

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 RAPTOR RESOURCES, INC.,)
FOR TWO UNORTHODOX INFILL GAS WELL)
LOCATIONS AND SIMULTANEOUS DEDICATION,)
LEA COUNTY, NEW MEXICO)

CASE NOS. 12,678

APPLICATION OF RAPTOR RESOURCES, INC.,)
FOR TWO UNORTHODOX INFILL GAS WELL)
LOCATIONS AND SIMULTANEOUS DEDICATION,)
LEA COUNTY, NEW MEXICO)

and 12,679

(Consolidated)

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

June 14th, 2001

Santa Fe, New Mexico

01 JUN 28 AM 8:38
OIL CONSERVATION DIV

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, June 14th, 2001, 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.

* * *

I N D E X

June 14th, 2001
 Examiner Hearing
 CASE NOS. 12,678 and 12,679 (Consolidated)

	PAGE
EXHIBITS	3
APPEARANCES	4
APPLICANT'S WITNESSES:	
<u>JOHN J. LAWRENCE</u> (Engineer)	
Direct Examination by Mr. Carr	7
Examination by Examiner Catanach	18
Examination by Mr. Ezeanyim	25
<u>BILL R. KEATHLY</u> (Landman)	
Direct Examination by Mr. Carr	26
Examination by Examiner Catanach	33
Examination by Mr. Brooks	37
<u>DAVID B. PEARCY</u> (Geologist)	
Direct Examination by Mr. Carr	37
Examination by Examiner Catanach	48
<u>JOHN J. LAWRENCE</u> (Engineer, Recalled)	
Direct Examination by Mr. Carr	52
Examination by Examiner Catanach	59
REPORTER'S CERTIFICATE	63

* * *

E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	10	18
Exhibit 2	10	18
Exhibit 3	12	18
Exhibit 4	13	18
Exhibit 5	14	18
Exhibit 6	15	18
Exhibit 7	28	32
Exhibit 8	29	32
Exhibit 9	30	32
Exhibit 10	31	32
Exhibit 11	31	33
Exhibit 12	31	33
Exhibit 13	32	33
Exhibit 14	38	48
Exhibit 15	41	48
Exhibit 16	43	48
Exhibit 17	44	48
Exhibit 18	45	48
Exhibit 19	53	59
Exhibit 20	54	59
Exhibit 21	55	59
Exhibit 22	56	59

* * *

A P P E A R A N C E S

FOR THE DIVISION:

DAVID BROOKS
Attorney at Law
Energy, Minerals and Natural Resources Department
Assistant General Counsel
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

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

ALSO PRESENT:

RICHARD EZEANYIM
Chief Engineer
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, NM 87501

* * *

1 WHEREUPON, the following proceedings were had at
2 8:26 a.m.:

3 EXAMINER CATANACH: At this time I'll call Case
4 12,678, which is the Application of Raptor Resources, Inc.,
5 for two unorthodox infill gas well locations and
6 simultaneous dedication, Lea County, New Mexico.

7 Call for appearances in this case.

8 MR. CARR: May it please the Examiner, my name is
9 William F. Carr with the Santa Fe office of Holland and
10 Hart, L.L.P. We represent Raptor Resources in this matter,
11 and I have three witnesses.

12 Mr. Examiner, I would request at this time that
13 the Division also call Case 12,679. It is a similar
14 Application, it involves wells in the same general area,
15 the same issues, the same reasons support both of the
16 Applications. I'd request they be consolidated for
17 purposes of hearing only.

18 EXAMINER CATANACH: Okay. Are there any
19 additional appearances in Case 12,678?

20 There being none, at this time let me call Case
21 12,679, which is the Application of Raptor Resources, Inc.,
22 for two unorthodox infill gas well locations and
23 simultaneous dedication, Lea County, New Mexico.

24 Are there additional appearances in this case?

25 Okay, there being none, Mr. Carr?

1 Can I get the three witnesses to stand and be
2 sworn in at this time?

3 (Thereupon, the witnesses were sworn.)

4 MR. CARR: Mr. Examiner, at the conclusion of the
5 hearing I will ask that Case 12,678 be continued and
6 readvertised.

7 The ad that we filed omitted two of the wells to
8 be simultaneously dedicated. The testimony will cover
9 issues in the case, and we would request that you hear the
10 case today, that it be readvertised and called four weeks
11 from now.

12 EXAMINER CATANACH: Four weeks?

13 MR. CARR: It will take that amount of time to
14 notify all affected interest owners.

15 EXAMINER CATANACH: Okay.

16 MR. CARR: The way I would like to present the
17 case today is, I would like to first call John Lawrence, a
18 petroleum engineer with Raptor, and have Mr. Lawrence
19 review for you the efforts they have made in terms of their
20 redevelopment program in the Jalmat Gas Pool, and then go
21 to our land witness to review the land in each of the
22 cases, our geological witness, and then recall Mr. Lawrence
23 to address the individual wells and the engineering issues
24 that relate to each of those wells.

25 EXAMINER CATANACH: Okay.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

JOHN J. LAWRENCE,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your full name for the record?

A. John J. Lawrence.

Q. Mr. Lawrence, where do you reside?

A. Midland, Texas.

Q. And by whom are you employed?

A. Raptor Resources, Inc.

Q. What is your position with Raptor Resources?

A. Vice president of engineering.

Q. Have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that testimony, were your credentials as an expert witness in petroleum engineering accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the Applications filed in each of these cases on behalf of Raptor?

A. Yes, I am.

Q. And have you made an engineering study of the areas which is the subject of these Applications?

1 A. Yes, I have.

2 Q. Are you prepared to review Raptor's efforts in
3 the Jalmat Gas Pool and the recent engineering work you
4 have done with the Oil Conservation Division?

5 A. Yes, I am.

6 MR. CARR: Are Mr. Lawrence's qualifications
7 acceptable?

8 EXAMINER CATANACH: They are.

9 Q. (By Mr. Carr) Would you briefly describe what
10 Raptor Resources, Inc., seeks with these Applications?

11 A. Raptor seeks exceptions to the well-location
12 requirements provided in the special pool rules and
13 regulations for the Jalmat Gas Pool, promulgated by
14 Division Order R-8170.

15 Further, pursuant to the rules governing the
16 Jalmat Gas Pool and the stipulated declaratory judgment
17 issued by the First Judicial Court in Santa Fe County, New
18 Mexico, we seek to simultaneously dedicate Jalmat
19 production on each of two spacing units, which will be
20 individually reviewed.

21 Q. Mr. Lawrence, what you're seeking is a well
22 density greater than one well per 160-acre tract; is that
23 correct?

24 A. That is correct.

25 Q. You're also going to be seeking approval of

1 certain unorthodox well locations in the Jalmat Gas Pool?

2 A. That is correct.

3 Q. Could you just initially review for the Examiner
4 the purpose of your testimony?

5 A. Well, I will review the general reasons for these
6 Applications, I will also review the success that Raptor
7 has had on the acreage that we operate on Lea County, New
8 Mexico, as well as two prior operators that operated the
9 properties that we have.

10 In conjunction with this, I will review the
11 approach that we take in evaluating the wells for
12 additional development in the Jalmat Gas Pool, and we'll
13 present economic criteria as to the basis for our work.

14 Q. When did Raptor acquire its interest in the
15 Jalmat Gas Pool?

16 A. Raptor acquired the acreage from Clayton Williams
17 in April of 1999.

18 Q. And why was Raptor interested in becoming active
19 in this particular area?

20 A. We believe that there was additional development
21 potential in the Yates formation that the previous operator
22 had proved up and that there were significant reserves that
23 had been bypassed in the Seven Rivers formation.

24 Q. Would you identify and review what has been
25 marked as Raptor Exhibit Number 1?

1 A. Raptor Exhibit Number 1 is basically -- the green
2 outlines the Jalmat Gas Pool. The acreage highlighted in
3 yellow is the acreage with which Raptor operates within the
4 Jalmat Gas Pool.

5 Q. And the acreage that will be the subject of
6 today's hearing is actually located in the Account 2 area;
7 is that correct?

