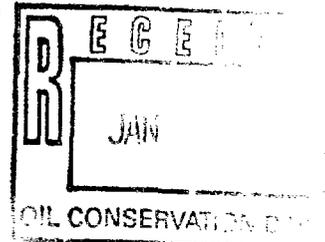


STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY )  
THE OIL CONSERVATION DIVISION FOR THE )  
PURPOSE OF CONSIDERING: )  
APPLICATION OF UNION OIL COMPANY OF )  
CALIFORNIA, d/b/a UNOCAL, FOR AN )  
UNORTHODOX GAS WELL LOCATION, )  
RIO ARRIBA COUNTY, NEW MEXICO )

CASE NO. 11,440

ORIGINAL



REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

December 21, 1995

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, December 21st, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

\* \* \*

I N D E X

December 21st, 1995  
Examiner Hearing  
CASE NO. 11,440

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\* \* \*

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

FOR THE DIVISION:

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 Legal Counsel to the Division  
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 Santa Fe, New Mexico 87505

FOR THE APPLICANT:

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 P.O. Box 2208  
 Santa Fe, New Mexico 87504-2208  
 By: WILLIAM F. CARR

\* \* \*

1           WHEREUPON, the following proceedings were had at  
2           8:27 a.m.:

3           EXAMINER CATANACH: At this time I'll call Case  
4           11,440.

5           MR. CARROLL: Application of Union Oil Company of  
6           California, d/b/a UNOCAL, for an unorthodox gas well  
7           location, Rio Arriba County, 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 Union Oil Company of California in  
14          this case, and I have two witnesses.

15          EXAMINER CATANACH: Okay, any additional  
16          appearances?

17          Will the witnesses please stand to be sworn at  
18          this time?

19          (Thereupon, the witnesses were sworn.)

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

23                                 DIRECT EXAMINATION

24          BY MR. CARR:

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

1 A. My name is Keith McKeel.

2 Q. Where do you reside?

3 A. I reside in Houston, Texas.

4 Q. By whom are you employed?

5 A. I'm employed by UNOCAL.

6 Q. What is your current position with UNOCAL?

7 A. I'm a senior geologist. My area of  
8 responsibility is that of the Rincon Unit in the San Juan  
9 Basin.

10 Q. Mr. McKeel, have you previously testified before  
11 the New Mexico Oil Conservation Division?

12 A. Yes, I have.

13 Q. At the time of that testimony, were your  
14 credentials as a petroleum geologist accepted and made a  
15 matter of record?

16 A. Yes, they were.

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

19 A. Yes.

20 Q. Have you made a geological study of the area  
21 which is the subject of this case?

22 A. Yes, I have.

23 Q. Are you prepared to present the results of that  
24 study to the Examiner?

25 A. Yes.

1 MR. CARR: We tender Mr. McKeel as an expert in  
2 petroleum geology.

3 EXAMINER CATANACH: Mr. McKeel is so qualified.

4 Q. (By Mr. Carr) Could you briefly state what  
5 UNOCAL seeks in this case?

6 A. We're seeking the approval of an unorthodox gas  
7 well location of the Rincon Unit Well Number 131E, which is  
8 located 1985 feet from the north line, 822 feet from the  
9 west line, which is Unit E, Section 36, Township 27 North,  
10 Range 7 West.

11 Q. And in what formations will the well be  
12 completed?

13 A. We intend to complete the well in the Dakota  
14 formation, which is the Basin-Dakota Gas Pool; the  
15 Mesaverde formation, which is the Blanco-Mesaverde Gas  
16 Pool; and the Pictured Cliffs formation, which is the  
17 Blanco-Pictured Cliffs Pool.

18 Q. Mr. McKeel, is the proposed location unorthodox  
19 in each of these pools?

20 A. Yes, it is.

21 Q. Initially, I'd ask you to review for Mr. Catanach  
22 the history of this particular well.

23 A. This well was originally staked 1145 feet from  
24 the north line and 1525 feet from the west line of Section  
25 36. It was intended to be a Basin-Dakota/Blanco-Mesaverde

1 well.

