

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: )

CASE NO. 13,358

APPLICATION OF RB OPERATING COMPANY FOR )  
TWO UNORTHODOX OIL WELL LOCATIONS AND )  
SIMULTANEOUS DEDICATION, LEA COUNTY, )  
NEW MEXICO )

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: WILLIAM V. JONES, JR., Hearing Examiner

November 4th, 2004

Santa Fe, New Mexico

2004 NOV 18 PM 10 48

This matter came on for hearing before the New Mexico Oil Conservation Division, WILLIAM V. JONES, JR., Hearing Examiner, on Thursday, November 4th, 2004, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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November 4th, 2004  
 Examiner Hearing  
 CASE NO. 13,358

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

FOR THE DIVISION:

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FOR THE APPLICANT:

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By: W. THOMAS KELLAHIN

\* \* \*

1           WHEREUPON, the following proceedings were had at  
2 8:18 a.m.:

3           EXAMINER JONES: Okay, let's call the first case.  
4 This is Case 13,358, Application of RB Operating Company  
5 for two unorthodox oil well locations and simultaneous  
6 dedication, Lea County, New Mexico.

7           Call for appearances.

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

12           EXAMINER JONES: Any other appearances?

13           There being none, will the witnesses please stand  
14 to be sworn?

15           (Thereupon, the witnesses were sworn.)

16           MR. KELLAHIN: Mr. Examiner, we're ready to  
17 proceed.

18           EXAMINER JONES: Okay.

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

22                                 DIRECT EXAMINATION

23           BY MR. KELLAHIN:

24           Q. For the record, sir, would you please state your  
25 name and occupation?

1           A.    Bobby Ebeier, senior landman with RB Operating  
2 Company.

3           Q.    Mr. Ebeier, on prior occasions have you testified  
4 before the Oil Conservation Division?

5           A.    Yes, I have.

6           Q.    In the capacity of a petroleum landman?

7           A.    Yes, sir.

8           Q.    In terms of your responsibilities to your  
9 company, have you been involved in the Application that  
10 involves these two wells at unorthodox well locations?

11          A.    Yes, sir.

12          Q.    Some of the exhibits refer to a RB Operating and  
13 others talk about Range. What is the relationship between  
14 those two entities?

15          A.    RB Operating Company is a wholly-owned subsidiary  
16 of Range Resources Corporation.

17          Q.    So for purposes of being the Division-authorized  
18 operator in New Mexico, we're dealing with RB Operating,  
19 Inc.?

20          A.    RB Operating Company.

21          Q.    Company.

22          A.    Yes.

23          Q.    And so the request, then, is on behalf of the  
24 operating company?

25          A.    Yes, sir.

1 MR. KELLAHIN: Mr. Examiner, we tender Mr. Ebeier  
2 as an expert petroleum landman.

3 EXAMINER JONES: Mr. Ebeier, how do you spell  
4 your last name?

5 THE WITNESS: That's E-b-e-i-e-r, pronounced  
6 Ebeier, like E in front of a byre, all one word.

7 EXAMINER JONES: Okay, Mr. Ebeier is qualified as  
8 a petroleum landman.

9 THE WITNESS: Thank you.

10 Q. (By Mr. Kellahin) Mr. Ebeier, let's turn to what  
11 we've marked as Exhibit Number 1.

12 A. Yes, sir.

13 Q. Let's take a moment and locate the two 160-acre  
14 areas that are the subject of this Application. Show those  
15 for us.

16 A. Two locations here that we have. The one to the  
17 north in Section 14 is our Carrasco "14" Number 4 location,  
18 in the center of these four 40-acre tracts, and then the  
19 other tract in Section 23, 160-acre tract, consisting of  
20 40-acre tracts, the center of the well or the well in the  
21 center of these tracts is our South Culebra Bluff "23"  
22 Number 15 well.

23 Q. These wells are in what the Division has  
24 identified as the South Lovington-Brushy Canyon Pool?

25 A. Yes, sir.

1 Q. And it's spaced upon 40 acres?

2 A. Yes, sir.

3 Q. When we look at the plat here, in each of the  
4 separately colored 40-acre tracts, there is currently an  
5 existing well?

6 A. Yes, an existing producing well.

7 Q. And for each of those, then, there's a proposed  
8 increased density well in the approximate center of the 160  
9 acres?

10 A. Yes, sir.

11 Q. What is your understanding of the reason for  
12 drilling these wells at these locations?

13 A. To claim undrained reserves.

14 Q. In order to accomplish that, have you obtained  
15 fully executed voluntary agreements from all the interest  
16 owners in each of those two separate areas?

17 A. Yes, sir, I did.

18 Q. Let's describe the concept that you utilized for  
19 the northeast quarter of Section 14.

20 A. Okay.

21 Q. First of all, describe the ownership within the  
22 quarter-section area.

23 A. We pay royalties and pay all of the interest  
24 owners in all four of the wells located in this 160-acre  
25 tract, on each 40-acre tract. I contacted each royalty

1 owner, overriding royalty interest owner, and working  
2 interest owner in this 160-acre tract under all these  
3 wells. I prepared an agreement, which you can see is  
4 Exhibit 2. There's over 35 or 40 owners in all of these  
5 wells. It's all common ownership in all four of these 40-  
6 acre tracts.

7 I contacted all of them, sent them all this  
8 agreement, basically said, Hey, look, we want to drill an  
9 increased-density well. If you have no objections to this,  
10 I'm going to send you an agreement that basically says that  
11 you have no objections, you waive your rights to any  
12 objection to this, we'll go ahead and get everybody's  
13 signature -- it's not effective unless 100 percent of  
14 everybody signs it -- and then just basically set some  
15 other terms that we will drill this well in between and  
16 where it's located and how the production will be shared.

17 Fortunately, in this Carrasco "14" 4 location,  
18 the ownership is common. So nobody really is diluting  
19 their interest or anything. They're all getting the same  
20 interest, working interest, overriding royalty interest  
21 owners, and the royalty interest owners.

22 So I acquired 100-percent approval from all of  
23 the owners in that well. Nobody objected.

24 Q. Is that what's represented by Exhibit Number 2?

25 A. Yes, sir.

1 Q. Mr. Ebeier, is this state, federal or fee  
2 acreage?

3 A. It's all 100-percent fee acreage. There's no  
4 state or federal acreage in this 160-acre tract.

5 Q. The area that's hached in yellow with the cross-  
6 hach lines, what does that represent? I'm sorry, in the  
7 red?

8 A. In the red. That is our proposed 40-acre  
9 proration unit, consisting of 10 acres taken from each one  
10 of the existing 40-acre tracts.

11 Q. Well, let's describe that for Examiner Jones so  
12 we don't confuse him by your nomenclature.

13 A. Okay.

14 Q. This is not a true spacing unit, is it? It's  
15 simply a collective area that's applicable to the voluntary  
16 agreement?

17 A. That is correct.

18 Q. The spacing units continue to be the 40-acre  
19 tract?

20 A. That is correct.

21 Q. And you're taking 10 acres out of each 40 to  
22 bring together this composite area that you called a  
23 proposed drilling unit?

24 A. Drilling unit, yes. And I did that basically to  
25 clarify to the royalty owners and overriding owners what I

1 was trying to accomplish.

2 Q. So for purposes of this Application, then, the  
3 Carrasco "14" 4 well is going to be in the same 40-acre  
4 proration unit with what other well?

5 A. The South Culebra Bluff 2B well.

6 Q. Okay. And all four of these existing wells in  
7 the northeast quarter of 14 currently produce?

8 A. Yes, sir.

9 Q. They're all productive.

10 Let's turn now to the northeast quarter of 23.

11 A. Okay.

12 Q. Describe for us the ownership relationship within  
13 the northeast quarter prior to your communitization.

14 A. Okay. Again, this is all 100-percent fee  
15 acreage. There's not any state or federal acreage involved  
16 in this acreage, 100-percent fee.

