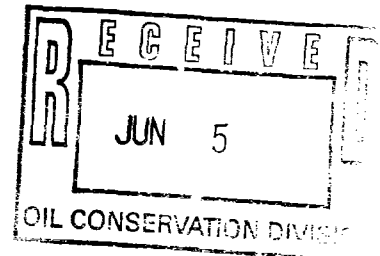


STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING )  
CALLED BY THE OIL CONSERVATION )  
DIVISION FOR THE PURPOSE OF )  
CONSIDERING: )  
APPLICATION OF ENRON OIL AND GAS )  
COMPANY )

CASE NO. 11,291



ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

June 1st, 1995

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, June 1st, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, before Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

\* \* \*

STEVEN T. BRENNER, CCR  
(505) 989-9317

## I N D E X

June 1st, 1995  
 Examiner Hearing  
 CASE NO. 11,291

	PAGE
APPEARANCES	3
APPLICANT'S WITNESSES:	
<u>PATRICK J. TOWER</u> (Landman)	
Direct Examination by Mr. Carr	4
Examination by Examiner Catanach	10
<u>BARRY L. ZINZ</u> (Geologist)	
Direct Examination by Mr. Carr	13
Examination by Examiner Catanach	17
<u>RANDALL S. CATE</u> (Engineer)	
Direct Examination by Mr. Carr	20
Examination by Examiner Catanach	26
REPORTER'S CERTIFICATE	31

\* \* \*

## E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	7	10
Exhibit 2	9	10
Exhibit 3	14	17
Exhibit 4	14	17
Exhibit 5	21	26
Exhibit 6	22	26

\* \* \*

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

FOR THE DIVISION:

RAND L. CARROLL  
Attorney at Law  
Legal Counsel to the Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

CAMPBELL, CARR & BERGE, P.A.  
Suite 1 - 110 N. Guadalupe  
P.O. Box 2208  
Santa Fe, New Mexico 87504-2208  
By: WILLIAM F. CARR

\* \* \*

1 WHEREUPON, the following proceedings were had at  
2 8:48 a.m.:

3 EXAMINER CATANACH: At this time I'll call Case  
4 11,291.

5 MR. CARROLL: Application of Enron Oil and Gas  
6 Company for an unorthodox oil well location, Lea County,  
7 New Mexico.

8 EXAMINER CATANACH: Are there appearances in this  
9 case?

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

13 We represent Enron Oil and Gas Company in this  
14 case, and I have three witnesses.

15 EXAMINER CATANACH: Any additional appearances?  
16 Will the three witnesses please stand to be sworn  
17 in?

18 (Thereupon, the witnesses were sworn.)

19 PATRICK J. TOWER,  
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. CARR:

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

25 A. Patrick J. Tower.

1 Q. By whom are you employed?

2 A. Enron Oil and Gas Company.

3 Q. Mr. Tower, what is your current position with  
4 Enron?

5 A. I'm a project landman.

6 Q. Have you previously testified before this  
7 Division?

8 A. Yes.

9 Q. At the time of that testimony, were your  
10 credentials as a petroleum landman accepted and made a  
11 matter of record?

12 A. Yes, they were.

13 Q. Are you familiar with the Application filed in  
14 this case on behalf of Enron?

15 A. Yes, I am.

16 Q. And are you familiar with the status of the lands  
17 in the subject area?

18 A. Yes, I am.

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

21 EXAMINER CATANACH: They are.

22 Q. (By Mr. Carr) Mr. Tower, would you briefly state  
23 what Enron seeks with this Application?

24 A. Enron Oil and Gas Company seeks an unorthodox  
25 well location for its Diamond "7" Federal Well Number 5 in

1 the north half of the northeast quarter of Section 7,  
2 Township 25 South, Range 34 East, to be completed in the  
3 Red Hills-Bone Spring Pool.

4 Q. What is the status of the proposed well location?

5 A. The BLM -- We initially filed the initial  
6 unorthodox location at a location of 660 feet from the  
7 north line and 2540 feet from the east line of said Section  
8 7.

