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

4 December 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Bradley H. and Margaret N. Keyes, Trustees for surface and downhole commingling, San Juan County, New Mexico. CASE 8776

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
Energy and Minerals Dept.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin
Attorney at Law
KELLAHIN & KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. CATANACH: Call Case 8776.

MR. TAYLOR: The application of Bradley H. and Margaret N. Keyes, Trustees for surface and downhole commingling, San Juan County, New Mexico.

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

MR. CATANACH: Would the witness please stand and be sworn?

Are there any other appearances in this case?

(Witness sworn.)

MR. KELLAHIN: Mr. Examiner, the case is docketed to seek downhole commingling approval of the Fruitland and Farmington zones in the subject well.

The applicant, at the time he filed the application, also sought surface commingling.

Mr. Kendrick advises me that that portion of the application dealing with surface commingling is no longer necessary. He does have a meter with El Paso that solves that problem and so we'll delete that portion of our request and our presentation today will be

simply for the downhole commingling of the Farmington and the Fruitland, and we will delete the surface commingling.

A. R. KENDRICK,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Kendrick, for the record would you please state your name and occupation?

A A. R. Kendrick, Consulting Petroleum Engineer.

Q Mr. Kendrick, have you been retained on behalf of the applicant to make a study of and present facts to the Examiner with regards to this application?

A Yes, sir.

Q And have you previously testified before the Oil Conservation Division as an expert petroleum engineer?

A Yes, sir.

MR. KELLAHIN: We tender Mr. Kendrick as an expert petroleum engineer.

MR. CATANACH: Mr. Kendrick is so qualified.

Q Mr. Kendrick, let me direct your attention to Exhibit Number One. This is simply a summary sheet of the package of exhibits, is it not?

A Yes. Exhibit Number One is a summary of the other exhibits that follow.

Q All right, let's set that aside and use it as an index to follow the exhibits.

Let me direct you, then, to Exhibit Number Two and have you identify what is depicted on the exhibit and show us the location and the description for the subject well.

A Exhibit Number Two is a plat being nine quarter sections; that is, one and a half miles east and west and nine and a half miles north and south, that shows the drill tract for the Fruitland formation, being the southeast quarter of Section 13, Township 29 North, Range 11 West, and the direct and diagonal offsets to that quarter section.

The well, being the Ransom No. 1-M, is near the center of the exhibit, identified by an arrow. The legend at the base of the page shows the code for the different symbols.

The gas well symbol with the filled in center represents Farmington wells.

The Farmington Pool is an oil pool but

the wells shown on this exhibit are all gas wells in the Bloomfield-Farmington Oil Pool.

The Fruitland wells are a gas well symbol with the cap across the top.

Pictured Cliffs wells are a gas well symbol with the cap across the bottom.

The wells shown on this exhibit are only Farmington, Fruitland, or Pictured Cliffs completions. The other zones completed in this area are not shown on this exhibit.

The wells with the Farmington gas well symbol, with the cap on top, would be a Farmington-Fruitland completion, and those wells shown as a square with a gas well symbol inside would be a Fruitland-Pictured Cliffs multiple completion.

Q Let's give the Examiner a little background on the subject application, Mr. Kendrick.

Had you submitted this request to the Aztec District Office of the Oil Conservation Division for administrative approval?

A I orally visited with the people in the Aztec Office about approval of this for downhole commingling administratively, and since there is ownership in the Farmington formation that is different from the Fruitland formation, they preferred that we bring it to hearing.

Q All right. Looking at Exhibit Number Two, other than the subject well, can you locate for us any other wells that have downhole commingled the Farmington and the Fruitland?

A Yes. Along the north edge, or top edge of the exhibit, the H. L. Harvey No. 3 Jones Well is a downhole commingled Farmington-Fruitland well.

Q On Exhibit Number Two, when we look at the Fruitland gas spacing, what is the acreage allocated or dedicated to the Ransom 1-M Well for the Fruitland gas?