17 The ownership is just a little bit different in  
18 that it's not all common. If you take these four 40-acre  
19 tracts, the west 80 acres of this 160 has one royalty  
20 ownership set, and then the east 80-acre tract is another  
21 royalty interest owner set. However, the overriding  
22 royalty interest owners and the working interest owners are  
23 common.

24 So again, I prepared another agreement, which is  
25 Exhibit 3. And I styled it a little bit different; I

1 called it a communitization agreement, because really we  
2 have two different royalty owner sets, so they have to  
3 blend their royalty interest together and get diluted a  
4 little bit.

5 But the concept was the same. I contacted all of  
6 the interest owners in the two -- or in the four locations,  
7 put them under agreement and just said, Hey, look, you  
8 know, we want to drill this well, do you have any problems?  
9 They had no problems, everybody signed off on it. I had  
10 100-percent response.

11 They got diluted, but a diluted well is better  
12 than no well. I think that's kind of where they were  
13 coming from.

14 But again, the royalty ownership and the -- or  
15 the overriding royalty owners and the working interest  
16 owners were not diluted, they were all common, in both  
17 those -- all four of the locations.

18 Q. Does that agreement apply to anything more than  
19 the increased-density well? You know, you've got four  
20 producing wells in the quarter section.

21 A. Yes.

22 Q. Is their production redistributed among the  
23 interest owners in the com agreement?

24 A. No, and I made that perfectly clear in both  
25 agreements, that by signing off on these agreements it does

1 not affect your existing production, existing ownership and  
2 the existing wells.

3 Q. So again for the northeast quarter of 23, you've  
4 taken 10 acres out of each of the 40s, and you call that  
5 your proposed drilling unit?

6 A. Yes, sir.

7 Q. And that's the area that was communitized?

8 A. Yes, sir.

9 Q. The South Culebra Bluff 15 well is located on the  
10 same 40-acre proration unit with what other well?

11 A. The South Culebra Bluff Number 12 well.

12 Q. And rather than have all that production  
13 dedicated to the owners of that 40, then it is shared in  
14 equal quarters with the adjoining owners?

15 A. Yes, sir.

16 Q. And you've received no objection from anybody?

17 A. 100-percent positive response.

18 MR. KELLAHIN: That concludes my examination of  
19 Mr. Ebeier, we move the introduction of his Exhibits 1, 2  
20 and 3.

21 EXAMINER JONES: Exhibits 1, 2 and 3 will be  
22 admitted to evidence.

23 EXAMINATION

24 BY EXAMINER JONES:

25 Q. On this Section 23, does RB Operating have --

1 First of all, are all four of these tracts exactly 40  
2 acres?

3 A. Yes, sir.

4 Q. Okay. And the same way with Section 14?

5 A. Both of them, yes. All eight locations.

6 Q. Okay. Now in Section 23, does RB Operating have  
7 -- what is their working -- you said their working interest  
8 was common, so that means RB Operating has the same working  
9 interest in all four of those, right?

10 A. That's correct. In all eight locations,  
11 actually. We have 50-percent working interest.

12 Q. What about RB Operating's royalty interest or --  
13 in other words --

14 A. Net revenue interest?

15 Q. Net revenue interest?

16 A. I don't know it exactly. It's around 40 percent.

17 Q. Okay. So in other words there's not a difference  
18 in these -- You said there's two different sets of royalty  
19 owners, west half and east half?

20 A. Yes, sir.

21 Q. So -- But RB Operating doesn't have an  
22 advantage --

23 A. No, no, our working interest and net revenue  
24 interest is common between the two 80-acre tracts.

25 Q. Okay.

1           A.    Yeah.  And fortunately, getting back to this  
2 royalty ownership, yes, it was different.

3                    You have -- the east 80 is one royalty owner, and  
4 the west 80 is another royalty owner, and fortunately, they  
5 both signed leases with the same royalty ownership, i.e.,  
6 3/16 royalty.  So really by combining and communitizing  
7 their royalty interest, their interest got diluted  
8 proportionately and evenly between the two sets of royalty  
9 ownerships.

10           Q.    Okay.

11           A.    Does that make sense?

12           Q.    Yes, it does.

13           A.    Okay.

14           Q.    So they didn't object when you put that well in  
15 the southwest -- or southeast of that 160-acre -- Nobody  
16 else objected?

17           A.    No, no, no one --

18           Q.    And you did that based on geologic reasons,  
19 probably, or engineering reasons?

20           A.    Well, I think -- Well, I'll refer that to the  
21 geologist.

22           Q.    Okay.  And what about the handling of the  
23 production on the surface, especially for Section 23?  Is  
24 it going to go through -- It obviously will go through RB's  
25 operating facility.

1 A. Correct, we'll meter it separately.

2 Q. Meter it separately.

3 A. Yes.

4 Q. Okay.

5 A. Yeah.

6 Q. So --

7 A. Now, in 14 we don't have to worry about that,  
8 because it's all common anyway. But in 23, yes, we will  
9 have to meter that well separately because the division of  
10 interest is unique.

11 Q. That means you'll have to set a different --  
12 either a different tank or a separator that has meters on  
13 the gas and the oil dump.

14 A. That's correct.

15 Q. Yeah, okay. And have you instances where you've  
16 done this in the past, where you've drilled these 20-acre  
17 wells in the past?

18 A. I've never been involved in it, no. So this was  
19 a new exercise for me.

20 Q. Well, it would have been a little easier if it  
21 was pure state land or pure federal land, right?

22 A. Well, no, I think I have a better chance of  
23 talking an individual into signing my agreement than the  
24 state or the feds.

25 Q. That's interesting.

1           A.    I don't think I could have gotten those guys to  
2 sign off.

3                    Maybe.  I'd rather talk an individual into it.

4           Q.    Yeah.  And the substance of this agreement, do  
5 you base it on a certain pattern, or certain other -- an  
6 operating agreement that may be -- or a JOA that is signed  
7 for a typical 40-acre tract?

8           A.    We're under an existing JOA with our existing  
9 partner, our built-in partner, which is Chesapeake, and --  
10 out of Oklahoma City.  But really, this doesn't have  
11 anything to do with the operating agreement.

12                   The only thing I mentioned about the operating  
13 agreement is that this agreement will not amend the  
14 existing operating agreement, Division orders, transfer  
15 orders or any other things that either the working interest  
16 owners have previously signed or the royalty owners have  
17 previously signed.

18                   I wanted to make sure, and I tried to make it as  
19 basic as possible, because I was dealing with royalty  
20 owners that were scattered all over the country.

21           Q.    Yeah.

22           A.    All they understand is that they get a check  
23 every month.

24           Q.    Yeah.

25           A.    And so I tried to make it as "see Jack run" as I

1 could.

2 Q. Yeah.

3 A. And I think I did that. And also I put a clause  
4 in there that if we don't get this well drilled in a year,  
5 the agreement expires. And also, if we don't have 100-  
6 percent response and signatures on this, the agreement is  
7 null and void.

8 Q. Yeah.

9 A. So I kind of warmed them up to the agreement a  
10 little bit to say, Hey, look, I'm signing this, and I know  
11 it's not going to effective unless everybody else signs it.

12 Q. Yeah.

13 A. And I think it helped it a little bit. So I was  
14 taking a little risk, you know, trying to get 100-percent  
15 response by putting in there, but it worked.

16 Q. Yeah, it's great, I think.

17 Now, the scale-up for the future, if this works  
18 it looks like you could make a unit, maybe even try a  
19 waterflood or something like that. But if you do a  
20 waterflood, would it be on 20-acre well spacing?

21 A. I can't answer that, I don't know.

22 Q. Okay.

23 A. You might want to ask one of our geologists or  
24 engineers, and they could probably -- I'll refer that to  
25 them.

