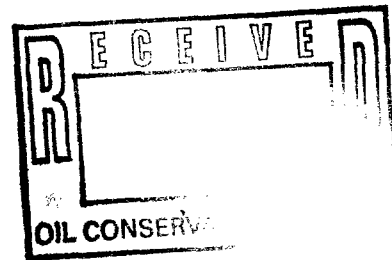


NEW MEXICO OIL CONSERVATION DIVISION  
STATE LAND OFFICE BUILDING  
STATE OF NEW MEXICO  
CASE NOS. 11028, 11029, 11030, 11031,  
11032, 11033, 11035 and 11036

IN THE MATTERS OF:

The Applications of Conoco, Inc.,  
for Downhole Commingling; San  
Juan County, New Mexico.



BEFORE:

JIM MORROW

Hearing Examiner

State Land Office Building

September 1, 1994

REPORTED BY:

CARLA DIANE RODRIGUEZ, NMCCR No. 4  
Certified Shorthand Reporter  
for the State of New Mexico

COPY

## A P P E A R A N C E S

## FOR THE OIL CONSERVATION DIVISION:

State of New Mexico Oil Conservation Division  
 Room 206, Land Office Building  
 Post Office Box 2088  
 Santa Fe, New Mexico 87504-2088  
 By: **RAND L. CARROLL, ESQ.**

## FOR THE APPLICANT:

KELLAHIN & KELLAHIN  
 Post Office Box 2265  
 Santa Fe, New Mexico 87504-2265  
 BY: **W. THOMAS KELLAHIN, ESQ.**

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[Exhibits 1 through 10 in Cases 11028, 11029, 11030, 11031, 11032, 11035 and 11036 were received into evidence. Exhibits 1 through 11 in Case 11033 were received into evidence. Only exhibits referenced in text have been indexed.]

1 EXAMINER MORROW: At this time, we'll  
2 call Cases 11028 through 11036.

3 MR. CARROLL: Applications of Conoco,  
4 Inc. for downhole commingling, San Juan County,  
5 New Mexico.

6 EXAMINER MORROW: And we'll call for  
7 appearances.

8 MR. KELLAHIN: Mr. Examiner, I'm Tom  
9 Kellahin of the Santa Fe law firm Kellahin &  
10 Kellahin, appearing on behalf of the Applicant.  
11 I have two witnesses to be sworn.

12 EXAMINER MORROW: Will the witnesses  
13 please stand to be sworn.

14 [And the witnesses were duly sworn.]

15 MR. KELLAHIN: Mr. Examiner, we're  
16 going to attempt to present these as a  
17 consolidated presentation. So that you have an  
18 idea of what we're going to present, let me  
19 describe that for you.

20 Each case is separately identified on  
21 the docket, and there will be a separate set of  
22 exhibits for each case.

23 There are two witnesses. Mr.  
24 Scarborough, who's at the witness stand, is a  
25 landman, and he'll describe the spacing

1 orientations, the spacing configurations, and the  
2 ownerships.

3 Mr. Ben Sargent is a petroleum  
4 engineer, and he will give the technical  
5 presentation.

6 The reason these cases are before you  
7 for hearing is because there is a difference in  
8 ownership between the two pools for which  
9 commingling is being sought. In addition, one  
10 case has three pools, but the ownership issue  
11 precluded Conoco from having these cases  
12 processed administratively.

13 The only other novelty, if you will, is  
14 that in Case 11033, there is a pressure  
15 relationship between the two zones such that the  
16 pressure of the lower zone, or the lowest  
17 pressure zone, is less than half of the higher  
18 pressure zone, and so it raises a cross-flow  
19 potential.

20 Mr. Sargent has analyzed that and he is  
21 here to describe for you his engineering  
22 conclusions that there will not be cross-flow,  
23 but that is an item that's a little different  
24 from the rest.

25 The rest of the cases are going to fall

1     into the same methodology of analysis. The  
2     technical presentation is that the zones are  
3     going to be uneconomic. All these wells are  
4     producing as dual wells or as a triple  
5     completion.

6             We're asking that you apply the  
7     conventional Examiner's order that will delegate  
8     to the district the allocation process. We're  
9     going to show you what we think the allocation  
10    formula should be, but we would ask that you do  
11    what we've done in the past, and that is to  
12    delegate to the district office in Aztec the  
13    actual mechanics of meeting with the operator,  
14    looking at the proof, and assigning an allocation  
15    formula.

16            So that's what we're about to show you,  
17    and with your permission, then, we'll call Mr.  
18    Scarborough.

19            EXAMINER MORROW: Let's do it.

20                    **TOM SCARBOROUGH**

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

23                    EXAMINATION

24    BY MR. KELLAHIN:

25            Q.     Mr. Scarborough, for the record would

1 you please state your name and occupation?

2 A. My name is Tom Scarborough. I'm a  
3 senior landman with Conoco, Inc.

4 Q. On prior occasions, Mr. Scarborough,  
5 have you testified as a petroleum landman before  
6 the Division?

7 A. No, I have not.

8 Q. Summarize for us your education.

9 A. I obtained a degree in petroleum land  
10 management from the University of Oklahoma in  
11 1982.

12 Q. Summarize your employment as a  
13 landman.

14 A. I was a consulting landman for several  
15 independent and major oil companies from 1982  
16 through 1990. I have been employed by Conoco,  
17 Inc., since 1990.

18 Q. You reside in Midland, Texas?

19 A. Yes, I do.

20 Q. Within your area of responsibility,  
21 were you assigned the duty to determine the  
22 ownership with regards to each of the formations  
23 for which your company seeks to commingle  
24 production for these eight wells?