9 However, the BLM, due to some surface drainage  
10 reasons, have required Enron to move the location 500 feet  
11 due north to the current location which we are proposing,  
12 the new location being 160 feet from the north line and  
13 2540 feet from the east line of this Section 7.

14 MR. CARR: Mr. Catanach, as we advised the  
15 Division, the case has already been readvertised, and new  
16 notice letters have been sent out reflecting the new  
17 location.

18 The case at the conclusion of this presentation  
19 will need to be continued to the 15th and then taken under  
20 advisement after the notice time period has run. As you  
21 will see, it only encroaches on Enron-operated lands that  
22 are federal leases.

23 Q. (By Mr. Carr) Mr. Tower, what are the well-  
24 location requirements for wells in the Red Hills-Bone  
25 Spring Pool?

1           A.     Currently in -- The Red Hills-Bone Spring Pool,  
2     for background, was established under Case Number 10,943,  
3     under Order Number R-10,109, on April 26th of 1994.

4                 It established 80-acre spacing patterns for the  
5     pool, for the Bone Spring, with 150-foot setbacks, or wells  
6     to be located -- to be legal, should be located 150 foot of  
7     the center of the quarter-quarter sections within the two  
8     40s within the 80-acre spacing unit.

9           Q.     Mr. Tower, let's go to what's been marked as  
10    Enron Exhibit Number 1. Would you identify and review that  
11    for Mr. Catanach?

12           A.     Exhibit Number 1 is a land plat depicting the  
13    wells and ownership in this area. In the red outline is  
14    the -- currently the outlined spacing unit, 80-acre spacing  
15    unit, for the proposed test.

16                 There are two location symbols there. The green  
17    location is the original location that Enron was seeking,  
18    that I mentioned earlier. And the current location that  
19    the BLM has moved Enron to is located in red, with the red  
20    dot.

21                 The other two boxes located there are the  
22    windows. They should actually be circles, but roughly  
23    represent the 150-foot setback area, within the 80 acres  
24    showing the legal locations within this spacing unit.

25                 In addition, on this plat you will notice that

1 Enron is the operator of all offsetting tracts. Within the  
2 north half of Section 7 there are two leases. The entire  
3 north half, including the drill site, is one federal lease.  
4 The remaining 40-acre tract, being the southeast of the  
5 northwest quarter, is a state tract.

6 To the north of our location, towards which our  
7 well moves, are two federal leases, one comprised of the  
8 southeast quarter, Section 6, and one comprised of the  
9 southwest quarter, Section 6.

10 Q. These are again federal leases?

11 A. Again, federal leases.

12 Q. And operated by Enron?

13 A. That is correct.

14 Q. Now, could you review in a little more detail the  
15 relationship of the Bureau of Land Management concerning  
16 the development of this acreage?

17 A. The BLM, as we mentioned, the federal leases, we  
18 have received several letters in the past within this field  
19 from the Bureau of Land Management, indicating, as we've  
20 drilled additional successful wells, the need for review of  
21 drilling wells to protect against drainage.

22 So they have been definitely following Enron's  
23 activity and -- with the idea of ensuring that all leases  
24 are properly developed to prevent from drainage.

25 One other notation I will make in that regard.



1 All of the proration units to the north of this proposed  
2 location are currently developed, and there have been wells  
3 either drilled or recompleted to this zone by Enron.

4 Q. When you met with the Bureau of Land Management  
5 concerning the proposed unorthodox location, they actually  
6 gave you two options, did they not?

7 A. Yes, they did. The two options that they gave us  
8 within this area were the one location that we're applying  
9 for, 160 feet from that northern line, and the other  
10 location is within that westernmost 150-foot setback area,  
11 which is a legal location.

12 And underneath that circle we currently have a  
13 deep gas Morrow well, with the north half of that section  
14 is allocated to it.

15 Further testimony by the geologic and engineering  
16 witnesses will address the necessity to move this location  
17 away from the legal locations.

18 Q. Let's go to what's been marked Enron Exhibit  
19 Number 2. Could you identify and review that?

20 A. Exhibit Number 2 is a topographic map, again  
21 depicting the two locations. We're talking about the  
22 original location Enron applied for in green, and the  
23 current location we are applying for with the red dot.