1 Q. Okay. Even if it was on denser spacing, it looks  
2 like putting the wells where you did would be logical for  
3 future waterflood --

4 A. Yes.

5 EXAMINER JONES: Okay, I think that's -- Gail?

6 MS. MacQUESTEN: I have no questions, thank you.

7 MR. KELLAHIN: One follow-up, Mr. Jones.

8 FURTHER EXAMINATION

9 BY MR. KELLAHIN:

10 Q. Mr. Ebeier, do you have the approval of the  
11 surface owner at each of these locations for the siting of  
12 your well and the equipment associated with that well?

13 A. Yes, sir, we do. We've staked them, and they're  
14 100-percent comfortable with the locations that we've  
15 picked.

16 MR. KELLAHIN: Okay, thank you.

17 FURTHER EXAMINATION

18 BY EXAMINER JONES:

19 Q. Okay, these wells are at least 10 feet off of --

20 A. Yes.

21 EXAMINER JONES: Okay, that's all the questions I  
22 had.

23 THE WITNESS: Okay, thank you.

24 MR. KELLAHIN: Mr. Examiner, at this time we call  
25 Mr. Martin Emery. Mr. Emery is a petroleum geologist.



1 Mr. Jones a summary of what you're trying to test and  
2 determine here?

3 A. We're basically trying to test the level of  
4 depletion or drainage from the existing wells. We don't  
5 think they are effectively draining the 40-acre proration  
6 units that they are spotted on, and you'll notice they're  
7 spotted almost in the center of those proration units. And  
8 so both of these wells are designed to test that -- our  
9 concept that they are not effectively draining the 40-acre  
10 proration units. And our intent is to collect a lot of  
11 data from these wells for future projects.

12 Q. Okay. Let's turn to Exhibit Number 4 now, Mr.  
13 Emery, and have you identify this map for us.

14 A. This is a structural contour map on top of what  
15 we label the lower Brushy Canyon "A" zone. You will see  
16 that on subsequent exhibits, cross-sections that are  
17 subsequent exhibits.

18 Q. Identify the nomenclature on here and the color  
19 codes.

20 A. As far as the color code, the wells that are  
21 colored with the flesh-colored circles are wells that  
22 produce from the Brushy Canyon. The 160-acre areas of  
23 interest that we're looking at for the Carrasco "14" Number  
24 4 and the SCB "23" 15 are outlined with red dashes.

25 Q. What's the significance of the color code from

1 green to yellow as you move from left to right?

2 A. That's just illustrating the structural dip to  
3 the east, general structural dip to the east.

4 Q. Is there a structural component to the reservoir  
5 that should be of significance to Examiner Jones?

6 A. Not really. You know, basically this is more or  
7 less a stratigraphic trap.

8 Q. Let's then turn to Exhibit Number 5. Identify  
9 this exhibit for us.

10 A. This is a net sandstone isopach map, and it's  
11 amalgamated for all of the pays in the Brushy Canyon, so it  
12 includes multiple sands.

13 The porosity cutoff of 14 percent, greater than  
14 or equal to 14 percent, was applied to define net  
15 sandstone.

16 Q. Again, the significance of the color-code, the  
17 greens and the yellows?

18 A. Okay, the reds are the thickest, the reds,  
19 oranges, are the thickest areas. The greens are the  
20 thinner areas.

21 Q. There are some gray circles around the wells.  
22 What do those represent?

23 A. For the 160-acres within the red-dashed boxes, we  
24 planimetered those area, and Mr. Bryant, who will testify  
25 next, used that for doing volumetric calculations for the

1 total 160 area, as well as the four wells that are in those  
2 160-acre areas, and calculated drainage areas based on the  
3 volumetrics. Those drainage areas are represented by the  
4 gray circles.

5 Q. Mr. Emery, have you prepared exhibits that will  
6 demonstrate to Examiner Jones the characteristic of the  
7 reservoir as you move from well to another?

8 A. Yes, I have.

9 Q. What have you generally concluded about that  
10 character?

11 A. That, you know, the reservoir correlation, the  
12 reservoir continuity, is very good. What is highly  
13 variable in the reservoir is permeability, reservoir  
14 quality.

15 Q. Let's turn to those exhibit sets and have you  
16 describe that for us, starting with Exhibit 6.

17 A. Exhibit 6 is a northwest-southeast structural  
18 cross-section through the Carrasco "14" Number 4 location.  
19 So that's the northern of the two locations. And this is  
20 at the top or the uppermost part of the Brushy Canyon.  
21 There is a pay zone in the upper part of the Brushy Canyon,  
22 colloquially known as the Pardue, and I've further  
23 subdivided it into the yellow and orange, and they're coded  
24 thusly.

25 Q. When we turn to Exhibit 7, what portion of the

1 vertical section of the reservoir are we looking at?

2 A. Exhibit Number 7 is the same line of cross-  
3 section. It's for the same well, the Carrasco "14" Number  
4 4. This is now at the base of the Brushy Canyon. So the  
5 previous cross-section, those sands are about 4800 feet.  
6 These sandstones are below 5000, 5700 feet. And they -- in  
7 descending order they go from the AA sandstones through the  
8 D sand.

9 Q. When you prepared the geologic conclusions and  
10 the maps for Mr. Bryant's engineering calculations, what is  
11 the top and the bottom of the interval that you have  
12 planimetered and analyzed for him?

13 A. Exhibit Number 5, the net sandstone isopach map,  
14 was prepared by summing all of the net sandstone in these  
15 lower Brushy Canyon sands exhibited on Exhibit 7, as well  
16 as the Pardue zone, Exhibit 6. So it's an amalgamation of  
17 sand from all of these pay sandstones, identified  
18 productive sandstones in the Brushy Canyon.

19 Q. At this point, has RB Operating exhausted the  
20 opportunity to increase the productivity of each of the  
21 existing four wells in this quarter section?

22 A. We have done work on some of the existing wells  
23 -- for example, the SCB "23" Number 12 in Section 23 and  
24 the SCB 2B in Section 14 -- and in our opinion what we have  
25 experienced, what we've witnessed, is that the completions,

1 especially in the lower Brushy Canyon of the older wells,  
2 even if they were only completed -- for example, the  
3 Carrasco "14" Number 5 on Exhibit 7 -- if it was only  
4 completed in the lowermost sands of the lower Brushy  
5 Canyon, when it was frac'd, those fracs effectively  
6 contacted a lot of this pay section, and we've witnessed  
7 that in the recompletion work, workover work that we have  
8 performed.

9 Q. Before we leave Exhibit 7, Mr. Emery, on the  
10 perforation portion of each log, you have it color-coded  
11 differently?

12 A. Yes, the active perfs are red, perfs that are  
13 below a bridge plug -- the bridge plugs are gray in the  
14 depth column. Inactive perfs or perfs that are below  
15 bridge plugs are the lighter pink color, salmon color. And  
16 then proposed perfs or potential perfs are green.

17 Q. And Examiner Jones can find the color codes and  
18 the relationships on the scale on the bottom right-hand  
19 corner of the display?

20 A. Yeah, the lower right-hand corner is a legend at  
21 the base of the title block that explains the code.

22 Q. Let's turn now to the cross-sections for the  
23 northeast quarter of 23, starting with Exhibit Number 8.

24 A. These are a similar set of cross-sections for the  
25 South Culebra Bluff "23" Number 15 well location. The

1 first one is a northwest-southeast structural cross-  
2 section, again for the uppermost part of the Brushy Canyon,  
3 the Pardue zone, illustrating the continuity of -- and  
4 correlative nature of the sandstones.

5 Q. And now turn to Exhibit Number 9. Identify that  
6 for us.

7 A. Exhibit Number 9 is the lowermost part of the  
8 Brushy Canyon for the SCB "23" 15 location, same  
9 orientation, structural cross-section. These are the sands  
10 that sit immediately above the Bone Spring, again AA  
11 through D, in descending order.

12 Q. Are the conclusions and opinions you've expressed  
13 with regards to the northeast quarter of 14 the same  
14 conclusions and opinions you would express for the  
15 northeast quarter of 23?