2 We sent an APD, which was approved on 4-6-94.  
3 This well -- Its location offset the Rincon Number 10 well,  
4 which is a Pictured Cliff well, and was scheduled and  
5 permitted to be P-and-A'd.

6 On further evaluation, UNOCAL decided that we  
7 would like to make this a triple completion rather than a  
8 double. In order to do that, we wanted to get away from  
9 that Number 10 well, which we knew had drained that  
10 particular area of the field.

11 So our intent was to move the well as far away  
12 from Number 10 as possible, which would be 1850 feet from  
13 the north line and 790 feet from the west line, still a  
14 standard location.

15 When we went to survey and stake this well, we  
16 discovered that there is topographic conditions in that  
17 area which did not make that possible. There was an arroyo  
18 running through the area, as well as a natural gas line of  
19 El Paso's.

20 The location at that time was moved 135 feet  
21 south and 32 feet to the east, and staked at that location,  
22 staked 1985 from the north, 822 from the west.

23 A sundry notice was then filed, dated 6-5-95,  
24 which provided for a new location and a Pictured Cliffs  
25 completion.

1           The sundry notice was approved on 6-5-95.

2           Later, we discovered that this location had not,  
3 in fact, been approved. When we requested administrative  
4 approval on the location, we were advised that we would  
5 need to go to hearing on this.

6           Q.    Now, Mr. McKeel, does UNOCAL Exhibit 1 contain  
7 copies of the sundry notice and the attachments thereto,  
8 including the C-102, that were filed with the Division and  
9 approved in June, by which you are seeking approval of this  
10 location?

11          A.    Yes, it does.

12          Q.    Is this location the result of other concerns, as  
13 well as just the topographical conditions?

14          A.    Yes. Our main concern was, in order to make a  
15 triple completion out of this well and try to get the rates  
16 up, that we would need to get this location as far away  
17 from the Number 10 well as we possibly could.

18          Q.    And what is the current status of the well?

19          A.    The current status of the well is that it's shut  
20 in, waiting approval to produce.

21          Q.    It has been drilled and completed?

22          A.    Yes, it has.

23          Q.    Have you prepared certain exhibits for  
24 presentation here today?

25          A.    Yes, I have.

1 Q. Let's go to what has been marked as UNOCAL  
2 Exhibit Number 2. Would you identify this and review it  
3 for the Examiner?

4 A. Exhibit Number 2 is a map showing the outline of  
5 the Rincon Unit. It's a federal undivided unit in all  
6 formations. This map shows the difference between fee  
7 minerals, state minerals and federal minerals.

8 It also shows by the red dot the location of the  
9 Number 131E well in question. Take particular notice that  
10 there are no offset operators, other than UNOCAL, on that  
11 well.

12 Q. Under the rules that are applicable to each of  
13 these pools, how much of a setback from the outer boundary  
14 of the spacing unit are you required to have before you  
15 have a standard location?

16 A. 790 feet.

17 Q. And the west half of Section 36 is to be  
18 dedicated to the well?

19 A. That's correct.

20 Q. Are you more than 790 feet setback from the outer  
21 boundary of that tract?

22 A. Yes, we're 822 feet from that line.

23 Q. And what formations are unitized in the Rincon  
24 unit?

25 A. All formations are unitized.

1           Q.    Let's go to what has been marked as UNOCAL  
2 Exhibit Number 3.  Can you identify and review that for Mr.  
3 Catanach?

4           A.    Exhibit Number 3 is a map showing the possible  
5 drilling windows within that 160-acre unit.

6                    It shows in the northeastern drilling window the  
7 location of the Number 10 well, which has been P-and-A'd in  
8 the Pictured Cliffs.  It also shows the original location  
9 that we planned to have that well located in.  When we  
10 decided to make it a triple completion, it's obvious we had  
11 to get away from that well.  Therefore, we're getting as  
12 far away as we could.  We would take it down to the  
13 southwest corner of the drilling windows.

14                   As you can see on this sketch map, the gas line  
15 going through there, as well as the Arroyo, made it  
16 impossible for us to put it down in that corner.

