beginning of the hearing, the advertisement states Unit O, and it should be Unit N. The footage is correct, but the unit is wrong. I will point out that the notices for this hearing were on footage rather than unit letter.

EXAMINER CATANACH: Okay. So you guys are drilling in the wrong quarter section, basically?

THE WITNESS: That's right, that's right. There's been numerous cases of wells in the Buffalo Valley where the Commission has allowed operators to drill in the northeast of the southwest quarter because of geology.

Q. (By Examiner Catanach) In terms of the setback requirements, you're still encroaching towards the section to the south, though; am I correct?

A. Well, I believe our location is 1980 from the west and 990 from the south, so I believe the standard location on a normal 320 would be 660 from the south, so we're actually 330 feet farther north than we might be able to be on a standard location.

Q. Is the Atoka the only producing sand out here?

A. Well, that's a good question, because we've got the Springer Basin field to the north in 14-27 that the Commission has designated as Morrow. Then you get down to the Buffalo Valley, and they just called the Buffalo Valley Penn, and that would consider everything from the Cisco to the base of the Morrow.

Then you go to the Diamond Mound; up until to a few years ago it was the Diamond Mound Atoka and Morrow. Now what they've done is, they've separated -- Back, I believe, in 1989 or 1991 the designation of the Diamond Mound was split into a separate Diamond Mound Atoka and a separate Diamond Mound Morrow.

Then you go farther to the south, into the Duffield field, and again you're into the Penn again, where it's -- Is it Morrow? Is it Atoka? I really don't -- The geology is exactly the same, whether you can differentiate between Morrow or Atoka. These are channels that were deposited in lower Pennsylvanian time.

I really believe that the only way you can really differentiate on whether you are in a Morrow channel or an Atoka channel is by looking at microfossils. I've worked this area for -- well, since 1983, and depending on -- If you go to Yates Petroleum to sell them a deal in the Buffalo Valley, they call it Morrow. If you go to Read and Stevens, they call it all Atoka. If you go to some other

operators, they just want to call it lower Penn.

Is there a Morrow in this area? Probably. Is there Atoka? For sure. But I don't really think it matters as far as the geology is concerned.

Q. Basically, the pay you're showing on these cross-sections are the ones you're going to be -- the wells you're going to be completed in?

A. Yes, that's right. There are more channels up here. There are probably in the Buffalo Valley field, Diamond Mound, probably four or five major channels that produce in those fields. But in this case we're looking for this main pay in the Atoka.

Q. The two lower sands in the Number 8 well, one of them is producing, the other is not; is that correct? Or one of them is perf'd in the Number 8 well?

A. Yes.

Q. These two lower intervals --

A. Right, right, but I'm not using that as pay. Even though they perforated that interval, I'm not using that as a pay interval.

The reason -- Two reasons. One -- Well, the main reason is because the gamma ray may be a little bit too high.

Although I might add, there are wells out here in the Buffalo Valley-Diamond Mound trend where you have some

crossover with APIs as high as 70 API units that still produce very economical amounts of gas. So in some cases it could be shaley, in some cases it could be uranium salts.

EXAMINER CATANACH: That's all I have of the witness.

MR. BRUCE: Could I ask a couple of questions?

EXAMINER CATANACH: Sure.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. What does pressure data show up here? Does this indicate that reserves will be left in the ground?

A. You're asking a geologist about engineering data. I have to defer that question to somebody with that expertise. I really don't know.

Q. Okay. But you said -- did say you believe that reserves would be left in the ground if the well was not drilled on --

A. That's right, and I'm basing that on reserve data that I saw from our expert witness, the engineer.

Q. The next?

A. Right.

MR. BRUCE: So -- Never mind.

MR. PADILLA: Mr. Examiner, we'll call Les Carnes.

LES M. CARNES,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR PADILLA:

Q. Mr. Carnes, would you please state your full name?

A. Les M. Carnes.

Q. Mr. Carnes, where do you live?

A. Midland, Texas.

Q. Are you a consulting engineer in this case for Read and Stevens?

A. Yes, I am.

Q. Mr. Carnes, have you previously testified before the Oil Conservation Division and had your credentials accepted as a reservoir engineer?

A. Yes, I have, and they've been accepted.

Q. Have you been -- Have you testified in other capacities, other than as a reservoir engineer before the Division?

A. Yes, I have.

Q. And what capacity?

A. Operation matters, production, drilling costs and so forth.

Q. Mr. Carnes, you're primarily testifying today

about reservoir engineering; is that right?