16 A. Generally yes, but the 160 acres and -- or the  
17 area of interest in Section 14, these sands don't seem to  
18 display generally better reservoir quality, thus higher  
19 cums, higher drainage areas. And then the thicker net pay  
20 that we have in the northeast of Section 23, yet, you know,  
21 from the volumetrics, from the cumulative production, from  
22 the EURs, those wells are going to be less effective in the  
23 area that they drain. Thus, we think that in general they  
24 have poor reservoir characteristics. And we have some  
25 evidence for that, that Mr. Bryant will share.

1 Q. Earlier in your testimony you discussed that one  
2 of the variables in here affecting the productivity or the  
3 drainage areas is reservoir permeability.

4 A. Correct.

5 Q. What's the basis for that opinion?

6 A. We have some scattered core data, both whole core  
7 and rotary sidewall core data, that illustrate the  
8 variability, not only between wells, same sand, but also  
9 vertically within the same wellbore, same sandstone.

10 Q. And Mr. Bryant's got an exhibit that demonstrates  
11 the permeabilities?

12 A. Some of that, yes.

13 Q. Let's turn now, Mr. Emery, to Exhibit Number 10.  
14 What are you representing here?

15 A. For the four wells in the 160-acre areas of  
16 interest I did a petrophysical evaluation of the well logs  
17 for the Brushy Canyon, for log analysis of the Brushy  
18 Canyon for the four existing wells, and this is just a  
19 summary of those calculations.

20 So in the upper part of this sheet are the offset  
21 wells for the Carrasco "14" Number 4 that are listed, the  
22 Carrasco "14" 2, 3, 5, and the SCB 2B. The average  
23 porosity for the whole Brushy Canyon section -- again, the  
24 net sand still greater than or equal to 14-percent porosity  
25 -- average porosity is 16 percent for the four wells.

1 Average water saturation is 49 percent.

2 The lower part is the SCB "23" 15, the four  
3 offset wells there, the SCB 4B, "23" 11, the 3B and the  
4 "23" 12. The 4B originally was drilled to the Bone Spring  
5 and produced for a while from the Bone Spring, and there's  
6 no porosity log, open-hole porosity log, across the Brushy  
7 Canyon section, so I'm unable to do like calculations on  
8 that well as I did with the other wells.

9 But the other three wells, the average porosity  
10 is 17 percent, the average water saturation is 48 percent,  
11 and these are numbers that Mr. Bryant used for his  
12 volumetric calculations.

13 Q. In addition to this data, what other information  
14 did you provide for Mr. Bryant so that he could do his  
15 volumetric calculation?

16 A. Basically, these data, and then the volumes,  
17 acre-feet, that were planimeter-calculated from the net  
18 sandstone isopach map. Those were my contributions to  
19 the --

20 Q. Are you and Mr. Bryant in agreement on the  
21 various reservoir parameters that ought to go into his  
22 calculations for volumetric analysis?

23 A. Yes, we are.

24 MR. KELLAHIN: That concludes my examination of  
25 Mr. Emery. We move the introduction of his Exhibits 4

1 through 10.

2 EXAMINER JONES: Exhibits 4 through 10 will be  
3 admitted into evidence.

4 EXAMINATION

5 BY EXAMINER JONES:

6 Q. This Bone Spring, what was the cum on that well?  
7 Do you remember?

8 A. My recollection is, it was about -- I think  
9 40,000 barrels of oil and commensurate gas, so I want to  
10 say close to 200 million cubic feet of gas.

11 Q. Okay. I guess I should start at the top. This  
12 pool, do you know the boundaries of the pool that is  
13 affected by this case today? I mean, the top and the  
14 bottom? Is it just the --

15 A. It's the East Loving-Brushy Canyon --

16 Q. -- Pool.

17 A. -- Pool. Actually, I think it's the East Loving-  
18 Delaware Pool.

19 Q. Delaware.

20 A. Yes.

21 Q. Which includes --

22 A. -- includes --

23 Q. -- Bone Springs?

24 A. No.

25 Q. No.

1 A. That's a separate pool.

2 Q. Just -- Okay, Cherry and Brushy and --

3 MR. KELLAHIN: Well, let me correct you. I think  
4 it's the East Lovington-Brushy Canyon Pool. Have we --  
5 Isn't that what --

6 EXAMINER JONES: Yeah, I think that's right.

7 THE WITNESS: East Loving. Lovington is in Lea  
8 County. This is East Loving.

9 Q. (By Examiner Jones) Okay, so basically it's a  
10 Brushy Canyon?

11 A. Brushy Canyon.

12 Q. So the Bone Spring is not affected here?

13 A. No.

14 Q. But -- First of all, do you plan on doing  
15 anything with the Bone Springs --

16 A. No.

17 Q. -- in this new well?

18 A. No, we do not.

19 Q. Or anything above the Brushy Canyon?

20 A. No, we do not.

21 Q. Okay.

22 A. We've studied the Cherry Canyon and the Bell  
23 Canyon. All of the sands there seem to be wet.

24 Q. Okay.

25 A. In fact, the Cherry Canyon is a water disposal

1 zone.

2 Q. Yeah. Where do you dispose your water?

3 A. Currently we dispose our water through another  
4 operator off of our leaseholds, or we truck it.

5 Q. Kind of expensive, isn't it?

6 A. Well, we are trying to remedy that. We had a  
7 hearing earlier this year for -- application for a  
8 saltwater disposal well, conversion of one of the existing  
9 wells to saltwater disposal.

10 Q. Okay. This even looks a little wet to me. Is  
11 the water production pretty high in this Brushy Canyon up  
12 here?

13 A. It varies. If you go back to Exhibit 1, posted  
14 by each wellbore are the -- in red is the gas cum, green is  
15 the oil cum and blue is the water cum for the Brushy  
16 Canyon.

17 Q. Okay.

18 A. So you can get some feel for the -- And it  
19 varies. There's structurally high wells that produce a lot  
20 of water, there's structurally low wells that don't produce  
21 that much, and so --

22 Q. So that's the relationship, that's the  
23 determination, pretty much, is structure?

24 A. No, what I'm saying is, there's structurally low  
25 wells --

1 Q. Oh, okay.

2 A. -- that don't necessarily produce a lot of  
3 water --

4 Q. Okay.

5 A. -- and structurally high wells that do, so...

6 Q. Okay. So your gamma-ray, is it radioactive or is  
7 it -- I mean, has it got some uranium salts in it?

8 A. Well, we have only well with a spectral gamma-  
9 ray, and -- in Section 11. And really, no, it's just a  
10 gamma-ray sand- -- they're just high-gamma-ray sandstones,  
11 and it's not attributable to uranium.

12 Q. Okay, so it's just dirty, it's got --

13 A. Correct.

14 Q. So do you have to do a shaly sand analysis here?

15 A. We have tried that. Unfortunately, we don't have  
16 enough data to really support what parameters to use for  
17 the shaly sand analysis. We are in the process of drilling  
18 wells, as well as with these wells, collecting this  
19 information to try to improve our log analysis of...

20 Q. So you're going to run some special core  
21 analysis?

22 A. Correct, we intend to take rotary sidewall  
23 cores --

24 Q. Okay.

25 A. -- and do analysis of those.

1 Q. Okay, let's see here. So it looks like you've  
2 squeezed off some stuff in the bottom though, right? It  
3 kind of looked that way on your --

4 A. Some of the wells have been -- we've moved uphole  
5 to the Pardue zone, correct.

6 Q. Okay, okay.

7 A. Those perforations haven't been squeezed, they're  
8 just below a bridge plug, and for example, the SCB 2B,  
9 which is in, you know, the northwest of the southeast of  
10 Section 14, we recently drilled out bridge plugs and added  
11 those zones back to production.