25 A. Yes, I was.

1           Q.       In addition, were you assigned the  
2 responsibility to determine the offset operators  
3 to each of the spacing units, based upon whatever  
4 configuration applies in that pool?

5           A.       Yes, I was.

6           Q.       Did you do those things?

7           A.       Yes, I did.

8           Q.       In addition, did you send notification  
9 to all the interest owners that might be affected  
10 by this application?

11          A.       Yes. We did send notification by  
12 certified mail.

13                   MR. KELLAHIN: We tender Mr.  
14 Scarborough as an expert petroleum landman.

15                   EXAMINER MORROW: I'll accept Mr.  
16 Scarborough's qualifications.

17          Q.       Let's look at the spreadsheet, the  
18 little crib sheet. It's not marked as an  
19 exhibit, but it should be the first page of the  
20 exhibit packages. Describe for me, Mr.  
21 Scarborough, what is shown on the summary sheet.  
22 How is it organized?

23          A.       Basically, we have eight wells that we  
24 wish to have downhole commingled between the  
25 various zones. We are showing the specific well,



1 the zones to be commingled, the proration unit  
2 size of the various formations, the actual  
3 spacing unit description, the fact that there are  
4 various interests between the formations, none of  
5 the interests are common, and the zones which are  
6 deemed uneconomic prior to downhole commingling.

7 Q. Are all these wells located in San Juan  
8 County, New Mexico?

9 A. Yes, they are.

10 Q. Conoco is the operator of each of these  
11 wells?

12 A. That is correct.

13 Q. Let's turn to the exhibit package  
14 that's marked for the first case, which is 11028,  
15 and describe for us how the exhibit package is  
16 organized.

17 A. Okay. Exhibit 1 details the well to be  
18 downhole commingled, the location of said well,  
19 and the pools to be downhole commingled. In  
20 addition, we've identified the state, federal or  
21 fee lease which is dedicated to the proration  
22 unit, and also the description of the proration  
23 unit for the various formations to be downhole  
24 commingled.

25 Q. When we deal with this well, as well as

1 the others, have you been in contact, or has  
2 Conoco been in contact with the appropriate state  
3 or federal agency that deals with commingling?

4 A. Yes, we have.

5 Q. Separate and apart from the Oil  
6 Conservation Division?

7 A. That is correct.

8 Q. For those cases involving state lands,  
9 then, you have discussed the commingling process  
10 with the Commissioner of Public Lands for the  
11 State of New Mexico?

12 A. Yes, we have.

13 Q. In each of those instances, there will  
14 be an attachment to the exhibit book that shows  
15 his approval?

16 A. That is correct.

17 Q. All right. And as to the two  
18 properties that involve federal leases, identify  
19 for us which cases involve federal leases.

20 A. Case No. 11035, the Graham C "WN" Fed.  
21 No. 14, and Case No. 11036, the Bruington No.  
22 15E.

23 Q. You have been in contact with the BLM,  
24 then, and are in the process of obtaining the  
25 BLM's approval for commingling?

1           A.       That is correct.

2           Q.       Let's turn past the cover sheet for  
3 Case 11028, and have you describe the next  
4 display.

5           A.       This exhibit shows the orientation and  
6 size of the proration unit for the State Com No.  
7 47 well, Pictured Cliffs formation. In addition,  
8 it shows the offset Pictured Cliffs wells and  
9 their respective operators.

10          Q.       If we turn past Exhibit 2A and look at  
11 2B, what does 2B show?

12          A.       2B shows the orientation and size of  
13 the proration unit for the Mesaverde formation in  
14 the State Com No. 47 well. In addition, it shows  
15 the offset Mesaverde wells and their respective  
16 operators.

17          Q.       With regards to the balance of the  
18 exhibits for the other cases, have you gone  
19 through, in a similar fashion, and prepared  
20 similar displays for each of the pools for which  
21 commingling is sought in those cases?

22          A.       Yes, we have.

23          Q.       Let's turn now to Exhibit 3. What is  
24 that?

25          A.       Exhibit 3 is a tabulation of the

1 various interest owners in the State Com No. 47  
2 well.

3 Q. Show us how you've organized the  
4 spreadsheet.

5 A. Okay. We have broken down the interest  
6 type between working interest, carried working  
7 interest, royalty interest and overriding royalty  
8 interest between the two zones, as they apply to  
9 the respective owners.

10 Q. When we look at the first column, does  
11 that contain the name or the identity of the  
12 interest owner, regardless of what formation?

13 A. Yes, it does.

14 Q. The next column represents what?

15 A. The next column is the type of interest  
16 that entity owns in that well.

17 Q. In relation to the next column, which  
18 is the Pictured Cliffs, in this case?

19 A. The Pictured Cliffs, which is the  
20 actual decimal interest that that party owns in  
21 that formation.

22 Q. Show us what happens to Conoco's  
23 interest when we look at the Pictured Cliff.

24 A. In the Pictured Cliff, Conoco has a  
25 .5886 decimal working interest.

1 Q. When we move over to the Mesaverde,  
2 what happens?

3 A. Conoco's interest decreases to a  
4 .3924 decimal interest.

5 Q. Have you satisfied yourself, to the  
6 best of your knowledge, information and belief,  
7 that you have tabulated a correct, current and  
8 accurate display showing not only the interest  
9 owners but their appropriate interest per pool?

10 A. Yes, I have.

11 Q. Based upon that information, the  
12 ownership interests and the offsetting operators,  
13 what, then, did you do?