A. Yes, that is correct.

Q. You have some other exhibits that deal with -- that require operational expertise and drilling expertise, correct?

A. Yes, they're prepared by Read and Stevens.

MR. PADILLA: Mr. Examiner, we offer Mr. Carnes as a reservoir engineer and as a drilling and production engineer as well.

EXAMINER CATANACH: Any objection? Mr. Carnes is so qualified.

Q. (By Mr. Padilla) Mr. Carnes, let's turn to what you have prepared as Exhibit Number 3 and have you identify that for the Examiner, please.

A. Exhibit 3 is a map showing the estimated ultimate recoveries and how they change throughout most of the Buffalo Valley-Penn and Diamond Mound-Morrow fields.

The contours are for each two BCF of gas, for -- And that's estimated ultimate recovery; we'll refer to it as EUR.

Q. Mr. Carnes, would you orient the Examiner to where the proposed location is going to be, or is located?

A. Yes, I will. The proposed location in the southeast of the southwest of Section 26 of 15 South, 27 East is about in the middle of the exhibit, on the map.

Q. Is that the well with the smaller red circle, with an arrow on it?

A. Yes, it is.

Q. Okay. Where is the boundary between the Buffalo Valley and the Diamond Mound Pools?

A. The boundary is the north section line of Sections 33, 34, 35 and 36 of 15 South, 27 East. Everything north of that line, including the proposed well, is in the Buffalo Valley-Penn field, and south of there it's the Diamond Mound.

Q. What are you trying to illustrate by your -- Now, I take it that you drew these contour lines based on estimated ultimate recovery?

A. That's correct.

Q. And what are you trying to illustrate by the contour lines?

A. Jim Brannigan testified that the average estimated ultimate recovery for over 80 wells that have produced some quantities of gas in these two fields is about 2.5 billion cubic feet, or BCF, and this illustrates where wells that have better than average EURs are located, and they're in a trend north-south, if we start in Section 14 of 15-27, running all the way down through Section 35 of 15 South, 27 East, and illustrate the high EURs expected in some of those wells on that trend.

Q. Now, right in the sections in line with the proposed location north and south, does that also conform to Mr. Brannigan's geology, that the reservoir is north-south oriented?

A. I believe it does.

Q. Okay. Now, you've shown some wells colored in red here. What do those mean? What does the red coloring indicate?

A. I have colored in red -- I think there are 11 wells on this exhibit that are located in either the southwest or the northeast quarters of a particular section, to demonstrate that those wells would not conform to the current field rules for the Buffalo Valley-Penn field.

Now, three of those wells are located -- three of the 11 in the Diamond Mound field, and no hearing was required to drill those, either in the northeast quarter or the southwest, because there's greater flexibility in that pool, which was formed several years after the Buffalo Valley-Penn field was formed.

Q. Now, let's look at the existing well and the proposed location on the south half of Section 26. What do your contour lines show in terms of those two locations?

A. It would indicate that the current well, that's in the south half of 26, for a 320-acre proration unit is

going to be far below average for those two fields, with an EUR of only .6 billion, while other wells on the trend will be much higher, and the expected wells should be somewhat higher than are around the average or better.

These contours do not indicate that that well will recover over 6 billion; simply they just honor the control points.

Q. Okay. Do you have anything further with regard to Exhibit Number 3?

A. Yes, just a brief statement that the discovery well for the Buffalo Valley-Penn field in the southeast of the southwest of 35 of 14 South, 27 East, is in the southwest quarter, as were several other good wells in that pool, and had -- Now, the discovery well did not have to have the Conservation Division approval to drill there, because it was the discovery well. And after the field rules went into effect in 1969, then permission and approval of the Commission had to be granted, and there are several wells that fit into that category, and they were approved.

Q. Let's go on to Exhibit Number 4 and have you identify that for the Examiner, please.

A. Exhibit 4 is the same isopach map as Mr. Brannigan presented and has prepared for this matter, but it also shows the drainage areas for four wells that have

produced that offset the proposed well.

Q. Which are those four wells?

A. They include Harris Fed Number 8 in the northwest quarter of 26, Harris Fed 4 in the southeast quarter of 26, White State Number 2 in the northwest quarter of 35, and the Harris Fed Number 7 in the northeast quarter of Section 34, and all in 15 South, 27 East.