12 Q. Okay, to handle more water?

13 A. No, we went up -- moved uphole, completed in the  
14 Pardue, and then they have gone back and added back the  
15 production that we left to do that.

16 Q. Do you use a -- So you're willing to handle more  
17 water with your --

18 A. Correct.

19 Q. -- pumps and everything --

20 A. Correct.

21 Q. -- and it's more economic now --

22 A. Yes.

23 Q. -- to do it with the higher oil prices?

24 A. Yes.

25 Q. So Section 14 is a little better, it looks like.

1 The new wells you drill, are you going to complete the  
2 same, the lower Brushy first and then move up?

3 A. Correct.

4 Q. Those production decline curves show a little  
5 jumps in 2001, it looks like?

6 A. Between 2001, 2001 and 2004 was a lot of the  
7 Pardue recompletion work --

8 Q. Okay.

9 A. -- and the production jumps that you see are  
10 associated with that.

11 Q. Okay. What about directional permeability out  
12 here?

13 A. We have no idea about the directional  
14 permeability.

15 Q. But someday you'll need to know if you do  
16 waterfloods, or it would help, I guess.

17 A. Yes.

18 EXAMINER JONES: Okay. I think I've asked more  
19 questions than are really pertinent, but thanks for your  
20 answers.

21 THE WITNESS: You're welcome.

22 EXAMINER JONES: Gail, do you have any questions?

23 MS. MacQUESTEN: No, thank you.

24 EXAMINER JONES: Do you have anything else you  
25 want to add?

1 THE WITNESS: No.

2 MR. KELLAHIN: Well, one final question, Examiner  
3 Jones.

4 FURTHER EXAMINATION

5 BY MR. KELLAHIN:

6 Q. Mr. Emery, how long has your company operated  
7 these -- this property or these wells?

8 A. We've only operated these wells since May. We  
9 purchased this property earlier this year.

10 FURTHER EXAMINATION

11 BY EXAMINER JONES:

12 Q. So it's a focus area, then, for you?

13 A. Correct.

14 EXAMINER JONES: Okay, thanks very much.

15 MR. KELLAHIN: Mr. Examiner, our next witness is  
16 Duane Bryant. Mr. Bryant is a petroleum engineer, and he  
17 did the engineering study you're about to see.

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

21 DIRECT EXAMINATION

22 BY MR. KELLAHIN:

23 Q. Mr. Bryant, for the record, sir, would you please  
24 state your name and occupation?

25 A. Duane Bryant, I'm a senior reservoir engineer

1 with Range Resources, RB Operating.

2 Q. Have you testified before the Division on prior  
3 occasions?

4 A. No, sir.

5 Q. Summarize for us your education.

6 A. I attended Louisiana Tech University and  
7 graduated in 1971, and from 1971 to 1974 I was with  
8 Anadarko Production Company as a production engineer and  
9 reservoir engineer.

10 In 1974 I went to work for Sonad Exploration  
11 Company, which is no longer in existence. They were bought  
12 out in 1999 by El Paso, and that's when I left them.

13 During that time I was in various stages of  
14 reservoir engineering, up to senior reservoir engineer, and  
15 responsibilities included north Louisiana, east Texas,  
16 south Louisiana and offshore, Oklahoma and Arkansas,  
17 primarily. There was various reservoir-engineering  
18 responsibilities in those areas.

19 In '01 -- 2000 to 2001, I did consulting  
20 assignments, and in 2001 went to work for Range Resources.  
21 My responsibilities are primarily west Texas and some east  
22 Texas. I do the reservoir engineering assignments,  
23 economic evaluations, reserve determinations, acquisitions  
24 where applicable.

25 And like Mr. Kellahin just mentioned, in May of

1 this year we acquired Loving East, and I'm the reservoir  
2 engineer on the team working this project to further  
3 develop it and more effectively and efficiently to deplete  
4 these reservoirs.

5 Q. Mr. Bryant, are the exhibits that we're about to  
6 talk and describe your exhibits?

7 A. Yes, sir, they are.

8 Q. And the engineering conclusions you're about to  
9 make represent your own engineering conclusions?

10 A. Yes, sir, they sure do.

11 MR. KELLAHIN: We tender Mr. Bryant as an expert  
12 petroleum engineer.

13 EXAMINER JONES: Mr. Bryant is qualified as an  
14 expert petroleum engineer.

15 Q. (By Mr. Kellahin) Before we look at Exhibit 11,  
16 Mr. Bryant, let's go back to Exhibit Number 5, which is the  
17 plat that has the drainage circles on it. Do the drainage  
18 circles associated with each of these eight wells represent  
19 your work product?

20 A. Yes, they do.

21 Q. Is it your best effort to estimate what you think  
22 would be a pictorial way to represent a visualization of  
23 the drainage areas?

24 A. Yes, sir, it certainly is. This is the way I'd  
25 represent it.

1 Q. In terms of the concept that your company is  
2 trying to test, from an engineering perspective, what do  
3 you see about these two wells?

4 A. We're trying to test the concept of amount of  
5 depletion in these 160-acre drilling units and to see -- we  
6 feel like there's a great deal of potential left, as  
7 evidenced by these drainage circles here. The permeability  
8 varies across the field and -- as evidenced by the circles  
9 in the one to the south here. And we're trying to test the  
10 concept that we can make very economic wells by infill  
11 drilling and further effectively deplete these reservoirs.  
12 And that's -- There are several things we're trying to  
13 accomplish also.

14 We have very little reservoir data in our files,  
15 so we also want to get some PVT analysis, so we can  
16 understand what's going on in the reservoir and the part  
17 that the gas component plays, because the Brushy Canyon is  
18 a solution gas drive reservoir, and we feel like that --  
19 originally, that the pressure is just above bubble point.  
20 The evidence we have seems to indicate that. And the other  
21 fields in the area are that way, so --

22 Q. When we talk about other fields in the area, have  
23 you used data from another pool or an area as an analogy to  
24 what you're trying to do here?

25 A. Yes, sir, we looked at Parkway field, which is

1 just to the north of our field, I believe, and I looked at  
2 the primary production there and determined that in the  
3 Brushy Canyon it averages around 11-percent primary  
4 recovery, which is why I used 11 percent on my exhibit  
5 here, to have something to back it up with there.

6 Q. Let's turn now to Exhibit 11, and go through in a  
7 summary fashion the volumetric analysis, starting with the  
8 parameters that you've selected for your calculation.

9 A. Okay, the parameters were obtained from Mr.  
10 Emery's log evaluations, porosity and water saturation, 16  
11 and 49 percent, respectively. Initial reservoir pressure,  
12 2615, is my best estimate of the original pressure in that  
13 reservoir, based on available pressure-transient data that  
14 we do have, which is very little.

15 We have one PVT analysis in the Bone Springs,  
16 which is below the Brushy Canyon, and it was helpful in  
17 helping us make a determination.

18 But one of the things we're planning on doing in  
19 our new wells is to take some PVT analysis and find out as  
20 much as we can about the reservoir that will aid us in  
21 further drilling and evaluation of these reservoirs.

22 Q. Using these parameters, Mr. Bryant, were you able  
23 to calculate to your satisfaction the barrels of oil in  
24 place per acre-foot?

25 A. Yes, sir, I've estimated barrels of oil per acre-

1 foot of 472 in place for that 160-acre drilling tract  
2 there.

3 Q. For purposes of this exhibit we're looking at the  
4 160 acres in Section 14? You have it, right? You're  
5 looking at the 160 acres in Section 14?

6 A. Yes, sir.

7 Q. And you have a subsequent exhibit set that walks  
8 through the same analysis for the northeast quarter of 23?  
9 Correct?

10 A. That's correct.

11 Q. Let's go ahead, then, with Section 14. You've  
12 got your oil in place per acre-foot. Then what did you do?

13 A. Okay, utilized Mr. Emery's geological  
14 interpretation with his isopach and planimetering and came  
15 up with a reservoir volume of 19,234 acre-feet, based on  
16 that interpretation. If you apply that to the 472 barrels  
17 per acre feet in place, I estimate 9.1 million barrels of  
18 oil in place, originally.