14 A. We mailed a copy of the application for  
15 downhole commingling to all working interest  
16 owners, overriding royalty interest owners,  
17 royalty owners, and offset operators, a copy of  
18 the downhole commingling application.

19 Q. How did you send that?

20 A. We sent that certified mail.

21 Q. With what results?

22 A. Most of the letters were received. We  
23 did receive a receipt signifying the letter had  
24 been delivered. There was one instance where the  
25 letter was not delivered.

1           Q.       When envelopes came back to you--I  
2       assume some of these initially came back to you?

3           A.       That is correct.

4           Q.       --did you determine more accurate  
5       addresses and subsequently mail them again?

6           A.       Yes, we did.

7           Q.       At the end of that entire process, with  
8       one exception, did you actually serve all  
9       interest owners and operators?

10          A.       Yes, we did.

11          Q.       When we look at Exhibit 4 in each  
12       exhibit package, what does Exhibit 4 contain,  
13       then?

14          A.       Exhibit 4 is a copy of the return  
15       receipt for each of the interest owners or  
16       operator.

17          Q.       Describe for us the one instance, then,  
18       in which, despite your efforts, you were unable  
19       to achieve actual service of the application to  
20       that owner.

21          A.       In that particular interest, the  
22       interest owner was deceased, with no known heirs.

23          Q.       Can you describe what case that  
24       situation occurs in?

25          A.       Yes. That is in Case 11028.

1           Q.       When we look at Exhibit 4, then, you've  
2 attached copies of the green certified mail  
3 receipt cards, and if you didn't have a green  
4 card, you attached proof of sending of notice?

5           A.       That is correct.

6           Q.       Did you go through the same methodology  
7 in all cases?

8           A.       Yes, we did.

9           Q.       With the same results?

10          A.       Yes, we did.

11          Q.       In any case, for any category of owner  
12 or interested party, did you receive any  
13 objection?

14          A.       No, we did not.

15          Q.       Let's turn now to the exhibit package  
16 for 11029. I won't spend much time on it, but  
17 thumb through your work product and take us to  
18 the spread sheet that shows the division of  
19 interest, okay?

20          A.       Okay. Again, Exhibit 1 is the  
21 description of the well and the pools to be  
22 downhole commingled.

23                   EXAMINER MORROW: Speak a little  
24 louder for me if you would, sir.

25          Q.       Exhibit 1 is a description of the wells

1 and the zones to be downhole commingled.

2 Q. You're looking at the exhibit package  
3 for Case 11029?

4 A. That is correct.

5 Q. All right, sir.

6 A. Exhibit 2A, again, is a description of  
7 the orientation and the proration unit for the  
8 Pictured Cliffs zone, the State Com G No. 2A  
9 well, showing the offset Pictured Cliffs wells  
10 and operators.

11 Exhibit 2B is a depiction of the  
12 orientation and the proration unit for the  
13 Mesaverde formation of the State Com G No. 2A  
14 well, again showing the offset Mesaverde wells  
15 and their respective operators.

16 Exhibit 3 is a tabulation of the  
17 ownership between the Pictured Cliffs and  
18 Mesaverde zone as it relates to each interest  
19 owner.

20 Q. All right, sir. And similarly, then,  
21 for Cases 11030 through 11036, you've done the  
22 same thing?

23 A. That is correct.

24 Q. And if you'll look at each of those  
25 exhibit packages, you'll find the same type of



1 information?

2 A. That is correct.

3 MR. KELLAHIN: That concludes my  
4 examination of Mr. Scarborough, Examiner Morrow.  
5 We move the introduction in each case of Mr.  
6 Scarborough's work product, which is identified  
7 as Exhibits 1 through 4 in each of those cases.

8 EXAMINER MORROW: Exhibits 1 through 4  
9 in each of the Conoco commingling cases are  
10 admitted into the record.

11 EXAMINATION

12 BY EXAMINER MORROW:

13 Q. In your contact to the owners, you  
14 advised them of your pending application or your  
15 proposal?

16 A. Yes, we did.

17 Q. And requested their approval, or--

18 A. We advised them of our request for  
19 downhole commingling, yes.

20 Q. Okay. You did make contact with the  
21 BLM and the State Land Office and, I assume, got  
22 their approval, or a verbal indication at least?

23 A. That is correct, yes.

24 Q. Do your leases with the other owners--I  
25 guess, though--well, in all cases, is the royalty

1 interest owned completely either by the state or  
2 by the federal government?

3 A. On a lease basis, yes.

4 Q. Okay. Except for the overriding  
5 royalty, then, all the royalty is either state or  
6 federal?

7 A. There are two leases that are fee  
8 leases.

9 Q. Oh, are there?

10 A. Yes.

11 Q. Which cases are those in?

12 A. That would be Case 11036.

13 Q. Both fee leases are in that one case?

14 A. That is correct.

15 Q. The offset operators were also included  
16 in your notification? Did you also indicate that  
17 in your testimony?

18 A. Yes, we did.

19 Q. In 11028, which one did you not get a  
20 reply from?

21 A. The Estate of Carl Senges.

22 Q. And you did learn that Carl was  
23 deceased, is that correct?

24 A. That is correct.

25 EXAMINER MORROW: Thank you, sir.

1 Appreciate your testimony.

2 MR. KELLAHIN: At this time, Mr.  
3 Examiner, we call Mr. Ben Sargent.

4 **BEN SARGENT**

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

7 EXAMINATION

8 BY MR. KELLAHIN:

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

11 A. Ben Sargent. I'm a reservoir engineer  
12 for Conoco.

13 Q. Where do you reside, sir?

14 A. I live in Midland, Texas.

15 Q. On prior occasions, have you testified  
16 as a reservoir engineer before the Division?

17 A. Yes, sir, I have.

18 Q. Describe for us what has been your  
19 function and responsibility concerning these  
20 eight cases that are before the Examiner?