24 This map is on the 10-foot contour. As you can  
25 note, there's a drainage surface, drainage pattern, coming

1 down through the location that Enron applied for. And the  
2 BLM has stated that we need to move 500 feet to the north  
3 to get out of this drainage pattern.

4 Q. To whom has notice of the Application been  
5 provided?

6 A. Both to the BLM and to the State Land Office.

7 MR. CARR: Mr. Catanach, at the hearing on the  
8 15th we will present an affidavit confirming that notice  
9 has been given to both of those agencies.

10 Q. (By Mr. Carr) Mr. Tower, will Enron call  
11 geological and engineering witnesses to review the  
12 technical portions of this case?

13 A. Yes, we will.

14 Q. Were Exhibits 1 and 2 prepared by you?

15 A. Yes, they are.

16 MR. CARR: At this time, Mr. Catanach, I move  
17 admission of Enron Exhibits 1 and 2.

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

20 MR. CARR: And that concludes my examination of  
21 Mr. Tower.

22 EXAMINATION

23 BY EXAMINER CATANACH:

24 Q. Mr. Tower, is it my understanding that your  
25 original location of 660 north, 2540 east, was proposed due

1 to geology?

2 A. That is correct, geology and engineering  
3 reservoir concerns.

4 Q. Okay. This newly proposed location is one of two  
5 options that BLM gave you due to topographic restrictions?

6 A. This is correct.

7 Q. Okay.

8 A. We'll point out, too, that Enron did discuss with  
9 the BLM possibly even building a pad or some alternatives  
10 to locating the well at the green dot, and basically those  
11 were denied.

12 Q. Is Enron the only working interest owner in the  
13 north half of Section 7?

14 A. We have two partners. Enron controls  
15 approximately 96 percent. We have two partners, being  
16 Roden Participants, Ltd., and Roden Associates, Ltd., and  
17 they are aware of our development activity out here. They  
18 have participated in the wells with us to the north and in  
19 most of this area.

20 Q. How about in the south half of Section 6?

21 A. South half of Section 6, the working interest  
22 ownership is identical, again Enron with approximately 96  
23 percent and the two Roden entities with the balance,  
24 within --

25 Q. So it's the same?

1           A.    Same, that's correct.

2           Q.    Okay. Did you say that there was already  
3 development in this pool in Section 6?

4           A.    Yes, in the southwest quarter, although this  
5 map -- I apologize, it's not up to date.

6                    You'll notice in the south half of the southwest  
7 quarter there's two well symbols, the Number 2 and the  
8 Number 3. Both those are oil wells in the Bone Spring  
9 Pool, with standup 80-acre proration units allocated to  
10 them. Those are producing wells Enron has drilled.

11                   In the southeast quarter you'll see a symbol for  
12 the Number 4 well, in the southeast-southeast. That was  
13 drilled by Enron, and it is a dryhole to the Bone Spring  
14 Gas Pool.

15                   The deep gas well in the southwest of the  
16 southeast had diminished to a point where Enron did  
17 recomplete that in the Bone Spring. It's currently a Bone  
18 Spring producer with a standup proration unit, and some of  
19 the information on that well will be addressed in the  
20 technical presentation to come.

21                   All of those, again, are 80-acre standup  
22 proration units for those four wells.

23                   EXAMINER CATANACH: Okay, I have nothing further  
24 of this witness.

25                   MR. CARR: At this time we would call Barry Zinz.

1                                    BARRY L. ZINZ,  
2       the witness herein, after having been first duly sworn upon  
3       his oath, was examined and testified as follows:

4                                    DIRECT EXAMINATION

5       BY MR. CARR:

6                Q.     Would you state your name for the record, please?

7                A.     Barry L. Zinz.

8                Q.     By whom are you employed?

9                A.     Enron Oil and Gas.

10              Q.     And what is your current position with Enron?

11              A.     Geologist.

12              Q.     Have you previously testified before this  
13       Division and had your credentials as a geologist accepted  
14       and made a matter of record?