8 A. That is correct, that would be the yellow acreage
9 that's at the northern end of the Jalmat Gas Pool.

10 Q. And within the Account 2 area, what is the status
11 of the working interest?

12 A. It has common working interest, and we have
13 approved AFEs for the proposed work for the acreage in
14 question.

15 Q. And then we're going to individually review the
16 spacing units that are the subject of these cases later in
17 the presentation?

18 A. That's correct. And the boundaries of the Jalmat
19 Gas Pool were checked against the OCD records.

20 Q. Let's go to Exhibit Number 2, and I'd ask you to
21 explain what that is and what that shows.

22 A. Exhibit Number 2 is a historical production curve
23 for the acreage that's highlighted in yellow that Raptor
24 operates in the Jalmat Gas Pool.

25 And of significance of this particular exhibit,

1 the prior operators, Hal Rasmussen and Clayton Williams, in
2 the late 1980s came back in and started developing Yates
3 gas reserves on a density of less than 160 acres. You see
4 that the gas production there was on a very established
5 decline curve, approximately 10 to 12 percent per year.
6 Both Clayton Williams and Hal Rasmussen came in and they
7 reworked approximately 50 wells in the Jalmat Gas Pool,
8 which you see a significant production increase, with the
9 peak production there in 1991.

10 After Clayton Williams stopped developing the
11 property in late 1991, he basically just operated the
12 property on an as-is basis. The property went
13 approximately nine years without any development on the
14 acreage whatsoever.

15 Raptor acquired the acreage in the spring of
16 1999, and we came back in and started redeveloping
17 additional Jalmat gas reserves. You can see the production
18 response that we've experienced through the work that
19 Raptor has done in the last two years.

20 I think of significance in looking at this
21 production curve, these are incremental reserves that are
22 being recovered through this work. You look at the
23 established decline curve on the production from the 1970s
24 up to the late 1980s, and then you come back in and look at
25 it when you went to a downspacing or tighter density, the

1 decline is on the same basis as before. And so the work
2 that was done at that time are indeed incremental reserves
3 that would not have been recovered by downspacing.

4 Q. And the work done by Mr. Rasmussen and Clayton
5 Williams, they were actually developing on that well
6 density pattern greater than one well per 160?

7 A. That is correct, that is correct.

8 Q. Let's go to Exhibit Number 3. What does this
9 show us?

10 A. Exhibit 3 is a bar graph representing the 50-plus
11 wells that Clayton Williams and Hal Rasmussen had done in
12 the late 1980s and early 1990s. What this curve shows you
13 is the estimated ultimate recovery of those 50 wells and
14 the distribution of the reserves that each of those wells
15 will recover.

16 As an example, where you look under the column on
17 the bottom of the page labeled number 5, there are five
18 wells -- there are a total of nine wells that will produce
19 in excess of 500 million cubic feet, and so this gives you
20 a distribution of each of the wells and the cumulative
21 production associated with those reworks.

22 Q. If we look at this, when you say nine wells,
23 where do you get the nine?

24 A. Over on the left-hand column, that's the number
25 of wells that fell in that particular category. So this is

1 the estimated ultimate recovery of each of those wells.

2 Going to the far right of the page, there would
3 be a total of four wells that will recover 1.1 BCF of gas,
4 that's individually.

5 So when you look at the composite, the average,
6 those 50 wells will produce approximately a half a B of gas
7 per well, and those wells were primarily completing out of
8 just the Yates interval. Most of the wells that -- the
9 Rasmussen-Williams did bypass the Seven Rivers gas
10 reserves.

11 Q. I'd like you now to review the Raptor year 2000
12 redevelopment program, and refer in doing this to Raptor
13 Exhibit Number 4.

14 A. Exhibit Number 4 is kind of a historical of the
15 wells that Raptor did, year 2000, and then there's a couple
16 of wells that were actually done in the first part of 2001.
17 And what this particular chart shows you are the well
18 numbers, the zones that Raptor actually completed in, the
19 location of those wells, and the average initial potential
20 from that work that was done and the completion date of the
21 wells.

22 Of the 15 wells that are indicated on this
23 particular table, those wells had an average initial
24 potential of 377 MCF per day.

25 Q. Let's go to Exhibit Number 5. There are two

1 pages in Exhibit Number 5, both are marked. And using
2 this, I would like you to identify and review the criteria
3 utilized by Raptor in selecting the infill location.

4 A. Part of what we do in identifying the prospects
5 for development out here is to go and look at each of the
6 offset wells located around the particular prospect to
7 identify, one, which zones that the offset wells were
8 actually completed in, two, there is a significant
9 difference in the type of treatment or completion procedure
10 that was done on those wells.

11 You look on this particular chart, typical of the
12 wells that were completed back in the 1940s or 1950s, they
13 were either natural completions, very small fracs, in a lot
14 of instances they did not open up both the intervals that
15 are included in the Jalmat Gas Pool.

16 We also evaluate the offset production, and as
17 you can see on this particular case, the offset production
18 to the well in question, very marginal type wells. The
19 Number 127 up there at the top is a well that Raptor had
20 completed and has a current production rate of 300 MCF a
21 day. We feel that that well will have an ultimate recovery
22 of approximately 700 to 800 million cubic feet out of that
23 particular well.

24 So you can see by the fact that most of the
25 offsets are either inactive, plugged and abandoned or

1 marginal-type wells, that the work that was done on the 127
2 is, in fact, recovering incremental reserves.

3 Part of the basis too, that we really have a very
4 high degree of confidence in the work that we're doing, the
5 initial potentials on the wells that we are currently
6 working on, the wells that Raptor has done, are equal to or
7 greater than the work that was done by previous operators
8 ten years ago.

9 Q. Mr. Lawrence, the stipulated declaratory judgment
10 in the recent district court proceeding directed operators
11 to show the proposed wells are necessary to efficiently and
12 economically drain the proration unit. Would you refer to
13 Raptor Exhibit Number 6 and review your economic criteria
14 for the redevelopment program?

15 A. Exhibit 6 is an exhibit that shows what the
16 actual well cost to drill and equip a Jalmat field for
17 Raptor Resources would be. It would be a -- require a
18 capital expenditure of approximately \$315,000, utilizing
19 the average initial potential producing rate that we showed
20 on the previous exhibit with 377 MCF a day, have an
21 estimated ultimate recovery of 590 million cubic feet of
22 gas that will be produced from that particular well.

23 Utilizing a gas price of five dollars an MCF, it
24 only requires 73 million cubic feet of gas to be able to
25 economically justify work on that well. Utilizing a

1 sensitivity case of a \$2.50-per-M gas price, we would have
2 to produce 155 million cubic feet out of that particular
3 well to justify that particular well.

4 So as you can see, the reserves are significantly
5 above that, and we definitely have economic incentive to
6 pursue these reserves.

7 Q. To what do you attribute your ability to access
8 and produce these additional reserves in the Jalmat Gas
9 Pool?

10 A. A lot of it is due to some of the geologic nature
11 of the reservoir. There are a lot of sands that are
12 lenticular in nature, a lot of the older wells were
13 inadequately treated, had very small treatments that were
14 done on them, and then there were a number of zones that
15 were bypassed. And the combination of all three of those
16 are the reasons that we believe there are significant
17 reserves to be recovered by downspacing.

18 Q. And when you say there are zones that were
19 bypassed, those are zones that were not perforated?

20 A. That is correct, there are a number of zones that
21 the previous operators left behind, that we're pursuing.
22 And when we come back in and complete our wells, we're very
23 selective as to what zones that we complete in. Typically,
24 our wells will only have 20 to 25 perforations over a 300-
25 plus-foot interval.

1 Q. What conclusions has Raptor reached from its
2 general work in the last several years in the Jalmat Gas
3 Pool?

4 A. We believe that there are substantial additional
5 reserves to be recovered in the field. We believe that it
6 requires the drilling or recompletion of additional wells
7 to recover those reserves and that those reserves are,
8 indeed, incremental reserves and not rate acceleration and
9 that these wells are actually needed to recover the
10 reserves in the field.

11 Q. What would have been the daily production rate
12 from the acreage in your 2000 redevelopment program without
13 the new wells?

14 A. Had we not done any work at all on the properties
15 after we acquired them from Clayton Williams, the current
16 production would be approximately 3.1 million cubic feet a
17 day for the entire lease. Our current daily production is
18 about 7 million a day right now. So you can see through
19 our efforts that we have more than doubled production on
20 the acreage out here.