A The southeast quarter of Section 13. It would be 160 acres.

Q When we look at the Farmington oil pool, you've told us that the Farmington zone in this well is a gas-producing zone but that it is in the Farmington oil pool?

A Yes, it is in the Bloomfield-Farmington Oil Pool and the spacing there is 40 acres.

Q All right, and then it would be the southwest of the southeast quarter of Section 13 dedicated to that well.

A Yes, Unit letter O.

Q Let's turn now to Exhibit Number Three, Mr. Kendrick, and have you identify that exhibit.

A Exhibit Number Three is a tabulation of

the well shown on Exhibit Number Two, showing the name of the operator, the name and number of the well, the location of each well.

These are listed by the zones of completion and in the righthand column it shows an asterisk and an "R" order number for orders issued by the Oil Conservation Division, and these order numbers apply to approval to downhole commingle those wells.

Each order number is thus listed twice in that righthand column because it applies to the downhole commingling of the zones shown on Exhibit Number Two.

Q You've indicated for us that within the 160 acres for the Fruitland Gas Pool that there's a difference of interest owners.

Would you turn now to Exhibit Number Four and describe for us what is in fact the difference?

A The basic mineral ownership for the north half of the southeast quarter is owned by the three parties identified in the north half of the southeast quarter on this exhibit.

The minerals for the south half are owned by the two parties identified in the south half.

So that the ownership of the quarter section is not common and the mineral owners in the north half of the southeast quarter, three owners have undivided inter-

est in that 80 acres; in the south half two owners have an undivided interest in the south half, so that the minerals are owned in the north half or south half separately.

They will be -- they are unitized for the Fruitland production under the quarter section. They are not communitized for the Farmington production to be taken -- to be produced from the southwest quarter of the southeast quarter.

Q Within the 40-acre tract for the Farmington Pool, that 40 acres is under a common ownership.

A It's under a common ownership of the Salmons and McGee Transportation, Limited, but the parties listed in the north half of the southeast quarter, Mrs. Ransom and the two Petersons, would not be owners of the minerals in the Farmington formation under the southwest quarter of the southeast quarter.

Q The exception, then, for administrative approval of the downhole commingling would result from the fact that a certain portion of the Farmington zone now on 40 acres will be allocated to the owners in the north half of the southeast quarter.

No?

A No. No --

Q All right.

A No production from the Farmington would

be allocated to the producers -- excuse me, to the minerals owners in the north half of the southeast quarter.

Q All right, so the production from the Farmington remains allocated to ownership common for the 40 and then for the 160 we do have a communitization agreement that takes care of the Fruitland gas zone.

A Yes, sir.

Q All right. Let's go to Exhibit Number Five and talk about the Ransom No. 1-M Well, Mr. Kendrick.

Describe for us what the first zone in that well was and how it was tested.

A The original intent for the drilling of this well was to downhole commingle the Fruitland and Pictured Cliffs formations.

The well was drilled and the Pictured Cliffs formation is not productive. The well is currently perforated in the Fruitland and the Farmington formations.

In attempt to complete the well in the Fruitland formation the well drowned itself and would not continue to produce, so the well was then perforated in the Farmington formation and the Farmington formation provided enough additional gas to assist the gas in the Fruitland formation to keep the well unloaded and producing.

Q In your opinion is there gas reserves that can be produced out of the Fruitland zone?

A Yes. The Fruitland zone will produce with the assistance of the Farmington to help keep the liquids unloaded from the wellbore.

Q In the absence of approval of the downhole commingling, will there be Fruitland gas reserves that will remain in the ground that cannot be produced by a well as a single Fruitland completion?

A Yes, sir.

Q Let's look at the Farmington zone, Mr. Kendrick. Do you have an opinion as to whether or not there is any risk imposed to the Farmington zone by having it downhole commingled with the Fruitland?

A I think that the risk for the Farmington production would be minimal and that at the present time it is sufficiently strong to unload the liquids from all of the well and allow the gas from the Fruitland formation to continue to produce.