15              A.     Yes, I have.

16              Q.     Are you familiar with the Application filed in  
17       this case on behalf of Enron?

18              A.     I am.

19              Q.     And have you made a geological study of the  
20       subject area?

21              A.     I have.

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

24                        EXAMINER CATANACH:   Yes, they are.

25              Q.     (By Mr. Carr)   Mr. Zinz, how many wells has Enron

1 drilled to date in the Red Hills-Bone Spring Pool?

2 A. Twenty-seven.

3 Q. Let's go to your Exhibit Number 3, the porosity  
4 isopach. Could you review the information on this exhibit  
5 for Mr. Catanach?

6 A. This is a porosity isopach map of the Third Bone  
7 Spring Sand interval. It has a 20-foot-contour interval.  
8 It is a density-porosity map using a nine-percent density  
9 cutoff.

10 Q. What basically does this show you?

11 A. It shows that there is a zero porosity line to  
12 the east of the Diamond "7" Fed Number 1 well in question  
13 here that we want to offset.

14 Q. And the Diamond Federal well is the well in the  
15 spacing unit?

16 A. That's correct.

17 Q. You have a trace on this porosity isopach for a  
18 cross-section?

19 A. That's true.

20 Q. Let's go to that cross-section, and I'd ask you  
21 to review that for the Examiner.

22 A. Cross-section A to A' incorporates the Half "6"  
23 Fed Number 1 well, which is located in the south half of  
24 Section 6, and it's the deep well that was recompleted to  
25 the Third Bone Spring Sand that Mr. Tower mentioned, and it

1 includes our dryhole that we drilled, the Half "6" Fed  
2 Number 4.

3 If you look at the cross-section, you can see  
4 that with this nine-percent cutoff, we estimated  
5 approximately 43 feet of porosity in the Half "6" well.  
6 And the porosity goes to zero, which is demonstrated in the  
7 Half "6" 4 well. And also the sand practically goes to  
8 zero too.

9 So you do have a sand barrier, porosity barrier  
10 line established there. I think that line extends to the  
11 south in a similar position, next to the Diamond "7" Fed 1  
12 well, which is in the north half of Section 7.

13 I did not incorporate that log on the cross-  
14 section because we drill-stem-tested the Third Bone Spring  
15 Sand interval in that well, and the hole conditions were  
16 terrible, and the log characteristics were terrible as  
17 well. I brought the log with me. I can show you if you  
18 want.

19 We established this 46-foot thickness of  
20 porosity, really based on the mud log through that  
21 interval. I also brought the mud log as well.

22 Q. Now, Mr. Zinz, you've talked about 46 feet in the  
23 Diamond "7" well in the north half of the northeast of  
24 Section 7.

25 How many feet of sand do you anticipate at the

1 proposed unorthodox location?

2 A. We wanted to move to the 2540 location from the  
3 east line, which would have put us roughly around 70 feet  
4 of potential pay, and then the BLM made us move the 500  
5 feet to the north, and it happens to be roughly a similar  
6 footage thickness.

7 Q. And in making this move, is the real objective to  
8 just get into a thicker sand?

9 A. Not really. The real objective here is to get  
10 into a better reservoir. Mr. Cate can address that later  
11 on here.

12 But we feel like if we were forced to drill on  
13 the same pad as the Diamond "7" Fed 1, we would encounter  
14 similar reservoir conditions that we did in the Half "6" 1,  
15 that was recompleted, or even worse, based on the drill  
16 stem test information.

17 So therefore we were wanting to move into a  
18 better reservoir position with the unorthodox location.

19 Q. So what we're talking about here is reservoir  
20 quality, not thickness of the sand?

21 A. That's correct.

22 Q. In your opinion, would development of this  
23 spacing unit with a well at the orthodox location result in  
24 reserves ultimately being left in the ground?

25 A. It would. And we have permeability problems in



1 various parts of the field, some of which we don't fully  
2 understand at this time.