Q. How did you -- Now, you have some little -- or some data and some squares by each of those wells. Tell us what is contained in those squares.

A. In each square I have shown what I believe to be the EUR, the estimated ultimate recovery, from those four wells, and the drainage area. I do consider those to be on the conservative side, because of the net pay shown for each of the wells.

For example, the Harris Fed Number 8, which is the well that holds the proration unit for the north half, the 320 acres in the north half of 26, is estimated to have 9.3 BCF as the ultimate recovery. And then based on volumetric calculations of recovery per acre-foot, I've got a drainage area of 347 acres.

Q. What do you have for the existing well on the south half of Section 26?

A. The well you're referring to is the Harris Fed Number 4, and that well with the .6 BCF EUR will have a

drainage area of about 80 acres.

Q. How about the UMC well?

A. The UMC well in Section 35 is expected to recover about 6.9 BCF or 7 BCF of gas with a drainage area of 400 acres.

Q. Finally, the last well in Section 34, what do you have for that?

A. There, with even a full BCF of gas, it's a thicker section with 23 feet of pay, and the drainage area is a little over 60 acres.

Q. Now, looking at Mr. Brannigan's geology and also looking at the two wells, the one in Section 34 and the existing well in Section -- south half of Section 26, those circles look pretty even; is that right?

A. Yes, one of them is for 62 acres and one of them for 84 acres, so there's not much difference.

Q. As far as geology is concerned, they also look pretty equal as well, right?

A. Well, the exception is that there's more net pay in the well in Section 34. It has designated to have 23 feet of pay versus only 15 feet in the southeast quarter of 26.

Q. What kind of expected ultimate recovery will you have from the proposed location?

A. For the proposed location I've looked at, it's

simply on undrained area, and I have calculated 94 acres that will not be drained by any of the existing wells. And as Mr. Brannigan testified, with 32 feet of pay and 94 acres and a recovery of 866 MCF per acre-foot, we should realize about 2.5 to 2.6 BCF of additional gas.

Q. In terms of economics, do you expect on that basis to have -- pay out a well, be able to drill a well and not waste your money, or Read and Stevens' money, in drilling that well?

A. I do, based on the AFE that Read and Stevens has prepared, which I believe is the next exhibit.

Q. Okay, let's go into that. What's the bottom line on that exhibit? How much is the well going to cost?

A. The well is estimated to cost $472,100 to drill and equip, ready for production.

Q. You didn't prepare this AFE, did you?

A. No, I did not. That was prepared by the operator, and they feel they can drill that well for $472,000 or less.

Q. Have you independently reviewed this AFE and satisfied yourself that it's approximately correct?

A. Yes, I have.

Q. Let's look at Exhibit Number 6 and have you identify that, please.

A. Okay, Exhibit 6 is an economic appraisal of what

the cash flow from the 2.6 billion cubic feet of gas would do as far as the economic return for a well that cost $472,000.

Q. What conclusions do you draw from this exhibit?

A. This exhibit would show that it would be an attractive rate of return, and it's based on 100 percent of the working interest and 80-percent net revenue interest. And it indicates that the well would pay out in less than one year and have a profitability index or a return on investment of over seven to one at 100-percent average annual rate of return or better.

Q. Mr. Carnes, this Application also calls for simultaneous dedication of the proposed well and the existing well in the south half of Section 26; is that right?

A. Yes, I believe it does.

Q. Is it Read and Stevens' plan to allocate the production between the two wells to satisfy the allowable requirements?

A. It's my understanding that the allowable for that south half would be shared between the two wells.

Q. Mr. Carnes, in your opinion would approval of this Application be in the best interests of conservation of oil and gas?

A. Yes, it would.

Q. Can you tell the Examiner how -- Can you elaborate on that opinion?

A. Well, I believe that the proposed location will drain reserves that otherwise would not be recovered with existing wells. And with a favorable relationship between the cash flow of that proposed well and the cost to drill, it's a very economical venture and would not waste any, you know, additional drilling cost.

Q. Mr. Carnes, would approval of this Application allow Read and Stevens to recover its fair share of production from the south half of Section 26?

A. Yes, I believe it would.

MR. PADILLA: Mr. Examiner, we tender Exhibits 3 to 6, and we'll pass the witness at this time.

EXAMINER CATANACH: Exhibits 3 through 6 will be admitted as evidence.