21 A. Our responsibility on these cases has  
22 been to look at the production on each zone, try  
23 to determine if the wells are economic, versus  
24 uneconomic, and then look to see if they're going  
25 to benefit from downhole commingling.

1 Q. Did you complete that analysis?

2 A. Yes, sir, I did.

3 Q. Have you reached engineering  
4 conclusions based upon those results?

5 A. Yes, sir, I have.

6 Q. In addition, do you have opinions  
7 concerning a method or a procedure for downhole  
8 commingling allocation of production to the  
9 interest owners?

10 A. Yes, I do.

11 MR. KELLAHIN: We tender Mr. Sargent as  
12 an expert reservoir engineer.

13 EXAMINER MORROW: We accept Mr.  
14 Sargent.

15 Q. Let me have you describe for us in  
16 general, Mr. Sargent, what is the concept that  
17 you're trying to execute or implement for your  
18 company concerning these wells?

19 A. We've done a review for most of our  
20 wells in the San Juan Basin looking for  
21 candidates for downhole commingling, ones that  
22 will benefit from increased production, increased  
23 reserves for the zones that have reached their  
24 economic limit or close to their economic limit,  
25 to further enhance the reserves that we'll get

1 from those wells.

2 Q. Can you give us a general summary of  
3 the economic threshold criteria that you've  
4 applied for these wells?

5 A. Approximately less than 60 to 70 Mcf a  
6 day well is coming out marginal on our economics,  
7 with our operating expenses and overhead that we  
8 have in the San Juan Basin, so if a well was  
9 below that, and was a dual well, it became a  
10 candidate for downhole commingling.

11 Q. In each instance, have you determined,  
12 to the best of your engineering judgment, that  
13 commingling will result in the recovery of  
14 additional hydrocarbons that might not otherwise  
15 be recovered?

16 A. Yes, sir, I have.

17 Q. Have you also made a determination of  
18 the method for downhole commingling allocation?

19 A. I've given examples of how we intend to  
20 do it.

21 Q. Describe for the Examiner your general  
22 concept of allocation.

23 A. The general concept is to use the  
24 uppermost zone which has the more steady  
25 production, and the BTU factor applied to that

1 upper zone, and then taking the bottom reservoir  
2 of the bottom zone and whatever the future  
3 production we get after commingling, and we'll do  
4 a BTU sum total and then a BTU breakout with  
5 percentage per zone.

6 Q. Did you make that allocation analysis  
7 independent of any knowledge about the actual  
8 ownership or percentages involved in sharing in  
9 that production?

10 A. Yes, sir, I did.

11 Q. Would you be willing, if you personally  
12 owned an interest, to share based upon your  
13 proposed allocation formula?

14 A. Yes, sir, I would.

15 Q. Are you generally familiar with the  
16 Division's administrative rule, Rule 303, for  
17 downhole commingling of gas zones?

18 A. Yes, I am familiar with the rule.

19 Q. When we look at those procedures for  
20 administrative downhole commingling, are there  
21 any engineering problems for you, or questions  
22 with regards to any of those wells?

23 A. No, sir, there aren't. There is one  
24 well in our case that you brought up first that  
25 does have a pressure differential that's greater

1     than 50 percent, which is an exception to the  
2     rule.

3           Q.     In each instance, then, do you find  
4     fluid compatibilities, if there are fluids  
5     produced?

6           A.     We've got fluid compatibilities in  
7     every instance. They're dry-gas reservoirs,  
8     they've have had a history of commingling in the  
9     reservoirs, in other areas, with no apparent  
10    damage to the reservoirs.

11          Q.     Based upon your engineering work, do  
12    you see any problem at all in having the Examiner  
13    approve downhole commingling of this production?

14          A.     No, sir.

15          Q.     Let's take him through an example of  
16    what you've done. Let's look at Case 11028, and  
17    if you'll pick up the exhibit package and start  
18    with Exhibit 5?

19          A.     Exhibit 5 represents the Pictured  
20    Cliffs and Mesaverde. In the April production,  
21    it's the monthly production divided by 30 to give  
22    an average daily rate for each of the zones.

23          Q.     How is this information useful to you  
24    in going through your downhole commingling  
25    review?

1           A.       What we're looking for is the most  
2       representative rate, especially of the uppermost  
3       zone that we'll use in the future allocation  
4       percentage for downhole commingling of the  
5       reservoirs.

6           Q.       In each of the exhibit packages, do we  
7       find a similar C-116 for each well?

8           A.       Yes, sir, we do.

9           Q.       When we look at this production, some  
10      of this production is prorated gas production, is  
11      it not?

12          A.       That is correct.

13          Q.       In each instance, is that production  
14      categorized or properly classified as marginal  
15      gas well production?

16          A.       Yes, it is.

17          Q.       Let's turn now to Exhibit No. 6. This  
18      is subdivided into a 6A and a 6B. What is  
19      contained on Exhibit 6A?

20          A.       Exhibit 6A is the monthly production  
21      from the Blanco-Pictured Cliffs plotted to show  
22      what the well will represent in the future for an  
23      allocation basis.

24          Q.       And then Exhibit 6B?

25          A.       Exhibit 6B is the Mesaverde, the lower



1 zone, and it's a production history plot of its  
2 production.