3 But I fully believe that we're pushing that  
4 porosity limit right there, which is creating our  
5 permeability problems in the Half "6" 1, and we would  
6 definitely see those same kind of conditions in the "7" 1  
7 if we were forced to drill on that location.

8 Q. Were Exhibits 3 and 4 prepared by you?

9 A. Yes, they were.

10 MR. CARR: At this time, Mr. Catanach, I move the  
11 admission into evidence of Enron Exhibits 3 and 4.

12 EXAMINER CATANACH: Exhibits 3 and 4 will be  
13 admitted as evidence.

14 MR. CARR: And that concludes my examination of  
15 Mr. Zinz.

16 EXAMINATION

17 BY EXAMINER CATANACH:

18 Q. Mr. Zinz, the Diamond "7" Well Number 1, that  
19 well is in the north half of the northeast quarter of  
20 Section 7; is that correct?

21 A. That's correct.

22 Q. What was that well drilled for?

23 A. It was a Morrow well, and it is a Morrow well at  
24 this time.

25 It's still producing, and it just would not be

1 prudent at this time to try to recomplete that well.

2 There's many years left, reservewise, in the Morrow  
3 formation there.

4 Q. Okay. But you did examine the logs from that  
5 well?

6 A. Through the Bone Spring interval, yes, sir.

7 Q. And determined that there was 46 feet?

8 A. Yes, sir.

9 Q. Okay. Roughly the same position as the Half  
10 Federal Com Number 6?

11 A. That's true.

12 Q. Number 1?

13 A. Yes, sir.

14 Q. Right.

15 A. The one that we recompleted, yes, which is on the  
16 cross-section there.

17 Q. And you mentioned something about permeability  
18 problems in that well?

19 A. Yes.

20 Q. Can you elaborate on that?

21 A. Yeah, I guess I can go ahead and do it.

22 We did run the drill stem test across the  
23 interval, and the flow pressures were very minimal, and the  
24 final shut-in pressure only built up to, I believe, six  
25 thousand, seventy-five hundred pounds, which was -- The

1 regular bottomhole pressure for the reservoir out there is  
2 9500 pounds, which is telling me that it's tight, low perm.

3 Q. Has that well been brought on production yet?

4 A. The Diamond "7" 1?

5 Q. No, the 6 --

6 A. Yes, it is, it has been producing. We shut it in  
7 to get a bottomhole pressure buildup, and Mr. Cate, I  
8 think, will address that.

9 Q. Okay. Do you know what the rate on that well is?

10 A. We have been flowing it, now, for five days. We  
11 shut it in for 14 days to get the buildup.

12 If you look at the bottom of the cross-section  
13 there, over those five days, it's averaged like 115 barrels  
14 and 238,000 cubic feet at 208 pounds flowing casing  
15 pressure.

16 Q. So you want to get it in a thicker portion of the  
17 reservoir, but also you're hopeful that it's a more  
18 permeable area?

19 A. That's correct. That's the main issue here, is  
20 the permeability. We want to move away from that zero  
21 porosity, that edge effect there, to get into better perm.

22 EXAMINER CATANACH: That's all I have of the  
23 witness, Mr. Carr.

24 MR. CARR: That's all we have with Mr. Zinz, and  
25 at this time we would call Randy Cate.

1                                    RANDALL S. CATE,  
2    the witness herein, after having been first duly sworn upon  
3    his oath, was examined and testified as follows:

4                                    DIRECT EXAMINATION

5    BY MR. CARR:

6            Q.    Would you state your name for the record, please?

7            A.    It's Randall Cate.    That's C-a-t-e.

8            Q.    And where do you reside?

9            A.    I reside in Midland, Texas.

10          Q.    By whom are you employed?

11          A.    I'm employed by Enron Oil and Gas.

12          Q.    And what is your current position with Enron?

13          A.    I'm a reservoir engineer.

14          Q.    Have you previously testified before this  
15    Division and had your credentials as a reservoir engineer  
16    accepted and made a matter of record?

17          A.    Yes, I have.

18          Q.    Are you familiar with the Application filed in  
19    this case on behalf of Enron?

20          A.    Yes, I am.

21          Q.    And have you made an engineering study of the  
22    impact of the well at the proposed location on the  
23    recoverable reserves from the pool?