17                   The only possible location that this well could  
18 have been put in that drilling window, in a standard  
19 location, is shown by the outline in -- over to the -- on  
20 the east side of that drilling window.

21                   The crosshatched line there is the area which  
22 would have been available for the wellbore itself.  That  
23 area is something a little less than 6000 feet.

24                   This, of course, is assuming that the drilling  
25 pad would be the same as the one we had designed previously

1 and that that wellbore would be in the center of your  
2 drilling pad.

3 Q. If you located a well at that point, you would,  
4 however, be substantially closer to the Rincon Number 10 --

5 A. Yes.

6 Q. -- currently proposed, the actual location of the  
7 well?

8 A. We would be approximately 400 feet closer to the  
9 Number 10 at that location than we were at the other  
10 corner.

11 Q. All right. Let's now go to what has been marked  
12 UNOCAL Exhibit Number 4. Would you identify that, please?

13 A. As a secondary concern to the drainage, we would  
14 like to, obviously, make a -- put in a location which is --  
15 has a geologic advantage in some way or another.

16 Exhibit Number 4 is a net pay map on the Point  
17 Lookout, which is the lower member of the Mesaverde. The  
18 red dot on there is the location of the 131E, and the green  
19 dot next to the Number 10 is the original location that we  
20 had planned.

21 As you can see by this, that we anticipated that  
22 by going southwesterly we would gain an advantage in the  
23 Point Lookout member. And as we drilled it, in fact, this  
24 was true.

25 Q. So you do gain advantage in the lower Mesaverde?

1 A. Yes.

2 Q. What about the upper Mesaverde?

3 A. The upper Mesaverde is productive on the Rincon  
4 Unit but not in the southern part, which is where this well  
5 is located.

6 Q. All right, Mr. McKeel, let's go to what has been  
7 marked UNOCAL Exhibit Number 5. Can you identify and  
8 review that?

9 A. Okay, Exhibit Number 5 is the net pay in the  
10 Pictured Cliffs. And again the red dot is the location of  
11 the 131E; the green dot, the original location. And you  
12 can basically see by this that there is essentially no  
13 advantage from one location to the other.

14 Q. Is there any advantage gained in the Dakota  
15 formation?

16 A. No, there is not.

17 Q. And it is productive in this portion of the unit?

18 A. That's true.

19 Q. Can you just basically summarize the conclusions  
20 you've reached concerning the geology under the proposed  
21 spacing unit for this unorthodox well location?

22 A. The intent -- Our intent was to find a location  
23 where we could produce all three zones. The standard  
24 locations available in that 160-acre unit, the obvious  
25 choice and the only choice to stay away from drainage would

1 be the southwestern window, and preferably as far southwest  
2 in the southwestern window as you can get.

3 The locations that -- Other locations were really  
4 not acceptable to try and produce that Pictured Cliffs  
5 unit.

6 Q. Were Exhibits 1 through 5 prepared by you or  
7 compiled under your direction?

8 A. Yes, they were.

9 MR. CARR: At this time, Mr. Catanach, we move  
10 the admission into evidence of UNOCAL Exhibits 1 through 5.

11 EXAMINER CATANACH: Exhibits 1 through 5 will be  
12 admitted as evidence.

13 MR. CARR: That concludes my direct examination  
14 of Mr. McKeel.

15 EXAMINATION

16 BY EXAMINER CATANACH:

17 Q. Mr. McKeel, the 131 has been drilled and  
18 completed at this point?

19 A. Yes, it has.

20 Q. And has that been completed as a triple  
21 completion?

22 A. We have a 24-hour test on all three zones, yes.

23 Q. Okay. Do you guys -- Did you get any kind of  
24 approval for the multiple completion of the well?

25 A. Yes.

1 Q. Okay.

2 A. That should be the one that's put into evidence  
3 there, that's been approved by the Aztec office.

4 Q. Okay. I don't do multiple completions, but it's  
5 my understanding that there is a separate form for that. I  
6 can't remember what the name of that is, or the number of  
7 that form. But you might investigate that to see if  
8 there's another form that you might have to get approval  
9 for one.

10 A. Okay. It was originally permitted and approved  
11 as a dual completion. The following sundry that we put in  
12 later was for the addition of the Pictured Cliffs, as well  
13 as the move of that location.