3 Q. Behind that, do you start another  
4 series of exhibits numbered 7A and B?

5 A. Yes, sir.

6 Q. What do those represent?

7 A. 7A and B are the gas analyses for each  
8 reservoir, that shows the BTU factor that we'll  
9 use for the allocation purposes.

10 Q. Let's turn now to Exhibit 8. You said  
11 earlier that you had gone through an economic  
12 analysis to determine what level of daily gas  
13 production would cause a well to be a potential  
14 candidate for downhole commingling. Describe for  
15 us how you've reached that conclusion based upon  
16 the information shown on Exhibit 8.

17 A. Exhibit 8 at the bottom, we show our  
18 economic limit calculation; we have our direct  
19 operating expense that we incur in the field on  
20 these wells. All these wells are very similar in  
21 production, water production, et cetera, so they  
22 all have a similar operating expense.

23 Then we have our overhead and our  
24 accounting expense, to get to our total operating  
25 costs. Then, at the same time, I have an

1 estimated workover cost to work over the wells,  
2 with the current gas price on a Mcf basis.

3 Without workovers, I come up with an  
4 economic limit of 37 Mcf a day. With the  
5 workover, it's 49 Mcf a day, and that also takes  
6 out the royalty interest.

7 Q. Have you applied that same volume as  
8 the economic criteria, then, when we look at all  
9 the exhibit books?

10 A. The calculation is the same for all  
11 cases.

12 Q. And it results in the same number?

13 A. Yes, it does.

14 Q. Let's turn past that and look at your  
15 projection for this well on Exhibit No. 9.

16 A. For the uneconomic Pictured Cliffs  
17 zone, I've got a plot showing what the added  
18 reserves will be through commingling.

19 Q. Show us how to read the display.

20 A. The display is Mcf per day plotted on  
21 the Y axis, and the cumulative gas for each year  
22 that the well will produce through for a 10-year  
23 period.

24 Q. So, if we start at the top of the Y  
25 axis, what's the significance of the number 24?

1           A.       24 is the current producing rate of the  
2       Pictured Cliffs, which is uneconomic, so we're at  
3       the point now where we need to shut the well in,  
4       squeeze off the Pictured Cliffs and produce the  
5       Mesaverde by itself.

6           Q.       What does the plotted decline curve on  
7       the display represent, then?

8           A.       That's the normal decline of the well  
9       that you would see, if you were able to continue  
10      to produce it.

11          Q.       The only way you can continue to  
12      produce this well is to commingle that production  
13      with Mesaverde in this well?

14          A.       That's correct.

15          Q.       What are the benefits of doing that for  
16      this well?

17          A.       The benefits for this well will be an  
18      additional recovery of 41 million cubic feet over  
19      a 10-year period.

20          Q.       That's in the dark, outlined box on the  
21      display?

22          A.       Yes, and that's the total you see in  
23      the year 2003 on the X axis.

24          Q.       Have you gone through a similar process  
25      of analysis for each of the other wells?

1           A.       Yes, sir, I have.

2           Q.       You're going to show that, in each  
3 well, there's no more than one zone that is  
4 economic?

5           A.       That is correct.

6           Q.       In this instance, there are only two  
7 zones, and you're demonstrating the Pictured  
8 Cliffs is going to be uneconomic?

9           A.       And you'll get additional recovery.

10          Q.       You have \$41,000 plus Mcf of gas that's  
11 at risk if you don't commingle?

12          A.       That's correct.

13          Q.       Are there any examples of economic  
14 analysis where the current starting point of the  
15 uneconomic zone is above your economic threshold?

16          A.       Yes, sir, there are.

17          Q.       Can you tell us which ones those are?

18          A.       I think 11030 is an example, on the  
19 State Com R No. 14.

20          Q.       Yes, sir. If you'll take a moment and  
21 let us all turn to the exhibit book for 11030?

22                 All right. If we turn to 11030, tell  
23 us what exhibit number in that book illustrates  
24 this issue?

25          A.       Exhibit 9, on 11030, is the plot.

1 Q. All right. This plot, the current rate  
2 on the Pictured Cliffs is 54 Mcf a day?

3 A. Which is 5 Mcf a day above my  
4 calculated economic limit.

5 Q. Why is this well now a candidate for  
6 commingling, even though it's slightly above your  
7 economic threshold?

8 A. No. 1, you have a high potential for  
9 packer leakage on this well. It's very, very  
10 close to its economic limit, and it's at the  
11 point now where, if you wait much further, you  
12 may not be able to have the economics to do it in  
13 the future, for potential loss of reserves.

14 Q. If commingling is approved for this  
15 well, in this case, what is your calculated  
16 estimate of additional gas recovery?

17 A. 114,000 cubic feet.

18 Q. Are there any other examples where your  
19 individual well slightly exceeds the economic  
20 threshold that you've established?

21 A. Yes, sir, there is.

22 Q. Which one is that?

23 A. I think it's the Bruington.

24 Q. The very last one, 11036?

25 A. Yes.

1 Q. Let's turn to that exhibits package  
2 book. Are we also looking at Exhibit No. 9?

3 A. Yes, sir, we are.

4 Q. All right. If you'll turn to 11036 and  
5 look at the very last display--

6 MR. KELLAHIN: I misspoke a while ago.  
7 These are millions, and I said "thousands," cubic  
8 feet.

9 Q. When you look at Exhibit 9, what is  
10 your potential incremental additional oil  
11 recovery for downhole commingling of this well?

12 A. It's 111,000 Mcf.

13 Q. This is one that's also slightly above  
14 your economic threshold?

15 A. Yes, sir, it is.

16 Q. What's the basis for inclusion of this  
17 well?

18 A. Once again, it has the potential for  
19 packer leakage, in which case we would have to go  
20 in there and repair the well and, if you do that,  
21 it's marginally economic.