Mr. Carr?

MR. CARR: I have no questions of Mr. Carnes.

EXAMINER CATANACH: Mr. Bruce?

MR. BRUCE: Just a few, Mr. Examiner.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Looking at your Exhibit 4, Mr. Carnes, you calculate drainage, and you've assumed radial drainage here, haven't you?

A. Yes, the drainage can take any shape and form that the reservoir will allow it to. It could -- Even though it's a north-south trend, it could be draining east-west or radial.

Q. Or it could be draining, say, oblong in a north-south direction?

A. Could be.

Q. And if that's the case, this southwest quarter is already being drained by the Read and Stevens and UMC wells, is it not?

A. Could be partially drained. I do not believe it would be adequately drained.

Q. Okay. And did I understand you correctly when you said there were 94 acres unaffected at this point?

A. Based on this map, and I think that's a very conservative estimate.

Q. Now, Mr. Carnes, maybe you can't answer this question. I don't know how long you've been involved in this area with Read and Stevens. But, you know, the UMC Number 1 and 2 wells were drilled before the Harris Fed Number 4. Why didn't Read and Stevens use the data from those two wells to move the Harris Fed Number 4 further to the west?

A. I'd have to check the completion dates. Do you have those? I know the well in the southeast quarter, I

think was drilled in 1981; I'm not sure --

Q. Yeah, the White State Number 1 was drilled in 1980, and that's in the southeast quarter of Section 35, and the White State Number 2 in the northwest quarter of Section 35 was drilled in August of 1981, and then the Harris Fed Number 4 was drilled in late November of 1981.

A. Okay. Well, it depends on when the wells go on stream. There was really little if any production data from the White State 2 at the time they drilled Harris Fed Number 4, so there might have been a different geological interpretation, but I can't answer it for sure for Read and Stevens.

Q. Okay. Also on your Exhibit 4, the drainage map, wouldn't this imply a constant sand thickness in your radial drainage?

A. I used the wellbore; yes, it would, it would imply that. There's some zones that have perforated that haven't been considered by the geologist involved here. This is a case where the engineer thinks the geologist is conservative. That usually doesn't happen.

Q. Now, getting back to questions I asked Mr. Brannigan, does the pressure data in this area indicate that reserves are being left in the ground?

A. The pressure data would in many cases be unique to each well. It can drain its own area without affecting

another well.

The original pressure is around 3200 to 3300 in some of these wells, which is a gradient of .375 p.s.i. per foot of depth.

You can have wells that make .6 billion. Because of the limited drainage, their pressure depletion on a time basis would take place at the same rate as a well that will make 9 billion.

So it is very difficult to determine interference, if that's what you're asking about.

Q. But what are the pressures in the Harris Fed Number 8, the Read and Stevens well to the north and the White State Number 2, the UMC well, to the south? Do you have that data?

A. The pressures are usually determined based on a required 24-hour shut-in at the surface, and I believe the Commission stopped reporting that data in 1993.

Q. Do you have any data --

A. I don't have anything later than that.

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

MR. PADILLA: I have one question of Mr. Carnes.

REDIRECT EXAMINATION

BY MR. PADILLA:

Q. You were asked a question in cross-examination about why the well was drilled in the southeast quarter, if

other wells -- Well, let me restate the question.

You were asked the question about why the well was drilled in the southeast quarter. In fact, it conformed to spacings or location -- well-location requirements; isn't that right?

A. It did conform to those requirements, and at the time the geology might have been different so that they decided to drill it there to conform with the spacing requirements and the field rules.

MR. PADILLA: That's all I have.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Carnes, do you know what the current producing rate of the Number 4 well is?

A. The Number 4 is making approximately 30 MCF per day.

Q. Do you know at what point in time that well will be abandoned?

A. Unless Read and Stevens, the operator, has some plans for that well, it shouldn't be too long, because the economic limit rates at the current gas prices, I believe, are between 25 and 30 MCF per day.

Q. Will the effect of drilling the new well -- will that tend to reduce the recoveries of the Number 2 well to the south and the Number 8 well to the north?

A. I do not believe that it will right now. The two White State wells, based on radial drainage, should be interfering with each other, and as I understand it there's a very gentle decline of 12 percent per year on the White State Number 2, the performance.

Q. Mr. Carnes, do you know what the current allowable situation is in the Buffalo Valley?

A. It's my understanding that every six months there's a hearing to discuss the allowables for the Buffalo Valley Penn wells, and operators will appear at that time to propose any changes.