14 MR. CARR: We'll check that.

15 THE WITNESS: It's a 107.

16 EXAMINER CATANACH: Yeah, it's a Form 107, is the  
17 form that you might need to file subsequently.

18 MR. CARR: Okay.

19 Q. (By Examiner Catanach) Is the -- The status of  
20 the Number 10 well, is that still producing?

21 A. No, it has been plugged.

22 Q. It has been plugged?

23 A. Yes.

24 Q. Okay. What other Mesaverde and Dakota wells are  
25 there in Section 36?

1           A.    In Section 36, the Number 168 to the -- in the  
2 northeast corner is a Dakota well, the Number 168E to the  
3 south, in the southeast, is a Dakota well, and the 131 in  
4 the southwest corner is a Dakota well. There are no other  
5 Mesaverde wells.

6           Q.    Okay. And the Number 10 was the only PC well?

7           A.    No, there are other PC wells in Section 36. The  
8 Number 25 is a PC well, the Number 31 is a PC well, and the  
9 Number 45 is a PC well.

10          Q.    The northwest quarter would be the dedicated  
11 acreage for the PC interval?

12          A.    It would be the west half.

13          Q.    Or the Pictured Cliffs?

14          A.    Yes.

15          Q.    Is that -- That's not spaced on 320?

16          A.    No, they're 160s.

17          Q.    So you --

18          A.    But you dedicate 320 on there. It's the second  
19 well, but it is the northwest quarter, essentially what  
20 you're dedicating the well to.

21          Q.    In the Pictured Cliffs?

22          A.    Yes.

23          Q.    Okay. It looks like an irregular section. Is  
24 that by any chance a nonstandard proration unit?

25          A.    It's not a standard 640 acres, but I don't

1 believe it's a nonstandard proration unit. I'm not too  
2 sure what those rules are about acreages, but it doesn't --  
3 It doesn't exceed the 320 by much.

4 Q. Your engineering witness is going to discuss  
5 Pictured Cliffs drainage; is that right?

6 A. Yes, sir.

7 EXAMINER CATANACH: Okay. I don't think I have  
8 anything else, Mr. Carr.

9 MR. CARR: All right. At this time we call Mr.  
10 Keith Shepston.

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

14 DIRECT EXAMINATION

15 BY MR. CARR:

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

17 A. Keith Shepston.

18 Q. Where do you reside?

19 A. Sugarland, Texas.

20 Q. By whom are you employed?

21 A. UNOCAL.

22 Q. What is your current position with UNOCAL?

23 A. I'm a petroleum engineer.

24 Q. Have you previously testified before this  
25 Division?

1 A. No, I have not.

2 Q. Could you briefly review your educational  
3 background for Mr. Catanach?

4 A. I received a bachelor of science degree in  
5 petroleum engineering from Texas A&M University in  
6 December, 1987.

7 Q. And since graduation, for whom have you worked as  
8 a petroleum engineer?

9 A. I've worked for UNOCAL since 1989.

10 Q. Are you familiar with the Application filed in  
11 this case on behalf of UNOCAL?

12 A. Yes.

13 Q. Have you made an engineering study of the area  
14 which is the subject of this case?

15 A. Yes, I have.

16 MR. CARR: Mr. Catanach, at this time we tender  
17 Mr. Shepston as an expert witness in petroleum geology.

18 EXAMINER CATANACH: He is so qualified.

19 Q. (By Mr. Carr) Have you prepared exhibits for  
20 presentation here today?

21 A. Yes, I have.

22 Q. Let's go to what has been marked UNOCAL Exhibit  
23 Number 6. Will you identify that and review the Exhibit  
24 for Mr. Catanach?

25 A. This is a plat showing the existing Pictured

1 Cliffs wells on it, and it indicates the cumulative  
2 production and the current rate below the little well  
3 symbol.

4 There's a circle around the Number 10 indicating  
5 the calculated drainage area of the Number 10 PC, and the  
6 location for the 131E is on there in red.