21 Q. Will Raptor now present data on each of two
22 spacing units which are the subject of these consolidated
23 Applications?

24 A. Yes, we will.

25 Q. And you will demonstrate that the proposed

1 additional wells are necessary to produce recoverable
2 reserves under these tracts?

3 A. That is correct.

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

6 A. Yes, they were.

7 Q. Can you testify as to the accuracy of the
8 information contained in those exhibits?

9 A. Yes.

10 MR. CARR: Mr. Catanach, at this time we move the
11 admission of Raptor Exhibits 1 through 6.

12 EXAMINER CATANACH: Exhibits 1 through 6 will be
13 admitted as evidence.

14 MR. CARR: And that concludes my direct
15 examination, this time, of Mr. Miller.

16 EXAMINATION

17 BY EXAMINER CATANACH:

18 Q. Okay, Mr. Lawrence, when Clayton Williams and --
19 who was it that had it, Clayton Williams or --

20 A. Hal Rasmussen had it first, and then Clayton
21 Williams was a partner with Rasmussen, and then Clayton
22 Williams took over operations in about 1990, I believe.
23 And then he had the property up until when we purchased it
24 from him in 1999.

25 Q. Okay, and this is all the acreage that you've

1 shown in yellow on that exhibit?

2 A. That is correct. We bought their interest out in
3 total.

4 Q. And that's all state leases?

5 A. Yes, sir. There are two smaller leases that are
6 fee leases, but they only comprise, I think, 320 acres in
7 total out of this. The rest of it is state leases.

8 Q. Okay. They did considerable infill drilling,
9 Rasmussen and Williams did?

10 A. They did a combination of infill drilling and
11 plugbacks. Typical of the wells in this particular trend,
12 they were all originally drilled down to the base of the
13 Queen formation. As wells would become uneconomical in the
14 Queen -- which the Queen was primarily an oil-producing
15 zone -- they would plug the wells back and then recomplete
16 in the Jalmat Gas Pool.

17 Due to the nature of a lot of these wells, a lot
18 of them were drilled 1940s-, 1950s-type vintage wells, so
19 there were a significant number of wells that were
20 P-and-A'd, and so there were significant redrills of those
21 locations to be able to recoup the reserves.

22 So the results from both Williams and from
23 Rasmussen was a combination of plugback and drilling.

24 Q. To what density did they develop their acreage; d
25 you know?

1 A. All the work Rasmussen and Williams did was all
2 less than 160-acre spacing. I mean, it varied anywhere
3 from 120, 80 acres, 40 acres type. I mean, you've got it
4 all across the board. It was all done on less than 160-
5 acre spacing.

6 Q. Your Exhibit Number 6 shows the economics for
7 these wells, and this represents a new well -- a new drill?

8 A. That is correct, a workover or a plugback would
9 require substantially less capital to do. It would
10 probably knock off about \$100,000 off of that associated
11 cost. But as you can see, it does not require very much
12 gas production in order to justify the capital expenditure.

13 Q. And your summary from this exhibit was that you
14 only needed \$73 million --

15 A. Utilizing a five-dollar-per-MCF gas price and a
16 \$315,000 cap ex price, that we could economically justify a
17 well that would produce 73 million cubic feet of gas.

18 If you dropped that price to a \$2.50 M, which is
19 probably more of a historical type of norm over the last
20 four or five years, then it would require approximately 155
21 million cubic feet.

22 Q. At a recovery of 73 million, what would be the
23 rate of return on the well?

24 A. It would be very low. That's a more break-even
25 type --

1 A. But it is economic for you guys to do?

2 A. That's correct, that's correct. I mean, I think
3 the one thing that you can see by the work that has been
4 done by Williams and Rasmussen as well as the work that we
5 have done, we think the recoveries from these wells are
6 going to be in the half-B category, or possibly better. We
7 think they're going to be substantially above the minimum.
8 I think when you look at that historical bar graph of all
9 the work that Williams has done, along with the work that
10 we've done, I think our cumulative production totals from
11 these wells are going to be more in the half-B to 3/4-B per
12 well.

13 Q. Are most of your wells going to be new drills or
14 recompletions?

15 A. It's a combination of the particular wells in
16 question today. There are two re-entries of P-and-A'd
17 locations, there is a new-drill location, and then there is
18 one that actually is a plugback location.

19 Q. Okay, and these wells were Langlie-Mattix-Queen
20 producers?

21 A. That's correct, south Eunice in this particular
22 area, South Eunice-Seven Rivers-Queen.

23 Q. Why would the previous operator not perforate
24 both Yates and Seven Rivers? Do you have any idea?

25 A. I think our feel on this is that when you

1 actually look at the reservoir, when you look at the Jalmat
2 and the Seven Rivers gas producing intervals on this, there
3 is typically a lot more of pay in the Yates formation.
4 When you go out and look at the log, and I think when Dave
5 Percy, our geologist, gives his presentation, you'll be
6 able to see that in the Yates formation there may be
7 anywhere from 80 to in excess of 100 feet of net pay to
8 work with.

9 The Seven Rivers sands is a combination of
10 different stringers that may be anywhere from five to ten
11 feet thick each, and you may have a total of 25 to 30 feet
12 of pay in the Seven Rivers. So when they were coming back,
13 I don't think they paid much attention to those 25 or 30
14 feet of pay that you had in the Seven Rivers then went
15 directly to the Yates. And we identified over 40 locations
16 that Rasmussen and Williams had completely bypassed those
17 Seven Rivers zones. Raptor came back in and completed four
18 wells specifically in the Seven Rivers to try to prove it
19 up, and of the four wells three of them were economic
20 successes.

21 So in coupling the Seven Rivers zones that were
22 left behind, along with -- there were zones left behind in
23 the Yates, and you couple that with the fact that there
24 were very small stimulation treatments done on a lot of the
25 old wells out there, and it is a tight gas reservoir, that

1 there were a lot of reserves still left in the ground to
2 recover.

3 And I think when you look at that, if the
4 reservoir was actually truly low and abandonment pressure,
5 we wouldn't see the initial potential on these wells that
6 are equal to or greater than the wells that Williams had
7 done ten years ago on tighter density, tighter spacing too.

8 You look at the production curve, you look at the
9 results that Rasmussen and Williams had, and you look at
10 what we've done, those are, in fact, incremental reserves,
11 because the declines mirror the previous efforts out of the
12 formation, you know, ten, fifteen years before.

13 Q. So your testimony is that all of these reserves
14 are incremental and none of it is accelerated?

15 A. I think what we've seen is, it's -- I think you
16 have to base it -- Well, on the exhibit, the Number 127,
17 all the wells offsetting that were all either inactive, you
18 know, plugged and abandoned or marginal-type producers. So
19 I don't see how they could be considered, you know, when
20 you're draining something else, when the wells that offset
21 it were already plugged and abandoned or at marginal
22 producing rates. Those are, in fact, incremental reserves.

23 Q. Have you guys attempted at all to go into
24 existing wells and try and do some remedial work on these
25 zones?

1 A. We have not. I think that there are
2 opportunities to do that. I think that we had a
3 significant number of wellbores here that had not been
4 touched in those particular intervals, and so we were more
5 comfortable in utilizing a wellbore that had not previously
6 been perforated or stimulated, and in that way we had a
7 little better control over what we were doing.

8 Q. Okay. Ultimately, what's the density that you
9 think you'll be utilizing in your --

10 A. It varies. There are geologic considerations,
11 productive limits, things of that that come into
12 consideration. You know, it's really hard to say. I think
13 we really believe that there are incremental reserves to be
14 recovered on 40-acre spacing.

15 Q. Have you, in fact, done some drainage
16 calculations for the existing wells out there?

17 A. Oh, yes, we have, and the numbers that we look at
18 -- I mean, there's a lot of gas in that reservoir.

19 Q. Okay. On Exhibit Number 3, the wells that you've
20 shown here, are these the wells that -- Which wells are
21 these? The ones that have been drilled by Rasmussen?