Right now, the two best wells, the Harris Fed Number 8 in Section 26, and the Harris Fed Number 9 in 23 to the north, are around 33,000 MCF per month or 1000 MCF a day.

But I understand from Jim Morrow, one of your proration experts, that a well that's capable of more than that can actually receive that allowable with a recommendation from the operator. And so you could have then the top allowable at 45,000 or higher per month, if that well was capable of producing that and there was a market for the gas.

Q. Do you have an estimate on what the new well may initially produce?

A. I think the new well will be capable of 1500

today.

Q. So what you're in essence telling me is that you don't think that they'll be restricted, due to the proration system?

A. I don't believe that it would.

MR. BRUCE: Mr. Examiner, I was at the most recent proration hearing, and I think the allowable is 33 MMCF per month for wells in the --

THE WITNESS: Yeah, that's what I stated.

MR. BRUCE: Yeah.

Q. (By Examiner Catanach) Okay. It's your opinion, Mr. Carnes, that that well is necessary in order to effectively drain the remainder of that south half of that section?

A. Yes, sir, it is.

Q. And that's the optimum location in which to accomplish that?

A. I believe it is.

EXAMINER CATANACH: I have anything further of this witness. He may be excused.

MR. PADILLA: I have nothing else.

EXAMINER CATANACH: Okay.

MR. PADILLA: Mr. Examiner, I tendered Exhibit 7, which are notices. I noticed right before the hearing that we had a short letter from UMC -- the hearing. I have the

letter also that was sent to all interested parties, and I've marked that as Exhibit 7A, and I only have the original for that. I'll tender that. But the list of people is on there, people who received exhibits --

EXAMINER CATANACH: And these, Mr. Padilla, these represent the offset operators who were entitled to notice under the current rule?

MR. PADILLA: Yes.

BRETT JAMESON,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. Yes, it's Brett Jameson, Parker, Colorado.

Q. And what is your occupation and who is your employer?

A. I'm a senior development engineer for UMC Petroleum Corporation.

Q. Have you previously testified before the Division?

A. No, I have not.

Q. Would you please briefly outline your educational and employment background?

A. Yes, I graduated from Texas Tech University with a bachelor's in petroleum engineering in 1988 and have worked over the last seven years for several companies: Exxon, GLG Energy, General Atlantic, and UMC Petroleum.

Q. And does your area of responsibility as a petroleum engineer at UMC include southeast New Mexico?

A. Yes, it does.

Q. And are you familiar with the engineering matters related to Read and Stevens' proposed well?

A. Yes, I do.

MR. BRUCE: Mr. Examiner, I would tender Mr. Jameson as an expert petroleum engineer.

MR. PADILLA: No objection.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Mr. Jameson, would you refer to UMC's Exhibit 1 and identify that for the Examiner?

A. Yes, Exhibit 1 is a net sand map of the referenced Morrow or Atoka sand that is producing out of the Read and Stevens wells in Section 26 and the UMC wells in Section 35.

On that map it shows the same general trend, north-south type of channel system, that is contiguous across our lease line into theirs.

Q. And the north-south trend is the same as discussed by Mr. Brannigan; isn't that --

A. Yes, it is.

Q. Okay. And in your opinion, will drainage be along this north-south trend?

A. Yes, the drainage would be right along the channel system there.

Q. Okay. Would you move on to your Exhibit 2? What does that display?

A. Exhibit 2 is a bubble map, not showing drainage radiuses but just showing relative production cumulatives from the wells in the leases in question, similar to cumulative numbers that Read and Stevens have brought up in the Harris Federal 8, 5.4 BCF; Harris Federal 4, about half a BCF; and then our White State 2, 5.4 BCF; and White State 1, 3.6 BCF.

Q. Okay. And so, at least just looking at Sections 26 and 35, the Harris Number 8, Read and Stevens' well, and then UMC's White State Number 2 are fairly equivalent wells?

A. Correct.

Q. Let's move on to your Exhibit 3. Would you identify that for the Examiner and discuss its contents to show what you're trying to state there?

A. Exhibit 3, starting in the upper left-hand part of the spreadsheet here, is current recoveries, and below that we have the two UMC wells in Section 35, and then the

two Read and Stevens wells in Section 26.