24          A.    Yes, I have.

25                    MR. CARR:    Are the witness's qualifications

1 acceptable?

2 EXAMINER CATANACH: Yes, they are.

3 Q. (By Mr. Carr) Mr. Cate, let's go to what's been  
4 marked Enron Exhibit 5, and I'd ask you to identify this  
5 and review it for Mr. Catanach.

6 A. All right, this is a projected decline curve on  
7 the Half "6" Federal Number 2 well, which is -- It's the  
8 middle green circle in the south half of Section 6, there  
9 on the Exhibit Number 3, that Mr. Zinz has testified on,  
10 the isoporosity map.

11 And I'm just using this as an example of the  
12 hyperbolic decline curve analysis that was performed for my  
13 next exhibit where I calculated the drainage areas, and it  
14 shows some of the tight rock nature that we're dealing  
15 with. Very high initial rates, in the range of 400 barrels  
16 per day, for the first month's production. And current  
17 rate approximately -- less than six months later, is almost  
18 down to 150 barrels per day and continuing that very steep  
19 decline.

20 But it does show, I do believe, based on a tight  
21 rock nature, that it should go with a hyperbolic type of  
22 decline.

23 And this will show you the projected EURs in  
24 thousands of barrels that are used in my next exhibit.

25 Q. You're really using this just to show the typical

1 kind of decline you experience for all Bone Spring wells in  
2 the area; is that not right?

3 A. That's right. In another portion of the field  
4 we've got some wells now that have two years of production,  
5 and they exhibit the same hyperbolic type of decline.

6 Q. And then you used this type curve to calculate  
7 drainage areas; is that right?

8 A. Yes, to calculate EURs, ultimate recoveries. And  
9 then, based -- apply that with the net footage of pay and  
10 come up with the drainage area.

11 Q. And those calculations are set forth on your  
12 Exhibit 6?

13 A. Yes, they are.

14 Q. Let's go to that now, and would you review it for  
15 Mr. Catanach, please?

16 A. Exhibit 6, the top of it will show the reservoir  
17 data that was used in the drainage area calculations:  
18 average porosity of 12 percent, average oil saturation 60  
19 percent, formation volume factor 1.8, recovery factor of 15  
20 percent. And those are taken from log analyses, and the  
21 formation volume factor from the PVT data off fluid  
22 analysis.

23 The recovery factor is arrived at from some  
24 reservoir modeling and other correlations. And then that  
25 gives you the barrels of oil recoverable per acre-foot of

1 46.55.

2 Taking that into -- Using that with the decline  
3 EURs that were estimated for each of these wells in this  
4 table, we can calculate a drainage acres, based on the pay  
5 thickness that Mr. Zinz has calculated off logs, and then  
6 arrive at a drainage radius for each well.

7 Those radiuses are now shown in the circles on  
8 Exhibit Number 3. And of course these drainages are not  
9 ever going to be exactly, you know, radial, perfectly  
10 circular. But it does show pictorially here a good  
11 representation of what is going on here.

12 The relevant factors, this Half "6" Number 2, as  
13 you can see, it is only going to calculate a drainage  
14 acreage of 28 acres, with a corresponding radius of 623  
15 feet. It is a very thick well but, as you can see, with a  
16 very steep decline.

17 So we believe we're in area of some lower  
18 permeability compared to the rest of the field.

19 To go down under these relevant factors, I'll  
20 just read those off and then address some more on those.

21 The Half "6" Federal Number 1, which is the far  
22 east well -- with 43 feet showing there, and it is on the  
23 cross-section A to A' -- it has a lower permeability than  
24 what we've been seeing in the rest of the field, and you  
25 can see that on the initial producing rate.

1           It IP'd for about 200 barrels a day back in  
2   April, but within two weeks it was down to approximately  
3   100 barrels a day. We shut it in for buildup. We just got  
4   the analysis in yesterday, and it was .02 millidarcies. So  
5   it's very tight.