19 And using the 11-percent recovery factor  
20 discussed a few minutes ago, that equates to 1 million  
21 barrels recoverable, for this 160 acres.

22 Q. To complete the next portion, you need to  
23 determine what each of these four existing wells will  
24 ultimately recover?

25 A. Yes, sir.

1 Q. How did you do that?

2 A. I looked at each of the four wells and evaluated  
3 the decline curves and also looked at production rate  
4 versus cum curve to calculate remaining reserves and  
5 drainage areas for these wells, to see if we did indeed  
6 have some reserves remaining to be recovered.

7 I came up with 748,000 ultimate recoverable from  
8 these four wells, as you see there. And if you subtract  
9 that from 1 million barrels ultimate, it indicates that  
10 there are 252,000 barrels remaining to be recovered in the  
11 Brushy Canyon.

12 Q. Let's set that Exhibit 11 aside for a moment and  
13 have you go to the package of documents marked Exhibit 12  
14 and illustrate for Examiner Jones the type of production  
15 information you utilized in order to determine ultimate  
16 recovery.

17 A. These are monthly production plots versus time.  
18 In the first three wells in the package, the wells produced  
19 from the lower Brushy Canyon. I don't have that production  
20 on here, on these first three, but what we do have here is  
21 the Pardue, which is the one they went to in 2002. And  
22 based on this decline curve estimate, the Pardue, which  
23 should recover ultimately 152.7 million barrels of oil --  
24 152.6 thousand barrels of oil and 37 million cubic feet of  
25 gas.

1           The profile of the decline curve is pretty  
2 representative of the Brushy Canyon, after looking at the  
3 histories of some of the older wells, and...

4           So what I have done is, I have taken the reserves  
5 from the Pardue here and added it to the previous history,  
6 which dates back to 1989, 1990 in most cases, and then I  
7 have that on a subsequent exhibit as the historical  
8 production. But in a lot of the cases they've gone to the  
9 Pardue around 2002 -- this was before we got the property  
10 -- and plugged off the lower zones, and this is the results  
11 of the work they did in 2002.

12           So anyway, the Carrasco "14" 2 is the first one.  
13 The "14" 3, same situation, they went to the Pardue in 2003  
14 and -- after producing from the lower Brushy Canyon  
15 intervals. Carrasco "14" 5.

16           And on the -- Now the next one, the SCB 2B, I do  
17 have the historical production on that for a reason. It  
18 produced from the lower Brushy Canyon until 2002 on that  
19 last graph, then they went up to the Pardue in 2002, after  
20 plugging of the lower part. And we've just recently,  
21 around the first of August, gone back and drilled out those  
22 bridge plugs and have this back on production.

23           So really what we have right now in the SCB 2B is  
24 a combination of the two production graphs here.

25           Q. For purposes of your calculation, Mr. Bryant, in

1 calculating ultimate recovery from each of these wells,  
2 have you acknowledged the contribution of all the possible  
3 zones within the Brushy Canyon --

4 A. Oh, yeah.

5 Q. -- that could contribute oil to the well?

6 A. Yes, sir, we have.

7 Q. Let's turn now to Exhibit 14 -- I'm sorry, 13.

8 Identify Exhibit 13 for us.

9 A. Exhibit 13 is a summary of the four wells in this  
10 160-acre tract. The cumulative production from each of the  
11 four wells, remaining recoverable, which coincides with the  
12 graphs we just looked at, and the estimated ultimate  
13 recoverable oil and gas, and also the current rates for  
14 each of these four wells, gas and oil, which totals 127  
15 barrels a day we're currently making from these four wells.

16 The GOR is the last column, and as you can see  
17 the producing GOR averages under 5000 over time.

18 Q. Are you aware that the pool rules for this pool  
19 allow you a gas-oil ratio of 10,000 to -- I mean 8000 to 1?

20 A. Yes, sir, 8000.

21 Q. Let's take this as an example. If you'll find  
22 the Carrasco "14" 5 well, that current rate is 17 barrels a  
23 day?

24 A. That's correct, yes, sir.

25 Q. Now, the "14" 5 is the same spacing unit on which

1 you're going to add -- Did I get that right? No, I've got  
2 the wrong spacing unit.

3 A. It's the SCB 2.

4 Q. Let's find, the S- -- that's the first well. So  
5 the "14" 2 is going to produce 37 a day, and it will be the  
6 parent well on the spacing unit with the infill well?

7 A. That's correct.

8 Q. All right. Are you aware that you have to share  
9 that production, under Division Rules, with the depth  
10 bracket oil allowable for a 40-acre tract of 142 barrels of  
11 oil a day?

12 A. Yes, sir.

13 Q. And there's sufficient margin in here to allow  
14 you to execute your project?

15 A. Yes, sir.

16 Q. Let's turn now, then, to Exhibit Number 14 and  
17 talk about the drainage areas that you've calculated for  
18 the northeast quarter of Section 14.

19 A. After estimating the ultimate recoverable  
20 reserves for each of the four wells, I used the reservoir  
21 parameters that Mr. Martin had provided and came up with  
22 drainage areas, as you see, in the right-hand column. The  
23 average is 33 acres. The sum of all four is 132, I  
24 believe, 132 acres. So we estimate that there are 28 acres  
25 of undrained reserves in this reservoir.

1           Q.    For purposes of your infill well, have you  
2 estimated by conventional engineering calculations what you  
3 anticipate might be the ultimate recovery from the infill  
4 well?

5           A.    Yes, sir, we have.

6           Q.    Let's turn to Exhibit 15 and have you describe  
7 that for us.

8           A.    Exhibit 15 outlines our estimated reserves for  
9 the Carrasco "14" 4 only. The previous one was for the  
10 entire 160-acre tract. This one is just for the "14" 4. I  
11 utilized reservoir parameters based on the existing wells  
12 in the area, and the initial pressure is estimated at 1000  
13 pounds, which is -- that's strictly an estimate, which is  
14 -- one of the things we're going to do with our new wells  
15 is take RFTs and try to get a handle on what the current  
16 pressures are, because there hasn't been any recent  
17 pressures taken out here. And our current feeling is that  
18 it's probably between 1000 and 1500 pounds, in that  
19 neighborhood. But I estimated 1000 pounds for this  
20 exercise.

21                   And the reservoir temperature is 115 degrees  
22 fahrenheit, and reservoir formation volume factor 1.13, and  
23 came up with oil in place of 560 barrels per acre-foot for  
24 this well. And I calculated 28 acres remaining  
25 recoverable. I gave this one 20 acres, and this comes out

1 to 120,000 barrels of ultimate recoverable reserves.

2 So we've estimated 120,000 barrels for this  
3 location, based on 20-acre estimated drainage area. And I  
4 used 9-percent recovery factor, which is a little less than  
5 the average for the field.

6 Q. What does the data show you in terms of the range  
7 of potential ultimate recovery under primary production for  
8 Brushy Canyon wells?

9 A. The range of ultimate primary recovery? Oh, I  
10 think 40,000 to 150,000, depending on the area where we're  
11 drilling.

12 Q. You said the 9 and the 11 percent were on the  
13 lower end of a range?

14 A. Right, right.

15 Q. What is that percentage range?

16 A. Oh, the percentage range of recovery factor was  
17 about -- we feel like it was probably 8 to 15 percent for  
18 the recovery factors.

19 Q. Mr. Bryant, let's turn now to the second area,  
20 which is to the south, and look first of all at your  
21 calculations for the northeast quarter of 23. Are the  
22 exhibits we're about to see constructed in the same  
23 methodology as you just described for the area to the  
24 north?