It shows the current rates in those two sections, being, you know, equivalent of about a million cubic feet a day of production. The cumulatives for the two leases show that we've cum'd a little bit more gas, 9.2 BCF versus 6.1, and that the estimated ultimate recovery in the two sections show that we will recover about 13.6 BCF, and they'll recover 10.2 BCF.

And this is all through decline curve analysis. We estimate we'll recover 4.3 or have that 4.3 remaining, and they have about 4 BCF remaining.

Towards the bottom part of the sheet, what I'm assuming here is that we are all in a common pool and it is contiguous in nature and is in pressure communication.

I assume that their new well, I have labeled "Proposed Well", would come on at 900 million or 900 MCF a day, which I guess is a little below what they're estimating, 1.5 million a day.

And then I took a percentage of these new rates, taking into account the new proposed well. And what I could do by that, then, is to estimate the remaining reserves, how those remaining reserves would be split up among those wells, based on the current rate.

What that shows in the last column is that UMC could lose 1.4 BCF of reserves due to interference in our

White State Number 1 and White State Number 2.

Q. Now, if this proposed well did come in at a substantially higher rate, could this affect your calculations?

A. Yes, certainly, that well, then, would recover -- or potentially recover more reserves than I'm showing here, and therefore interfere with our wells to a greater degree.

Q. What type of data do you have on bottomhole pressures in this area?

A. The last data that I have is in 1992, which was a state-required 24-hour shut-in, and that showed that the Harris Federal Number 8, which is their good well in Section 26, was at about 1350 p.s.i., and our White State Number 2 in Section 35 was at about 1000 p.s.i.

Obviously, this is a 24-hour shut-in, and it's -- a much longer shut-in would be preferred to see what reservoir pressure is, you know, to get a better comfort factor of reservoir pressure. But this is all we have.

Q. But it's still -- It does show a significant pressure depletion in this area?

A. That's correct. Virgin pressures were, you know, in the 3300 to 3500 p.s.i. range. So there has been significant depletion.

Q. Have you calculated drainage areas of the Read and Stevens Harris Fed Number 8 and the UMC White State

Number 2 wells?

A. Yes, I have, and I did it fairly similar to how Read and Stevens did, in that I maintained a constant net sand in that drainage are, which, you know, looking at our map, may be incorrect. You should probably reduce the net sand across that acreage. But I calculated about 360 acres for the Harris Federal Number 8 and about 420 acres for the White State Number 2.

Q. In you opinion, will drainage in this area of the reservoir be radial?

A. No, it will not.

Q. In your opinion, would it be more oblong, trending along the north-south axis of the reservoir?

A. Yes.

Q. Now, based on your testimony, will Read and Stevens' proposed well recover any new reserves?

A. Not based on my -- on the data that I have in hand. I think the only way to determine that would be to have some prolonged pressure buildups performed on the existing wells and possibly do some interference testing to see what kind of interference, you know, you have between wellbores.

Certainly the state data of 24-hour shut-ins show that, you know, you are depleting the reservoir at a fairly consistent rate, constant rate.

Q. So the Read and Stevens well, the existing Number 8 well, and the UMC Number 2 well, will recover all the reserves in this area, in your opinion?

A. I believe so.

Q. As a result, should the proposed well be drilled?

A. No, it should not.

Q. Now, if the OCD were to approve the well, in your opinion, should there be a penalty on production?

A. Yes, I believe there should be.

Q. And what would you propose?

A. I would propose a minimum of 65 to 70 percent. I would base that on the fact that their well is 990 off of the section line between Section 26 and Section 35. Our White State Number 2 is making about 700 MCF a day. So I would, you know, expect that their well should only make about half of that rate, since it's twice as close to the lease line as our well.

Q. And your White State Number 2 is 1980 off the top of that common lease line?

A. Correct.

Q. And so you're just factoring 990 in over the total distance? 990 divided by 990, plus 1980, if I may?

A. That's right.

Q. Okay. Now, were Exhibits 1 through 3 prepared by you or under your direction?

A. Yes, they were.

Q. And in your opinion, is the denial of the Read and Stevens Application in the best interests of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, at this time I would move the admission of UMC's Exhibits 1 through 3.

EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence.

CROSS-EXAMINATION

BY MR. PADILLA:

Q. Mr. Jameson, are you making a case for 640-acre spacing here?

A. No, sir.

Q. In fact, spacing for both pools is 320 acres; isn't that right?

A. That is correct.

Q. Every owner there is entitled to recover his fair share of production or fair share of reserves underlying each 320-acre proration unit; is that right?