6           I had projected approximate EUR of 92,000 barrels  
7   on it. It may make it, but I think it's even going to do  
8   it at lower rates than this 100 barrels a day. I think  
9   it's probably going to go down into the 50-barrel-a-day  
10  range and then begin that hyperbolic decline.

11          And that is -- then in taking it -- We anticipate  
12  the same type of reservoir down in this Diamond "7" Federal  
13  Number 1. If we were to wait approximately ten years to  
14  recomplete it, I believe we would anticipate the same type  
15  of reservoir there. Based on the DST that Mr. Zinz talked  
16  about, very low permeability is indicated on it.

17          So we did want to move to the west on this  
18  spacing unit in order to try to encounter higher  
19  permeability and therefore come up with a well that's going  
20  to recover reserves that, as you can see, are not included  
21  in any of the drainage radius of any of the offset wells,  
22  and also allow us an economic producer.

23          The Diamond "7", the relevant factor number two,  
24  again, the Diamond "7" has sand behind pipe. It's  
25  producing out of the Morrow right now, with a projected



1 life of seven to eight years, and also it has a Wolfcamp  
2 carbonate behind pipe that we would want to go to. So it  
3 pretty much takes it out for behind-pipe completion in the  
4 future.

5 Item number three shows -- I've discussed that --  
6 the DST, very low permeability. Flowing pressures never  
7 got over 800 to 900 pounds, and there was only a hundred-  
8 pound increase between the initial flow pressure and the  
9 final flow pressure.

10 And then the last item is that the "7" should  
11 encounter the higher permeability -- the "7" Number 5, I  
12 should say -- would encounter higher permeability in the  
13 reservoir than the Diamond "7" Fed location, which is  
14 standard, and that also allows us to recover reserves that  
15 would ultimately not be recovered.

16 Q. Now, Mr. Cate, if we go to the first option the  
17 BLM gave you, drilling on the wellpad of the existing  
18 Diamond "7" Number 1, in your opinion would that be a  
19 prudent way to develop the acreage?

20 A. No, it would not. I believe it would be a very  
21 marginal producer and not drain the total reserves that are  
22 under this drainage -- or 80-acre unit.

23 Q. In your opinion, going to the proposed location,  
24 you will recover reserves that otherwise will be left in  
25 the ground?

1 A. I believe that's true.

2 Q. Will approval of this Application therefore be in  
3 the best interest of conservation, the prevention of waste  
4 and the protection of correlative rights?

5 A. Yes.

6 Q. Were Exhibits 5 and 6 prepared by you?

7 A. Yes, they were.

8 MR. CARR: At this time, Mr. Catanach, we move  
9 into evidence Enron Exhibits 5 and 6.

10 EXAMINER CATANACH: Exhibits 5 and 6 will be  
11 admitted as evidence.

12 MR. CARR: And that concludes my examination of  
13 Mr. Cate.

14 EXAMINATION

15 BY EXAMINER CATANACH:

16 Q. Mr. Cate, the Diamond "7" Federal Wells Number --  
17 There's a Number 1 and 2. They're both in the northeast  
18 quarter of Section 7; is that correct?

19 A. Yes, they are.

20 Q. Okay. Are those both Morrow-producing wells?

21 A. No. Now, the Diamond "7" Fed Number 2 is a Bone  
22 Spring producer, and it is indicated there with 15 feet --  
23 or, excuse me, 17 feet of porosity. And there is a  
24 calculation for that well in the drainage area box there on  
25 Exhibit Number 5 -- Excuse me, Number 6.

1 Q. Okay.

2 A. And it is producing out of the Bone Spring.

3 Q. Okay. The other Bone Spring producing well is  
4 the Diamond "7" State Number 1; is that right?

5 A. Yes, and the Diamond "7" Federal Number 4 in the  
6 south -- well, I guess it's the -- It would be the standup  
7 80 on the northwest there. I didn't do a calculation on it  
8 because it was removed, you know, from this location, as  
9 far as the effect of the other wells.