22 Q. Okay. All the rest fall below your  
23 economic threshold?

24 A. Yes, they do.

25 Q. Let's look at the exhibit book that we

1 started with, which is 11028. You just described  
2 Exhibit 9. Exhibit 10 in that exhibit book is  
3 the Land Office approval letter?

4 A. That is correct.

5 Q. When we go back to 11028, describe for  
6 us how you would go about the downhole  
7 commingling allocation.

8 A. What the process for allocation will  
9 be, if you look at the production curves for the  
10 Pictured Cliffs zone, which is Exhibit 6A, we've  
11 got an established rate of 24 Mcf a day for  
12 1994.

13 The zone is the uppermost zone. It  
14 doesn't produce under packer. It's Pictured  
15 Cliffs. It has the least likelihood of producing  
16 liquids, and it has the most steady rate that  
17 the dual well has.

18 After commingling, we're going to  
19 combine the rate of the two reservoirs, and that  
20 combined rate, should the Mesaverde unload or  
21 come up with higher production, then its  
22 allocation will change based on what the  
23 commingled rate is. Because I do see the  
24 potential for the Mesaverde benefiting, in terms  
25 of increased rate with downhole commingling.

1           If you look at Exhibit 6B, the  
2 Mesaverde has a lot higher fluctuation in  
3 production, as well as oil production, which  
4 indicates that it does have a loading problem.  
5 And wells in the San Juan Basin that produce  
6 under packer will always have this potential  
7 loading problem.

8           Q.     How do you propose to address the  
9 specifics of the commingling allocation process?

10          A.     To work that out with the Aztec office,  
11 like we do with the normal downhole commingling  
12 cases.

13          Q.     Mr. Sargent, let's turn to the exhibit  
14 book that contains the well that has a pressure  
15 differential that exceeds the range for  
16 administrative approval.

17          A.     That's Exhibit 11033.

18          Q.     And in that package, Mr. Sargent, what  
19 exhibit do we need to start with?

20          A.     Let's start with Exhibit 8.

21          Q.     All right, sir. What does that show?

22          A.     Exhibit 8, at the top, I show  
23 bottomhole pressure data, and I show that the  
24 bottomhole pressure of the Fruitland Sand is  
25 greater than 50 percent, or it's less than 50



1 percent of the highermost pressure, which is the  
2 Dakota.

3 Q. Based upon these pressures, that  
4 percentage is 28 percent?

5 A. That is correct.

6 Q. What kind of rates or percentages of  
7 total production do you get from the Fruitland  
8 and the Dakota in this well?

9 A. The rate on the Fruitland well  
10 currently is 13 Mcf a day; the Dakota is 133 Mcf  
11 a day. The Fruitland Sand is subeconomic.

12 Q. How did you, as a reservoir engineer,  
13 analyze the potential for cross-flow?

14 A. The potential for cross-flow in this  
15 well exists when the well is shut in for state  
16 tests once every two years, or should there be a  
17 pipeline problem.

18 What I did was, I simulated a--if you  
19 look at Exhibit 9A, I used an Imex Black Oil  
20 Simulator with the dry gas reservoir in two  
21 zones, with the physical parameters that I've  
22 listed here on Exhibit 9A, to try and get a  
23 history match of the two reservoirs.

24 Q. With this input data and the  
25 engineering assumptions that you made, did you

1 get a history match?

2 A. I got a history match. If you look at  
3 the production of the wells, they've been highly  
4 erratic, so the history match was the best to my  
5 ability.

6 Q. Based upon that work, what conclusion  
7 did you obtain?

8 A. I simulated a condition of shut in,  
9 after I got the history match. And, if you look  
10 at Exhibit 9B, what 9B represents is a Fruitland  
11 flowstream, which is the bottommost curve, the  
12 zone currently producing 13 Mcf a day; the Dakota  
13 flowstream making 133 Mcf a day; and then a  
14 commingled flowstream which shows that, in a  
15 producing state, you're getting more production  
16 from both zones combined, which shows absolutely  
17 no cross-flow in a producing condition.

18 Q. You know the Fruitland flowstream?

19 A. Right.

20 Q. So you could simulate that with a known  
21 rate and volume?

22 A. That is correct.

23 Q. You knew the Dakota flowstream, so you  
24 could model that?

25 A. That is correct.

1 Q. And then you simulated what would  
2 happen if those were combined?

3 A. That is correct.

4 Q. That is the top curve which says  
5 "Commingled Flowstream"?

6 A. That is correct.

7 Q. When you shut the well in, it says, at  
8 the end of the curve "Flow Shut-In"?

9 A. Right.

10 Q. You have the computer assume the well  
11 had been shut in?

12 A. Demonstrating what would happen as the  
13 pressures begin to mix in the wellbore.

14 Q. If there had been significant  
15 cross-flow between the two zones, what would have  
16 been plotted?

17 A. What you would have seen on the Dakota  
18 flowstream, since it would have been a higher  
19 pressured zone, you would have seen that curve  
20 not drop off to zero, as it is represented on the  
21 graph.

22 In the Fruitland flowstream, it would  
23 have actually dropped down below zero and you  
24 would have gotten significant negative production  
25 from the Dakota flowstream.

1 Q. Despite the pressure differential, what  
2 is your engineering conclusion?

3 A. That you have no significant cross-flow  
4 from the Dakota under the Fruitland.

5 Q. Would that pressure differential, in  
6 your opinion, cause this well not to be a  
7 suitable candidate for commingling?