22 A. These were all the Williams-Rasmussen wells.
23 None of these wells were the wells that Raptor had anything
24 to do with. These were the wells that were recompleted,
25 plugged back or drilled back in the late 1980s, early

1 1990s.

2 Q. Okay, and this where you got -- you determined
3 the average of about half a BCF per well --

4 A. That is correct.

5 Q. -- for these wells?

6 A. That is correct.

7 Q. Have you done that for the wells that you've
8 drilled?

9 A. Yes. What we've done, we've been able to put
10 together projections and estimated ultimate recoveries
11 based on our initial potential and looking at the
12 characteristics of the decline curves, to be able to come
13 up with reserves that are going to be equal to or better
14 than these results right here.

15 Q. At least half a BCF on your wells?

16 A. That's exactly correct. We think, in fact, a lot
17 of them will be higher, because we are adding the Seven
18 Rivers interval in conjunction with the Yates, which
19 Rasmussen and Williams did not do.

20 EXAMINER CATANACH: Any further questions of this
21 witness?

22 EXAMINATION

23 BY MR. EZEANYIM:

24 Q. Yeah, on Exhibit 6, economics, how did you arrive
25 at the estimated ultimate recovery?

1 A. The estimated ultimate recovery is based on prior
2 work that we have done on wells since Raptor has operated
3 the property, along with the results that Williams and
4 Rasmussen had come up with on their wells ten years ago.
5 And so the combination of initial potentials, pressures,
6 previous historical production from equivalent wells.

7 MR. EZEANYIM: Okay.

8 EXAMINER CATANACH: Okay, the witness may be
9 excused.

10 MR. CARR: At this time, Mr. Catanach, we would
11 call Bill Keathly.

12 BILL R. KEATHLY,

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

15 DIRECT EXAMINATION

16 BY MR. CARR:

17 Q. Would you state your name for the record?

18 A. Bill Keathly.

19 Q. Where do you reside?

20 A. Midland, Texas.

21 Q. By whom are you employed?

22 A. Self-employed.

23 Q. And what is your relationship with Raptor
24 Resources?

25 A. I'm doing consulting work in the regulatory side

1 of their business.

2 Q. Mr. Keathly, have you previously testified before
3 the Oil Conservation Division?

4 A. Yes, sir, I have.

5 Q. And at the time of that testimony, were your
6 credentials as an expert in petroleum land matters accepted
7 and made a matter of record?

8 A. Yes, they were.

9 Q. Are you familiar with the Applications filed in
10 each of the consolidated cases on behalf of Raptor?

11 A. Yes, sir.

12 Q. And are you familiar with the status of the
13 ownership of the lands in the area which is the subject of
14 each of these Applications?

15 A. Yes, I am.

16 MR. CARR: Are Mr. Keathly's qualifications
17 acceptable?

18 EXAMINER CATANACH: They are.

19 Q. (By Mr. Carr) Mr. Keathly, let's first go to the
20 Application in Case 12,678 for the State "A" A/C Wells 31
21 and 52. Would you briefly summarize what Raptor seeks in
22 regard to these wells?

23 A. Yes, Raptor is seeking for two unorthodox infill
24 gas well locations within an existing nonstandard 480-acre
25 spacing and proration unit in the Jalmat Gas Unit. The two

1 wells are to be re-entered -- they're plugged and abandoned
2 currently -- re-entered and recompleted in the Jalmat gas.

3 Q. Are you also seeking authorization to
4 simultaneously dedicate the producing Jalmat Gas wells on
5 this 480-acre spacing and proration unit?

6 A. Yes, sir, we are.

7 Q. The locations on a unit this size should be at
8 least 990 feet from the outer boundary of the unit; is that
9 correct?

10 A. That's correct.

11 Q. And the two wells we're talking about are closer
12 than that to the outer boundary?

13 A. That is correct.

14 Q. Would you identify what has been marked Raptor
15 Exhibit Number 7?

16 A. Yes, this is the Application, Orders R-9073,
17 which established this unorthodox proration unit.

18 Q. This is the order obtained by Hal Rasmussen?

19 A. Yes, sir.

20 Q. And this established the nonstandard spacing
21 units which are involved in each of these cases?

22 A. That is correct.

23 Q. What paragraph defines the spacing unit for this
24 case, the case involving Section 9?

25 A. Paragraph 4).

1 Q. And then where do we find the spacing unit for
2 the case involving Section 5?

3 A. Paragraph 1).

4 Q. Paragraph 1 has subsequently been amended, has it
5 not?

6 A. That is correct, to exclude the northeast quarter
7 and the southeast quarter for a 40-acre oil -- Jalmat oil
8 unit.

9 Q. Let's go to what has been marked Exhibit Number
10 8. Would you identify this?

11 A. Yes, this is the State Form C-102, the plat which
12 shows the location of each and every well in this proration
13 unit.

14 Q. Could you just identify by number the wells which
15 are currently dedicated to this spacing unit?

16 A. Yes, it's wells 1, 4, 29, 38, 40, 63, 67, 72, 57
17 and 30.

18 Q. And 57 and 30 are the wells that were omitted
19 from the ad in this case?

20 A. That is correct, and they'll have to be
21 readvertised.

22 Q. But this shows all of the wells that are on this
23 spacing unit, correct?

24 A. That is correct.

25 Q. The only well that will not be simultaneously

1 dedicated -- There will be one well that will remain
2 plugged and abandoned; is that right?

3 A. Right, that is the 32 Y.

4 Q. And that is located where?

5 A. It's in L, and it's 760 from the west and 2050
6 from the south.

7 Q. Let's go to what has been marked Exhibit Number
8 9. Would you identify that, please?

9 A. Yes. Exhibit Number 9 is a plat showing all of
10 the offset operators surrounding this location.

11 Q. Are these the individuals to whom notice of this
12 Application has been provided?

13 A. That is correct.

14 Q. And who in these tracts received notice?

15 A. Every operator within the tract.

16 Q. Now, the standard spacing unit for the Jalmat is
17 640 acres, correct?

18 A. That is correct.

19 Q. And you notified all operators in each 640-acre
20 tract offsetting the subject spacing and proration unit?

21 A. That is correct.

22 Q. Now, certain of these tracts, namely on this
23 exhibit the acreage in Sections 5 and 8, are also owned and
24 operated by Raptor Resources?

25 A. That is correct.

1 Q. Is the ownership in those tracts identical to the
2 ownership in the subject spacing unit in Section 9?

3 A. That is true.

4 Q. Is Exhibit 10 an affidavit confirming that notice
5 of this Application has been provided to each of the
6 interest owners identified on Exhibit 9?

7 A. That what that Exhibit 10 is for.

8 Q. All right. Let's go now to the land issues in
9 Case 12,679. In this case, what is Raptor seeking?

10 A. In this case, Raptor is seeking to drill one new
11 well and recomplete a well on this acreage, which is a
12 440.50-acre spacing.

13 Q. And again, are you seeking to dedicate --

14 A. And -- Yes, to simultaneously dedicate all the
15 wells.

16 Q. All right, let's go to Exhibit Number 11. What
17 is that?

18 A. Exhibit 11 is again the proration unit on the
19 C-102 which identifies all the wells and the outline of the
20 unit.

21 Q. Identify and review Exhibit Number 12.

22 A. Okay, Exhibit Number 12 is the outline plat of
23 all of the offsetting operators surrounding this proration
24 unit.

25 Q. Certain of the acreage offsetting the subject

1 spacing and proration unit is also operated by Raptor, is
2 it not?

3 A. That is correct.

4 Q. And is the ownership in that acreage identical to
5 the acreage in the subject spacing unit in Section 5?

6 A. That is correct.

7 Q. Is Exhibit Number 13 an affidavit confirming that
8 notice of this Application has been filed to all affected
9 parties in accordance with OCD rules and regulations?

10 A. Yes, it is.

11 Q. Were Exhibits 7 through 13 prepared by you or
12 compiled under your direction?

13 A. Yes, sir, they were.

14 Q. Will Raptor be calling geological and engineering
15 witnesses to present evidence that shows why the additional
16 wells are necessary on these tracts?