Q Do you have an opinion as to whether or not the downhole commingling of the two zones will result in the production of hydrocarbons that would not otherwise be produced?

A Yes, I believe that the gas in the Fruitland formation will be produced that would otherwise be left in the ground.

Q Do you have an opinion as to whether or

not this is the most effective and efficient method by which to produce both of these zones?

A I think this is the most efficient way to produce both zones so that we can recover the gas.

Q While we're on Exhibit Number Five, Mr. Kendrick, would you describe for us how you propose to allocate the production between the two zones?

A I would propose to allocate the production at 65 percent to the Farmington formation and 35 percent to the Fruitland formation.

The attempt was made to produce or, excuse me, to perforate the same quality of pay zone with the same number of holes per foot. I counted the holes at 70 holes and took the percentages of 26 holes in the Farmington formation and 24 holes in the Fruitland formation to determine the approximate percentages of 65 percent and 35 percent.

Q Do you have an opinion as to whether that's a fair and reasonable method by which to allocate the production between the two zones?

A I think it's fair. It would be the equivalent of taking a copy of the wireline log and counting the feet of pay and making a similar division.

Q Let's turn to Exhibit Number Six and have you identify that exhibit.

A This is a recap of the test data that was obtained on this well. The majority of the page is defining an attempt to test the well in September of 1984, and the well --

Q Can you distinguish for us on Exhibit Number Six what zones are being tested as we go through the chronology?

A Yes. All of the tests shown for -- dated September 11th, 1984, were for the Fruitland formation.

As identified on the date of September 11th, 1984, the well drowned itself by the liquids it attempted to produce.

Then in September of 1985 we had a shut-in pressure but we did not attempt to flow the well from the Fruitland only.

But with the perforation of the Farmington well, the liquids accumulated in the wellbore were unloaded from both zones and we had a shut-in pressure then of 368 pounds on both zones, indicating that the zones were clear.

If you would refer to the top line on September the 11th, 1984, showing a casing pressure of 150 pounds and a tubing pressure of 320 pounds, it indicates that there has to be liquids in the wellbore to cause a pressure differential of the two strings.

Q Can you draw a comparison for us about the pressures in the Fruitland versus the Farmington to determine whether or not there is a reasonable probability of cross flows between the two formations?

A In my opinion there will be normal cross flow. On the top line dated September 11th, 1984, the tubing pressure was 320 pounds, which would mean that we had at least 320 pounds. We don't know how much liquid was in the wellbore at the time.

But on September the 20th, 1985, when the pressures of 368 pounds were measured on both strings, there was little, if any, liquids in the wellbore, and that pressure differential of somewhere less than 50 pounds would indicate that there is minimal pressure differential between the two zones.

Q All right, sir, let's turn to Exhibit Number Seven and have you identify that for us.

A Exhibit Number Seven is a nine section plat around this location, showing the position of the Bloomfield-Farmington Oil Pool as it was currently defined about a month ago, and this well location is an adjacent 40-acre tract to the pool boundary.

Q And Exhibit Number Eight?

A And Exhibit Number Eight is the nine section plat around this well location, showing the location of

this well, being an inside well in the Aztec-Fruitland Gas Pool.

Q I'd like to direct your attention now to your opinion concerning the correlative rights of the owners in the 160 acres. We have a difference in ownership between the Farmington and Fruitland.

Do you have an opinion, Mr. Kendrick, as to whether or not the correlative rights of any of the owners involved in this well are adversely affected by the downhole commingling of production from the two zones?

A In my opinion, the correlative rights are protected in that the production from the Fruitland formation will be allocated equally between the two. The production in the Farmington formation would be allocated only to those people owning interest in the 40 acres where the well is located.

The Fruitland formation would not produce on its own so that the people in the north half of the southeast quarter would not derive any benefit from the well without the Farmington being produced, so that the Farmington formation from someone else's property is helping them to obtain payments for production from their property.