8 A. Absolutely not.

9 Q. Turn to Exhibit 10 in the same exhibit  
10 book. If the commingling is approved for the  
11 uneconomic Fruitland Sand zone, what's the  
12 additional incremental gas recovery from that  
13 zone?

14 A. We'll get 26,000 Mcf additional, over a  
15 10-year period.

16 Q. Apart from this pressure exception, all  
17 the rest of them fell within the administrative  
18 guidelines on the pressure differential?

19 A. That is correct.

20 Q. Do all the exhibit books contain your  
21 own personal engineering work product and  
22 analysis for these wells?

23 A. Yes, they do.

24 Q. What's your ultimate conclusion about  
25 all these wells?

1           A.       That the wells should be allowed to be  
2 downhole commingled to increase the reserves for  
3 the economic zones in each case.

4           MR. KELLAHIN: That concludes my  
5 examination of Mr. Sargent, Mr. Examiner. We  
6 move the introduction of his exhibits, which I  
7 believe in each instance, with one exception,  
8 would be Exhibits 5 through 10, Mr. Examiner, in  
9 all cases, Exhibit 10 being the letters from the  
10 Commission of Public Lands.

11           EXAMINER MORROW: Exhibits 5 through 10  
12 are admitted. And I guess you have one  
13 additional exhibit in this last case, 11033, that  
14 you need to admit there?

15           MR. KELLAHIN: Yes, sir, that's the  
16 single exception, and there's an extra page in  
17 that exhibit book.

18           EXAMINER MORROW: Exhibits 1 through 11  
19 are admitted in Case 11033.

20                   EXAMINATION

21 BY EXAMINER MORROW:

22           Q.       You calculated the economic limit on  
23 each zone separately, is that correct?

24           A.       Yes, sir.

25           Q.       Why did you do that?

1           A.       Because that's what's currently being  
2 produced. Each zone is separate. The owners  
3 that see the reservoir, see it as a separate  
4 billing.

5           Q.       So your costs, like your workover cost  
6 and pumper cost, those are divided up and  
7 allocated to the zone, prior to charging those  
8 owners, I would assume?

9           A.       That is correct.

10          Q.       On the allocation as you went through  
11 it, I didn't really understand what you said you  
12 would work out with the Aztec office, as you had  
13 always done, and you alluded to a BTU allocation  
14 and a well test allocation.

15                    Tell me again how that would work out.

16          A.       What we've got in every case, the  
17 uppermost zone has a fairly steady production  
18 rate, production history, because it hasn't  
19 exhibited much unloading. It's the Pictured  
20 Cliffs. It doesn't have much fluid. That's the  
21 zone that won't change significantly, if at all,  
22 when you downhole commingle.

23                    So, using that as the representative  
24 test, after we get a commingled test, if you look  
25 at the sum production and subtract off the

1 uppermost zone steady rate that you established  
2 before, the difference in those two will be  
3 allocated to the bottommost zone, and then the  
4 BTU factors will be applied to each, and you'll  
5 actually allocate on a BTU basis versus an Mcf  
6 basis.

7 Q. What's the purpose of that first  
8 calculation if you're going to use the BTUs  
9 anyhow?

10 A. You need to get what the uppermost  
11 zone--we need to agree with the Aztec office what  
12 the uppermost zone number will be for the  
13 subtraction, when you get the commingled total  
14 sum.

15 Q. You couldn't do it by looking at the  
16 total BTU and then allocating back on a BTU  
17 basis?

18 A. The volume on the bottom zone, I think,  
19 has the potential to change, versus what it's  
20 producing now.

21 Q. You would have to have a continuous  
22 BTU, I guess, if you did it like I'm thinking  
23 about, to just do BTUs?

24 A. What I'm thinking of, right now in the  
25 well is a dual case. Let's take a Pictured

1 Cliffs/Mesaverde example. You have the Pictured  
2 Cliffs producing 20 Mcf a day and 1,100 BTUs.  
3 You've got the Mesaverde which has, say, 1,200  
4 BTUs, and it's got 100 Mcf a day.

5 So, if you add that up on a BTU basis,  
6 you take 100 times 1,200, and then you take 1,100  
7 BTUs times the 20 Mcf a day to get a total BTUs  
8 coming out of the well, and the Pictured Cliffs  
9 has so many BTUs and the Mesaverde has so many  
10 BTUs.

11 When you get the commingled production  
12 stream, the increase in production that I expect  
13 to see, the Mesaverde probably won't be 100, it  
14 will probably be 120. So, instead of the well  
15 being 120 now, as a dual, it might be 140. If  
16 you'll take 20 off for the Pictured Cliffs, then  
17 the 120 will be considered Mesaverde production.

18 Q. So, whatever the Pictured Cliffs makes  
19 now is what you're going to assume it's going to  
20 make, I guess, initially, after you commingle it?

21 A. That's correct.

22 Q. And then, down the road, how are you  
23 going to determine, a year from now, how much  
24 will the Pictured Cliffs get? Will it still get  
25 20?



1           A.       The reservoirs, no. Once the  
2 percentage is set, it will set for the life of  
3 the well.

4           Q.       You'll do a percentage and then just do  
5 it from there on?

6           A.       That's correct. If you look at the  
7 reservoir characteristics in San Juan, they all  
8 exhibit similar declines. They're all tight  
9 reservoirs. They all have 5, 6 percent decline  
10 rates, and you don't see a significant difference  
11 between Pictured Cliffs and Mesaverde.

12          Q.       You're going to establish the initial  
13 rate by your test, or your production volumes,  
14 what you call the test here, and then, after you  
15 downhole commingle, you'll use the BTU to check  
16 to see what adjustment you need to make?