17 A. Yes, sir, they will.

18 MR. CARR: Mr. Catanach, at this time we would
19 move the admission into evidence of Raptor Exhibits 7
20 through 13.

21 EXAMINER CATANACH: I'm sorry, 7 through -- ?

22 MR. CARR: -- 13.

23 EXAMINER CATANACH: Seven through 13 will be
24 admitted as evidence.

25 MR. CARR: And that concludes my direct

1 examination of Mr. Keathly.

2 EXAMINATION

3 BY EXAMINER CATANACH:

4 Q. Mr. Keathly, can you refer to Exhibit Number 8,
5 please, and go over this again with me?

6 A. Yes, sir.

7 Q. The two wells that are to be recompleted on this
8 unit are the 31 and the 52?

9 A. That is correct.

10 Q. I see the 31.

11 A. Fifty-two is over in G.

12 Q. G, okay.

13 A. They're both indicated as P-and-A'd at the
14 present time.

15 Q. Okay. Now, would you please again identify the
16 existing wells that are going to be producing on that unit?

17 A. Okay, it will be 29, 30 --

18 Q. Twenty-nine, okay, hold on with that. Twenty-
19 nine is in Unit D.

20 A. Right. Thirty.

21 Q. Thirty is in Unit E.

22 A. Right. Sixty-three.

23 Q. Okay, C.

24 A. C. Forty, in Unit Letter A.

25 Q. Got it.

1 A. Fifty-seven.

2 Q. Fifty-seven, okay.

3 A. Sixty-seven.

4 Q. Sixty-seven, where is that?

5 A. It's up at the top of L -- or --

6 Q. I see it.

7 A. -- K. Thirty-eight.

8 Q. Okay.

9 A. Seventy-two.

10 Q. Seventy-two, okay.

11 A. Number 4.

12 Q. All right, 32 Y is P-and-A'd.

13 A. Is plugged and abandoned, and will remain plugged
14 and abandoned.

15 Q. Okay, now -- And your testimony, based on Exhibit
16 Number 9, was that the ownership that Raptor has in
17 Sections 5 and 8 -- Is that correct, Sections 5 and 8?

18 A. Five and 8.

19 Q. Okay, that is --

20 A. -- is consistent with the ownership in -- exactly
21 the ownership in Section 9.

22 Q. Now, does that include working and royalty
23 interest as well?

24 A. Yes.

25 Q. To your knowledge, has any other offset operator

1 expressed any concern about your Application, Mr. Keathly?

2 A. No, sir, I have not heard of any.

3 Q. Okay. Now, let's just go over Exhibit Number 11.

4 A. Yes, sir.

5 Q. You are going to re-enter the 78 --

6 A. That's correct.

7 Q. -- which looks like it's in Unit E?

8 A. That's true.

9 Q. Okay, and --

10 A. And we're going to drill the Number 81, which is
11 a redrill of Well Number 45, which is plugged and
12 abandoned.

13 Q. Okay, 81. Now, can you please identify the
14 existing wells on this unit for me?

15 A. Okay, it will be Well Number 47 in C.

16 Q. Okay.

17 A. Forty-four in F.

18 Q. Okay.

19 A. And we'll have Well Number 34.

20 Q. Thirty-four.

21 MR. CARR: I.

22 THE WITNESS: I.

23 Q. (By Examiner Catanach) Okay.

24 A. Well Number 2, in Unit Letter L.

25 Q. Okay.

1 A. Forty-six.

2 Q. Okay.

3 A. Thirty-three and 27. Well Number 41 in M is
4 plugged and abandoned.

5 Q. Okay. And again, with regards to the offset
6 ownership, Raptor owns some acreage in Sections 7, 8 and 9,
7 and that interest is the same?

8 A. That is exactly true.

9 Q. Okay, again in this case, has any offset operator
10 expressed any concern?

11 A. No, sir.

12 Q. Now, you mentioned something about the -- this
13 second unit, this unit on Section 5, originally was larger;
14 is that correct?

15 A. Yes. On the plat, I has been carved out. You'll
16 see the hachmarks. And that is a Jalmat oil well location
17 at the present time.

18 Q. That's a Jalmat oil unit?

19 A. Yes.

20 Q. Is there a well on that unit?

21 A. Yes, sir.

22 Q. Okay. And that's the only acreage that's been
23 carved out of that unit?

24 A. That is correct.

25 Q. Okay. And all of these offset operators in this

1 nine-section plat --

2 A. Every operator was notified.

3 EXAMINER CATANACH: Okay, I have no further
4 questions.

5 Are there other questions of this witness?

6 EXAMINATION

7 BY MR. BROOKS:

8 Q. That offset oil location which was carved out, is
9 that Raptor also?

10 A. Yes.

11 EXAMINER CATANACH: Okay, this witness may be
12 excused.

13 MR. CARR: Thank you, Mr. Catanach. At this time
14 we would call David Percy, P-e-a-r-c-y.

15 DAVID B. PEARCY,

16 the witness herein, after having been first duly sworn upon
17 his oath, was examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MR. CARR:

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

21 A. David B. Percy.

22 Q. Where do you reside?

23 A. In Midland, Texas.

24 Q. By whom are you employed?

25 A. I'm a self-employed geologist. I've been

1 consulting for Raptor for about a year and a half.

2 Q. Mr. Percy, have you previously testified before
3 this Division and had your credentials as an expert in
4 petroleum geology accepted and made a matter of record?

5 A. That's correct.

6 Q. Are you familiar with the Applications filed in
7 each of these cases on behalf of Raptor?

8 A. Yes, I am.

9 Q. Have you made a geological study of the area
10 which is involved in each of these cases?

11 A. Yes.

12 Q. And are you prepared to share the results of that
13 work with the Oil Conservation Division?

14 A. Yes, I am.

15 MR. CARR: Are Mr. Percy's qualifications
16 acceptable?

17 EXAMINER CATANACH: They are.

18 Q. (By Mr. Carr) Mr. Percy, let's first go to what
19 has been marked Raptor Exhibit Number 14, your structure
20 map, and I'd ask you to go to this and review the
21 information on this exhibit for Mr. Catanach.

22 A. This exhibit is a structure map on the top of the
23 Yates sand across the two sections that we have in
24 question, Section 5 and 9, and generally cross a lot of
25 other adjoining sections in this northern part of what we

1 call Account 2.

2 I want to point out on the western side that the
3 structure dips quite steeply into the Basin, and here in
4 the vicinity of Sections 5 and 9 we have a gently
5 undulating surface which is pretty much structureless, not
6 a whole lot of other features going on through here, and
7 everything in Yates is pretty much around plus 300 to plus
8 400 feet.

9 As you proceed on to the east, the structure
10 rises again and you get into the Sabka area, where the
11 stratigraphy changes quite a bit.

12 Q. As you move location to location, do you find
13 substantial variation in the formation?

14 A. Yes, I want to point out that we'll be looking at
15 an interval here within the Yates and the Seven Rivers
16 where the sand intervals can be picked out with a pretty
17 strong degree of confidence, but the reservoir development
18 in each one of these sands is quite sporadic. And Mr.
19 Lawrence referred to the word "lenticular". I'd like to
20 use that word again to emphasize that you can never predict
21 how well an individual sand is going to be developed in a
22 well-to-well stratigraphy like this.

23 We've found in many places where you go to the
24 adjacent well, either north-south or east-west, and find a
25 drastically different combination of sands, which will lead

1 us to believe that these wells cannot effectively drain
2 this reservoir on anything like a 640-acre spacing, or
3 probably even on a 160-, or even an 80-acre spacing is
4 going to be inadequate to effectively drain the sands.

5 Q. In constructing this exhibit, what information
6 did you utilize?

7 A. From this -- To construct this exhibit, I looked
8 at many of the logs that we have within our own files,
9 other logs that are within the library. In some cases I
10 had to resort to other published sources of information to
11 get structure points where the logs were not available.

12 Q. Did you prepare isopach maps of the areas of
13 interest?

14 A. I attempted to prepare some isopach maps of the
15 area, but was quite dissatisfied with the results. As
16 you'll be seeing from the cross-sections, we're dealing
17 with many different kinds of logs, many different vintages
18 of logs. The number of density neutrons -- modern density
19 neutrons in this area is just a handful. And so I was left
20 with many of the old-style neutron logs, which are
21 uncompensated, uncalibrated, difficult to read, and I just
22 was unhappy with the kind numbers I would get, which were
23 just like a shotgun pattern.