7 Q. All right, Mr. Shepston, let's go now to UNOCAL's  
8 Exhibit Number 7, and I'd ask you to review this exhibit  
9 and explain how you calculated the drainage area for the  
10 Number 10 well.

11 A. I started by using the indicated equation and the  
12 assumptions that are listed on the right.

13 The equation indicates that in the 160 acres of  
14 the northwest corner of Section 36 there was recoverable  
15 gas of slightly over 1.4 BCF. Subtracting the ultimate  
16 recovery from the Number 10, which has since been plugged,  
17 that was 680 million cubic feet. That leaves the  
18 unrecovered gas in the northwest quarter of Section 36 as  
19 773 million cubic feet.

20 Calculating the drainage radius for the Number  
21 10, using its recovery on 680 million cubic feet, you get a  
22 drainage area of 75 acres, and that has a radius of 1020  
23 feet.

24 Q. And that's what you plotted on the previous  
25 exhibit?

1           A.    Correct.

2           Q.    Mr. McKeel presented an Exhibit 3, which showed  
3 an area available for a standard wellbore location in the  
4 southwest drilling window.  Would that drilling -- or that  
5 area for standard location in the Pictured Cliffs  
6 formation, fall within the drainage area shown on Exhibit  
7 Number 6?

8           A.    Yes, it would.

9           Q.    In your opinion, will drilling and producing a  
10 well at the proposed unorthodox location result in the most  
11 efficient drainage pattern on this spacing unit in the  
12 Pictured Cliffs formation?

13          A.    Yes.

14          Q.    Will reserves be recovered from this well that  
15 otherwise would be left in the ground if in fact you tried  
16 to drill at a standard location?

17          A.    Yes.

18          Q.    On the bottom of your Exhibit Number 7, you have  
19 a summary.  Is that the result of your review of this  
20 particular well and its impact on --

21          A.    Yes, it is.

22          Q.    -- production of Pictured Cliffs reserves?

23                And in your opinion, will approval of the  
24 Application and the drilling of this well be in the best  
25 interest of conservation, the prevention of waste and the

1 protection of correlative rights?

2 A. Yes, it will.

3 Q. Were Exhibits 6 and 7 prepared by you?

4 A. Yes, they were.

5 MR. CARR: At this time, Mr. Catanach, we move  
6 the admission into evidence of UNOCAL Exhibits 6 and 7.

7 EXAMINER CATANACH: Exhibits 6 and 7 will be  
8 admitted as evidence.

9 EXAMINATION

10 BY EXAMINER CATANACH:

11 Q. Mr. Shepston, do you have any estimates on how  
12 much gas the well -- the 131 will recover?

13 A. No, I don't because the well has only produced  
14 for 24 hours, and I'm not very comfortable with the --  
15 making a long-term prediction based on 24 hours of well  
16 test.

17 Q. Do you know what that rate is for 24 hours?

18 A. It was 651 MCF. It's marked on Exhibit 6. 651  
19 from the PC.

20 The sum of the three 24-hour tests that we have  
21 on the Dakota, Mesaverde and PC was slightly over 2 million  
22 cubic feet a day.

23 Q. It's your opinion that the 131 will drain  
24 reserves that weren't recovered by the Number 10, though?

25 A. Correct, yes.

1 Q. That's the only -- The new 131 well, that will be  
2 the only PC well in that northwest quarter?

3 A. Yes.

4 EXAMINER CATANACH: Okay. I have nothing further  
5 of this witness.

6 MR. CARR: That concludes our presentation in  
7 this case.

8 EXAMINER CATANACH: Okay, there being nothing  
9 further in this case, Case 11,440 will be taken under  
10 advisement.

11 (Thereupon, these proceedings were concluded at  
12 8:42 a.m.)

13 \* \* \*

14  
15  
16  
17  
18  
19  
20 I do hereby certify that the foregoing is  
21 a complete record of the proceedings in  
the Examiner hearing of Case No. 11440,  
22 heard by me on December 21 1988.  
23 David R. Catanach, Examiner  
Oil Conservation Division  
24  
25

## 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 January 9th, 1996.

  
 STEVEN T. BRENNER  
 CCR No. 7

My commission expires: October 14, 1998