25 A. Yes, sir, they are.

1 Q. Take us through the calculation, then, on Exhibit  
2 16.

3 A. This one follows the same format as the previous  
4 one for the area to the north. The reservoir parameters  
5 are represented by the estimates that Mr. Emery has come up  
6 with on porosity and water saturation. Initial reservoir  
7 pressure, 2615. The formation volume factor, 1.34. I  
8 might mention that is an estimate based on an initial  
9 solution GOR of 700 to 800. We have nothing concrete to  
10 back that on except for production, early production  
11 history.

12 The early production seems to indicate that the  
13 GOR is 700 to 800 in that -- but it increases rapidly,  
14 which indicates that your gas is breaking out of solution.  
15 We feel like that the bubble point is just below the  
16 initial reservoir pressure. That's what we're seeing here,  
17 we think.

18 So based on that assumption, and 38-degree  
19 gravity oil, formation volume factor is 1.34, and that's  
20 what I had on the previous one as well, and the reservoir  
21 bulk volume, based on the geological interpretation, 25,120  
22 acre-feet, which equates to 12.9 million barrels of oil in  
23 place, we've estimated for this 160-acre tract.

24 And if you use the 11-percent recovery factor to  
25 be consistent, that comes out to an ultimate recoverable of

1 1.4 million barrels, which is considerably more than the  
2 existing wells expect to produce.

3 Q. Let's go back and demonstrate for Examiner Jones  
4 the production profiles that you have analyzed to put into  
5 your calculation for what the four current wells will do.

6 A. Okay.

7 Q. If you'll turn now to Exhibit 17 --

8 A. Okay, Exhibit 17, the first well is the SCB 3B,  
9 which is currently producing from the lower Brushy Canyon.  
10 And we have estimated recoverable ultimately of 95,000  
11 barrels and 590 million cubic feet for this interval.

12 Now, we also have, on the next sheet, some  
13 additional zones uphole that we feel like are not depleted,  
14 and we plan on testing them, which are the AA and the C,  
15 sort of the middle part of the Brushy Canyon zones. So the  
16 second page illustrates the volumetrics used to determine  
17 the behind-pipe estimates for this well.

18 So the ultimate recoverable reserves for this  
19 first well, the 3B, consists of the remaining -- based on  
20 the decline curve analysis, plus the behind-pipe estimate  
21 on the next page, which under the shaded portion on the  
22 right-hand side, reserves in stock tank barrels,  
23 approximately 31,000 barrels is what we've estimated, and  
24 154 million.

25 We feel like in this area there's been such

1 little drainage, and we feel like that behind-pipe reserves  
2 exist here, and they haven't been perforated, whereas up to  
3 the north they had been, and we're just now going back to  
4 get some of that, and some we won't, because they were  
5 abandoned at such low rates.

6 But anyway, the next one is the SCB 4B. Same  
7 situation here. It's currently producing from the Pardue.  
8 And as you can see, it's at the economic limit. The  
9 operating cost on the far right is extremely high for this  
10 well, which is something that needs to be worked on,  
11 obviously. The well is currently down to about 5 to 6  
12 barrels a day, so it's on -- actually down the line, just a  
13 little ways further there, actually, and it's currently  
14 uneconomic, and it's one of the wells that we're planning  
15 on recompleting within the next few weeks, to these  
16 intervals on the next page. So the SCB 4B, we have a  
17 project in place to go up to the upper Brushy Canyon  
18 intervals and test those zones.

19 And that second page illustrates the behind-pipe  
20 reserves that we currently have estimated for these zones  
21 that we're going to shortly.

22 SCB "23" 11, two pages associated with that. If  
23 you'll go to the second one first, shows the production  
24 history from the intervals in the Brushy Canyon AA, A, B, C  
25 and D, which produced until July of '04. And at that time

1 we went up to the Pardue, which is the first page, and that  
2 short period of production is from the Pardue, which is  
3 where we are now, and it's estimated to recover 7400  
4 barrels and 30 million from the Pardue.

5 And in July of this year we added back the  
6 intervals shown as AA, A, B, C and D. We added back in the  
7 production. So we now have those two combined, actually,  
8 in our production.

9 Q. Do your calculations for all four of these wells  
10 include the behind-the-pipe potential and what you  
11 anticipate to be the recoveries from the additional work,  
12 so that when we look at Exhibit 5 and look at the gray  
13 drainage areas, we're seeing the maximum possible drainage  
14 area associated with each of those four wells?

15 A. Yes, sir, that's correct.

16 Q. And even if you do that --

17 A. Yeah.

18 Q. -- there is still --

19 A. That's right.

20 Q. -- oil left to be recovered in the 160 acres?

21 A. Even with that, the drainage areas are extremely  
22 small, as you can see. Average is about 10 acres, about 10  
23 acres average drainage area.

24 Q. Let's turn now to Exhibit 18. Again here, let's  
25 walk through the calculation and the summaries. When you

1 look at the gas-oil ratio calculation at the far right, are  
2 you within the limits for the pool?

3 A. Yes, sir, we are.

4 Q. And the next number over from the right will show  
5 Examiner Jones what the current rate is on these wells?

6 A. Right. The total is 28 barrels a day, is all  
7 we're making currently from these four wells.

8 Q. So the infill well, the 15 well, is going to be  
9 on the same spacing unit as the 23-12, and it will share  
10 its production with the allowable assigned to that 40-acre  
11 spacing unit?

12 A. Yes, sir, that's correct.

13 Q. Turn with us now, then, to Exhibit 19, and let's  
14 see what you've calculated to be the drainage area for each  
15 of the four existing wells down in the northeast quarter of  
16 23.

17 A. Using the -- the cum production and the remaining  
18 reserves from the producing zones, as well as the behind  
19 pipe we just mentioned, we're estimating that the average  
20 drainage area is about 10 acres in this area.

21 Q. Let's turn now, then, to your analysis of what is  
22 the likely drainage area and the ultimate recovery from  
23 this increased density well, the "23" 15.

24 A. I've estimated, based on the reservoir parameters  
25 that we have and the 1000 pounds of bottomhole pressure,

1 which gives me a formation volume factor of 1.13, that  
2 we're looking at about 607 barrels per acre-foot of oil in  
3 place, of 910,000 barrels.

4 I assigned it 10 acres, which is the average for  
5 that 160-acre tract, and 150 feet average thickness, based  
6 on Mr. Emery's isopach analysis, and that gives me 1500  
7 acre feet over that 10 acres, and that equates to 70,000  
8 barrels recoverable. And that's using a low recovery  
9 factor of 7.8 percent, which we feel like is probably  
10 pretty representative.

11 Q. Mr. Bryant, let's now turn to your last exhibit  
12 and have you identify and describe for us Exhibit 21.

13 A. This is -- this depicts the permeability  
14 variation across these two areas, the Carrasco "14" 2 to  
15 the north, and the SCB "23" 12 in the south 160-acre tract.  
16 And these core analyses were taken out of the core files,  
17 and for the B, C and D intervals in each, these  
18 permeabilities were represented in our file.

19 As you can see, the average permeability for the  
20 Carrasco is 2.63 millidarcies, and for the "23" 12 it's  
21 .72. It's almost a fourfold increase in the permeability  
22 to the north, which accounts for the lower drainage areas I  
23 think that we're seeing in the south, is one of the factors  
24 contributing to that.

25 Q. Can you summarize for us, Mr. Bryant, your

1 conclusions concerning the appropriateness of drilling  
2 these two additional infill wells in order to increase  
3 ultimate recovery?

4 A. We feel like that -- based on the information  
5 that we've been able to come up, that these two wells are  
6 needed to efficiently deplete these reservoirs in these two  
7 units, as well as enable us to get additional information  
8 that will help us evaluate the reservoir, which is an  
9 important factor.

10 So since we have very little pressure transient  
11 data and no PVT data, to better understand the  
12 characteristics of this reservoir and the gas component  
13 that we have, it will help us to further -- and it --  
14 further infill drilling as well, if we can get a handle on  
15 the current pressures and the PVT data that we could get  
16 from it.