Q In the absence of downhole commingling for these two zones, Mr. Kendrick, do you have an opinion as to whether or not waste will occur?

A Yes. I think that production from the Fruitland formation will not occur without this downhole commingling and therefore some gas in the Fruitland formation will be left in the ground.

Q Were Exhibits One through Eight compiled by you or prepared under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: That concludes our examination of Mr. Kendrick.

We move the introduction of Exhibits One through Eight.

MR. CATANACH: Exhibits One through Eight will be admitted into evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Kendrick, is this all fee land?

A Yes.

Q Mr. Kendrick, the method at which you arrived at the allocation for the two zones doesn't seem to me to be accurate. Do you, in your opinion, do you think this is an accurate method?

A Yes, sir, in that the attempt was made to perforate the same pay with the same number of holes per foot so that if it would be your desire we'll get a copy of

the wireline log and identify the pay and count the feet of pay in that manner.

Q But you don't have any production tests that would in any way substantiate this method?

A No, the Fruitland formation would not continue to produce by itself so we couldn't get a production test on the Fruitland, When we perforated the Farmington, then both zones produced together.

If the Examiner would desire we will obtain a copy of the wireline log and mark the perforations on the log and show the amount of pay that we calculate on the wireline log.

Q That would be fine, if you would please submit that to us.

A We will submit that.

Q Mr. Kendrick, is it your testimony or opinion that the separate interest of the royalty owners would not be lessened by the commingling of the pools? Their flow of income or percentage of income, would any of that be lessened by the commingling?

A In my opinion it would not be lessened.

Q Would -- the value of the product would not be lessened, either, by the commingling?

A No, the commingling of the two products will not cause a products change that would create a value

loss.

CROSS EXAMINATION

BY MR. TAYLOR:

Q Well, our rules require that offset operators be notified. Did you notify any of the offset operators by mail of your application?

I assume there are offset operators.

A We did not --

MR. KELLAHIN: Excuse me, Mr. Taylor, what rules require the notice of offset operators for a hearing before the Division?

MR. TAYLOR: The rules I'm talking about are for administrative approval.

MR. KELLAHIN: Yeah. We did not do that, sir.

MR. TAYLOR: Could we go off the record, Sally?

(Thereupon a discussion was had off the record.)

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Kendrick, these are both gas zones, aren't they?

A Yes. The three wells completed in the Farmington formation shown on Exhibit Two, one being in Unit letter C of Section 24, Unit letter O of Section 13, and Unit letter B of Section 13, the only Farmington completions, sell only gas. No oil has been sold from either of those three wells.

Q Do either of these two zones produce any condensate?

A Not for sale. If there's any produced it is very minimal amounts.

MR. CATANACH: Mr. Chavez, do you have any questions?

MR. CHAVEZ: Yes.

QUESTIONS BY MR. CHAVEZ:

Q Mr. Kendrick, in your allocation your assuming the same quality of formation for both the Farmington and Fruitland, being you have no gas volume to base your tests on?

A We're using the thickness of pay for each fo the intervals to determine the percentage allocation. Yes.

Q Might it be appropriate to perhaps lessen or compensate for the water production on the Fruitland zone and say that perhaps, even though they have equivalent

thicknesses or the way the allocation is based on thickness, the Fruitland may not be contributing as much as the Farmington because of the water production?

A It's been my experience with wells in this immediate area completed in the Fruitland formation that the water production will decrease slightly and probably the well will produce better after a period of time of cleaning up the water, due to the mobility of the water in the formation. The gas is a whole lot more mobile in the formation than the water and so gas will bypass the water after we clean up the initial water around the wellbore.

MR. CHAVEZ: That's all the questions I have.

MR. CATANACH: I have o further questions of the witness.

Are there any other questions of the witness?

If not, he may be excused.

Is there anything further in Case 8776?

If not, it will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8776, heard by me on December 6 1985.

David R. Catanach, Examiner
Oil Conservation Division