A. That is correct.

Q. If your geology conforms with the geology of Read and Stevens, has not the southwest corner of Section 26, not been drained by Read and Stevens?

A. I'm sorry, could you restate that again?

Q. If your geology, which is in general agreement with the Read and Stevens geology, is -- Well, you've essentially agreed with Read and Stevens on geology; isn't that right?

A. That's correct.

Q. There are reserves in the southwest quarter of Section 26 that have not been drained; is that right?

A. No, I would say the Harris Federal Number 8 has drained down into that quarter section, along the trend.

Q. But spacing -- You're not challenging 320-acre spacing; isn't that right?

A. No, I'm not.

Q. Spacing, the way the current rules say, one well to 320 acres, right?

A. That's correct.

Q. The Application of Read and Stevens would throw in the production currently from the Harris Federal Number 4, into, for purposes of allowable, upon the 320-acre proration unit consisting of the south half of Section 26, right?

A. Correct.

Q. Okay. Now, do you disagree with Read and Stevens that that Harris Federal Number 4 has not drained the southwest quarter of Section 26?

A. Yes, I would agree with that. I would say the

Harris Federal 8 has probably drained that area.

Q. It has drained the entire southwest quarter?

A. It has drained along the channel system trend. If we were to planimeter that area of the trend that is approximately -- I'm eyeballing this -- 400 acres, extending from the northwest to the southwest of Section 26, I would say that would be the drainage area that the Harris Federal has drained.

Q. And at the same time, you're saying that the Harris Federal Number 8, and your well, the White State Number 2, is draining the southwest quarter?

A. Yeah, I just -- The Harris Federal 8, I believe, would be -- would have drained that southwest quarter.

Q. All of it?

A. Like I said, until we had better pressure data, I think it would be difficult to say at this time how drained that southwest quarter is. But with the pressure data we have, yeah, it's drained down to 1300 p.s.i.

Q. And you're saying there are no reserves in the southwest quarter?

A. I'm saying the reserves that are in the southwest quarter will be recovered by the Harris Federal 8. There's still 4 BCF of reserves remaining to be recovered by the Harris Federal 8.

Q. Well, you've also proposed a penalty. If you're

saying the Harris Federal Number 8 is draining the southwest corner of Section 24, perhaps we ought to penalize the White State Number 2 well, because it's closer to the lease line.

A. The production in the Section 26 and the production in the Section 35 right now are both a million a day, so I think you've got equivalency there.

Q. Yeah, but if you're doing it on a footage basis and you're saying these two wells are the ones that are draining that southeast quarter, then realistically you ought to penalize the White State Number 2, right?

A. Actually, the White State Number 2 is making 700 a day, and the Harris Federal 8 is making a million a day, so you'd have to work the numbers out.

Q. But you're working solely on footage in your proposed penalty?

A. Yeah, that was the only actual mathematical type of argument that I could come up with. If anybody has any other potential --

Q. Well, you're throwing in pressure data --

A. -- you know, penalty calculations, I'd be interested to hear them.

Q. Well, you're throwing in pressure data now, and stuff like that. But the only proposal you had was based on footage, right?

A. That is correct.

Q. And you don't disagree that spacing is on 320 acres?

A. No, sir, I don't.

Q. And you're not prorated, correct? Your well is not prorated?

A. Yeah, I believe that's correct.

Q. And you can produce your well at any rate that you can?

A. That's correct.

Q. Mr. Jameson, you could have put your well closer to the section line, to the north line of Section 35, right?

A. As I understand the field rules, yes.

MR. PADILLA: One moment, Mr. Examiner.

Q. (By Mr. Padilla) Mr. Jameson, on your Exhibit -- let's see, Number 3, on your estimated ultimate recovery, you're still going to produce approximately 3 BCF more gas, right?

A. You mean estimated ultimate recovery for our section versus your section?

Q. Right.

A. Yes, that's correct.

MR. PADILLA: I have nothing further, Mr. Examiner.

MR. BRUCE: A couple of follow-up questions.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. If this new well is drilled, Mr. Jameson, they'll have -- what? Two wells that at their guess, 2500 MCF per day, competing against your 700-MCF-per-day well; is that correct?