24 So that's the reason why I was unable to
25 construct a net-pay map that I felt comfortable with and

1 found it to be very subjective.

2 Q. Let's go through each of the wells. Let's start
3 with the State "A" Account 2 Well Number 31, and I direct
4 you to what's been marked Exhibit Number 15.

5 A. Yes, this --

6 Q. Would you review that for Mr. Catanach?

7 A. This is cross-section C-C', which runs in a
8 general north-south direction, as you might have seen from
9 the structure map in the area of Section 9.

10 The left-hand log is the Account 2 Number 63,
11 which a prior operator had completed within the Yates-Seven
12 Rivers zone. As you see, we had originally barred in just
13 with a total interval showing the perforations that had
14 been made within the Yates and Seven Rivers zone, and then
15 added in the individual perforations.

16 This well has approximately 76 holes in the Yates
17 and Seven Rivers sands. I count about 12 individual sands
18 here that they had opened up. They put a rather small frac
19 on this well, and they had an AOF of about 800 MCF a day,
20 MCFD, and a cum of about 1.1 BCF, which was pretty good
21 results there for 1977, for the small frac that they used.

22 If we can proceed on to the middle log here, this
23 is the well that Raptor proposes to re-enter, the Number 31
24 well. This is an old-style neutron log, but I believe that
25 there are approximately 15 sands in the Yates and Seven

1 Rivers interval that need to be perforated and we'll
2 propose to put a modern style frac on and should encounter
3 substantial incremental reserves in this well.

4 As you can see, this well was completed in the
5 Eunice zone, down below, in 1945, but the well was plugged
6 and abandoned in 1993 without testing any of these Yates or
7 Seven Rivers intervals.

8 Q. When you go in and perforate in, say, the State
9 Account 2 Number 31 well, you'll be selectively perforating
10 individual and isolated stringers within the Jalmat Gas
11 Pool; is that correct?

12 A. That's right, we'll plan to make about 20, 25
13 holes, and be very selective about the zones we perforate
14 and put a fairly large frac on the well.

15 Q. And when we look at this exhibit and try to
16 determine exactly what intervals were perforated in the
17 offsetting wells, what we have to do is look at the red
18 marks that are to the left of the long, red column that
19 would normally indicate perforations?

20 A. That's right. When we had this drafted up, we
21 had just identified the overall interval of perforations
22 but want you to notice the red arrows that we've added in
23 to show the exact perforations, where they were made, and
24 want to definitely give the impression that there are
25 individual zones that were hit by most of these other

1 operators, and they did not blanket the zone with two holes
2 per foot or anything like that.

3 Q. And if there's no arrow, there's no perforation?

4 A. That's correct.

5 Q. Let's go to Exhibit Number 16, cross-section
6 D-D', the State Account 2 Well Number 52. Would you review
7 that, please?

8 A. Once again, this is the area of Section 9,
9 another north-south cross-section. The left-hand well is
10 one of the older wells that was drilled by a prior
11 operator, completed in 1952, open hole, without any
12 perforations at all. And I believe this well did not get
13 deep enough to penetrate at least five sands which are
14 prospective in the area.

15 With this open-hole completion they had an IP of
16 over 2 million a day, and it produced over 9 BCF. But
17 there's still substantial reserves yet to be recovered in
18 the area.

19 The Account 2 Number 52 is the middle log, where
20 there had been a Queen completion in 1961, in the South
21 Eunice Pool, but the well was P-and-A'd in 1994, and I
22 believe there are 16 sands in this well that we'll be able
23 to again target with our selective perforating, and we
24 expect to encounter substantial new reserves there too.

25 The right-hand log is an offset well currently

1 operated by ARCO Permian, the State "A" 157 Number 4. It
2 would be the south 40-acre offset to us. And as you can
3 see, they made about 12 individual holes, which are marked
4 with the little red arrows there on the borehole column.
5 There are seven additional sands within the Seven Rivers
6 that they did not hit, and this is kind of typical of the
7 early work that we saw that Rasmussen had done as well.
8 People were neglecting the Seven Rivers zones, although
9 there are a lot of good sands down through there.

10 ARCO also put a small frac on their well, and
11 they have produced about 2.2 BCF since 1972 and are
12 currently making just 41 MCF a day.

13 Q. Let's go to Exhibit Number 17 and review the
14 geological information on the Account 2 Well Number 78.

15 A. Now going up into the Section 5 area, looking at
16 the third recompletion that Raptor intends to do, on the
17 left-hand side is the Account 2 Number 35, originally
18 completed in 1946, in a stranger of a zone. It's within
19 the carbonate. You see this lower interval that was
20 perforated, approximately 3650. They initially potentialized
21 some oil, made some gas out of that. And then in 1958 they
22 added some more Yates up the hole, did a small frac on it
23 but from all the records I've found were unable to gain any
24 kind of incremental reserves out of that Yates completion.
25 This well was P-and-A'd in 1964.

1 The middle well is a newer well that Raptor has
2 drilled in the year 2000, and they completed that in the
3 South Eunice Pool. You can see the IP there was fairly
4 low. The well has been shut in and is just marginally
5 economic right now. We need to recomplete this well also
6 within the Jalmat interval and the Yates and Seven Rivers
7 as shown by the arrow on the left side of the log.

8 On the right side is one of the success stories
9 that Raptor has. This is a very old well, which was
10 originally drilled back in the 1940s, it was completed in
11 the lower interval of the Queen, and I had a little bit of
12 testing within some south Eunice zones -- I'm sorry, within
13 the lower Seven Rivers, which was unsuccessful.

14 And Raptor came in in October of 2000,
15 recompleted with the holes that are shown on the right-hand
16 side of the bar -- there are about 20 holes -- and frac'd
17 with 175,000 pounds of sand, an IP of over 500 MCF a day,
18 and we're expecting to have reserves of about .5 BCF out of
19 this well. Again, this well was surrounded by other
20 producers within the Jalmat zone, but is showing to us
21 again that we have substantial incremental reserves here
22 that can be recovered even on 40-acre spacing.

23 Q. Let's go now to Exhibit Number 18, and I'd ask
24 you to review the information on the State "A" Account 2
25 Well Number 81.

1 A. As we mentioned before, the 81 is our new-drill
2 well, and that's shown by the borehole picture there on the
3 left side of the center log.

4 The well on the left-hand side, again, shows the
5 kind of work which had been done by prior operators zeroing
6 in on the Yates sands. This well perforated about seven
7 sands of the available 17 sands in the well, had a small
8 frac, had an IP of over a million a day and has cum'd about
9 1.3 BCF.

10 The Account 2 Number 45 is a well that we would
11 like to re-enter to do this kind of recompletion work, but
12 this well was junked and abandoned in 1992 with parted
13 casing. The Queen had been the only zone that was tested
14 in this well, and the proposed Number 81 will be
15 approximately 50 feet north of the old Number 45 well,
16 again because we can't use the 45 for re-entry.

17 And on the right-hand side, the Account 2 Number
18 46 is another one of the successful re-entries that Raptor
19 did in 1999. After testing in the Seven Rivers and finding
20 no gas here, again, because of these discontinuities I've
21 been talking about, they proceeded up to the Yates and
22 perforated about the bottom half of the Yates sands, had an
23 IP of 500 MCF a day, again after doing a select fire within
24 about six sands in the Yates, and is expecting an EUR of
25 about .4 BCF from this well, again finding incremental

1 reserves in the area which was pretty much surrounded by
2 other marginal wells.

3 Q. Mr. Percy, what conclusions have you been able
4 to reach from your geological study of the two-spacing
5 units which are the subject of these cases?

6 A. I conclude that the Wells Number 31, 52 and 78
7 can be successfully re-entered, and the new Number 81. All
8 four of these wells are needed to adequately develop the
9 reserves under this acreage.

10 I can also conclude that the geological
11 discontinuity within the Yates and Seven Rivers sands
12 results in substantial variations from well to well and
13 therefore allows us a lot of incremental reserves that we
14 can recover by downspacing and recompleting these
15 individual wells.