10 But basically, on this exhibit all the black dots  
11 are Bone Spring producers.

12 Q. Okay. Your -- The Well Number 2, located in the  
13 south half of Section 6, encountered 112 feet of pay?

14 A. Yes.

15 Q. But was tight?

16 A. Well, we have not done buildup on that. But yes,  
17 I would say, based on the decline curve, the rapid initial  
18 decline is somewhere in the 90 percent per annum.

19 And based on that, after a fracture treatment,  
20 the way it's declining, I would say yes, it's tight  
21 relative to the amount of pay that it has. It did  
22 encounter 112 feet of sands. And that type of a rapid  
23 decline is indicative of lower-permeability rock.

24 Q. So in your proposed well location, you're going  
25 to a thicker pay section, but how do you know that it's in

1 a better, higher porosity area?

2 A. Well, that is one of our risks. But as Mr. Zinz  
3 testified, we believe that possibly the permeability should  
4 -- The further west you go into the field, it does get  
5 better. There are some wells that are still flowing in the  
6 200-barrel-per-day range after six to eight months, and  
7 those have indicated better permeabilities, you know, on a  
8 relative basis.

9 And so I think just moving toward the center of  
10 the field, that's going to give you better permeability.

11 And number two, even if we encounter tight but  
12 thicker rock, that would still probably allow enough  
13 incremental reserves at a rate that's sufficient to make --  
14 you know, make economics on a well also.

15 Q. From the data that you have now, you cannot  
16 calculate a drainage area for the Number 5 well?

17 A. I have done a 40-acre, based on the approximately  
18 70 feet of pay. If you go at 40 acres -- and of course it  
19 all depends on what you actually encounter, what  
20 permeability you finally end up with -- 40 acres would give  
21 you 130.3 thousand barrels, and that would be 40 acres with  
22 approximately 700-foot radius.

23 And looking at that, comparing to these other  
24 EURs, it's right in line with the -- you know, this Half  
25 "6" Number 1 and the Half "6" Number 2.

1           So I would believe that would be something that  
2   could be expected, approximately a 700-foot drainage  
3   radius. And that would have little or no effect on either  
4   the wells to the north or the wells to the south either,  
5   and yet would still allow to recover the oil that is in  
6   that 80-acre unit.

7           Q.   Do you plan a recompletion of the Well Number --  
8   Is it the Well Number 2 that's -- I'm sorry, the Well  
9   Number 1, that's currently a Morrow well? Do you plan a  
10   recompletion of that well?

11          A.   Well, not if we get this approved and get to  
12   drill this location.

13                Again, that would not be available for -- the  
14   estimate now is, you know, ten years. And I guess there  
15   could be a scenario which, if the Number 5 does not seem to  
16   recover the oil that might be there, then we may come in  
17   for some type of a simultaneous dedication or something in  
18   ten years. But there's no plans right now to.

19          Q.   Do you believe that additional reserves will be  
20   recovered at the proposed location, as opposed to drilling  
21   at a standard location in there?

22          A.   Yes, I do, possibly twice, probably in the range  
23   of double the reserves.

24          Q.   And you estimated -- Did you say 130,000 --

25          A.   130,000 barrels at the nonstandard location. So

1 somewhere in the maybe 50,000 to 60,000 barrels might be  
2 recovered at this Number 1 location, in a recompletion.

3 And again, we obviously don't want to drill a  
4 well for that -- at that location at this point in time.

5 EXAMINER CATANACH: That's all I have, Mr. Carr.

6 MR. CARR: We have nothing further in this case,  
7 Mr. Catanach.

8 EXAMINER CATANACH: There being nothing further  
9 in this case, Case 11,291 will be taken under advisement.

10 (Thereupon, these proceedings were concluded at  
11 9:30 a.m.)

12 \* \* \*

13  
14  
15  
16  
17  
18  
19  
20 I do hereby certify that the foregoing is  
21 a complete record of the proceedings in  
22 the Examiners' hearing of Case No. 11291  
23 heard by me on June 1 1988  
24 David R. Catanach, Examiner  
25 Oil Conservation Division


## 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 June 2, 1995.

  
STEVEN T. BRENNER  
CCR No. 7

My commission expires: October 14, 1998