A. Yes, but based on my analysis, you know, I'd want to put in our White State 1, which would be 380. So --

Q. Okay, so 2500 versus one million?

A. Correct.

Q. Or I mean 1000?

A. Correct.

Q. It would still be a substantial advantage?

A. Yeah, it would be worse than what I'm presenting here on Exhibit 3.

MR. BRUCE: Okay, that's all I have, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Jameson, has the White State Number 2 contributed to the drainage of the southwest quarter of Section 26?

A. Again, that would be hard to determine without, you know, trying to do volumetrics along the isopach to see

exactly where that would extend, but it's certainly possible.

Q. Well, how have you determined that the Harris Federal Number 8 has drained that southwest quarter?

A. Again, you know, you're going along this trend, and so it would have to be in a north-south direction, not in a radial direction, as our exhibits have shown, or estimated.

Q. Well, your White State Number 2 is located closer to the southwest quarter than the Harris Federal Number 8. Do you think -- Is that significant in terms of drainage?

A. Yeah, it depends on what you're calling the southwest quarter. If you're looking at the middle of the southwest quarter, I'd have to get out a ruler, but they're actually closer. If you're talking about their south line of the section, yes, we are closer.

Q. With the current data, you can't really pinpoint what areas these wells have drained or will drain; is that correct?

A. That's correct, sir.

Q. Now, you stated that it was your opinion that you didn't think the new well would recover any new reserves. What is that statement based on?

A. That statement's based on the only available pressure data, which shows that virgin reservoir pressure

was 3300 p.s.i. We're now in the neighborhood of 1000 to 1300 p.s.i., which, because the White State 2 and the Harris Federal 8 are relatively similar in pressure, would make you think that you're having a fairly, you know, continuous drawdown of reservoir pressure, and therefore the area between them has probably been drawn down, you know, along that same -- at that same rate.

Like I said, you know, better bottomhole pressure data, I think, would be required to really prove or disprove whether new reserves could be recovered.

Q. Mr. Jameson, based upon the reservoir geometry, is it likely that Section 26 initially had more gas in place than Section 35?

A. I would have to, you know, planimeter the area. But visually looking at it I would say, yes, it probably did.

Q. Now, are you guys proposing that the new well just be allowed to produce at 65 percent of its potential; Is that what you're proposing?

A. Actually, at half of the White State Number 2 rate, which would be 350 MCF a day. Yeah, that would come out to the same thing. 65 percent of a million a day, I think, is the allowable. So that is correct.

Q. So you're actually proposing to limit it to a rate of 350 MCF a day?

A. Yes, sir.

Q. And that would accomplish what?

A. I believe that would accomplish, assuming like I've put in this spreadsheet, that Section 26 and 35 are a set volume that is going to be recovered by existing production, then that will allow that they will not -- the proposed well will not produce reserves from our lease.

Q. That would effectively -- In your opinion, that would effectively limit the drainage area of that new well to the southwest corner of Section 26?

A. Yes, in essence.

EXAMINER CATANACH: I have nothing further of the witness.

Is there anything further of this witness?

MR. BRUCE: Yeah, I just wanted to clarify one thing, Mr. Examiner.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. He was -- I think your question was a 65-percent allowable. What you were proposing was a 65-percent penalty, wasn't it?

A. That's correct, 65-percent penalty of a million a day, which would be 350 a day.

Q. Do you have anything further to add?

A. The only thing further I would like to add is

that UMC purchased these properties in 1989, actually under -- General Atlantic Resources purchased these properties in 1989, and then we merged into UMC.

But we have produced more gas to date than Read and Stevens has. That in essence happened before we purchased the properties. We bought the properties based on extrapolating decline curves, and assumed that there wouldn't be any further development because of the orientation of the field rules.

And so we don't -- you know, that's what our objection is, I guess, is that we don't feel like we should be penalized because our predecessor cum'd more gas than Read and Stevens. Either due to geological interpretation, luck or whatever, our wells were drilled on trend better than the Read and Stevens wells, and so we probably recovered more for that reason, and I just wanted to bring that point up.

EXAMINER CATANACH: Okay, anything further?

MR. BRUCE: Not for me.

EXAMINER CATANACH: Okay, there being nothing further, we will take this case under advisement.

(Thereupon, these proceedings were concluded at 1:28 p.m.)

* * *

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, 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 transcribed my notes; 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 May 21st, 1996.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11514, heard by me on May 16 1996.

, Examiner
Oil Conservation Division