17 And we feel like that we -- that these are very  
18 essential in helping us to further develop this field,  
19 because we're just starting our development program out  
20 here, and we've got many more wells that we'd like to  
21 drill, and this -- but these are the two infill wells that  
22 we're looking at to try to gain a lot of information that  
23 will help us in determining the need for any future infill  
24 wells, and we feel like especially in the south half, in  
25 the south area there, that we've had such small drainage

1 areas that there's a lot of undrained oil there.

2 MR. KELLAHIN: That concludes our presentation of  
3 Mr. Bryant's evidence.

4 We move the introduction of his Exhibits 11  
5 through 21.

6 EXAMINER JONES: Exhibits 11 through 21 will be  
7 admitted to evidence. Thank you.

8 EXAMINATION

9 BY EXAMINER JONES:

10 Q. Well, I guess the first thing I can say is,  
11 better be nice to your landman, because you're going to  
12 need him, it looks like.

13 Now, you didn't show economics with this, but I  
14 assume with 70,000 barrels you can justify drilling the  
15 well?

16 A. Right, I did run some economics, but you're  
17 right, I didn't submit them as exhibits. But 70,000 is  
18 economic, it sure is, at the current prices.

19 Q. Your projection of the prices?

20 A. That's right, that's right, and -- that's right.  
21 And the current well costs.

22 Q. What kind of payout are you looking at?

23 A. I think it pays out -- it pays out in the -- in  
24 just slightly under a year.

25 Q. Oh, that's good for a drilling well?

1           A.    Or, no, I think I'm getting that confused, I  
2 think, with the recompletions.  Yeah, I'm -- yeah, which  
3 we're doing also out there.

4           Q.    Oh, okay.

5           A.    Yeah, I think the drilling well is -- yeah, it's  
6 a year and a half to one and three-quarter years, if I'm  
7 not mistaken, yeah, and the recompletion is much less, yes,  
8 under a year.

9           Q.    Okay.  At these oil prices it's going to open up  
10 so much more new drilling, it seems like.

11                    These averages on your permeability, is that a  
12 geometric average or is that an arithmetic average?

13           A.    That's an arithmetic average.

14           Q.    Okay, it looks like there's a big variation  
15 there.

16           A.    Right, there sure is, yeah.

17           Q.    And you've projected the gas and the oil on these  
18 plots?

19           A.    Yes, sir, sure did.

20           Q.    You didn't just use the GOR for your gas?

21           A.    Well, I did on the -- well, on the behind-pipe I  
22 did, of course, but on the plots, yeah --

23           Q.    You projected it.

24           A.    We do project it on the plots, right.

25           Q.    And you've got a handy-dandy hyperbolic program

1 you can --

2 A. Right, right.

3 Q. -- get this stuff?

4 A. Right, we use -- You know, we determine a  
5 normalized curve for these wells here based on the history  
6 and have developed a profile for the Brushy Canyon that we  
7 use, and it fits pretty well --

8 Q. Okay.

9 A. -- the hyperbolic exponent of .9, usually,  
10 initially.

11 Q. The -- I guess I should have talked more with Mr.  
12 Emery about it, but your porosity number, is it your  
13 impression that's an effective porosity or a total  
14 porosity?

15 A. I think it's effective porosity.

16 Q. It should be effective?

17 A. Effective, right.

18 Q. But with the dirty gamma-ray, you know --

19 A. Well, that's -- that's true.

20 Q. But then that will -- if you -- basically -- I  
21 guess I'll try to paraphrase a little bit here, and you  
22 matched your decline curves with some volumetrics and --

23 A. Right --

24 Q. -- sounds realistic --

25 A. -- that's right, and some rate cums also.

1 Q. Okay.

2 A. I do rate cum curves on these as well.

3 Q. Oh, you like rate cum?

4 A. For some fields they really work well, especially  
5 oil reservoirs.

6 Q. Now, your PVT analysis, what is your gas -- or  
7 your gravity out here?

8 A. It runs 38 to low 40s, 42.

9 Q. And your gas, you've got a whole range, it's got  
10 the methane and --

11 A. Right, right, the gravity of it is about .7, I  
12 think.

13 Q. .7.

14 A. .7, yeah.

15 Q. So your PVT, is that a very expensive test to  
16 run?

17 A. I'm not sure what it is these days.

18 Q. I'm sure you can get it run right, though.

19 A. That's right, but we really need it to understand  
20 what's going on down there. There were none in the files.  
21 There was one in the Bone Spring which we studied, but it's  
22 not the same thing, obviously --

23 Q. Yeah.

24 A. -- but it's just below the Delaware --

25 Q. Yeah.

1           A.    -- the Brushy Canyon.

2           Q.    And are you going to generate any kind of model  
3 on this thing?  I mean, what you've done is so practical  
4 that it looks great to me, but --

5           A.    Right.  As we further develop the field, I intend  
6 to, and get more data.

7           Q.    Okay.  Okay now, I guess I've got to clarify one  
8 thing before we go on, is the split-out of the production  
9 from that well.  The allowable will be affected only within  
10 the 40-acre tract that it shares with the original well; is  
11 that --

12                   MR. KELLAHIN:  That's the concept, Mr. Jones.  
13 Rather than change the pool rules or create some  
14 nonstandard proration unit and ask for special unit  
15 allowable, because of the low rate of the parent well it  
16 appeared to be easiest to simply take the existing 142  
17 barrels a day for that spacing unit and put this as a  
18 second well and share the allowable under the current  
19 rules.

20                   EXAMINER JONES:  But the production in the well  
21 will be split one-fourth to each -- the actual sales of the  
22 well --

23                   MR. KELLAHIN:  Right, yeah.

24                   EXAMINER JONES:  -- will be split one-fourth --

25                   MR. KELLAHIN:  Right, right.

1 EXAMINER JONES: -- and the costs of the well?

2 MR. KELLAHIN: That's right.

3 Q. (By Examiner Jones) Okay, did that affect where  
4 you placed the well?

5 A. We had to place the well strategically because  
6 there's some alfalfa fields, I understand --

7 Q. Oh.

8 A. -- out there, and Mr. Ebeier can probably explain  
9 that a little better. He's been out there and I haven't.  
10 But we were pretty well limited in where we could put these  
11 wells actually.

12 EXAMINER JONES: Okay, I think we've almost drove  
13 off Bill Carr and Bruce here, so I better --

14 MR. KELLAHIN: Then it's been a good day, Mr.  
15 Examiner.

16 EXAMINER JONES: It's been a good day. And you  
17 guys are well prepared, and Tom was really well prepared  
18 and --

19 MR. CARR: He was?

20 EXAMINER JONES: He was.

21 MR. KELLAHIN: As usual, Mr. Examiner.

22 EXAMINER JONES: As usual.

23 MR. KELLAHIN: We try to do good work here.

24 The last exhibit, Mr. Examiner, is the notice for  
25 hearing, and we would ask that you introduce Exhibit 22.

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EXAMINER JONES: Okay, Exhibit 22 will be admitted as evidence.

Gail, do you have questions?

MS. MacQUESTEN: No questions, thank you.

EXAMINER JONES: Thank you all. With that, we'll take Case 13,358 under advisement.

(Thereupon, these proceedings were concluded at 9:33 a.m.)

\* \* \*

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. \_\_\_\_\_ heard by me on \_\_\_\_\_  
Oil Conservation Division, Examiner

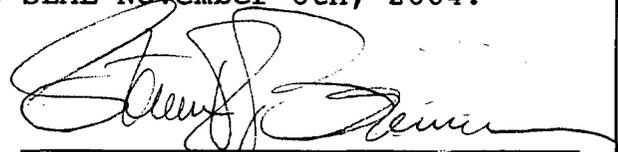
CERTIFICATE OF REPORTER

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 November 6th, 2004.



STEVEN T. BRENNER  
CCR No. 7

My commission expires: October 16th, 2006