17          A.       That is correct.

18          Q.       And that's the last time the BTU will  
19 be involved in it, or the test, for that matter?

20          A.       That is correct.

21          Q.       So that math is what you want to work  
22 out with the Aztec office?

23          A.       Because it's going to change, once we  
24 get the well commingled.

25          Q.       Okay. And you'll evaluate that change

1 based on the BTU total?

2 A. That is correct.

3 Q. Has Conoco done some commingling like  
4 this in the San Juan Basin already, or is this  
5 your first time?

6 A. Yes, we have.

7 Q. In the prorated pools, how do you run  
8 deliverability tests, or do you run  
9 deliverability tests? Are they exempt?

10 A. No, they're not exempt. What you do,  
11 you run the test for the lowermost zone when it  
12 comes up scheduled, and you use all the factors  
13 that are presumed for the lowermost test, and  
14 then the percentage calculation is applied to  
15 both zones, using the lowermost zone test date  
16 and factors.

17 Q. I believe wellhead pressure is involved  
18 in those deliverabilities tests? You use the  
19 combined wellhead pressure?

20 A. Right, and you assume that's applied to  
21 the lowermost zone.

22 Q. I believe all the wells are at their  
23 economic limit now, or at least one zone in the  
24 wells is at their economic limit?

25 A. Economic limit or very close to it.

1 Q. Except that one?

2 A. Right.

3 Q. Have you identified somewhere in the  
4 material you submitted which zones are in  
5 prorated pools and which ones are not? I don't  
6 believe I saw that.

7 A. No, sir, I didn't. The Blanco-Pictured  
8 Cliffs, the Mesaverde and Dakota are prorated  
9 pools.

10 Q. Are all these in the Blanco-Pictured  
11 Cliffs prorated gas pool?

12 A. Yes, sir.

13 Q. And Pictured Cliffs, I believe it was,  
14 and the Blanco-Mesaverde prorated?

15 A. Yes, sir.

16 Q. Wherever Mesaverde is shown here, is it  
17 a prorated pool?

18 A. Yes, sir.

19 Q. How about the Dakota? Is that Dakota  
20 the Basin Dakota?

21 A. Yes, sir, it is.

22 Q. And it's a prorated gas pool?

23 A. That's correct.

24 Q. So, everything in with the exception of  
25 the Chacra and the Fruitland Sand on here is a

1     prorated gas pool, if I understand you correctly?

2           A.     I think I was mistaken on the Pictured  
3     Cliffs. There's a Blanco-Pictured Cliffs South  
4     that's a prorated pool, and the Blanco-Pictured  
5     Cliffs is not prorated.

6           Q.     Some of these are in each of those  
7     categories, those pools?

8           A.     Right. With the Pictured Cliffs it  
9     various. And in all cases in the Mesaverde and  
10    the Dakota, they're in the Blanco-Mesaverde and  
11    the Basin Dakota prorated pools.

12          Q.     Would you all furnish me a list, and if  
13    it is in here, tell me where it is--well, I guess  
14    it's identified on the exhibit page there--can we  
15    tell from that which are prorated and which are  
16    not, from the pool identification?

17                  I believe we can. That's good enough.  
18    If I need something else, I'll ask you for it.

19          A.     I think if you look on the C-116 form,  
20    we may actually get into more detail on the pool  
21    description.

22          Q.     Okay. Do you have the number of a  
23    recent order that's been issued concerning  
24    Conoco-operated wells that you could refer me to  
25    on this commingling?

1           A.       No, sir, I don't.

2                   MR. KELLAHIN:  We'll supply that to  
3   you, Mr. Examiner.

4                   EXAMINER MORROW:  Okay.  That's all I  
5   had.  Thank you, Mr. Sargent.  Appreciate it.

6                   MR. KELLAHIN:  That concludes our  
7   presentation, Mr. Examiner.

8                   EXAMINER MORROW:  Thank you, Mr.  
9   Kellahin.  Cases 11028 through 11036 will be  
10  taken under advisement.

11                   [Discussion off the record.]

12                   MR. CARROLL:  Mr. Kellahin, was 11034  
13  dismissed?

14                   MR. KELLAHIN:  One of these cases was  
15  dismissed, and I think it's 11034.  11034's  
16  gone.

17                   EXAMINER MORROW:  Okay.  Then, with the  
18  exception of Case 11034, they'll be taken under  
19  advisement, and 11034 will be dismissed.

20                   (And the proceedings concluded.)

21

22

23

24

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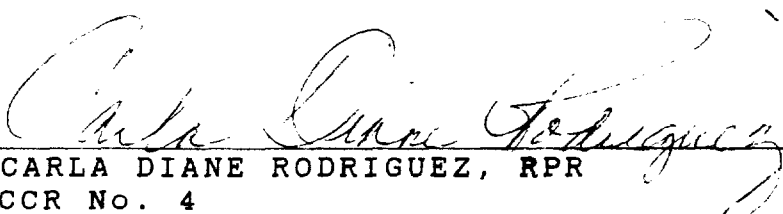
1 CERTIFICATE OF REPORTER

2  
3 STATE OF NEW MEXICO )  
4 COUNTY OF SANTA FE ) ss.  
5

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

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

19 WITNESS MY HAND AND SEAL September 16,  
20 1994.  
21

22  
23   
24 CARLA DIANE RODRIGUEZ, RPR  
25 CCR No. 4

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner meeting of Case No. 11028, 11029, 11030, 11031, 11032  
heard by me on Sep. 1, 1994. 11033, 11035, + 11036