16 With the current development plan that's in place
17 right now, these sands -- many of these sands -- have been
18 inadequately drained and have just not been produced, and
19 we need to drill all the wells on these spacing units and
20 proration units in order to effectively produce the
21 reserves.

22 Q. Will Raptor call an engineering witness to review
23 that portion of the case?

24 A. Yes.

25 Q. Were Exhibits 14 through 18 prepared by you?

1 A. Yes.

2 MR. CARR: Mr. Catanach, at this time we would
3 move the admission into evidence of Raptor Exhibits 14
4 through 18.

5 EXAMINER CATANACH: Exhibits 14 through 18 will
6 be admitted as evidence.

7 MR. CARR: And that concludes my direct
8 examination of Mr. Percy.

9 EXAMINATION

10 BY EXAMINER CATANACH:

11 Q. Mr. Percy, what's your experience with relation
12 to the predominant producing zones in these pools? Is it
13 the Yates that's the predominant?

14 A. Again, yes. The Yates has most of the net pay,
15 as you can see from a few of these logs, like the Number
16 78, being a modern log, in through here. And the Seven
17 Rivers, however, will still have a lot of substantial pay
18 to it.

19 But again, the Yates is so discontinuous when you
20 look at these individual sands, the reservoir development
21 from one well to another varies a lot. And that's why you
22 get surprises, usually you get some nice sand packages
23 developed where the neighboring wells don't have them.

24 Q. Now, you're saying that the sand is not present
25 in the offset wells, or that the sand is not of reservoir

1 quality?

2 A. It's more the latter case where you can trace an
3 interval that would include that sand, but it's not
4 reservoir quality. And in many cases, when they looked at
5 that, even based on the old logs, they would just overlook
6 it and not bother to perforate it, whereas nowadays we
7 recognize we may need to perforate even the zones that
8 don't look substantial, because getting away from the
9 wellbore they can be certainly reservoir quality.

10 Q. How do you guys determine which sands to
11 perforate?

12 A. Well, generally we'll use around 20 holes, as we
13 mentioned, and we just try and distribute those through the
14 sands that look the most prospective. In many cases, on
15 the new modern logs where we have good density neutron
16 signature across the zones that appear to be well charged,
17 we'll make sure to hit those adequately in order to get a
18 good frac, and then we'll distribute the rest of the 20
19 holes across the other zones which also look prospective.

20 Q. And in these wells where you're going to
21 perforate 17 sands or so, is it your opinion that each of
22 those sands will probably contribute something to the well?

23 A. Yes. We often don't know exactly which sand will
24 be giving us the reserves, but we're quite confident that
25 when you do have 15 or 17 sands in here, that hitting each

1 of them will give us some major reserves.

2 Q. Do you have an estimate as far as the 78 well, as
3 to how many sands you might perforate in that well?

4 A. I have 16 sands identified that we want to hit in
5 this well.

6 Q. Okay.

7 A. And in addition to that, the Tansil zone, which
8 is right above the Yates, is also included in the Jalmat
9 Pool. There are a few of the wells, like 78, where we had
10 a mud log or we had some nice shows, and we may want to add
11 in some of those zones as well. So a well like 78, that
12 could give us something upwards of 16, perhaps 18 different
13 zones we'll want to hit.

14 Q. Is the Tansil typically perforated in some of
15 these wells?

16 A. Typically, no, but there are several wells like
17 this open-hole completion that I showed you where it is
18 wide open right now, and operators seem to be paying more
19 attention to the Tansil at this point, particularly when
20 there are some good shows, although sands will be poor,
21 you're looking for dolomites there, and just about all our
22 development here, we're concerned with sands.

23 Q. Have you guys had any experience with water in
24 any of these zones?

25 A. Generally, no. There are times when we do get

1 some water, and previous operators have also recovered some
2 substantial amounts of water and just had to leave the
3 zone. So it will occur from time to time, and it's one of
4 those things which we don't quite have figured out yet.

5 There does not seem to be a well defined oil-
6 water or gas-water contact across the field, but
7 occasionally some wells, either because of inadequate
8 charging or perhaps because of poor casing integrity,
9 cementing jobs, will make a lot of water.

10 Q. As far as the Number 81 well, have you estimated
11 or can you estimate what you might perforate in that well?

12 A. We believe that's going to be very similar to the
13 Number 45. Get the right cross-section here. I've
14 identified 13 sands from the old-style neutron log that we
15 have here. I wouldn't be surprised if we find more than
16 that once we get a modern density neutron. And then we
17 have the whole interval, the Yates and Seven Rivers, to
18 look at.

19 Q. Now, as far as the sand quality, that could vary
20 from a 40-acre tract to the next 40-acre tract; is that
21 right?

22 A. Yes, sir, I certainly want to stress that. We've
23 seen that time and time again with our redevelopment
24 program.

25 EXAMINER CATANACH: Okay, I have nothing further.

1 Any questions?

2 Okay, this witness may be excused.

3 MR. CARR: Mr. Catanach, at this time we would
4 like to recall John Lawrence and would ask that the record
5 reflect that Mr. Lawrence remains under oath and that his
6 qualifications have been accepted.

7 EXAMINER CATANACH: The record shall reflect that
8 Mr. Lawrence has been previously qualified and sworn in.

9 JOHN J. LAWRENCE (Recalled),
10 the witness herein, having been previously duly sworn upon
11 his oath, was examined and testified as follows:

12 DIRECT EXAMINATION

13 BY MR. CARR:

14 Q. Mr. Lawrence, you're familiar with the
15 Applications filed in each of the cases which are now
16 before the Division for hearing?

17 A. Yes, I am.

18 Q. And have you made an engineering study of the
19 area which is the subject of each of those Applications?

20 A. Yes, I have.

21 Q. And you're prepared to share the results of that
22 work with Mr. Catanach?

23 A. That is correct.

24 Q. Let's take a look at Exhibits 19, 20, 21 and 22,
25 and I'd ask you to identify what those are.

1 A. Basically, the exhibits that you just referred to
2 show all of the offset locations to the proposed well that
3 we would like to do the work on. Again, what we do is go
4 back in and identify what intervals the offsets are
5 currently producing out of, what kind of treatment was done
6 on those wells, what the cumulative production totals from
7 the offsets actually are, and then what the current
8 producing rate from those wells is.

9 Q. This is the same approach that you reviewed a few
10 minutes ago in regard to the Number 127 well?

11 A. That is correct. Every well that we do in our
12 evaluation process, we -- if indeed it is an old, existing
13 well, we'll look at the log characteristics, do a
14 geological overview of it, then we turn around and go
15 perform a review of all the offset locations to that
16 particular well.

17 Q. Basically what you're doing is taking an
18 arbitrary 40-acre spacing unit on every 40 acres
19 surrounding the subject 40 and then looking at the wells on
20 those to evaluate their performance and their performance
21 history?

22 A. That is correct.

23 Q. Okay. Let's go to these exhibits, and I'd ask
24 you to go through them and explain to us what they show.

25 A. Exhibit Number 19 would be for the proposed

1 Account 2 Number 31 re-entry/recompletion. Currently the
2 Account 2 Number 31 is a P-and-A'd wellbore.

3 When you look at the offsets to this particular
4 well, again most of the production is very marginal. You
5 have wells that are producing 25, 30 MCF a day. The
6 Account 2 Number 30 is an exception to that, as is the
7 Account 2 Number 40. Those are two wells that Raptor has
8 recompleted since we have purchased the acreage.

9 Again, you can see the production from the old
10 existing wells is fairly marginal. We've been able to come
11 back in and identify additional sand zones that we think
12 have potential. You couple that with the fact -- you look
13 at the older completions, you have frac jobs ranging from
14 20,000, 16,000 pounds of sand, 20,000 pounds of sand to
15 36,000 pounds of sand, which when you look at the overall
16 productive interval out of that well, you're getting very
17 little stimulation out to the reservoir.

18 That's one of the reasons that we think that
19 there are additional reserves to be recovered by enhancing
20 the stimulation that we're currently doing and then also
21 picking up and collecting these other intervals that were
22 not completed in the offsets.

23 Q. Let's go to Exhibit Number 20. Review the
24 information on the State Account 2 Number 52 well.

25 A. Again, this shows all the offsets located to us.

1 In this particular exhibit you can see there are a couple
2 of wells here that have absolutely nothing completed within
3 the Seven Rivers interval. Production on the Number 48 was
4 a well that was done by Raptor.

5 The other wells in the immediate area that are
6 Raptor-operated are fairly marginal-type wells, and then
7 the offset operators, offset wells that ARCO operates, are
8 typically fairly marginal-type wells. And again, there is
9 a tremendous variation as to how those offsets were
10 completed to -- a natural stimulation to a very small frac.
11 Typical of the completions that we're using, we're using
12 175,000 to 190,000 pounds of sand on our new completion
13 procedures.

14 Q. All right, let's go to the State Account 2 Number
15 78 well, Exhibit Number 21.

16 A. Exhibit Number 21 is for the Account 2 Number 78
17 well. Again, very little associated offset production to
18 this particular well. The only well that has significant
19 reserves being produced would be the Account 2 Well Number
20 2 in 5L, currently producing at a rate of 196 MCF a day.
21 All the other offsets are either TA'd, P-and-A'd or very
22 marginal producers right now.

23 Again, on this particular exhibit you can see a
24 number of the wells here were just producing out of the
25 Yates where the Seven Rivers was completely bypassed.

1 Again, tremendous difference or discrepancies as to the
2 completion procedure and treatment that was performed on
3 those well. A frac with 20,000 pounds of sand is a very,
4 very small stimulation treatment, considering the net pay
5 interval that you're trying to complete in here.

6 Q. All right, let's go to your last exhibit, Exhibit
7 22, and I'd ask you to review the information on the State
8 Account 2 Well Number 81.

9 A. Well Number 81, there is some substantial
10 production offsetting that particular well. Again, that
11 production comes from wells that Raptor has done here over
12 the last year and a half, two years. All these wells in
13 this particular area were either TA'd, inactive or marginal
14 Queen producers at the time.

15 And by coming back in, identifying through
16 selective perforations the zones that we think have
17 significant potential and putting a newer completion on
18 those wells, we have been able to develop significant
19 reserves that would have been bypassed or never produced,
20 had we not come back in on this density and done the work
21 that we have performed on the property.

22 Q. In your opinion, will the reserves that will be
23 obtained by the either recompletion or drilling of the four
24 subject wells, will these be incremental reserves?

25 A. Yes, they will be incremental reserves.

1 Q. Mr. Lawrence, many of the locations for wells in
2 the redevelopment program of Raptor and others are at
3 unorthodox locations. Can you explain the reasoning or the
4 factors that dictate these locations?

5 A. Basically, the work that Raptor is presently
6 doing, there is approximately 1320 feet in between each
7 particular location that we're working with right now.
8 Locations are also dictated by geologic factors that I
9 think Mr. Percy has identified and the nature of the
10 reservoir.

11 We recently drilled two infill wells that are
12 basically offsets to each other. One of the wells had
13 approximately 100 net feet of pay in the Yates, the other
14 well had 17 net feet of pay in the Yates, and those are
15 offset 40 locations to each other.

16 So again, I think there is a tremendous
17 difference in what you see on 40-acre units within the
18 reservoir, and the more work that we have done out there, I
19 think, it's been very conclusive as to identifying the
20 lenticular nature of the reservoir, the sands and the
21 development of those sands, and then taking into
22 consideration too how the older wells were historically
23 treated, that there are a lot of reserves still left in the
24 reservoir.

25 Q. In your opinion, if these wells are not drilled,

1 will reserves be left in the ground, thereby causing waste?

2 A. Yes.

3 Q. In your opinion, are each of these wells
4 necessary to produce the remaining reserves under these two
5 spacing units in the Jalmat Gas Pool?

6 A. Yes, that is the case.

7 Q. Will approval of this Application afford Raptor
8 Resources, Inc., the opportunity to efficiently and
9 economically drain each of the subject proration units,
10 thereby preventing waste and protecting correlative rights?

11 A. Yes, we believe that's the case. We believe that
12 with the success that Raptor has had, tying that back to
13 the success that the previous operator has had, that there
14 is no evidence of accelerated production based on these
15 infill locations and that these are indeed incremental
16 reserves that we are producing out of the reservoir. When
17 you go back in and you look at the historical production
18 curve of the property, these reserves, had the work not
19 been done, would never have been produced.

20 Q. Were Raptor Exhibits 19 through 22 prepared by
21 you?

22 A. Yes, they were.

23 MR. CARR: At this time, Mr. Catanach, I would
24 move the admission into evidence of Raptor Resources
25 Exhibits 19 through 22.

1 EXAMINER CATANACH: Exhibits 19 through 22 will
2 be admitted as evidence.

3 MR. CARR: And that concludes my direct
4 examination of Mr. Lawrence.

5 EXAMINATION

6 BY EXAMINER CATANACH:

7 Q. Mr. Lawrence, your new drill, the Well Number 81,
8 is that an unorthodox location for this pool? It's
9 advertised as such.

10 A. I believe it is.

11 Q. And the reason that that is unorthodox -- or the
12 reason you want to drill at that location is based on what
13 factors?

14 A. Well, that particular wellbore was an old Queen
15 wellbore, it's not re-enterable, and so what we did was
16 come in, and we're just going to offset that old existing
17 wellbore to have access to the Yates and Seven Rivers.

18 Q. Okay, is that basically because there's not a
19 wellbore on that 40-acre tract at this time?

20 A. That you -- yeah, the existing wellbore is
21 P-and-A'd, and it's not re-enterable.

22 Q. Okay. On your Exhibit Number 22 for the -- Let's
23 see, this would be for the 81 well, right?

24 A. That's correct.

25 Q. Okay, I notice the Well Number 34, is that

1 currently a Raptor well?

2 A. Yes, it is.

3 Q. And that's producing 633 MCF per day?

4 A. That is correct.

5 Q. I'm curious, have you done a drainage area on
6 that well to see what that thing's draining?

7 A. I don't remember in particular to the 34 if we
8 have. We have looked at a number of the wells, but
9 specific to that one, I can't answer that question, I don't
10 know.

11 Q. So you can't tell me whether or not that's
12 draining more than 40 acres?

13 A. I'd have to go back and look. It's something I
14 don't have access to now, and I can't remember offhand. We
15 have done that on a significant number of wells, but that
16 one I just can't remember.

17 Q. But it's your opinion that that well will not
18 sufficiently drain your acreage that you're proposing to
19 locate the new well on?

20 A. I don't think there's any question of that,
21 because you don't see -- With the other wells in this
22 immediate area, there has been no significant decline or
23 alteration in the production which that, you know, those
24 are indeed incremental reserves.

25 The stimulation that we're doing is fairly

1 limited in nature. You know, we're only frac'ing out in
2 the reservoir what we think -- drain a couple hundred feet
3 from the wellbore, 200 to 300 feet. And when the wells are
4 approximately 1300 feet apart, we feel that we are draining
5 a fairly small area.

6 Q. Okay, can I get you to submit another exhibit
7 that shows each well on each of the proration units and
8 what its current rate is and -- kind of the same
9 information you've got on these --

10 A. Uh-huh.

11 Q. -- except with just the wells on each of the
12 proration units?

13 A. Sure.

14 Q. Because I'd like to see what those wells are
15 producing?

16 A. Sure, current rate.

17 EXAMINER CATANACH: Yeah, basically the
18 information you've got on here, but just for the wells on
19 the proration unit, on each of the proration units.

20 Okay, we have no further questions of this
21 witness, Mr. Carr.

22 MR. CARR: Thank you, Mr. Catanach, that
23 concludes our presentation in this case.

24 I would request that Case 12,678 be continued and
25 readvertised for the July 12th Examiner Hearing.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

EXAMINER CATANACH: Okay, Mr. Carr, Case 12,678 will be continued to the July 12th meeting.

MR. CARR: And we will provide an amended order -- or Application, and legal advertisement.

EXAMINER CATANACH: Okay, and Case 12,679 will be taken under advisement at this time.

Let's take a 15-minute break here.

(Thereupon, these proceedings were concluded at 9:48 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12678/12679 heard by me on July 14 1968.
Dwight E. Hunt, Examiner
Of 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 16th, 2001.



STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 2002